
2023/2025 Cost of Production

Bison Bull Backgrounding



Guidelines For Estimating **Bison Bull Backgrounding Costs**

For Weight Range of 480 - 800 lbs
Based on 300 Head

Date: October, 2022

This guide is designed to provide you with planning information and a format for calculating costs of production of a bison bull backgrounding enterprise in Manitoba. General Manitoba Agriculture recommendations are assumed in using feed and veterinary inputs. These figures provide an economic evaluation of the livestock and estimated prices required to cover all costs. Costs include labour, investment and depreciation, but do not include management costs, nor do they necessarily represent the average cost of production in Manitoba.

Backgrounding generally refers to the feeding of calves from weaning until they are put onto a high concentrate finishing ration. An example of a typical backgrounding operation would be, feed 480 pound bulls to gain 1.25 to 2.0 pounds per day for approximately 100-200 days to produce 750 to 850 pound backgrounded feeders.

These budgets may be adjusted by putting in your own figures. As a producer you are encouraged to calculate your own costs of production. Good management is assumed in that a balanced ration is being fed, livestock are on a herd health program and handling facilities are included.

This tool is available as an Excel worksheet at:



[The Farm Machinery Custom and Rental Rate Guide](#) is also available to help determine machinery costs.

Note: This budget is only a guide and is not intended as an in-depth study of the cost of production of this industry. Interpretation and use of this information is the responsibility of the user. If you need help with a budget, contact a Farm Management Specialist.

Bison Bull Backgrounding Production Cost Summary October, 2022
 Based on 300 feeders, weight range 480 to 800 lbs, @ 1.45 lbs. ADG

A. Operating Costs	<u>Cost/Head</u>	<u>Total Cost</u>	<u>Your Cost</u>
1. Feed Costs			
1.01 Forage	\$80.80	\$24,240	_____
1.02 Grain/Concentrate	\$70.80	\$21,240	_____
1.03 Salt & Minerals	\$9.04	\$2,713	_____
Total Feed Costs	\$160.64	\$48,193	_____
2. Other Operating Costs			
2.01 Feeder Cost	\$996.35	\$298,906	_____
2.02 Straw	\$7.00	\$2,100	_____
2.03 Pasture Costs	\$151.20	\$45,360	_____
2.04 Veterinary Medicine & Supplies	\$9.54	\$2,862	_____
2.05 Annual Fuel & Repair Costs	\$13.11	\$3,932	_____
2.06 Utilities	\$3.68	\$1,104	_____
2.07 Trucking Costs	\$19.09	\$5,727	_____
2.08 Insurance	\$6.48	\$1,944	_____
2.09 Manure Removal	\$11.89	\$3,567	_____
2.10 Barn & Office Supplies	\$4.67	\$1,401	_____
2.11 Death Loss	\$17.71	\$5,313	_____
Subtotal Operating Costs	\$1,401.36	\$420,409	_____
2.12 Operating Interest	\$55.26	\$16,579	_____
Total Operating Costs	\$1,456.63	\$436,988	_____
B. Fixed Costs			
3. Depreciation			
3.01 Buildings	\$14.33	\$4,299	_____
3.02 Equipment	\$4.27	\$1,281	_____
3.03 Machinery	\$10.84	\$3,252	_____
4. Investment			
4.01 Buildings	\$4.30	\$1,290	_____
4.02 Machinery & Equipment	\$4.76	\$1,428	_____
Total Fixed Costs	\$38.50	\$11,550	_____
Total Operating and Fixed Costs	\$1,495.13	\$448,538	_____
C. Labour	\$78.00	\$23,400	_____
Total Cost of Production	\$1,573.13	\$471,938	_____

Profitability and Breakeven Analysis

Estimated Farmgate	<u>Per Head</u>	<u>Total</u>
Gross Revenue @ \$180/cwt market price	\$1,382.40	\$414,720
Operating Expense Ratio	105.4%	

	<u>Breakeven Purchase</u> Price (\$/cwt) @ \$180/cwt market price	<u>Breakeven Selling</u> Price (\$/cwt) @ \$205/cwt feeder price	
Operating Costs	\$192.11	\$189.66	_____
Operating Costs & Labour	\$175.86	\$199.82	_____
Operating & Fixed Costs	\$184.09	\$194.68	_____
Total Costs	\$167.84	\$204.83	_____

