

# 2014 Idaho Livestock Costs and Returns Estimate



EBB-D2-14

Holstein Dairy Enterprise Annual 210-Cow Budget

Small Idaho herd                      25,333 pounds milk per cow  
Free stall housing                      Total mixed rations

*Kathleen M. Painter and Richard J. Norell*

## University of Idaho Extension

*Agricultural Economics & Rural Sociology*

## Background and Assumptions

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. This budget represents the average costs and returns per cow associated with a 210-cow dairy herd. The rolling 365-day 3.5% fat-corrected milk production for the year is 25,333 lb, which is 5% higher than the state average of 24,127 pounds. The herd is milked two times daily in a double 6 herringbone parlor. Cows are grouped in three production strings and fed a total mixed ration.

Free stall housing is provided for the milking cows. Loose housing is provided for dry cows. All pens have lock-type stanchions for herd management. The owner contributes to the daily labor requirement. The \$3,279 per cow facility investment is based on the best estimate of current cost and the average value of each component over its useful life.

### Dairy Overview

#### Herd Information

The herd consists of 210 cows total with 85 percent of cows in milk (180 milking + 30 dry). The herd replacement rate is 34.5% annually (28% cull loss and 6.5% mortality) with ready-to-calve heifers used as replacement (\$1,944 per head). The herd has an average 13-month calving interval. Thus, 194 calves are born each year (12/13 times 210 cows). Calves are assumed to be half bulls and half heifers and have a 5% mortality at birth.

#### Labor

All milking labor is hired (see Table 1). A total of 9.1 hours per day are required for milking, set up, and cleaning, based on the assumption that a double 6 herringbone parlor can milk about 48 cows per hour, and 85% of the herd is milking at any one time. Thus, 7.6 hours per day are needed to milk 180 cows per day, plus an additional 1.5 hours per day are necessary for set up and cleaning.

Feeding labor is hired (3.3 hour/day), and assumes that four rations are prepped two times per day (3 milking rations and 1 dry cow ration). Cow management labor is hired (3 hours/day), and consists of moving cows, managing bedding, breeding cows, herd health activities, maintenance of milking equipment and other cow related activities. Herd management labor is provided totally by the herd owner (3 hours/day) and includes activities such as update cow records, culling lists, sire selection, herd health checklists, order feed, financial planning, hiring workers, and other dairy decision making practices.

Manure handling consists of scraping the freestall barn alleyways twice daily and land applying for 275 days of the year. For 90 days, manure from the freestall barn is scraped and stockpiled on the dairy with land application in the fall. Manure from the dry cow lot is stockpiled and applied in the fall. Average daily labor for manure handling is 3 hours and is provided by hired labor.

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### Feed

A total mixed ration (TMR) is prepared for each pen. The TMR for the milking herd includes alfalfa hay, corn silage, and a dairy concentrate mix (processed grain, protein supplements, commodity feeds, buffers, and minerals) purchased from their feed supplier while the non-lactating cows receive alfalfa hay, corn silage, grass hay, straw, and a close-up dry cow grain mix. The TMR for lactating cows includes on average 15 lb of hay, 31 lb of corn silage, and 32.8 lb of dairy concentrate (Table 2). The average TMR for non-lactating cows has 4.1 lb of alfalfa hay, 20.2 lb of feeder hay and straw, 34.8 lb of silage, and 3.2 lb of a dry cow grain mix. Far-off cows will receive more roughage and no concentrates, while close-up cows get 8-10 lb of special close-up grain mix and less roughage.

**Table 1. Daily (hr/herd) and Annual (hr/head) Labor**

	Daily (hr/herd)		Annual labor (hr/cow)		
	Hired	Owner	Hired	Owner	Total
Milking	9.1	0.0	15.8	0.0	15.8
Feeding	3.3	0.0	5.7	0.0	5.7
Cow management	3.0	0.0	5.2	0.0	5.2
Herd management	0.0	3.0	0.0	5.2	5.2
Manure handling	3.0	0.0	5.2	0.0	5.2
Total	18.4	3.0	32.0	5.2	37.2

**Table 2. Daily Feed Ration Quantities (lb/cow) and Cost by Pen (\$/day)**

Pen	Price (\$/cwt)	Cow Ration Quantity (lb/day as fed)					Cost per head by pen
		Alfalfa hay	Corn silage	Dairy concentrate	Close-up concentrate	Dry cow hay and straw	
		\$11.75	\$2.25	\$11.88	\$23.13	\$9.26	
Lactating		15	31	32.8	0	0	\$6.36
Dry		4.1	34.8	0	3.2	20.2	\$3.88

**Table1: Holstein Dairy Enterprise Annual Cow Budget**  
**Small-sized Idaho herd, 25,333 pounds per milk cow**  
**Free stall housing, Total mixed rations**

