
2024 Cost of Production

Beef Replacement Heifer



Guidelines For Estimating
Beef Replacement Heifer Costs
For Weight Range of 550 - 1200 lbs
Based on 30 Head

Date: September, 2023

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:



[The Farm Machinery Custom and Rental Rate Guide](#) determine machinery costs.

is also available to help

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.

Replacement Heifer Production Cost Summary September, 2023
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	\$189.58	\$5,687	_____
1.02 Hay	\$243.26	\$7,298	_____
1.03 Supplement	\$56.00	\$1,680	_____
1.04 Other Feed	\$0.00	\$0	_____
Total Feed Costs	\$488.84	\$14,665	_____
2. Other Operating Costs			
2.01 Heifer Cost	\$1,832.20	\$54,966	_____
2.02 Breeding Cost	\$46.48	\$1,394	_____
2.03 Straw	\$31.36	\$941	_____
2.04 Veterinary Medicine & Supplies	\$18.53	\$556	_____
2.05 Annual Fuel & Repair Costs	\$8.33	\$250	_____
2.06 Utilities	\$4.25	\$128	_____
2.07 Replacement Heifer Selling Cost	\$58.30	\$1,749	_____
2.08 Insurance	\$14.44	\$433	_____
2.09 Manure Removal	\$11.67	\$350	_____
2.10 Pasture Costs	\$147.50	\$4,425	_____
2.11 Barn & Office Supplies	\$1.20	\$36	_____
2.12 Death Loss	\$26.37	\$791	_____
Subtotal Operating Costs	\$2,689.47	\$80,684	_____
2.13 Operating Interest	\$202.92	\$6,088	_____
Total Operating Costs	\$2,892.39	\$86,772	_____
B. Fixed Costs			
3. Depreciation			
3.01 Buildings	\$16.28	\$488	_____
3.02 Machinery & Equipment	\$50.40	\$1,512	_____
4. Investment			
4.01 Buildings	\$7.96	\$239	_____
4.02 Machinery & Equipment	\$15.12	\$454	_____
4.03 Pasture Land	\$0.00	\$0	_____
Total Fixed Costs	\$89.76	\$2,693	_____
Total Operating and Fixed Costs	\$2,982.15	\$89,465	_____
C. Owners - Labour & Living	\$58.50	\$1,755	_____
Total Cost of Production	\$3,040.65	\$91,220	_____

Profitability and Breakeven Analysis

Estimated Farmgate Gross Revenue	Total
26 Bred Heifers @ \$3500/hd market price	\$91,000
4 Cull Heifers @ \$3000/hd (\$250/cwt) market price	\$12,000
	\$103,000

	Breakeven Heifer Calf Purchase Price (\$/cwt) @ \$3500/hd market price	Breakeven Bred Heifer Selling Price (\$/hd) @ \$330/cwt heifer price
Breakeven Price		
Operating Costs	\$431.48	\$2,875.85
Operating Costs & Labour	\$420.84	\$2,943.35
Operating & Fixed Costs	\$415.16	\$2,979.42
Total Costs	\$404.52	\$3,046.92

Marginal Returns	Per Bred Heifer	Per Cull Heifer	Total Return
Over Operating Costs	\$607.61	\$107.61	\$16,228
Over Operating Costs & Labour	\$549.11	\$49.11	\$14,473
Over Operating & Fixed Costs	\$517.85	\$17.85	\$13,535
Over Total Costs	\$459.35	(\$40.65)	\$11,780

Estimated Return on Investment (ROI)	12.9%
Estimated Return on Asset (ROA)	46.3%

Cost Summary

	Cost/Heifer/day
Summer grazing (based on 140 days)	\$1.05
Winter feed (based on 224 days)	\$2.18
Yardage (based on 224 days)	\$0.91

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	\$330	/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	\$3,500	/head
Cull heifer market price	\$250	/cwt
Cull heifer market value	\$3,000	/head

Herd Replacement (Bulls)

