

Holstein Replacement Enterprise Budget



C. Wilson Gray, Robert L. Smathers, and Neil R. Rimbey

Background and Assumptions

Replacement calves are purchased at 3 days of age at the current market price. The heifers remain in the replacement program until calving. Heifers are reared in a drylot facility. Calves are fed a liquid diet for the first 60 days and housed in individual pens. Group pens are used thereafter. Housing is provided in the pens for calves from weaning to 400 pounds. Heifers enter breeding groups at 800 pounds and are bred by artificial insemination. Rations are designed to produce a 1,250-pound heifer in 24 months.

Enterprise Overview

Replacement Information

The total number of replacements of all ages is equal to 210 head. Each year 110 females enter the replacement program from the dairy cow enterprise. Heifers in this program are bred to calve at 24 months of age at about 1,250 pounds. The number on hand is based on the number entering the replacement enterprise per year minus death losses.

Mortality Estimates and Market Value

Time period	Mortality (%)	Market value end of period (\$)
Birth to 3 days	5.0	150
3 days to weaning	3.0	225
Weaning to 400 lb	0.7	400
400 lb to breeding	0.3	825
Breeding to calving	0.1	1,315

Distribution by Ages

The replacements in this enterprise are assumed to be evenly distributed over the time period from 3 days to just before calving at 24 months of age. The following distribution was used for ration formulation and facility requirements.

Distribution by Age

Feed period	% of total	Number of heifers
Liquid feeding	8.2	17
Weaning to 400 lb	17.8	37
400 lb to breeding	36.5	77
Breeding to calving	37.5	79

Labor

Calves are fed liquid diets for 60 days and this requires 2.5 hours of labor per day. The balance of the replacements require 3.0 hours daily for all types of labor requirements (feeding, management, cleaning, etc.).

Feeds

Liquid diets consist of herd waste milk and saleable herd milk. A \$2.50 value is placed on waste milk. Rations are based on computer formulation to provide the following rates of gain: Feeds consist of concentrates, alfalfa hay, and corn silage.

Rates of Gain

Group	Period	Rate of gain (lb/day)
1	Liquid feeding	0.8
2	Weaning to 400 lb	1.6
3	400 lb to breeding	1.8
4	Breeding to calving	1.6
1.60 lb/day gain from 3 days to calving		

Heifer Rations

	Cost (\$/100 lb)	Quantity (lb/day)			
		Group 1	Group 2	Group 3	Group 4
Waste milk	\$ 2.50	3.6	0	0	0
Sale milk	12.25	3.6	0	0	0
Starter	9.50	1.3	0	0	0
Grower	9.50	0	4.0	0	0
Barley	6.74	0	0	4.2	3.4
Mineral	21.00	0	0	.2	.2
Alfalfa hay	3.55	.7	3.4	6.2	9.6
Corn silage	1.25	0	0	18.6	28.7
Cost per head per pen		\$.68	\$.50	\$.78	\$.97

