



Guidelines for Estimating Beef Replacement Heifer Costs 2017

in Manitoba



Guidelines For Estimating Beef Replacement Heifer Costs

For Weight Range of 550 - 1200 lbs
Based on 30 Head

Date: September, 2017

This guide is designed to provide you with planning information and a format for calculating costs of production of a replacement heifer 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.

Replacement heifers generally refers to the feeding of heifer calves from weaning until they are put onto pasture for breeding. An example of a typical replacement heifer operation would be, feed 550 pound heifers to gain 1.25 to 1.75 pounds per day for approximately 200 to 250 days and put on pasture for 120 to 140 days to gain 1.25 to 1.75 pounds per day to produce a 1200 pound bred replacement heifer.

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: www.manitoba.ca/agriculture
or at your local [Manitoba Agriculture office](#).

[The Farm Machinery Custom and Rental Rate](#) 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 your local Manitoba Agriculture office.

Replacement Heifer Production Cost Summary September, 2017
Based on 30 heifers for weight range 550 to 1200 lbs.

A. Operating Costs	Cost/Head	Total Cost	Your Cost
1. Feed Costs			
1.01 Ground Barley	\$113.75	\$3,413	_____
1.02 Hay	\$162.18	\$4,865	_____
1.03 Supplement	\$50.40	\$1,512	_____
1.04 Other Feed	\$0.00	\$0	_____
Total Feed Costs	\$326.33	\$9,790	_____
2. Other Operating Costs			
2.01 Heifer Cost	\$951.10	\$28,533	_____
2.02 Breeding Cost	\$35.18	\$1,055	_____
2.03 Straw	\$13.44	\$403	_____
2.04 Veterinary Medicine & Supplies	\$16.65	\$500	_____
2.05 Annual Fuel & Repair Costs	\$7.00	\$210	_____
2.06 Utilities	\$3.74	\$112	_____
2.07 Replacement Heifer Selling Cost	\$40.40	\$1,212	_____
2.08 Insurance	\$10.43	\$313	_____
2.09 Manure Removal	\$8.33	\$250	_____
2.10 Pasture Costs	\$149.47	\$4,484	_____
2.11 Barn & Office Supplies	\$1.20	\$36	_____
2.12 Death Loss	\$13.80	\$414	_____
Subtotal Operating Costs	\$1,577.07	\$47,312	_____
2.13 Operating Interest	\$63.03	\$1,891	_____
Total Operating Costs	\$1,640.10	\$49,203	_____
B. Fixed Costs			
3. Depreciation			
3.01 Buildings	\$16.28	\$488	_____
3.02 Machinery & Equipment	\$52.53	\$1,576	_____
4. Investment			
4.01 Buildings	\$5.47	\$164	_____
4.02 Machinery & Equipment	\$10.84	\$325	_____
4.03 Pasture Land	\$0.00	\$0	_____
Total Fixed Costs	\$85.12	\$2,554	_____
Total Operating and Fixed Costs	\$1,725.22	\$51,757	_____
C. Labour	\$43.33	\$1,300	_____
Total Cost of Production	\$1,768.55	\$53,057	_____

Profitability and Breakeven Analysis

Estimated Farmgate Gross Revenue	Total
26 Bred Heifers @ \$1850/hd market price	\$48,100
4 Cull Heifers @ \$1380/hd (\$115/cwt) market price	\$5,520
	\$53,620

	Breakeven Heifer Calf Purchase Price (\$/cwt) @ \$1850/hd market price	Breakeven Bred Heifer Selling Price (\$/hd) @ \$170/cwt heifer price	
Breakeven Price			
Operating Costs	\$199.70	\$1,680.12	_____
Operating Costs & Labour	\$191.82	\$1,730.11	_____
Operating & Fixed Costs	\$184.22	\$1,778.33	_____
Total Costs	\$176.34	\$1,828.33	_____
Marginal Returns	Per Bred Heifer	Per Cull Heifer	Total Return
Over Operating Costs	\$209.90	(\$260.10)	\$4,417.00
Over Operating Costs & Labour	\$166.57	(\$303.43)	\$3,117.10
Over Operating & Fixed Costs	\$124.78	(\$345.22)	\$1,863.40
Over Total Costs	\$81.45	(\$388.55)	\$563.50