	<u>Cost per lb of</u> <u>gain sold (\$/cwt)</u>	<u>Marginal Returns per head</u> <u>@ \$180/cwt market price</u>	
Feed Costs	\$55.78	\$225.40	_____
Operating Costs	\$159.82	(\$74.23)	_____
Operating Costs & Labour	\$186.90	(\$152.23)	_____
Operating & Fixed Costs	\$173.19	(\$112.73)	_____
Total Costs	\$200.27	(\$190.73)	_____

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Risk & Sensitivity Analysis (Stress Test)

Percent Market Price Change	-10.0%
Percent Feed Cost Change	10.0%
Percent Feeder Cost Change	5.0%

	Per Head
Market Price (\$ per cwt)	\$162.00
Feed Cost	\$176.71
Feeder Cost	\$1,046.17

Stress Test Scenario = Market Price Down 10%, Feed Price Up 10% and Feeder Cost Up 5%

Operating Costs	\$1,522.51
Total Costs	\$1,639.01
Gross Revenue / feeder	\$1,244.16
Marginal Returns	
Over Operating Costs	(\$278.35)
Over Operating & Labour Costs	(\$356.35)
Over Total Costs (Net Profit)	(\$394.85)
Operating Expense Ratio	122.4%

Estimated Breakeven Canadian Dollar Analysis*

	Est. Market Price (\$/cwt Cdn) @ 0.7300 Cdn per USD				
	\$170.00	\$175.00	\$180.00	\$185.00	\$190.00
Breakeven CDN Dollar (\$1 Cdn = \$ USD)					
Operating Costs	0.6543	0.6736	0.6928	0.7120	0.7313
Operating & Labour Costs	0.6211	0.6393	0.6576	0.6759	0.6941
Operating, Fixed & Labour Costs	0.6059	0.6237	0.6415	0.6593	0.6771

Breakeven Canadian Dollar = (Est. Market Price (\$/lb) x Shrunken Wt. (lbs) x \$ Cdn per USD) / Cost
 (eg. (\$1.80 x 768 lbs x \$0.7300) / \$1573.13) = \$0.6415

Note: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user.

Herd Health Program	
Professional Services	
Total Yearly Hours	1 hours
Rate	\$175.00 /hour

Transportation	
Total Distance (round trip)	160 km
Charge per km	\$1.00
Number of yearly visits	1

Annual Fuel & Repair Costs

a) Machinery Fuel Costs - Winter Feeding	
Tractor with Loader PTO hp	120
Diesel Fuel Cost	\$1.65 /litre
Tractor Hours Per Day (average)	1.00 hours
b) Machinery Repair (% of investment cost)	1.00 %
c) Building & fence repair (% of investment cost)	2.00 %

Utilities

- Rate		\$0.09324 / kWh
12 kWh per feeder		\$335.66
1 1000 watt waterer		\$169.51
	Total Hydro	\$505.17
Water		\$0.00
Telephone		\$600.00

Trucking to Feedlot

Distance to packing plant	150 miles
Trucking cost	\$7.00 /loaded mile
Number of head per load	85

Trucking Cost

Trucking cost	Rate/loaded mile	\$7.00 /loaded mile
	Milage, distance to market	150 miles
	Truck capacity # head	55 head

Manure Removal

Manure volume produced	0.024 m ³ /feeder/day
Manure volume shrinkage	75 %
Cost for manure removal & application	\$15.00 /cubic yard

Insurance

Cost per \$100 Capital Invested in:	
Livestock	\$0.45
Buildings & Equipment	\$0.40
Additional Coverage for Liability	\$49.00

Barn & Office Supplies

Total yearly expense relating to barn **\$1,400.00**

Operating Interest Rate

7.75 %

Investment Interest Rate

3.00 %

Footnote: cwt = hundred-weight = 100 lbs

Capital Costs

	Original Value	Salvage Value	Useful Life
Handling Facilities			
Land & Landscaping	\$10,000		
Waterers	\$6,000		
Squeeze, Gates & Scale	\$20,000		
Well & Pressure System	\$8,000		
Pens (Working & Sorting)	\$42,000		
Total Building Cost	\$86,000	0 %	20 years
Equipment			
Self Feeder	\$27,000		
Hay Feeders	\$2,500		
Miscellaneous	\$2,500		
Total Equipment Cost	\$32,000	0 %	25 years
Machinery			
Tractors & Loader (\$120,000 @ 30%)	\$36,000	20 %	15 years
Miscellaneous	\$20,000	20 %	10 years
Total Capital Investment	\$174,000		