Bull Replacement Rate	25.0	%
Original Cost	\$4,500.00	/bull
Price Received/Cull Bull	\$3,000.00	/bull

Pasture Costs

		<u>Usage</u>
Rented Pasture Costs (per head per day)	\$1.00	100 %
Owned Pasture Land Value (per acre)	\$1,750.00	0 %
Owned Pasture Carrying Capacity (acres/head)	2.50	100
Owned Pasture Property Taxes (per acre)	\$8.00	
Pasture checking costs (ie. fuel)	\$225.00	

Feed Costs

	<u>Market Price</u>	<u>Replacement Heifer Requirement</u>	<u>Days on Feed</u>
Ground Barley	\$6.25 /bu	6.50 lbs/day	224
Hay	\$120.00 /ton	18.10 lbs/day	224
Mineral/Rumensin Pre Mix	\$500.00 /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
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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	\$1.90 /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	\$70.00 /ton

Veterinary Medicine & Supplies

Cattle Medication

IBR,BVD,PI3,BRSV, Pasteurella	\$5.00 /head
Vitamin A-D	\$0.50 /head
External & Internal Parasites	\$0.72 /head
Blackleg & Haemophilus	\$1.65 /head
Antibiotics	\$0.00 /head

Herd Health Program

Professional Services

Total Yearly Hours	1.00 hours
Rate	\$160.00 /hour

Transportation

Total Kilometres (round trip)	80.0 km
Rate	\$1.00 /km
Number of Yearly Visits	2

Annual Fuel & Repair Costs

Repairs (Machinery, Equipment & Facilities)	\$100.00
Fuel Costs	\$150.00

Utilities

Hydro - Rate	\$0.09324 / kWh
12 kWh per heifer	\$33.57
0.25 1000 watt waterer	\$93.99
Total Hydro	\$127.55

Trucking Cost

Average Weight	1,200 /lbs per head
Trucking Cost	\$1.90 /cwt

Marketing Cost

MBP/NCO Levy \$/Head	\$5.50 /head
Commission on Sales	\$30.00 /head
Market Value	\$291.67 /cwt

Manure Removal

Annual Cost for Removal **\$350.00**

Insurance

Cost per \$100 Capital Invested in
 a) Livestock **\$0.45** /\$100
 b) Building & Equipment **\$0.40** /\$100
 Additional Coverage for Liability **\$49.00** /year

Barn & Office Supplies

Total yearly expense relating to barn **\$36.00**

Operating Interest Rate **9.00** %
 Investment Interest Rate **4.00** %

Feed Requirement Per Bull

Barley **7.00** lbs/day
 Days/Year on Barley **120** days
 Hay (Good Quality) **4.00** tons/yr

Breeding Costs

Health Management Costs **\$10.00** /bull
 Semen 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 (\$160,000 @ 4%)	\$6,400	20 %	10 years
Miscellaneous	\$12,500	20 %	10 years
Total Investment	\$29,750		

Labour Costs

	<u>Total</u>
Feedlot Labour - Hours/heifer	1.00 hours
Pasture Labour - Hours/day	0.25 hours
Labour Rate	\$27.00 /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>\$6.25</u>	<u>/bu</u>	
=	\$189.58	/heifer	

1.02 Hay

	224.00	days on hay	
x	18.10	lbs/heifer/day	
÷	2000.00	lbs/ton	
<u>x</u>	<u>\$120.00</u>	<u>/ton</u>	
=	\$243.26	/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>\$500.00</u>	<u>/ton</u>	
=	\$56.00	/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	\$1.90	/cwt	
x	550	/heifer	
÷	<u>100</u>	<u>lbs/cwt</u>	
=	\$10.45	/heifer	

Heifer	550	lbs/heifer	_____
x	\$330.00	/cwt	_____
÷	100	lbs/cwt	_____
=	\$1,815.00	/heifer	_____
Total =	\$1,832.20	/heifer	_____

2.02 Breeding Costs

Feed for Bulls

Hay

	4.00	tons good quality	_____
x	\$120.00	/ton	_____
x	1.00	bulls	_____
÷	30.00	replacement heifers	_____
=	\$16.00	/heifer	_____

