

# Guidelines For Estimating Bison Heifer Production Costs Based on 60 Head

Date: January, 2002

This guide is designed to provide you with planning information and a format for calculating costs of production of a bison heifer enterprise. The production costs included in this enterprise budget is not a cost study of the bison industry in Manitoba, they are estimated costs based on accepted production practices and current market conditions.

The budget estimates are based on a number of assumptions which are clearly defined in the supporting pages. Input costs are based on recommended practices and/or information obtained from producers. Good management is assumed in that a balanced feeding program is being followed, bison are on a herd health program and handling facilities are included.

The guideline can be useful for comparison purposes. Comparison of costs at different levels of production can be made with other farms, the farm over a period of time or comparing the plan with the actual results at the end of the planning period.

The budget may be adjusted to reflect your own unique situation by substituting your own figures in the appropriate places. Each bison producer is encouraged to determine their own costs based on their own inputs, pasture program and level of management.

Also available, on the Manitoba Agriculture and Food website, is an Excel spreadsheet and it can be downloaded from the following address:

**<http://www.gov.mb.ca/agriculture>**.

## Bison Heifer Production Costs - Input

### Assumptions

1. This budget is based on the purchase of 60 bison heifers and 4 bison bulls. For purposes of this budget the bulls are purchased in the 2nd year and sold at the end of the breeding season.
2. The time frame, from purchase of the heifer calves to sale of replacements heifers, is 605 days.

### HERD PROFILE

Number of Replacements	<b>60</b>
Number of Bulls	<b>4</b>
Mortality Rate (%)	<b>1</b>
Calf Market Price \$ /cwt	<b>1,000</b>
Days on Feed	<b>605</b>

### FEED COSTS & REQUIREMENTS

	Feed Cost	Feed Requirement	
	<u>\$/unit</u>	<u>Amount</u>	<u>Days</u>
<b>Year 1</b>			
Grain	<b>\$0.07</b> /lb	<b>3</b> lbs/day	<b>120</b>
Hay	<b>\$40.00</b> /ton	<b>1.25</b> tons/yr	n/a
Salt	<b>\$0.14</b> /lb	<b>7</b> lbs/yr	n/a
Minerals	<b>\$0.40</b> /lb	<b>10</b> lbs/year	n/a
<b>Year 2</b>			
Grain	<b>\$0.07</b> /lb	<b>4</b> lbs/day	<b>80</b>
Hay	<b>\$40.00</b> /ton	<b>2.10</b> tons/yr	n/a
Salt	<b>\$0.14</b> /lb	<b>11</b> lbs/yr	n/a
Minerals	<b>\$0.40</b> /lb	<b>14</b> lbs/year	n/a
<b>Straw:</b>			
Number of tons/heifer		<b>1.00</b>	
Number of tons/bull		<b>0.50</b>	
Cost/Ton		<b>\$24.00</b>	
<b>Veterinary Medicine &amp; Supplies:</b>			
<b>CALF MEDICATION</b>			
Blackleg ( 8 way vaccine )		<b>\$0.86</b>	
Vitamin		<b>\$0.53</b>	
Parasite Control		<b>\$3.10</b>	
<b>COW MEDICATION:</b>			
Parasite Control		<b>\$10.00</b>	
Scourguard		<b>\$0.00</b>	
Footrot, louse control, de-grubbing, surgery, antibiotics, etc.		<b>\$0.00</b>	
ADE, 2 treatments		<b>\$0.00</b>	
<b>Bull MEDICATION:</b>			
Parasite Control		<b>\$12.00</b>	
Semen Test		<b>\$0.00</b>	

**HERD HEALTH PROGRAM:**

## Professional Services:

Total Yearly Hours	3
Charge per Hour	\$90.00

## Transportation:

Total Kilometers (round trip)	160
Charge per km	\$0.90
Number of yearly visits	1

**BREEDING COSTS**

Veterinary Medicine/Bull	\$20.00
	\$53.00

## Replacement of Bulls

Original Cost/Bull	\$5,500.00
Salvage Value/Bull	\$4,500.00

Pasture Cost/Bull	\$0.00
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**TABLE 5. FUEL, OIL, REPAIRS & MAINTENANCE**

a) Machinery - fuel costs	\$200.00
- repairs	\$200.00
b) Buildings, Fences etc.	\$800.00

