
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2008

**SAMPLE COSTS FOR BEEF CATTLE
COW – CALF PRODUCTION**

300 Head



SACRAMENTO VALLEY

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300 Cow Head
Sacramento Valley – 2008

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INTRODUCTION

The cattle industry in California has undergone dramatic changes in the last few decades. Ranchers have experienced increasing costs of production with a lack of corresponding increase in income. Issues such as international competition, new regulatory requirements, changing consumer demand, economies of scale, and competing land uses all affect the economics of ranching. Rangeland makes up the largest percentage of acreage in the state. Cattle operations play an important part on California’s environment and landscape. They need to be economically viable to maintain the current landscape.

Sample costs to raise beef cattle are presented in this study. This study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. Practices described are based on production practices considered typical for a beef cattle cow-calf operation, but will not apply to every situation. Sample costs for labor, materials, equipment and custom services are based on current figures.

The hypothetical cattle operation, production practices, overhead, and calculations are described under the assumptions. For additional information or an explanation of the calculations used in the study call the Department of Agricultural and Resource Economics, University of California, Davis, (530) 752-3589 or your local UC Cooperative Extension office.

Sample Cost of Production Studies for many commodities can be downloaded at <http://coststudies.ucdavis.edu>, requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-4424 or obtained from the local county UC Cooperative Extension offices. Some archived studies are also available on the website.

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ASSUMPTIONS

The assumptions refer to Tables 1 to 4 and pertain to sample costs to operate a beef cow – calf operation. Practices described represent production practices and materials considered typical of a well-managed ranch in the region. The costs, materials, and practices shown in this study will not apply to all situations. Production practices vary by rancher and the differences can be significant. The study does not represent a single ranch and is intended as a guide only. **The use of trade names and ranching practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.**

Farm. The cattle producer rents all range and pasture land. The farm is a “typical” owner-operated cow-calf ranch operation in the northern Sacramento Valley. Grazing requires 6 to 17 acres per cow-calf pair, depending upon the amount of forage available. Actual herd numbers in California vary widely, ranging from part-time operations of less than 10 cows to operations running thousands. This cost study is based upon numbers from a herd of 300 cows.

Ranching operations in California can be generally classified into four types. The first type includes part-time operations that run a small number of animals (less than 20) in order to utilize existing forage resources, keep the grass down, or on a hobby-type basis. The second type includes medium-sized operations (around 75 cows) that are run as a separate business, but are part of a larger diversified operation with farming or other businesses. The third type includes large operations (over 200 cows) where cattle production is the primary enterprise and source of income. The final category includes large cattle ranches that are supported by supplemental income from other farm and non-farm sources.

The cost calculations are based on economic principles that include all cash costs. This analysis has used a rental value of the AUMs as a cost of operation. For this reason land taxes, fence and building depreciation, and land value are not considered in the costs.

Production Operating Costs

Pasture, Hay and Supplements. This includes the market value of all feed (purchased or raised) that was used in the cow-calf operation. Mineral supplements and salt are provided to the animals year round. Livestock are fed stock quality alfalfa hay only over short periods of time when there is limited feed available on rangeland and during weaning and shipping. Each animal consumes approximate one-half ton of hay. Winter range feeding is from November through April, and summer feeding on irrigated or mountain pasture from May through October.

Health, Veterinary, Medicine. This includes the value of vaccines, medicines, veterinary services, fertility testing, breeding fees, etc. Prebreeding vaccinations are done in December, dry cow vaccinations and deworming in August. Steer and heifer calves are branded, dehorned, and vaccinated in March. The bull calves are also castrated in March. Heifer calves booster vaccinations are given in May. In this study, it is assumed three-fourths of the costs occur in May and one-fourth equally split between August and November. Many of the ranchers participating in the budget review no longer invest in pregnancy testing of their cows in an effort to reduce veterinary costs to the operation.