Cost Summary

	Cost/Heifer/day
Summer grazing (based on 140 days)	\$1.07
Winter feed (based on 224 days)	\$1.46
Yardage (based on 224 days)	\$0.72

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. No liability for decisions based on this publication is assumed.

Replacement Heifer Production Costs

Assumptions

1. This budget outlines the cost of production for a replacement heifer enterprise.
2. Buildings and equipment are valued at new cost.
3. All feed is purchased.

Herd Profile

Number of Replacement Heifers Purchased	30	head
Number of Bulls	1	bulls
Heifer Mortality Rate	1.00	%
Heifer Purchased Weight	550	lbs
Heifer Calf Price	\$170	/cwt
Days on Feed (feedlot)	224	days
Average Daily Gain (feedlot)	2.00	lbs/day
Replacement Heifer Ending Feedlot Weight	998	lbs
On Pasture Weight	1,000	lbs
Days on Pasture	140	days
Average Daily Gain (pasture)	1.43	lbs/day
Off Pasture Weight	1,200	lbs
Estimated Culling rate Bred Replacement Heifers	12.00	%
Calculated culling rate Bred Replacement Heifers	13.33	% (due to rounding)
Number Bred Heifers Marketed	26	
Number Cull Heifers marketed	4	
Bred Replacement Heifer market value	\$1,850	/head
Cull heifer market price	\$115	/cwt
Cull heifer market value	\$1,380	/head

Herd Replacement (Bulls)

Bull Replacement Rate	25.0	%
Original Cost	\$3,500.00	/bull
Price Received/Cull Bull	\$2,100.00	/bull

Pasture Costs

		<u>Usage</u>
Rented Pasture Costs (per head per day)	\$1.02	100 %
Owned Pasture Land Value (per acre)	\$1,250.00	0 %
Owned Pasture Carrying Capacity (acres/head)	2.50	100
Owned Pasture Property Taxes (per acre)	\$7.50	
Pasture checking costs (ie. fuel)	\$200.00	

Feed Costs

	<u>Market Price</u>	<u>Replacement Heifer Requirement</u>	<u>Days on Feed</u>
Ground Barley	\$3.75 /bu	6.50 lbs/day	224
Hay	\$80.00 /ton	18.10 lbs/day	224
Mineral/Rumensin Pre Mix	\$450.00 /ton	1.00 lbs/day	224
Other Feed #1	\$0.00 /ton	0.00 lbs/day	0

Other Feed #2	\$0.00 /ton	0.00 lbs/day	0
---------------	--------------------	---------------------	----------

FOOTNOTE: 1 bushel (bu) barley = 48 lbs = 21.8 kg
 1 kilogram (kg) = 2.2046 pounds (lbs)
 1 tonne (t) = 1,000 kg

Other Operating Costs

Heifer Purchase Costs

Buying Commission	\$5.00 /head
Trucking-in	\$1.70 /cwt
Insurance fee	\$1.75 /head

Straw Bedding

Heifers number of lbs/day	4.00 /head
Bulls - number of tons/Bull/Year	1.0
Cost/Ton	\$30.00 /ton

Veterinary Medicine & Supplies

Cattle Medication

IBR,BVD,PI3,BRSV, Pasteurella	\$4.90 /head
Vitamin A-D	\$0.50 /head
External & Internal Parasites	\$0.72 /head
Blackleg & Haemophilus	\$1.26 /head
Antibiotics	\$0.00 /head