**TABLE 6. OTHER OPERATING COSTS**

Utilities	
Hydro	\$700.00
Water	\$0.00
Telephone	\$0.00

Trucking:	mileage (miles)	100
	rate (\$/loaded mile)	\$3.00
	capacity (head/load)	42

## Operating Interest:

Bank Rate on Deposits (%)	4.0
Bank Rate on Borrowing (%)	6.0

## Insurance:

Cost per \$100 Capital Invested in	
a). Livestock	\$0.45
b). Building & Equipment	\$0.60
Add'l Coverage for liability (\$/year)	\$30.00

## Miscellaneous:

Total yearly expense including expenses	\$500.00
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TABLE 7. HERD REPLACEMENT (COWS ONLY)

Replacement Cost/Heifer	<b>\$1,000.00</b>
Average Market Value/Cow	<b>\$0.00</b>
Price Received/Cull Cow	<b>\$0.00</b>

**CAPITAL COSTS**

	<u>ORIGINAL VALUE</u>	<u>SALVAGE VALUE (%)</u>	<u>USEFUL LIFE (YRS)</u>
Handling Facilities			
<b>Holding Chutes</b>	<b>\$6,000</b>		
<b>Troughs &amp; Miscellaneous</b>	<b>\$2,000</b>		
<b>Waterers (2 @ \$ 1000)</b>	<b>\$2,000</b>		
<b>Squeeze, Gates &amp; Scale</b>	<b>\$6,000</b>		
<b>Well &amp; Pressure System</b>	<b>\$3,500</b>		
<b>Pens (working&amp; Sorting)</b>	<b><u>\$10,000</u></b>		
Total Building Cost	<b>\$29,500</b>	<b>0</b>	<b>20</b>
Machinery & Equipment:			
<b>Miscellaneous</b>	<b>\$2,000</b>	<b>20</b>	<b>12</b>
<b>Tractor &amp; Loader</b>	<b><u>\$20,000</u></b>	<b>20</b>	<b>12</b>
Total	<b>\$22,000</b>		
Land & Fencing			
<b>Land 320 acres @ \$150/acre</b>	<b>\$48,000</b>		
<b>Fence</b>			
- perimeter 3 miles @ \$7,000/mile	<b>\$21,000</b>	<b>0</b>	<b>20</b>
- internal 1.5 miles @ \$3,000/mile	<b><u>\$4,500</u></b>	<b>0</b>	<b>20</b>
Total	<b>\$73,500</b>	<b>0</b>	<b>20</b>

TABLE 10. LABOUR COSTS

Hours/Cow/Year	<b>\$4</b>
Labour Rate/Hour	<b>\$9</b>

Responsibility rests with the user.

END OF INPUT...

**CAPITAL COSTS**

		<b><u>Your Farm</u></b>
<b>Handling Facilities</b>		
Holding Chutes	\$6,000	_____
Troughs & Miscellaneous	\$2,000	_____
Waterers (2 @ \$ 1000)	\$2,000	_____
Squeeze, Gates & Scale	\$6,000	_____
Well & Pressure System	\$3,500	_____
Pens (working& Sorting)	<u>\$10,000</u>	_____
<b>Total Handling Facilities</b>	<b>\$29,500</b>	_____
 <b>Machinery &amp; Equipment:</b>		
Miscellaneous	\$2,000	_____
Tractor & Loader	<u>\$20,000</u>	_____
<b>Total Machinery &amp; Equipment</b>	<b>\$22,000</b>	_____
 <b>Land &amp; Fencing</b>		
Land 320 acres @ \$150/acre	\$48,000	_____
Fence		
- perimeter 3 miles @ \$7,000/mile	\$21,000	_____
- internal 1.5 miles @ \$3,000/mile	<u>\$4,500</u>	_____
<b>Total Land &amp; Fencing</b>	<b>\$73,500</b>	_____
 <b>Total Capital Investment</b>		
	<b>\$125,000</b>	_____