Labour Costs

Hours **3.0** head/year
 Wage **\$26.00** /hour

Bison Bull Backgrounding Cost Worksheet Based on 300 head

Assumptions

1. This budget assumes the weaning and/or purchase weight of bison bull calves to be approximately 480 lbs and finish weight to be 800 lbs.
2. This budget assumes a shrink of 4 %. Shrunk Weight weight = 768 lbs.
3. Average Daily Gain = 1.45 lbs per day.
4. Time frame from start to finish is approximately 221 days, 101 days backgrounding ration and 120 days pasture.
5. Grain ration if used is prepared (minerals and salt included).
6. This budget is based an a backgrounding enterprise of 300 bulls.

A. Operating Costs

				<u>Your Cost</u>
1. Feed Costs				
1.01 Forage				
Grass Hay	101	days on feed		
x	16.0	lbs/feeder/day		
x	<u>\$0.050</u>	/lb		
=	\$80.80	/feeder		
Silage	101	days on feed		
x	0.0	lbs/feeder/day		
x	<u>\$0.00</u>	/lb		
=	\$0.00	/feeder		
Other forage	101	days on feed		
x	0.0	lbs/feeder/day		
x	<u>\$0.00</u>	/lb		
=	\$0.00	/feeder		
=	\$80.80	/feeder		
1.02 Grain/Concetrates				
x	101	days on feed		
=	3.5	lbs/feeder/day		
=	0.177	tons fed		
x	<u>\$0.200</u>	/lb		
=	\$70.80	/feeder		

Your Cost

1.03 Salt & Minerals

		3.5	lbs salt/year	
	x	<u>\$0.14</u>	<u>\$/lb</u>	
	=	\$0.49	/feeder	
		9.4	lbs mineral/year	
	x	<u>\$0.91</u>	<u>\$/lb</u>	
	=	\$8.55	/feeder	
	=	\$9.04	/feeder	

2. Other Operating Costs

2.01 Feeder Bison Cost

		480	lbs/feeder	
	x	\$205.00	/cwt	
	÷	<u>100</u>	<u>lbs/cwt</u>	
	=	\$984.00	/feeder	
		150	miles	
	x	\$7.00	\$/loaded mile	
	÷	<u>85</u>	<u>head load capacity</u>	
	=	\$12.35	/feeder	
	=	\$996.35	/feeder	

2.02 Straw

		0.10	tonnes/feeder/year	
	x	<u>\$70.00</u>	<u>/tonne</u>	
	=	\$7.00	/feeder	

2.03 Pasture Costs

		\$1.26	\$/head/day	
	x	<u>120</u>	<u>days on pasture</u>	
	=	\$151.20	/feeder	

2.04 Veterinary Medicine & Supplies

Medication

		\$0.83	blackleg	
	+	\$0.00	vitamin	
	+	<u>\$7.60</u>	<u>parasite control</u>	

			Your Cost
	=	\$8.43 /feeder	<hr/> <hr/>
Herd health program			
		\$175.00 /hour charge	<hr/>
x		1.0 hours	<hr/>
÷		<u>300</u> feeders	<hr/>
=		\$0.58 /feeder	<hr/> <hr/>
Mileage			
		\$1.00 /km charge	<hr/>
x		160 kilometres	<hr/>
x		1 visits	<hr/>
÷		<u>300</u> feeders	<hr/>
=		\$0.53 /feeder	<hr/> <hr/>
Total	=	\$9.54 /feeder	<hr/> <hr/>

2.05 Annual Fuel & Repair Costs

Machinery fuel cost

		120 PTO hp	<hr/>
÷		2.5 avg HP required	<hr/>
x		0.1665576 litres fuel/hour/hp	<hr/>
x		1.0 hours per day	<hr/>
x		\$1.65 diesel / litre	<hr/>
x		<u>101</u> days on feed	<hr/>
		\$1,332.33 annual fuel cost	<hr/>
÷		<u>300.00</u> feeders	<hr/>
=		\$4.44 /feeder	<hr/> <hr/>

Machinery repair & maintenance

		\$88,000 machinery capital cost	<hr/>
x		<u>1.00</u> % repair rate	<hr/>
=		\$880.00 oil, repairs & maintenance	<hr/>
÷		<u>300.00</u> feeders	<hr/>
=		\$2.93 /feeder	<hr/> <hr/>

