

Raising Dairy Herd Replacement Heifers

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Having good replacements for the cows that leave the milking herd each year is a key to maintaining and increasing herd production. One of the decisions facing dairy producers is whether to raise or purchase replacement heifers. To raise replacements requires the use of equity for additional facilities, feed, and labor. Producers expanding their operations may find it advantageous to put their equity into cows and purchase replacement heifers or have them raised by custom growers. However, even when producers choose to raise their own replacement heifers, it is useful to treat the heifers as a separate enterprise so that the economic strengths and weaknesses of their operation can be identified.

Budget Information

The costs and returns in the budget are on a per-bred-heifer-sold basis. Costs are total economic costs and therefore include operator labor and all opportunity costs. Returns are based on selling 92 percent of the heifers as bred replacements (springers), 4 percent as nonbreeders, and 4 percent that are culled as yearlings. Death loss is assumed to be 10 percent which raises the cost of the heifer calves purchased. In addition to income from heifers, a manure credit is included to reflect the possible sale of manure (or value captured if used on producer owned land). The manure credit is based on nitrogen (N) and phosphate (P₂O₅) excreted per heifer that would be available for crop or forage production valued at commercial fertilizer rates less an application cost.

Feed costs account for a large portion of the total cost of raising a replacement heifer. The feed costs associated with different stages of growth are shown in Table 1. Feed cost has been adjusted to account for death loss of calves and heifers sold early (yearlings) and shrink/wastage. Labor costs are based on 10 hours per heifer from birth to 24 months. Labor requirements are quite intensive the first three months of age. Subsequently, only routine labor is needed for feeding, tending, and observing the heifers with labor requirements increasing as heifers reach breeding age. It is important to recognize that labor costs per head will vary tremendously between operations due to the number of heifers being raised. Machinery costs include fuel used for observing heifers on pasture, while building repairs include costs of repairing buildings and fences. Interest on variable costs is computed on one-half of the total operating costs at the current interest rate for two years. Similarly, interest is charged on the cost of the heifer calf for two years.

Depreciation is based on the total original cost less the salvage value of buildings and equipment on a per heifer basis divided by the estimated life. The budget value is based on a total investment of buildings and improvements of \$383 per head and an investment of \$101 per head for equipment. The useful life is assumed to be 15 years for buildings and 8 years for equipment. A salvage value of 10 percent is assumed on buildings and 0% on equipment. Interest is charged on one-half the average investment [(initial cost + salvage value) ÷ 2] for buildings and equipment at a rate of 6.5 percent. Insurance

Table 1. Feed Requirements for Raising Replacement Heifer (birth to 24 months).*

Feed Item	Birth to 6 months		6 to 12 months**		12 to 24 months	
	Lbs or Acres	Dollars	Lbs or Acres	Dollars	Lbs or Acres	Dollars
Milk replacer @ \$155.90 per cwt.	59.0	\$91.91				
Calf starter (18%) @ \$24.65 per cwt.	244	60.07				
Calf grower (16%) @ \$17.35 per cwt.	499	86.56				
Corn gluten feed @ \$11.34 per cwt.			187	\$21.24	1,022	\$115.84
Corn, cracked @ \$9.08 per cwt.			202	18.38	335	30.46
Soybean hulls @ \$184.25 per ton			439	40.45	335	30.89
Alfalfa hay (high) @ \$251.00 per ton	281	35.26				
Grass hay (prairie) @ \$148.00 per ton	219	16.19	619	45.79	2,808	207.79
Pasture @ \$21.70 per acre			2.88	62.51	10.96	237.76
Minerals (w/lasalocid) @ \$38.20 per cwt.			61	23.29	117	44.52
FEED COST PER PERIOD		\$290.00		\$211.66		\$667.25
TOTAL FEED COSTS (Birth to 24 months)		\$1,168.90				

* Pound, acre and dollar amounts have been adjusted to account for death loss and yearling heifer sales.

** Pound, acre and dollars amounts reflect an average of drylot and grazing diets throughout the year.

and taxes on buildings and equipment is based on the original cost times 0.25 percent for insurance and 1.5 percent for taxes (buildings only). The annual cost of buildings and equipment (depreciation, interest, taxes, and insurance) is multiplied by two because the budget covers a 24-month time period.

Net return on assets is the percentage return on investment capital (both borrowed and equity). This measure has been converted to an annual basis to enable comparisons to be made between enterprises as well as other investment alternatives.

COST-RETURN PROJECTION—DAIRY HERD REPLACEMENT

	Projected Budget	Your Farm
RETURNS PER BRED HEIFER SOLD		
1. Springer heifer: 0.92 hd × \$1,310/hd	\$ 1,205.20	_____
2. Cull heifer: 0.040 hd × 1,250 lbs @ \$101.48/cwt	50.74	_____
3. Yearling heifer: 0.040 hd × 725 lbs @ \$145.39/cwt	42.16	_____
4. Less initial value of heifer: \$190/hd + 10.0% death loss	-209.00	_____
5. Less interest on heifer calf investment	-11.76	_____
6. Manure credit	8.78	_____
A. GROSS RETURNS PER HEIFER SOLD	\$ 1,086.12	_____
COSTS PER HEIFER SOLD:		
7. Feed — birth to springer (Table 1)	\$ 1,168.90	_____
8. Labor (10 hrs @ \$15.00 per hr)	150.00	_____
9. Veterinary, drugs, and supplies	30.00	_____
10. Breeding costs for A.I. services	30.00	_____
11. Transportation and marketing costs	29.00	_____
12. Utilities, fuel, and oil	22.95	_____
13. Building and equipment repairs	10.48	_____
14. Miscellaneous	20.00	_____
15. Depreciation on buildings and equipment	30.84	_____
16. Interest on buildings and equipment	14.71	_____
17. Insurance and taxes on building & equipment	6.03	_____
B. SUBTOTAL	\$ 1,512.91	_____
18. Interest on ½ operating costs for 10 months	41.12	_____
C. TOTAL COSTS PER HEIFER SOLD	\$ 1,554.03	_____
D. RETURNS OVER TOTAL COSTS (A-C)	\$ -467.90	_____
E. SPRING HEIFER BREAK-EVEN PRICE, \$/head	\$ 1,828.14	_____
19. Total cost per head per day	\$ 4.99	_____
20. Total cost per pound of gain	\$ 1.39	_____
F. ASSET TURNOVER (A ÷ (Assets × 2)) ¹	78.3%	_____
G. ANNUAL NET RETURN ON ASSETS		
((D + 16 + 18 - 5) ÷ (Assets × 2)) ¹	-28.87%	_____

¹ Total assets = (value of heifer calf plus building and equipment investment)

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