

Comparing Purchasing vs Raising Beef Replacement Females

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Worksheets are adapted from "Analyzing the Economics of Raising Verses Buying Beef Replacement Heifers." An extension bulletin by Gayle S. Willett and Donald D. Nelson, Washington State University Cooperative Extension, Publication EB1710. This publication can be ordered from Washington State University at the following web site: <http://www.wsu.edu/~anr/extension/EB1710.htm>. This publication can be ordered by phone at: 509/335-3564.

Cells that are highlighted can be modified by the user. Other cells in the spreadsheet are protected.

Many cells with numbers are calculated based on the input in the highlighted cells. Formulas for these cells can be view by placing the cursor on the cell of interest.

Worksheet 1 - Change in net income if replacement heifer is purchased rather than raised.

Positive Effects to Consider in Decision

1 Enter net returns from sale of raised heifer calf	Calf Wt	575	Calf Price	\$ 1.02		\$ 586.50
2 Enter interest on net returns from heifer calf sale						
Calf Value \$ 586.50	Int rate	6%	Months	15		\$ 43.99
3 Total added returns						\$ 630.49

Reduced Costs

4 Enter value of hay fed to raised heifer calf	T of hay	1.75	\$/T	\$ 90.00		\$ 157.50
5 Enter value of pasture grazed by raised heifer calf						\$ 62.00
6 Enter value of salt and mineral for raised heifer calf						\$ 13.00
7 Enter other feed costs for raised heifer calf						\$ 23.00
8 Enter veterinary and medicine (including synch drugs) for raised heifer calf						\$ 7.50
9 Enter value of labor and management for raised heifer calf						
Hr of labor	7	\$/hr	\$ 8.50			\$ 59.50
10 Computed share of bull costs for raised heifers						\$ 31.92
Enter bull's expected production lifetime	6					
Annual bull costs		\$	766.00	Females/Bull	30	
Feed	\$ 410			Months	15	
Non-feed operating	\$ 135					
Depreciation	\$ 125					
Interest	6% \$ 96					
Purchase cost	\$ 1,600					
Salvage	\$ 850					
11 Enter other non-feed costs for raised heifer calf						\$ 65.00
12 Enter interest on feed and nonfeed costs of raised heifer calf						
Sum of lines 4 to 11	\$ 419.42					
Interest	6%					
Months	15					\$ 15.73
13 Total reduced costs (sum of lines 4 to 12)						\$ 435.14
14 Total positive effects (line 3 + line 13)						\$ 1,065.63

Negative Effects to Consider in Decision

Added Costs Associated with Purchasing Females

15 Enter cost of purchased replacement heifer						\$ 1,250.00
16 Enter other costs of purchased replacement heifer						\$ -
17 Total added costs (line 15 + line 16)						\$ 1,250.00

Reduced Returns

18 Enter reduction in returns experienced if heifer is purchased						\$ -
19 Total negative effects (line 17 + line 18)						\$ 1,250.00

Financial Analysis

20 Change in net income per heifer replacement (line 14 - line 19)						\$ (184.37)
21 Change in annual net income for the herd						
Change in net income	\$ (184.37)					
Number of heifers to be purchased	20					
Months	15					\$ (2,949.88)
22 Average annual rate of return						
Change in net income	\$ (184.37)					
Purchase price of replacement heifer	\$ 1,250.00					
Months	15					-11.8%

WORKSHEET II - Breakeven analysis for raising verses purchasing replacement heifers

Breakeven Sale Price for Raised Heifer Calf

1 Enter sale value of raised heifer calf (from worksheet 1)						\$ 586.50
2 Enter total reduced costs (line 13, Wks I)						\$ 435.14
3 Enter total negative effects (line 19, Wks I)						\$ 1,250.00
4 Enter interest from sale of raised heifer calf						
Sale value of raised heifer calf	\$ 586.50					
Interest	6%					

Months	15	\$	43.99
5 Enter sale value plus lost interest of raised heifer calf		\$	630.49
6 Breakeven price [(line 3 - line 2)/ line 5 *100		\$	1.29 \$/lb

Breakeven Price for Purchased Replacement Heifer

7 Positive benefits from Worksheet 1, line 14		\$	1,065.63
8 Sum other costs of purchase and reduction in returns (line 16 + line 18, Worksheet 1)		\$	-
9 Breakeven price (line 7 - line 8)		\$	1,065.63

Breakeven change in weaning weights for raised heifer

10 Change in net income from per replacement heifer		\$	(184.37)
11 Interest factor on net income change over life of heifer (from Present Value calculations)			4.917
Interest	6%		
Years from decision to last weaned calf	6		
12 Interest factor for 1 year (from Present Value calculations)			0.943
13 Average price for steer and heifer calves during raised heifer's stay in the herd			0.8
13a Annual additional earning the raised heifer must produce to be as profitable as the purchased heifer		\$	(46.39)
14 Breakeven change in weaning weight (line 10 / (line 11 - line 12) / line 13)			-58.0 lbs

Summary for the Retain vs Buy

Breakeven for the Raised Heifer calf \$ 1.29 /lb

Interpretation: Based upon the example computations outlined above:
the sale price of the raised heifer calf could change from \$ 1.02 to \$ 1.29
before it would cost less to raise replacements from within the herd than purchasing them at \$ 1,250.00

Breakeven for the Purchased Bred Heifer \$ 1,065.63 /hd

Interpretation: Based upon the example computations outlined above:
a producer could pay up to: \$ 1,065.63
before it would be more costly to purchase than raise a replacement

Breakeven annual additional weight change for Raised vs. Purchased -58.0 lbs.

Interpretation: Based upon the example computations outlined above:
raised heifers would need to produce an extra -58.0 lbs
of calf **per year in production** to make an equal contribution to ranch net income.

Opportunity Costs

Changes in stocking rates as a result of purchasing heifers due to availability of pasture for other uses.

15 Number of pregnant replacement heifers required	30 head
Animal Units per raised heifer	0.8 AU
Retention rate of raised heifers from weaning to 1st preg check	50%
16 Change in AU if heifers are purchased	48.0 AU
Interpretation: Based upon the example computations outlined above: This would allow a change in stocking rate of 48.0 AU for use of pasture no longer devoted to raising heifers	