Building & fence repair

		\$86,000 building capital cost	<hr/>
x		<u>2.00</u> % repair rate	<hr/>
=		\$1,720.00 oil, repairs & maintenance	<hr/>
÷		<u>300.00</u> feeders	<hr/>
=		\$5.73 /feeder	<hr/> <hr/>

Total	=	\$13.11 /feeder	<hr/> <hr/>
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Your Cost

2.06 Utilities

$$\begin{aligned}
 & \$1,105 \text{ cost/year} \\
 \div & \quad \underline{300} \text{ feeders} \\
 = & \quad \mathbf{\$3.68} \text{ /feeder}
 \end{aligned}$$

2.07 Trucking Costs

$$\begin{aligned}
 & \$7.00 \text{ \$/loaded mile} \\
 \times & \quad 150 \text{ distance miles} \\
 \div & \quad \underline{55} \text{ head load capacity} \\
 = & \quad \mathbf{\$19.09} \text{ /feeder}
 \end{aligned}$$

2.08 Insurance

$$\begin{aligned}
 & \$154,000 \text{ building \& equipment investment} \\
 \times & \quad \$0.40 \text{ cost/\$100 capital} \\
 \div & \quad 100 \\
 \div & \quad \underline{300} \text{ feeders} \\
 = & \quad \$2.05 \text{ /feeder}
 \end{aligned}$$

$$\begin{aligned}
 & \$984 \text{ feeder investment} \\
 \times & \quad \$0.45 \text{ cost/\$100 capital} \\
 \div & \quad \underline{100} \\
 = & \quad \$4.43 \text{ /feeder}
 \end{aligned}$$

Total = **\\$6.48 /feeder**

2.09 Manure Removal

$$\begin{aligned}
 = & \quad 101 \text{ days on feed} \\
 \times & \quad 0.024 \text{ m}^3\text{/feeder/day} \\
 = & \quad 2.42 \text{ m}^3 \text{ manure volume} \\
 \times & \quad 75 \text{ \% volume shrink} \\
 \times & \quad 1.30795 \text{ yd}^3 \text{ per m}^3 \\
 \underline{\times} & \quad \underline{\$15.00} \text{ yd}^3 \text{ manure removal cost} \\
 = & \quad \mathbf{\$11.89} \text{ /feeder}
 \end{aligned}$$

2.10 Barn & Office Supplies

$$\begin{aligned}
 & \$1,400 \text{ total barn expenses} \\
 \div & \quad \underline{300} \text{ feeders} \\
 = & \quad \mathbf{\$4.67} \text{ /feeder}
 \end{aligned}$$

2.11 Death Loss

\$996.35 feeder cost

			Your Cost
+	\$1,383.65	maximum value	
-	\$19.09	marketing costs	
÷	2.00	average value	
x	<u>1.5</u>	<u>% mortality</u>	
=	\$17.71	/feeder	

2.12 Operating Interest

	\$984.00	feeder cost	
+	\$193.65	½ of feed & other costs	
x	7.75	% operating interest	
x	221	days on feed	
÷	<u>365</u>	<u>365 days per year</u>	
=	\$55.26	/feeder	

Capital Investment

Handling Facilities

Land & Landscaping	\$10,000	
Waterers	\$6,000	
Squeeze, Gates & Scale	\$20,000	
Well & Pressure System	\$8,000	
Pens (Working & Sorting)	<u>\$42,000</u>	
Total Building Cost	\$86,000	

Machinery & Equipment

Self Feeder	\$27,000	
Hay Feeders & Miscellaneous	\$2,500	
Miscellaneous	\$2,500	
Tractor & Loader	\$36,000	
Miscellaneous	<u>\$20,000</u>	
Total	\$88,000	

Total Capital Investment	\$174,000	
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B. Fixed Costs

3. Depreciation

$$\frac{\text{Original Cost} - \text{Salvage Value}}{\text{Useful Life}}$$

3.01 Buildings

\$86,000	original value	
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Your Cost

-	\$0	salvage value	_____
÷	20	years useful life	_____
÷	<u>300</u>	<u>feeders</u>	_____
=	\$14.33	/feeder	_____

3.02 Equipment

	\$32,000	original value	_____
-	\$0	salvage value	_____
÷	25	years useful life	_____
÷	<u>300</u>	<u>feeders</u>	_____
=	\$4.27	/feeder	_____