Herd Health Program

Professional Services

Total Yearly Hours	1.00 hours
Rate	\$150.00 /hour

Transportation

Total Kilometres (round trip)	80.0 km
Rate	\$0.80 /km
Number of Yearly Visits	2

Annual Fuel & Repair Costs

Repairs (Machinery, Equipment & Facilities)	\$100.00
Fuel Costs	\$110.00

Utilities

Hydro - Rate	\$0.0820 / kWh
12 kWh per heifer	\$29.52
0.25 1000 watt waterer	\$82.66
Total Hydro	\$112.18

Trucking Cost

Average Weight	1,200 /lbs per head
Trucking Cost	\$1.70 /cwt

Marketing Cost

MBP Levy	\$4.00 /head
Commission on Sales	\$16.00 /head
Market Value	\$154.17 /cwt

Manure RemovalAnnual Cost for Removal **\$250.00****Insurance**

Cost per \$100 Capital Invested in

a) Livestock **\$0.45** /\$100b) Building & Equipment **\$0.40** /\$100Additional Coverage for Liability **\$49.00** /year**Barn & Office Supplies**Total yearly expense relating to barn **\$36.00**Operating Interest Rate **5.00** %Investment Interest Rate **2.75** %**Feed Requirement Per Bull**Barley **7.00** lbs/dayDays/Year on Barley **120** daysHay (Good Quality) **4.00** tons/yr**Breeding Costs**Health Management Costs **\$10.00** /bullSemen Test **\$60.00** /bull

FOOTNOTE: cwt = hundred-weight = 100 lbs

Capital Costs

	<u>Original Value</u>	<u>Salvage Value</u>	<u>Useful Life</u>
Buildings, Corrals & Water System			
Windbreak fence	\$800	10 %	20 years
Pens	\$800	10 %	20 years
Handling Facilities	\$2,000	10 %	20 years
Waterers	\$1,200	10 %	20 years
Gates	\$300	10 %	20 years
Feeders	\$500	10 %	20 years
Bunk Feeders	\$1,250	10 %	20 years
Well & Pressure System	\$2,000	10 %	20 years
Grain Bin	\$1,000	10 %	20 years
Landscaping	\$1,000	10 %	20 years
Total	\$10,850		
Machinery & Equipment			
Tractors & Loader (\$180,000 @ 4.0%)	\$7,200	20 %	10 years
Miscellaneous	\$12,500	20 %	10 years
Total Investment	\$30,550		

Labour Costs

	<u>Total</u>
Feedlot Labour - Hours/heifer	1.00 hours
Pasture Labour - Hours/day	0.25 hours
Labour Rate	\$20.00 /hour

Replacement Heifer Production Cost Worksheet

Assumptions

1. Feedlot average daily gain (ADG) was assumed to be 2 lbs/day.
Pasture average daily gain (ADG) was assumed to be 1.43 lbs/day.
2. It was assumed the heifer calves weighed in at 550 lbs shrunk weight, and was raised to 998 lbs (feedlot) and 1200 lbs (pasture).
3. Days on feed was 224 and days on pasture was 140.
4. Investment in facilities and equipment was assumed to handle 30 head.

A. Operating Costs

Your Cost

1. Feed Costs

1.01 Ground Barley

	224.00	days on ground barley	
x	6.50	lbs/heifer/day	
÷	48.00	lbs/bu	
<u>x</u>	<u>\$3.75</u>	<u>/bu</u>	
=	\$113.75	/heifer	

1.02 Hay

	224.00	days on hay	
x	18.10	lbs/heifer/day	
÷	2000.00	lbs/ton	
<u>x</u>	<u>\$80.00</u>	<u>/ton</u>	
=	\$162.18	/heifer	

1.03 Supplement (Salt, Minerals, Vitamins, Ionophore)

	224.00	days on supplement	
x	1.00	lbs/heifer/day	
÷	2000.00	lbs/ton	
<u>x</u>	<u>\$450.00</u>	<u>/ton</u>	
=	\$50.40	/heifer	