**Bison Heifer Replacement Production Costs**  
Based on 60 Heifers

<b>A. OPERATING COSTS</b>	<b><u>\$/Heifer</u></b>	<b><u>Total</u></b>	<b><u>Your Costs</u></b>
1. Feed Costs:			
1.01 Grain	\$47.60	\$2,856	_____
1.02 Hay	\$134.00	\$8,040	_____
1.03 Salt & Minerals	<u>\$24.24</u>	<u>\$1,454</u>	_____
<b>Total Feed Cost</b>	<b><u>\$205.84</u></b>	<b><u>\$12,350</u></b>	_____
2. Other Operating Costs:			
2.01 Heifer cost	\$1,000.00	\$60,000	_____
2.02 Breeding cost	\$66.67	\$4,000	_____
2.03 Transportation	\$7.14	\$429	_____
2.04 Veterinary & Medicine	\$19.82	\$1,189	_____
2.05 Maintenance & Repairs	\$20.00	\$1,200	_____
2.06 Utilities	\$11.67	\$700	_____
2.07 Death Loss	\$11.32	\$679	_____
2.08 Insurance	\$17.43	\$1,046	_____
2.09 Miscellaneous	<u>\$8.33</u>	<u>\$500</u>	_____
Subtotal Operating Costs	\$1,368.22	\$82,093	_____
2.10 Operating Interest	<u>\$114.45</u>	<u>\$6,867</u>	_____
<b>TOTAL OPERATING COSTS</b>	<b><u>\$1,482.67</u></b>	<b><u>\$88,960</u></b>	_____
<b>B. FIXED COSTS</b>			
3. Depreciation			
3.01 Facilities	49.17	\$2,950	_____
3.02 Machinery & Equipment	\$48.88	\$2,933	_____
4. Investment			
4.01 Facilities	\$19.67	\$1,180	_____
4.02 Machinery & Equipment	\$17.60	\$1,056	_____
4.03 Pasture Land & Fencing	<u>\$123.50</u>	<u>\$7,410</u>	_____
<b>TOTAL FIXED COSTS</b>	<b><u>\$258.82</u></b>	<b><u>\$15,529</u></b>	_____
<b>TOTAL OPERATING AND FIXED COSTS</b>	<b><u>\$1,741.49</u></b>	<b><u>\$104,489</u></b>	_____
<b>C. Labour</b>	<b><u>\$80.00</u></b>	<b><u>\$4,800</u></b>	_____
<b>TOTAL COST OF PRODUCTION</b>	<b><u>\$1,821.49</u></b>	<b><u>\$109,289</u></b>	_____

**Disclaimer:** 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. No liability for decisions based on this publication is assumed. If you require assistance with developing your individual budget, please contact your local MAF Office or the Farm Management Section in Winnipeg at 204-945-4937.

### Assumptions

1. This budget is based on the purchase of 60 bison heifers and 4 bulls.
2. For purposes of this budget the bulls were assumed to have been purchased in the 2<sup>nd</sup> year and sold immediately after the breeding season.
3. The time frame, from purchase of replacement heifers to sale of calves, is 605 days.

### Bison Heifer Replacement Production Cost Worksheet

Your Cost

**A. OPERATING COSTS**

**1. Feed Costs:**

**1.01 Rolled Grain**

Year 1		3	lbs /day	
	x	120	days/year	
	<u>x</u>	<u>\$0.07</u>	<u>/bushel</u>	
	=	\$25.20	/heifer	
Year 2		4	lbs /day	
	x	80	days/year	
	<u>x</u>	<u>\$0.07</u>	<u>/bushel</u>	
	=	\$22.40	/heifer	
<b>Total</b>		<b>\$47.60</b>	<b>/heifer</b>	

**1.02 Hay**

Year 1		1.25	tons	
	x	\$40.00	/ton	
	=	\$50.00	/heifer	
Year 2		2.10	tons	
	x	\$40.00	/ton	
	=	\$84.00	/heifer	
<b>Total</b>		<b>\$134.00</b>	<b>/heifer</b>	

