

2014 Idaho Livestock Costs and Returns Estimate



EBB-D1-14

Holstein Dairy Enterprise Annual 210-Cow Budget

Small Idaho herd 24,127 pounds milk per cow
Open lots, no housing Total mixed rations

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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 for the year is 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.

No outside 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 \$2,171 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 replacements (\$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 47 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 (4 hours/day), and consists of moving cows, managing bedding, maintaining the dry lot, breeding cows, herd health activities, maintenance of milking equipment and other cow related activities. Herd management is provided totally by the herd owner (4 hours/day). Lot management consists of scraping the lots in the summer, and scraping and bedding in winter. Manure handling consists of scraping the feed alley and stockpiling in the drylot area (1 hour of hired labor per day). A custom operator land applies the manure in the spring and fall.

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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 supplement, 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 31.1 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, 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	4.0	0.0	7.0	0.0	7.0
Herd management	0.0	4.0	0.0	7.0	7.0
Manure handling	2.0	0.0	3.5	0.0	3.5
Lot management	1.5	0.0	2.6	0.0	2.6
Total	19.9	4.0	34.6	7.0	41.5

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	31.1	0	0	\$6.15
Dry		4.1	34.8	0	3.2	20.2	\$3.88

Table1: Holstein Dairy Enterprise Annual Cow Budget
Small-sized Idaho herd, 24,127 pounds per milk cow
Open lots w/o housing, Total mixed rations (TMR)

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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
1. Gross Receipts							
Milk	241.27	cwt	210	22.45	1,137,467.42	5416.51	_____
Bull Calves	1.00	head	79	181.00	14,285.24	68.02	_____
Heifer Calves	1.00	head	79	234.00	18,468.22	87.94	_____
Cull cows	1.00	head	59	1515.00	89,082.00	424.20	_____
Total Receipts					\$1,259,302.88	\$5996.68	_____
2. Operating Costs							
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	20,152.80	11.88	239,415.26	1140.07	_____
Close-up concentrate		cwt	345.60	23.13	7993.73	38.07	_____
Dry cow hay & straw		cw	2,811.60	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	_____
Legal & accounting		head	210.00	6.78	1423.80	6.78	_____
Dairy replacement heifers		head	72.40	1944.00	140,737.82	670.18	_____
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	_____
Custom manure management		head	210.00	64.78	13,602.96	64.78	_____
Bedding		head	210.00	109.00	22,890.00	109.00	_____
Interest on operating expense		head	210.00	94.00	19,740.00	94.00	_____
Marketing		head	210.00	46.00	9660.00	46.00	_____
Veterinary Medicine & Breeding	\$		38,028.90	1.00	38,028.90	181.09	_____
Machinery (fuel, lubrication, repair)	\$		12,285.71	1.00	12,285.71	58.50	_____
Vehicles (fuel, repair)	\$		4155.00	1.00	4155.00	19.79	_____
Equipment (repair)	\$		8965.40	1.00	8965.40	42.69	_____
Housing and Improvements (repair)	\$		3649.50	1.00	3649.50	17.38	_____
Hired Labor		hour	9084.00	10.75	97,646.16	464.98	_____
Owner Labor		hour	1080.00	23.47	25,347.60	120.70	_____
Total Operating Costs					\$904,376.96	\$4306.56	_____
3. Income Above Operating Costs					\$354,925.92	\$1690.12	_____
4. Ownership Costs							
Capital Recovery:							
Purchased Livestock	\$		0.00	1.00	0.00	0.00	_____
Housing and Improvements	\$		21,702.86	1.00	21,702.86	103.35	_____
Machinery	\$		10,956.32	1.00	10,956.32	52.17	_____
Equipment	\$		22,998.25	1.00	22,998.25	109.52	_____
Vehicles	\$		5459.10	1.00	5459.10	26.00	_____
Interest on Retained Livestock	\$		363,195.00	0.06	20,883.71	99.45	_____
Taxes and Insurance	\$		2585.04	1.00	2585.04	12.31	_____
Overhead	\$		20,000.00	1.00	20,000.00	95.24	_____
Total Ownership Costs					\$104,585.29	\$498.03	_____
5. Total Costs					\$1,008,962.25	\$4804.58	_____
6. Returns to Risk and Management					\$250,340.62	\$1192.10	_____

Table 4: Investment Summary.

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	Purchase Price	Salvage/Cull Value	Livestock Share	Useful Life	Annual Taxes and Insurance	Annual Capital Recovery ¹
Buildings, Improvements and Equipment						
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
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
Cow pens	\$22,800.00	\$3100.00	100	15	\$77.70	\$2133.12
Silage bunker	\$46,700.00	\$4700.00	100	20	\$154.20	\$3773.03
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	\$21,600.00	\$4300.00	100	10	\$77.70	\$2531.65
Bulk tank	\$54,000.00	\$8600.00	100	20	\$187.80	\$4272.04
TMR wagon (vertical mixer)	\$57,000.00	\$11,400.00	100	10	\$205.20	\$6676.65
Stock trailer	\$11,600.00	\$1300.00	95	10	\$36.77	\$1366.08
Manure spreader	\$46,000.00	\$9200.00	100	10	\$165.60	\$5388.17
Total	\$514,300.00				\$1825.52	\$44,701.11
Purchased Livestock						
Total	\$0.00					\$0.00
Retained Livestock						
Cows	\$408,240.00	\$318,150.00	100			\$20,883.71 ²
Total	\$408,240.00					\$20,883.71²
Machinery and Vehicles						
Tractor - 90hp	\$46,000.00	\$9200.00	100	16	\$165.60	\$3974.10
Tractor - 105hp	\$78,500.00	\$20,900.00	80	16	\$238.56	\$5262.26
ATV	\$7100.00	\$1000.00	80	10	\$19.44	\$691.42
Tractor - 55hp, older	\$20,000.00	\$10,000.00	80	26	\$72.00	\$1028.55
Farm pickup	\$34,000.00	\$5100.00	90	6	\$263.93	\$5459.10
Total	\$185,600.00				\$759.52	\$16,415.43

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

² Interest on average investment.

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