

Raising Beef Replacement Heifers



K-STATE
Research and Extension

Department of Agricultural Economics — www.agmanager.info

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Kevin C. Dhuyvetter
Agricultural Economist
Farm Management

Glynn T. Tonsor
Agricultural Economist
Livestock Marketing

Sandy Johnson
Livestock Specialist, NW

Acquiring high quality replacements for cows that leave the beef herd, or to build herd numbers, is essential to maintaining a high efficiency, high quality cow-calf enterprise. A key decision facing cow-calf producers is whether to raise or purchase replacement breeding stock (heifers or mature cows). Purchasing mature cows as replacements may be an option for some operations, however, the focus of this guide is strictly on heifers. Producers need to evaluate the replacement heifer raising decision separate from the rest of the cow-calf enterprise and identify its economic strengths and weaknesses. Raising replacements requires separate management, labor, facilities, feed, and other resources. Therefore, for the average producer the total cost of a raised replacement heifer can be quite high. Producers need to carefully weigh the advantages of home raised heifers (quality, etc.) against their costs. The attached cost-return budget format can assist producers in making more informed decisions.

Budget Information

The costs and returns in the budget are on a per-heifer produced basis. Costs are total economic costs and therefore include both explicit costs such as purchased feed, veterinary, utilities, etc., and implicit costs such as the opportunity cost of operator labor and owned feed resources. Returns are based on 83.5 percent of the heifers valued as springers ready to calve, 1.5 percent culled as open heifers at calving, 12.0 percent culled after the breeding season, and 2.0 percent culled

as yearlings prior to breeding. Death loss is assumed to be 1 percent of the calves started in the replacement program.

Production dates, feed requirements, and assumed values are shown in Table 1. Labor is assumed at 5 hours per heifer from weaning until 24 months of age (ready to calve). Other operating costs are included based on observed averages. Interest is charged on the average assumed facility and equipment investment for 16.5 months, and on half of the operating costs and the value of the heifer calf for 16.5 months. Depreciation on facilities and equipment is based on average investment with no salvage value at the end of its remaining life. Annualized facility and equipment cost (depreciation, insurance, and taxes) is multiplied by 1.375 because the budget covers a 16.5-month time period.

Returns over total cost for the cow-calf producer can be interpreted as the total economic opportunity cost associated with raising one's own replacement heifers rather than purchasing springer heifers at the assumed market price. The break-even price per heifer is the dollar value per head that would be required to cover all economic costs, or can be interpreted as the market value at which purchased heifers would be more "expensive" than raised replacements.

Asset turnover and return on investment are based on total investment capital (both equity and borrowed). These measures have been converted to an annual basis to enable comparisons to other enterprises and other investment alternatives

Table 1. Factors Used for Raising Beef Replacement Heifers

	(weaning)		
	10/15 to 5/1	5/1 to 10/15	10/15 to 3/1
Beginning weight	550	750	960
Ending weight	750	960	1,100
Days	198	167	137
Feed	Daily units for feeding period		
Prairie hay, lbs @ \$148.00/ton	15.5	0.0	24.5
Alfalfa hay, lbs @ \$221.00/ton	0.0	0.0	0.0
Grain sorghum, lbs* @ \$5.08/bu	0.0	0.0	0.0
Corn, lbs* @ \$5.22/bu	3.0	0.0	3.7
SBM, lbs @ \$466.00/ton	0.2	0.0	0.0
Pasture, days @ \$19.31/AUM	0.0	1.0	0.0
Mineral and salt, lbs @ \$700.00/ton	0.10	0.15	0.20
Beginning value (550 lbs), \$/cwt			\$165.57
Yearling heifer value prior to breeding season (750 lbs), \$/cwt			\$154.20
Cull heifer value after breeding season (960 lbs), \$/cwt			\$142.94
Cull heifer value at calving time (1,100 lbs), \$/cwt			\$134.20
Spring heifer value, \$/head			\$1,726.00
	Investment (\$/head)	Useful life (years)	Salvage value (%)
Buildings and facilities	\$16.00	10	0%
Equipment	\$57.00	8	0%
Interest rate on facilities and equipment			6.50%
Insurance rate	Facilities 0.25%		Equipment 0.25%
Tax rate	Facilities 1.50%		Equipment 0.00%
Interest rate on operating costs and heifer calf			6.50%
Labor, hours @ \$15.00/hr			5.00

* Includes processing charge

COST-RETURN PROJECTION —RAISING BEEF REPLACEMENT HEIFERS

	Examples Total	Your Farm Total
RETURNS PER HEAD		
1. Market Animals:		
1a. Springer Heifer (83.5%).....	\$1,441.21	
1b. Yearling Heifer, 750 lbs (2.0%).....	23.13	
1c. Cull Heifer after breeding, 960 lbs (12%).....	164.67	
1d. Cull Heifer at calving, 1,100 lbs (1.5%).....	22.14	
2. Less cost of Heifer calf, (550 lbs @ \$165.57.89/cwt).....	910.64	
3. Less death loss (1.0% of total of line 1).....	16.51	
4. Other Income.....		
A. GROSS RETURNS PER HEAD.....	724.00	
COSTS PER HEAD:		
5. Summer Pasture (4.66 AUMs @ \$19.31/AUM).....	\$ 89.62	
6. Prairie Hay (6,427 lbs @ \$148/ton).....	438.61	
7. Alfalfa Hay (0 lbs @ \$221/ton).....		
8. Grain Sorghum (0 bu @ \$5.08).....		
9. Corn (19.54 bu @ \$5.22/bu).....	95.09	
10. Protein Supplement (40 lbs @ \$466/ton).....	9.18	
11. Mineral and Salt (72 lbs @ \$700/ton).....	23.65	
12. Labor (5.0 hrs @ \$15.00/hr).....	75.00	
13. Veterinary, drugs, supplies.....	28.20	
14. Marketing costs.....	12.00	
15. Breeding Cost.....	46.26	
16. Utilities, fuel, oil.....	33.10	
17. Facility and equipment repairs.....	43.72	
18. Professional Fees (legal, accounting, etc).....	6.45	
19. Miscellaneous.....	22.84	
20. Depreciation on facilities and equipment.....	12.00	
21. Interest on facilities and equipment.....	6.53	
22. Insurance and Taxes on facilities and equipment.....	0.58	
B. SUBTOTAL.....	\$ 942.82	
23. Interest on heifer calf and ½ operating costs @ 6.5%.....	122.19	
C. TOTAL COSTS PER HEAD:.....	\$1,065.01	
D. RETURNS OVER TOTAL COST (A - C):.....	\$ -341.00	
24. Total Cost Per Head Per Day.....	2.12	
25. Total Cost Per Pound of Gain ¹	2.72	
E. SPRINGER HEIFER BREAK-EVEN PRICE, \$/head:	2,134.39	
F. ASSET TURNOVER ((1 + 4 - 3) ÷ (INVESTMENT))².....	53.52%	
G. NET RETURN ON INVESTMENT		
((D + 19 + 21) ÷ (INVESTMENT)) ²	-15.69%	

¹ Represents cost per pound of springer heifer sold after adjusting for cull income and death loss.

² Investment equals total value of heifer calf, facilities, and equipment (adjusted for total days).

Publications from Kansas State University are available at: www.ksre.ksu.edu.

Publications are reviewed or revised annually by appropriate faculty to reflect current research and practice. Date shown is that of publication or last revision. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit Kevin C. Dhuyvetter, Glynn T. Tonsor, and Sandy Johnson, *Raising Beef Replacement Heifers*, Kansas State University, April 2014.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF2566

April 2014

K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, John D. Floros, Director.