			<u>Your Cost</u>
<b>1.03 Salt and Minerals</b>			
Year 1		7 lbs salt/year	_____
	x	<u>\$0.14</u> \$/lb	_____
	=	\$0.98 /heifer	_____
		10 lbs mineral/year	_____
	x	<u>\$0.40</u> \$/lb	_____
	=	\$4.00 /heifer	_____
Year 2		11 lbs salt/year	_____
	x	<u>\$0.14</u> \$/lb	_____
	=	\$1.54 /heifer	_____
		14 lbs mineral/year	_____
	x	<u>\$0.40</u> \$/lb	_____
	=	\$5.60 /heifer	_____
<b>Total</b>		<b>\$12.12 /heifer</b>	_____
<b>2. Other Operating Costs:</b>			
<b>2.01 Heifer Cost</b>			
		<b>\$1,000 /heifer</b>	_____
<b>2.02 Breeding Cost</b>			
		\$5,500.00 bull original value	_____
	-	\$4,500.00 bull salvage value	_____
	=	\$1,000.00 net cost per bull	_____
	x	4 number bulls	_____
	÷	<u>60</u> heifers	_____
	=	<b>\$66.67 /heifer</b>	_____
<b>2.03 Transportation Cost</b>			
		\$3.00 / loaded mile	_____
	x	100 distance (miles)	_____
	÷	<u>42</u> load capacity	_____
	=	<b>\$7.14 /heifer</b>	_____

**Your Cost**

**2.04 Veterinary Medicine & Supplies**

Medication

year 1		\$0.86	blackleg	_____
	+	\$0.53	vitamin	_____
	+	<u>\$3.10</u>	<u>parasite control</u>	_____
	=	\$4.49	/heifer	_____
year 2		<b>\$8.00</b>	parasite control	_____
	+	<b><u>\$0.43</u></b>	<u>blackleg</u>	_____
	=	\$8.43	/heifer	_____
herd health program		\$90.00	/hour charge	_____
	x	3	hours	_____
	÷	<u>60</u>	<u>heifers</u>	_____
	=	\$4.50	/heifer	_____
mileage		\$0.90	/km charge	_____
	x	160	kilometres	_____
	x	1	visits	_____
	÷	<u>60</u>	<u>heifers</u>	_____
	=	\$2.40	/heifer	_____
<b>Total</b>	<b>=</b>	<b>\$19.82</b>	<b>/heifer</b>	_____

**2.05 Fuel, Oil, Repairs & Maintenance**

machinery costs for 2 years

		\$200.00	total fuel cost	_____
	+	\$200.00	oil, repairs & maint.	_____
	÷	<u>60</u>	<u>heifers</u>	_____
	=	\$6.67	/heifer	_____
facilities,fences etc.costs for 2 years		\$800.00	repairs & maint.	_____
	÷	<u>60</u>	<u>heifers</u>	_____
	=	\$13.33	/heifer	_____
<b>Total</b>	<b>=</b>	<b>\$20.00</b>	<b>/heifer</b>	_____

			<u>Your Cost</u>
<b>2.06 Utilities</b>			
	\$700.00	total cost	_____
÷	60	<u>heifers</u>	_____
=	<b>\$11.67</b>	<b>/heifer</b>	_____
<b>2.07 Death Loss</b>			
	\$1,000.00	heifer cost	_____
+	\$132.24	half other costs	_____
x	1.0	<u>mortality rate</u>	_____
	<b>\$11.32</b>	<b>/heifer</b>	_____
<b>2.08 Insurance</b>			
	\$29,500	bldg. & equip. invest.	_____
x	\$0.60	cost/\$100 capital	_____
	2	years	_____
÷	\$100	units of \$100	_____
÷	60	<u>heifers</u>	_____
=	\$5.90	/heifer	_____
	\$1,000.00	value of heifer	_____
	\$102.92	½ of feed	_____
	\$66.81	½ other (excluding death loss)	_____
÷	\$100	units of \$100	_____
x	\$0.45	insurance rate/\$100	_____
x	2	<u>years</u>	_____
=	\$10.53	/heifer	_____
	\$30.00	add'l liability	_____
÷	60	heifers	_____
x	2	<u>years</u>	_____
=	\$1.00	/heifer	_____
<b>Total</b>	<b>=</b>	<b>\$17.43</b>	<b>/heifer</b>
<b>2.09 Miscellaneous</b>			
	\$500.00	total office expenses	_____
÷	60	<u>heifers</u>	_____
=	<b>\$8.33</b>	<b>/heifer</b>	_____

**Your Cost**

**2.10 Operating Interest**

(Operating interest is charged on the total cost of the heifer plus one half of the other operating costs)