**Dairy Heifer Replacement Budget
Holstein Replacement Heifer Calving
At 24 Months of Age**

1. Gross Receipts	Unit	Price or Cost/unit	Number of Units/Head	Value or Cost/Head	Your Value
Replacement Heifer ¹	Head	1,315.00	1.00	1,315.00	_____
Manure Credit	Head	0.00	1.00	<u>0.00</u>	_____
Total Receipts				\$1,315.00	_____
2. Variable Costs					
Initial Heifer Value	Head	100.00	1.00	\$100.00	_____
Feeds:					
Roughages	Cwt.	3.64	88.50	\$322.21	_____
Concentrates	Cwt.	7.97	27.50	219.08	_____
Liquids	Cwt	7.40	4.31	31.86	_____
Hired Labor					
Calf Stage	Hour	10.00	9.18	91.76	_____
Heifer Stage	Hour	10.00	10.40	103.92	_____
Drugs/Veterinary	Head	26.39	1.00	26.39	_____
Bedding	Head	22.75	1.00	22.75	_____
Repairs - All	Head	24.21	1.00	24.21	_____
Fuel	Head	18.77	1.00	18.77	_____
Breeding	Head	19.50	1.00	19.50	_____
Death Loss	Head	10.28	1.00	10.28	_____
Interest on Heifer ²	Dol	0.068	100.00	13.50	_____
Interest On Operating Capital ³	Dol	0.063	880.00	<u>55.18</u>	_____
Total Variable Cost				\$1059.41	_____
3. Income Above Variable Costs				\$255.59	_____
4. Fixed Costs					
Interest on Avg. Investment	Dol.	0.068	282.00	\$38.01	_____
Depreciation on All	Head	58.70	1.00	58.70	_____
Insurance	Head	4.28	1.00	<u>4.28</u>	_____
Total Fixed Cost				\$101.00	_____
5. Total Cost				\$1,160.41	_____
6. Returns to Operator Labor, Mgmt and Risk				\$154.59	_____

¹Total weight gain by heifer from weaning to calving = 1250 lbs.

²Interest on heifer and on average investment is based on the age of the heifer at first calving (e.g. .0675 x \$100 x 2 years = \$13.50).

³Operating interest is based on 1/2 of total operating capital for 24 months (e.g. .0625 x \$880 x .5 x 24 months.)

Dairy Heifer Enterprise Summary

Labor Summary:

	Hired (Hours)	Owner (Hours)	Total (Hours)
Calf stage	9.2	0.0	9.2
Heifer stage	10.4	0.0	10.4

Cost Summary:

	Percent Total Cost (%)	Total Expense (\$)	100 LBS. Gain (\$)
1. Variable Cost			
Initial Value of Heifer	8.6	100.00	8.62
Feeds	49.4	573.00	49.41
Labor (Hired only)	16.9	196.00	16.87
Drug, Vet., Breeding	4.0	46.00	3.96
Repairs, Fuel and Utilities	3.7	43.00	3.71
Custom Hire, Prof. Service, Bedding	2.0	23.00	1.96
Interest on Operating & Livestock	5.9	69.00	5.92
Death loss	<u>.9</u>	<u>10.00</u>	<u>0.89</u>
Total Variable Cost	91.3%	\$1,059.00	\$91.33
2. Fixed Costs	8.7%	\$101.00	\$8.71
3. Total Variable and Fixed Cost	100.00%	\$1,160.00	\$100.04

Sensitivity Analysis

Returns over variable costs when the price of replacement heifers ranges from \$1,135 to \$1,495 and the price of roughages ranges from \$2.65 to \$4.65

		Replacement Heifer Price per Head		
		\$1135	\$1315	\$1495
Roughage Price/cwt.	\$2.65	164	344	524
	\$3.65	76	256	436
	\$4.65	-13	167	347

Returns to labor, management and risk when the price of replacement heifers ranges from \$1,135 to \$1,495 and the price of roughages ranges from \$2.65 to \$4.65

		Replacement heifer price per head		
		\$1135	\$1315	\$1495
Roughage Price/cwt.	\$2.65	63	243	423
	\$3.65	-25	155	335
	\$4.65	-114	66	246

The Authors — C. Wilson Gray is Extension agricultural economist in the UI District 3 Extension Office, Twin Falls. Robert L. Smathers is an Extension associate in the University of Idaho Department of Agricultural Economics and Rural Sociology, Moscow. Neil R. Rimbey is Extension range economist in the UI Southwest Idaho Research and Extension Center, Caldwell.

Issued in furtherance of cooperative extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, A. Larry Branen, Interim Director of Cooperative Extension System, University of Idaho, Moscow, Idaho 83843. The University of Idaho provides equal opportunity in education and employment on the basis of race, color, religion, national origin, gender, age, disability, or status as a Vietnam-era veteran, as required by state and federal laws.