1.04 Other Feed

	0.00	days on other feed	
x	0.00	lbs/heifer/day	
÷	2000.00	lbs/ton	
<u>x</u>	<u>\$0.00</u>	<u>/ton</u>	
=	\$0.00	/heifer	

	0.00	days on other feed	
x	0.00	lbs/heifer/day	
÷	2000.00	lbs/ton	
<u>x</u>	<u>\$0.00</u>	<u>/ton</u>	
=	\$0.00	/heifer	

Total = \$0.00 /heifer

2. Other Operating Costs

2.01 Heifer Cost

Commission	\$5.00	/heifer	
Insurance	\$1.75	/heifer	

Trucking-in	\$1.70	/cwt	
x	550	/heifer	
÷	100	lbs/cwt	
=	\$9.35	/heifer	

Heifer	550	lbs/heifer	_____
x	\$170.00	/cwt	_____
÷	100	<u>lbs/cwt</u>	_____
=	\$935.00	/heifer	_____
Total =	\$951.10	/heifer	_____

2.02 Breeding Costs

Feed for Bulls

Hay

	4.00	tons good quality	_____
x	\$80.00	/ton	_____
x	1.00	bulls	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$10.67	/heifer	_____

Barley

	7.00	lbs barley/bull/day	_____
x	120.00	days	_____
÷	48.00	lbs/bu	_____
x	\$3.75	/bushel	_____
x	1.00	bulls	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$2.19	/heifer	_____

Total =	\$12.86	/heifer	_____
---------	---------	---------	-------

Straw for Bulls

	1.00	tons/bull/year	_____
x	\$30.00	/ton	_____
x	1.00	bulls	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$1.00	/heifer	_____

Vet & Medicine for Bulls

	\$60.00	semen test	_____
+	\$10.00	total vet cost/bull	_____
x	1.00	bulls	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$2.33	/heifer	_____

Replacement of Bulls

	\$3,500	bull cost	_____
-	\$2,100	bull salvage value	_____
x	25.00	% replacement rate	_____
x	1.00	bulls	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$11.67	/heifer	_____

Investment in Bulls

	\$3,500	bull cost	_____
+	\$2,100	bull salvage value	_____
÷	2.00	average	_____
x	2.75	% investment rate	_____
x	1.00	bulls	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$2.57	/heifer	_____

Pasture Costs for Bulls

		\$142.80	/bull pasture cost	_____
x		1.00	bulls	_____
÷		<u>30.00</u>	<u>replacement heifers</u>	_____
=		\$4.76	/heifer	_____
Total	=	\$35.18	/heifer	_____

2.03 Straw

Heifers		4.00	lbs/heifer/day	_____
x		224.00	days on feed	_____
x		<u>\$30.00</u>	<u>/ton</u>	_____
=		\$13.44	/heifer	_____

2.04 Veterinary Medicine & Supplies

Cattle Medication

		\$4.90	IBR,BVD,PI3,BRSV,Pasteurella	_____
+		\$0.50	Vitamin A-D	_____
+		\$0.72	External & Internal Parasites	_____
+		\$1.26	Blackleg & Haemophilus	_____
±		<u>\$0.00</u>	<u>Antibiotics</u>	_____
=		\$7.38	/heifer	_____

Herd Health Program

Professional Services

		\$150.00	/hour charge	_____
x		1.00	hours	_____
÷		<u>30.00</u>	<u>replacement heifers</u>	_____
=		\$5.00	/heifer	_____

Transportation Costs

		\$0.80	/km charge	_____
x		80	kilometres	_____
x		2	visits	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$4.27	/heifer	_____

Total	=	\$16.65	/heifer	_____
--------------	----------	----------------	----------------	-------

2.05 Annual Fuel & Repair Costs

		\$100.00	repairs	_____
+		\$110.00	fuel costs	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$7.00	/heifer	_____