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	Weight Each	Unit	Total Number of Head or Units	Price or Cost/Unit	Total Value	Value or Cost/Head	Your Value
<b>1. Gross Receipts</b>							
Milk	253.33	cwt	210	22.34	1,188,472.36	5659.39	_____
Bull Calves	1.00	head	92	181.00	16,680.96	79.43	_____
Heifer Calves	1.00	head	92	234.00	21,565.44	102.69	_____
Cull cows	1.00	head	59	1515.00	89,082.00	424.20	_____
Total Receipts					\$1,315,800.76	\$6265.72	_____
<b>2. Operating Costs</b>							
Alfalfa Hay		cwt	10,162.80	11.75	119,412.90	568.63	_____
Corn silage		cwt	23,846.40	2.25	53,654.40	255.50	_____
Dairy concentrate		cwt	21,254.40	11.88	252,502.27	1202.39	_____
Close-up concentrate		cwt	345.60	23.13	7993.73	38.07	_____
Dry cow hay & straw		cwt	2181.60	9.26	20,201.62	96.20	_____
Milk hauling		head	210.00	57.00	11,970.00	57.00	_____
Supplies		head	210.00	121.50	25,515.00	121.50	_____
Utilities		head	210.00	43.00	9030.00	43.00	_____
Bedding		head	210.00	66.00	13,860.00	66.00	_____
Replacement heifers		head	72.40	1944.00	140,737.82	670.18	_____
Legal & accounting		head	210.00	6.78	1423.80	6.78	_____
State & association charges		head	210.00	37.72	7921.20	37.72	_____
Insurance		head	210.00	27.00	5670.00	27.00	_____
Miscellaneous		head	210.00	26.00	5460.00	26.00	_____
Marketing		head	210.00	47.00	9870.00	47.00	_____
Interest		head	210.00	100.00	21,000.00	100.00	_____
Veterinary Medicine & Breeding	\$		38,028.90	1.00	38,028.90	181.09	_____
Machinery (fuel, lubrication, repair)	\$		11,275.06	1.00	11,275.06	53.69	_____
Vehicles (fuel, repair)	\$		5467.50	1.00	5467.50	26.04	_____
Equipment (repair)	\$		9451.20	1.00	9451.20	45.01	_____
Housing and Improvements (repair)	\$		8497.50	1.00	8497.50	40.46	_____
Hired Labor		hour	6624.00	10.83	71,717.76	341.51	_____
Owner Labor		hour	1080.00	23.47	25,347.60	120.70	_____
Total Operating Costs					\$876,008.26	\$4171.47	_____
<b>3. Income Above Operating Costs</b>					\$439,792.50	\$2094.25	_____
<b>4. Ownership Costs</b>							
Capital Recovery:							
Purchased Livestock	\$		0.00	1.00	0.00	0.00	_____
Housing and Improvements	\$		40,986.58	1.00	40,986.58	195.17	_____
Machinery	\$		9244.44	1.00	9244.44	44.02	_____
Equipment	\$		24,595.70	1.00	24,595.70	117.12	_____
Vehicles	\$		5459.10	1.00	5459.10	26.00	_____
Interest on Retained Livestock	\$		325,395.00	0.06	18,710.21	89.10	_____
Taxes and Insurance	\$		3351.40	1.00	3351.40	15.96	_____
Overhead	\$		18,700.00	1.00	18,700.00	89.05	_____
Total Ownership Costs					\$121,047.44	\$576.42	_____
<b>5. Total Costs</b>					\$997,055.70	\$4747.88	_____
<b>6. Returns to Risk and Management</b>					\$318,745.06	\$1517.83	_____



**Table 4: Investment Summary.**

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	Purchase Price	Salvage/Cull Value	Livestock Share	Useful Life	Annual Taxes and Insurance	Annual Capital Recovery <sup>1</sup>
<b>Buildings, Improvements and Equipment</b>						
Land for dairy	\$67,600.00	\$67,600.00	80	100	\$324.48	\$2974.40
D-6 herringbone	\$69,500.00	\$10,400.00	100	20	\$239.70	\$5517.45
Free stalls/pens	\$239,200.00	\$23,920.00	100	20	\$789.36	\$19,330.09
Commodity shed	\$26,000.00	\$2600.00	100	20	\$85.80	\$2101.10
Dry cow shed	\$20,700.00	\$3100.00	100	15	\$71.40	\$1923.91
Maternity pens	\$13,500.00	\$2100.00	100	15	\$46.80	\$1251.23
Waste lagoon	\$18,100.00	\$0.00	100	15	\$54.30	\$1803.22
Silage bunker	\$46,700.00	\$5200.00	100	20	\$155.70	\$3758.69
Hay storage	\$41,500.00	\$5200.00	70	20	\$98.07	\$2326.49
Parlor equipment	\$23,700.00	\$4900.00	100	10	\$85.80	\$2763.65
Milking equipment	\$31,600.00	\$6200.00	100	10	\$113.40	\$3710.76
Bulk tank	\$54,000.00	\$8600.00	100	20	\$187.80	\$4272.04
Vertical mixer, 700T	\$57,000.00	\$11,400.00	100	10	\$205.20	\$6676.65
Stock trailer	\$11,600.00	\$1300.00	100	8	\$38.70	\$1784.42
Manure spreader	\$46,000.00	\$9200.00	100	10	\$165.60	\$5388.17
<b>Total</b>	<b>\$766,700.00</b>				<b>\$2662.11</b>	<b>\$65,582.28</b>
<b>Purchased Livestock</b>						
<b>Total</b>	<b>\$0.00</b>					<b>\$0.00</b>
<b>Retained Livestock</b>						
Cows	\$408,240.00	\$242,550.00	100			\$18,710.21 <sup>2</sup>
<b>Total</b>	<b>\$408,240.00</b>					<b>\$18,710.21<sup>2</sup></b>
<b>Machinery and Vehicles</b>						
Tractor - 55hp, older	\$20,000.00	\$10,000.00	80	26	\$72.00	\$1028.55
Tractor - 105hp	\$78,500.00	\$20,900.00	70	16	\$208.74	\$4604.48
ATV	\$7100.00	\$1000.00	50	10	\$12.15	\$432.14
Tractor - 90hp	\$46,000.00	\$9200.00	80	16	\$132.48	\$3179.28
Farm pickup	\$34,000.00	\$5100.00	90	6	\$263.93	\$5459.10
<b>Total</b>	<b>\$185,600.00</b>				<b>\$689.30</b>	<b>\$14,703.54</b>

<sup>1</sup> Annual capital recovery is the method of calculating depreciation and interest recommended by the National Task Force on Commodity Costs and Returns Measurement Methods.

<sup>2</sup> Interest on average investment.

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