	\$1,000.00	heifer cost	_____
+	\$150.78	1/2 feed & other costs	_____
x	6.0	operating interest rate	_____
÷	365	days per year	_____
x	<u>605</u>	<u>days on feed</u>	_____
=	<b>\$114.45</b>	<b>/heifer</b>	_____

<b>Capital Costs</b>		<u><b>Your Cost</b></u>
<b>Handling Facilities</b>		
Holding Chutes	\$6,000	_____
Troughs & Miscellaneous	\$2,000	_____
Waterers (2 @ \$ 1000)	\$2,000	_____
Squeeze, Gates & Scale	\$6,000	_____
Well & Pressure System	\$3,500	_____
Pens (working& Sorting)	<u>\$10,000</u>	_____
<b>Total Building Cost</b>	<b>\$29,500</b>	_____
<b>Machinery &amp; Equipment:</b>		
Miscellaneous	\$2,000	_____
Tractor & Loader	<u>\$20,000</u>	_____
<b>Total</b>	<b>\$22,000</b>	_____
<b>Land &amp; Fencing</b>		
Land 320 acres @ \$150/acre	\$48,000	_____
Fence		
- perimeter 3 miles @ \$7,000/m	\$21,000	_____
- internal 1.5 miles @ \$3,000/m	<u>\$4,500</u>	_____
<b>Total</b>	<b>\$73,500</b>	_____
<b>Total Capital Investment</b>	<b>\$125,000</b>	_____

**Your Cost**

**B. FIXED COSTS**

**3. Depreciation:**

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

**3.01 Handling Facilities**

	\$29,500	original value	_____
-	0	salvage value	_____
÷	20	years useful life	_____
÷	60	heifers	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	<b>\$49.17</b>	<b>/heifer</b>	_____

**3.02 Machinery & Equipment**

a) Tractor & Loader

	\$20,000	original value	_____
-	\$4,000	salvage value	_____
÷	12	years useful life	_____
÷	60	heifers	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	<b>\$44.44</b>	<b>/heifer</b>	_____

b) Miscellaneous

	\$2,000	original value	_____
-	\$400	salvage value	_____
÷	12	years useful life	_____
÷	60	heifers	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	<b>\$4.44</b>	<b>/heifer</b>	_____

<b>Total</b>	<b>=</b>	<b>\$48.88</b>	<b>/heifer</b>	_____
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**Your Cost**

**4. Investment:**

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

**4.01 Handling Facilities**

	\$29,500	total building value	_____
+	\$0	salvage value	_____
÷	2	average	_____
x	4.0	% investment rate	_____
÷	60	heifers	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	<b>\$19.67</b>	<b>/heifer</b>	_____

**4.02 Machinery & Equipment**

a) Tractor and Loader

	\$20,000	original value	_____
+	\$4,000	salvage value	_____
÷	2	average	_____
x	4.0	% investment rate	_____
÷	60	heifers	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	\$16.00	/heifer	_____

b) Miscellaneous Machinery

	\$2,000	original value	_____
+	\$400	salvage value	_____
÷	2	average	_____
x	4.0	% investment rate	_____
÷	60	heifers	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	\$1.60	/heifer	_____

<b>Total</b>	<b>=</b>	<b>\$17.60</b>	<b>/heifer</b>	_____
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**4.03 Pasture**

**Your Cost**

Land

	\$48,000	land cost	_____
x	4.00	% investment rate	_____
÷	60	heifers	_____
x	<u>2</u>	<u>years</u>	_____
=	\$64.00	/heifer	_____

Fence Depreciation Cost (no salvage value)

	\$25,500	fence cost	_____
-	\$0	salvage value	_____
÷	20	years useful life	_____
÷	60	heifers	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	\$42.50	/heifer	_____

Fence Investment Cost

	\$25,500	fence cost	_____
+	\$0	salvage value	_____
÷	2	average	_____
x	4.0	% investment rate	_____
÷	60	heifers	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	\$17.00	/heifer	_____

**Total = \$123.50 /heifer**

**C. Labour:**

	4.0	hours/heifer/year	_____
x	\$10.00	/hour	_____
<u>x</u>	<u>2</u>	<u>years</u>	_____
=	<b>\$80.00</b>	<b>/heifer</b>	_____

For more information contact your local Manitoba Agriculture and Food Office

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