2.06 Utilities

		\$112.18	cost/year	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$3.74	/heifer	_____

2.07 Heifer Selling Cost

Trucking

		1,200	lbs/heifer	_____
÷		100	lbs/cwt	_____
x		<u>\$1.70</u>	<u>trucking cost/cwt</u>	_____
=		\$20.40	/heifer	_____

MBP levy, selling commission

	+	\$4.00	MBP Levy	_____
	<u>±</u>	<u>\$16.00</u>	<u>commission</u>	_____
	=	\$20.00	/heifer	_____
Total	=	\$40.40	/heifer	_____

2.08 Insurance

		\$30,550	building & equipment investment	_____
	x	\$0.40	/\$100 capital	_____
	÷	100	/\$100	_____
	<u>±</u>	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$4.07	/heifer	_____
		\$31,550	herd investment	_____
	x	\$0.45	/\$100 capital	_____
	÷	100	/\$100	_____
	<u>±</u>	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$4.73	/heifer	_____
		\$49.00	additional coverage for liability	_____
	<u>±</u>	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$1.63	/heifer	_____
Total	=	\$10.43	/heifer	_____

2.09 Manure Removal

		\$250	annual removal cost	_____
	<u>±</u>	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$8.33	/heifer	_____

2.10 Pasture Costs

Pasture Rental		\$1.02	cost/head/day rental	_____
	÷	140	days on pasture	_____
	<u>x</u>	<u>100</u>	<u>pasture usage</u>	_____
	=	\$142.80	/heifer	_____
Pasture Checking		\$200.00	cost per year	_____
	<u>±</u>	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$6.67	/heifer	_____
Total	=	\$149.47	/heifer	_____

2.11 Barn & Office Supplies

		\$36.00	total barn expenses	_____
	<u>±</u>	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$1.20	/heifer	_____

2.12 Death Loss

		\$951.10	heifer cost	_____
	+	\$1,850.00	maximum value	_____
	-	\$40.40	selling costs	_____
	÷	2.00	average	_____
	<u>x</u>	<u>1.00</u>	<u>% mortality rate</u>	_____
	=	\$13.80	/heifer	_____

2.13 Operating Interest

(Operating interest is charged on one half the subtotal operating costs)

		\$951.10	heifer cost	_____
--	--	----------	-------------	-------

+	\$312.98	½ of feed & other costs	_____
x	5.00	% operating interest	_____
x	364.00	days on feed & pasture	_____
÷	<u>365.00</u>	<u>days /year</u>	_____
=	\$63.03	/heifer	_____

Capital Costs

Buildings, Corrals & Water System

Windbreak fence	\$800	_____
Pens	\$800	_____
Handling Facilities	\$2,000	_____
Waterers	\$1,200	_____
Gates	\$300	_____
Feeders	\$500	_____
Bunk Feeders	\$1,250	_____
Well & Pressure System	\$2,000	_____
Grain Bin	\$1,000	_____
Landscaping	<u>\$1,000</u>	_____
Total	\$10,850	_____

Machinery & Equipment

Tractor & Loader	\$7,200	_____
Miscellaneous	<u>\$12,500</u>	_____
Total	\$19,700	_____

Total Investment	\$30,550	_____
-------------------------	-----------------	-------

B. Fixed Costs

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

3.01 Buildings

	\$10,850	original cost	_____
-	\$1,085	salvage value	_____
÷	20.00	years useful life	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$16.28	/heifer	_____

3.02 Machinery & Equipment

	\$19,700	original cost	_____
-	\$3,940	salvage value	_____
÷	10.00	years useful life	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$52.53	/heifer	_____

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

4.01 Buildings

	\$10,850	original cost	_____
+	\$1,085	salvage value	_____
÷	2.00	average	_____
x	2.75	% investment rate	_____
÷	<u>30.00</u>	<u>replacement heifers</u>	_____
=	\$5.47	/heifer	_____