3.03 Machinery

	\$56,000	original value	_____
-	\$7,200	salvage value	_____
÷	15	years useful life	_____
÷	<u>300</u>	<u>feeders</u>	_____
=	\$10.84	/feeder	_____

4. Investment

$$\frac{\text{Original Cost} + \text{Salvage Value}}{2} \times \text{Investment Rate}$$

4.01 Buildings

	\$86,000	total building value	_____
+	\$0	salvage value	_____
÷	2	average	_____
x	3.00	% investment interest	_____
÷	<u>300</u>	<u>feeders</u>	_____
=	\$4.30	/feeder	_____

4.02 Machinery & Equipment

	\$88,000	original value	_____
+	\$7,200	salvage value	_____
÷	2	average	_____
x	3.00	% investment interest	_____
÷	<u>300</u>	<u>feeders</u>	_____
=	\$4.76	/feeder	_____

C. Labour

	3.0	hours/feeder/year	_____
x	<u>\$26.00</u>	<u>/hour</u>	_____
=	\$78.00	/feeder	_____

Breakeven Calculations

Cost per lb of gain sold (shrunk weight)			
Feed Costs	\$160.64	feed cost	_____
	÷	<u>288</u>	<u>lbs gained weight</u>
	=	\$0.56	/lb (gain sold)
Operating Costs	\$1,456.63	operating costs	_____
	-	\$996.35	feeder cost
	÷	<u>288</u>	<u>lbs gained weight</u>
	=	\$1.60	/lb (gain sold)
Operating & Labour Costs	\$1,534.63	operating costs	_____
	-	\$996.35	feeder cost
	÷	<u>288</u>	<u>lbs gained weight</u>
	=	\$1.87	/lb (gain sold)
Operating & Fixed	\$1,495.13	oper. & fixed costs	_____
	-	\$996.35	feeder cost
	÷	<u>288</u>	<u>lbs gained weight</u>
	=	\$1.73	/lb (gain sold)
Total Costs	\$1,573.13	total costs	_____
	-	\$996.35	feeder cost
	÷	<u>288</u>	<u>lbs gained weight</u>
	=	\$2.00	/lb (gain sold)
Breakeven selling price (shrunk weight)			
Operating Costs	\$1,456.63	operating costs	_____
	÷	<u>768</u>	<u>lbs shrunk weight</u>
	=	\$1.90	/lb
Operating & Labour Costs	\$1,534.63	operating & labour	_____
	÷	<u>768</u>	<u>lbs shrunk weight</u>
	=	\$2.00	/lb
Operating & Fixed	\$1,495.13	oper. & fixed costs	_____
	÷	<u>768</u>	<u>lbs shrunk weight</u>
	=	\$1.95	/lb
Total Costs	\$1,573.13	total costs	_____
	÷	<u>768</u>	<u>lbs shrunk weight</u>
	=	\$2.05	/lb

Breakeven purchase price (shrunk weight)

Operating Costs

	768	lbs shrunk weight	_____
x	\$180.00	\$/cwt selling price	_____
=	\$1,382.40	income	_____
-	\$460.27	operating less feeder cost	_____
÷	<u>480</u>	<u>lbs purchase weight</u>	_____
=	\$1.92	/lb	_____

Operating & Labour Costs

	768	lbs shrunk weight	_____
x	\$180.00	\$/cwt selling price	_____
=	\$1,382.40	income	_____
-	\$538.27	operating less feeder cost	_____
÷	<u>480</u>	<u>lbs purchase weight</u>	_____
=	\$1.76	/lb	_____

Operating & Fixed

	768	lbs shrunk weight	_____
x	\$180.00	\$/cwt selling price	_____
=	\$1,382.40	income	_____
-	\$498.77	op. & fixed less feeder cost	_____
÷	<u>480</u>	<u>lbs purchase weight</u>	_____
=	\$1.84	/lb	_____

Total Costs

	768	lbs shrunk weight	_____
x	\$180.00	\$/cwt selling price	_____
=	\$1,382.40	income	_____
-	\$576.77	total less feeder cost	_____
÷	<u>480</u>	<u>lbs purchase weight</u>	_____
=	\$1.68	/lb	_____

October, 2022

Contact Us

For more information, contact a Farm Management Specialist.

- manitoba.ca/agriculture
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