Barley

	7.00	lbs barley/bull/day	_____
x	120.00	days	_____
÷	48.00	lbs/bu	_____
x	\$6.25	/bushel	_____
x	1.00	bulls	_____
÷	30.00	replacement heifers	_____
=	\$3.65	/heifer	_____

Total =	\$19.65	/heifer	_____
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Straw for Bulls

	1.00	tons/bull/year	_____
x	\$70.00	/ton	_____
x	1.00	bulls	_____
÷	30.00	replacement heifers	_____
=	\$2.33	/heifer	_____

Vet & Medicine for Bulls

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

Replacement of Bulls

	\$4,500	bull cost	_____
-	\$3,000	bull salvage value	_____
x	25.00	% replacement rate	_____
x	1.00	bulls	_____
÷	30.00	replacement heifers	_____
=	\$12.50	/heifer	_____

Investment in Bulls

	\$4,500	bull cost	_____
+	\$3,000	bull salvage value	_____
÷	2.00	average	_____
x	4.00	% investment rate	_____
x	1.00	bulls	_____
÷	30.00	replacement heifers	_____
=	\$5.00	/heifer	_____

Pasture Costs for Bulls

\$140.00	/bull pasture cost	_____
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	x	1.00	bulls	_____
	÷	<u>30.00</u>	<u>replacement heifers</u>	_____
	=	\$4.67	/heifer	_____
Total	=	\$46.48	/heifer	_____
2.03 Straw				
	Heifers	4.00	lbs/heifer/day	_____
	x	224.00	days on feed	_____
	<u>x</u>	<u>\$70.00</u>	<u>/ton</u>	_____
	=	\$31.36	/heifer	_____
2.04 Veterinary Medicine & Supplies				
Cattle Medication				
		\$5.00	IBR,BVD,PI3,BRSV,Pasteurella	_____
	+	\$0.50	Vitamin A-D	_____
	+	\$0.72	External & Internal Parasites	_____
	+	\$1.65	Blackleg & Haemophilus	_____
	<u>+</u>	<u>\$0.00</u>	<u>Antibiotics</u>	_____
	=	\$7.87	/heifer	_____
Herd Health Program				
Professional Services				
		\$160.00	/hour charge	_____
	x	1.00	hours	_____
	÷	<u>30.00</u>	<u>replacement heifers</u>	_____
	=	\$5.33	/heifer	_____
Transportation Costs				
		\$1.00	/km charge	_____
	x	80	kilometres	_____
	x	2	visits	_____
	÷	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$5.33	/heifer	_____
Total	=	\$18.53	/heifer	_____
2.05 Annual Fuel & Repair Costs				
		\$100.00	repairs	_____
	+	\$150.00	fuel costs	_____
	÷	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$8.33	/heifer	_____
2.06 Utilities				
		\$127.55	cost/year	_____
	÷	<u>30</u>	<u>replacement heifers</u>	_____
	=	\$4.25	/heifer	_____
2.07 Heifer Selling Cost				
Trucking				
		1,200	lbs/heifer	_____
	÷	100	lbs/cwt	_____
	<u>x</u>	<u>\$1.90</u>	<u>trucking cost/cwt</u>	_____
	=	\$22.80	/heifer	_____
MBP levy, selling commission				
	+	\$5.50	MBP Levy	_____
	<u>+</u>	<u>\$30.00</u>	<u>commission</u>	_____