4.02 Machinery & Equipment

		\$19,700	original cost	_____
+		\$3,940	salvage value	_____
÷		2.00	average	_____
x		2.75	% investment rate	_____
±		<u>30.00</u>	<u>replacement heifers</u>	_____
=		\$10.84	/heifer	_____
4.03 Pasture				
Land		2.50	acres/head	_____
x		\$1,250.00	/acre	_____
x		2.75	% investment rate	_____
x		<u>0</u>	<u>pasture usage</u>	_____
=		\$0.00	/heifer	_____
Taxes		2.50	acres/head	_____
x		\$7.50	/acre	_____
x		<u>0</u>	<u>pasture usage</u>	_____
=		\$0.00	/heifer	_____
Total =		\$0.00	/heifer	_____
C. Labour				
Feedlot		1.0	hours/heifer	_____
x		<u>\$20.00</u>	<u>/hour</u>	_____
=		\$20.00	/heifer	_____
Pasture		0.25	hours/day pasture	_____
x		140.0	days on pasture	_____
±		30.00	replacement heifers	_____
x		<u>\$20.00</u>	<u>/hour</u>	_____
=		\$23.33	/heifer	_____
Total =		\$43.33	/heifer	_____

Profitability and Breakeven Analysis:

Breakeven Bred Heifer Price (\$/hd) = (total cost - cull heifer revenue) / # bred heifers sold eg. (\$53,057 - \$5,520) / 26 = \$1,828.33
 Breakeven Heifer Price (\$/cwt) = (((gross revenue / # heifers) - (total cost per head - heifer cost)) / (heifer purchase weight / 100))
 eg. ((((\$53,620 / 30) - (\$1,768.55 - \$951.1)) / (550 / 100)) = \$176.34

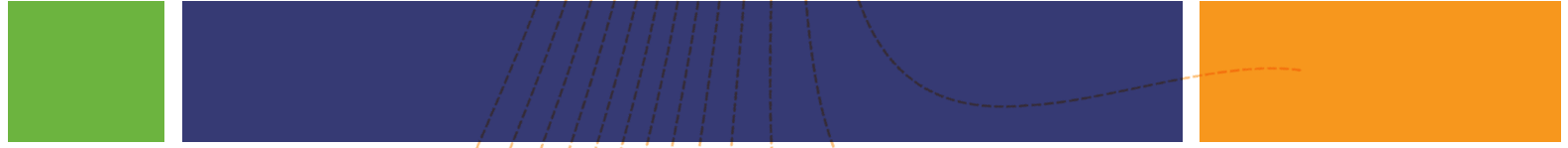
Cost Summary:

Summer Grazing Cost Per Heifer Per Day = pasture cost ÷ days (eg. \$149.47 ÷ 140 = \$1.07)
 Winter Feed Cost Per Heifer Per Day = feed cost ÷ days (eg. \$326.33 ÷ 224 = \$1.46)
 Yardage Cost Per Heifer Per Day = (\$13.44 straw + \$7.00 fuel & repair + \$3.74 utilities + \$8.33 manure removal + \$16.28 building depreciation + \$52.53 machinery depreciation + \$5.47 building investment + \$10.84 machinery investment + \$43.33 labour) ÷ 224 days = \$0.72

Created and maintained by [Manitoba Agriculture Farm Management](#) **September, 2017**

For more information, contact your local [Manitoba Agriculture office](#) or:

- | | | |
|---|---|--|
| Benjamin Hamm
Farm Management Specialist | Roy Arnott
Farm Management Specialist | Bob Gwyer
Farm Management Specialist |
| Greg Fedak
Farm Management Specialist | Wayne Tomlinson
Extension Veterinarian | Ray Bittner
Farm Production Extension |



For more information

- Contact your local Manitoba Agriculture Office.
- Visit us at manitoba.ca/agriculture.