	=	\$35.50	/heifer	_____
Total	=	\$58.30	/heifer	_____
2.08 Insurance				
		\$29,750	building & equipment investment	_____
x		\$0.40	/\$100 capital	_____
÷		100	/\$100	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$3.97	/heifer	_____
		\$58,950	herd investment	_____
x		\$0.45	/\$100 capital	_____
÷		100	/\$100	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$8.84	/heifer	_____
		\$49.00	additional coverage for liability	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$1.63	/heifer	_____
Total	=	\$14.44	/heifer	_____
2.09 Manure Removal				
		\$350	annual removal cost	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$11.67	/heifer	_____
2.10 Pasture Costs				
Pasture Rental		\$1.00	cost/head/day rental	_____
÷		140	days on pasture	_____
x		<u>100</u>	<u>pasture usage</u>	_____
=		\$140.00	/heifer	_____
Pasture Checking		\$225.00	cost per year	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$7.50	/heifer	_____
Total	=	\$147.50	/heifer	_____
2.11 Barn & Office Supplies				
		\$36.00	total barn expenses	_____
÷		<u>30</u>	<u>replacement heifers</u>	_____
=		\$1.20	/heifer	_____
2.12 Death Loss				
		\$1,832.20	heifer cost	_____
+		\$3,500.00	maximum value	_____
-		\$58.30	selling costs	_____
÷		2.00	average	_____
x		<u>1.00</u>	<u>% mortality rate</u>	_____
=		\$26.37	/heifer	_____
2.13 Operating Interest				
(Operating interest is charged on one half the subtotal operating costs)				
		\$1,832.20	heifer cost	_____
+		\$428.64	½ of feed & other costs	_____
x		9.00	% operating interest	_____
x		364.00	days on feed & pasture	_____

=	\$15.12	/heifer	_____
4.03 Pasture			
Land	2.50	acres/head	_____
x	\$1,750.00	/acre	_____
x	4.00	% investment rate	_____
<u>x</u>	<u>0</u>	<u>pasture usage</u>	_____
=	\$0.00	/heifer	_____
Taxes	2.50	acres/head	_____
x	\$8.00	/acre	_____
<u>x</u>	<u>0</u>	<u>pasture usage</u>	_____
=	\$0.00	/heifer	_____
Total =	\$0.00	/heifer	_____

C. Labour

Feedlot	1.0	hours/heifer	_____
<u>x</u>	<u>\$27.00</u>	<u>/hour</u>	_____
=	\$27.00	/heifer	_____
Pasture	0.25	hours/day pasture	_____
x	140.0	days on pasture	_____
÷	30.00	replacement heifers	_____
<u>x</u>	<u>\$27.00</u>	<u>/hour</u>	_____
=	\$31.50	/heifer	_____
Total =	\$58.50	/heifer	_____

Profitability and Breakeven Analysis:

Breakeven Bred Heifer Price (\$/hd) = (total cost - cull heifer revenue) / # bred heifers sold
 eg. (\$91,220 - \$12,000) / 26 = \$3,046.92

Breakeven Heifer Price (\$/cwt) = (((gross revenue / # heifers) - (total cost - heifer cost)) / (heifer purchase wt. / 100))
 eg. ((((\$103,000 / 30) - (\$3,040.65 - \$1,832.2)) / (550 / 100)) = \$404.52

Return on Investment (ROI) = (Gross Revenue - Total Cost) / Total Cost
 (eg. (\$103,000 - \$91,220) / \$91,220 = 12.9%

Return on Asset (ROA) = ((Margin Over Operating - Labour - Building Depreciation - Machinery Depreciation) / Building, Machinery & Equipment Investment)
 (eg. ((\$16,228 - \$1,755 - \$488 - \$1,512) / \$29,750) = 46.3%

Cost Summary:

Summer Grazing Cost Per Heifer Per Day = pasture cost ÷ days (eg. \$147.50 ÷ 140 = \$1.05)

Winter Feed Cost Per Heifer Per Day = feed cost ÷ days (eg. \$488.84 ÷ 224 = \$2.18)

Yardage Cost Per Heifer Per Day = (\$31.36 straw + \$8.33 fuel & repair + \$4.25 utilities + \$11.67 manure removal + \$16.28 building depreciation + \$50.40 machinery depreciation + \$7.96 building investment + \$15.12 machinery investment + \$58.50 labour) ÷ 224 days = \$0.91

September, 2023

Contact Us

For more information, contact a Farm Management Specialist.

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