Horse Maintenance. Costs for shoeing horses, veterinary and feed expenses are based on costs reported by the participating producers.

Vehicle/Freight. Pickup business vehicle mileage is estimated at 15,000 miles per year and includes mileage while pulling the stock trailer. Estimated mileage for the stock trailer is 2,300 miles and the All Terrain Vehicle (ATV) 4-wheeler is 3,500 miles per year. Prices for on road use of diesel is \$4.05 per gallon and \$3.45 for gasoline. The costs are based on November 2007 to April 2008 American Automobile Association (AAA) and Department of Energy monthly fuel price data. Freight or trucking costs are commercial costs for hauling the cattle between summer and winter grazing. Each load can haul approximately 50,000 pounds (approximately 35 mature cows).

Repairs – Vehicle/Equipment. Repairs for vehicles are calculated as 7% of the purchase price and equipment as 2%.

Labor –Most ranchers can no longer afford hired labor, but may use volunteer weekend help. Owner labor for hauling turnout, gathering, feeding, fence repair, irrigation, salting, checking cows, and moving pastures is also not included as a cost. Based upon general producer information, the estimated owner man-hours are 6.93 hours per cow per year and the estimated weekend volunteer labor is 0.66 hours per cow per year.

Operations and Marketing. The Operations Calendar for a beef breeding herd selling weaned calves is shown in Table A. Operations will vary according to the season.

Table A. Operations Calendar

Month	Operation
September 1 to December 1	Calving
November 1 to April 30	Winter Range
December 1 to February 28	Breeding
May 1 to October 31	Irrigated Pasture
March	Cull Cows Sold
March	Cull Bulls Sold
May	Calves Sold
September	Yearling Heifers Sold

Marketing. Marketing is based on range and pasture operations for a 300 cow herd with a 89% calf crop born, 85% of the calf crop (cows exposed to bulls) weaned, 1% cow mortality, and 11% (9% cull and 2% death) herd replacement.

The goal of a cow calf operation is to wean and sell a calf from every cow, but a typical ranch will wean about 85%. Cull cows, cull bulls, steers, heifer calves (8 months old) and yearling heifers not used for replacements are sold via video or auction in May. Marketing costs include video and/or auction fees, brand inspection and an assessment for beef promotion (Checkoff). For this herd, the rancher sells 27 cull cows, 207 calves (86 heifer calves and 131 steer calves), 15 yearling heifers, and 4 cull bulls. Months of sales are shown in Table A.

Returns. Returns are based on a Northern California cattlemen producer focus group facilitated by UC Cooperative Extension and Texas A & M University that resulted in the publication, *California Representative Beef Ranch* showing a summary of California average market price data in 2006. Returns based on a 300-cow herd over a range of prices are shown in Table 3.

Interest on Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 6.75% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest rate is the basic rate provided by a farm lending agency as of April, 2008.

Risk. Production risks should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial and market risks, which affect the profitability and economic viability of cattle production.

Cash Overhead

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office expense, liability and property insurance, sanitation services, equipment repairs, and management.

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage.

Office Expense. Office and business expenses are estimated at \$3,000 per year or \$10 per head. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop and office utilities, and miscellaneous administrative charges.

Non-cash Overhead

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$.

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The purchase price and salvage value for equipment and investments are shown in the tables.

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate used and the life of the machine.

Interest Rate. The interest rate of 4.25% used to calculate capital recovery cost is the effective long term interest rate effective April 2008. The interest rate is provided by a local farm lending agency and will vary according to risk and amount of loan.

Tools/Equipment. Shop and fencing tools and chainsaw are included in this category.

Tack. Includes two saddles and related necessary equipment (blanket, headgear, etc.).

Portable Cattle Working Facilities. Consists of portable loading chutes and portable corral panels. Depending upon the type and number of squeeze chutes and corral panels, the price will vary. An estimated price for livestock handling equipment required by a typical 300-cow operation is used in this study.

Livestock. Livestock includes 300-bred cows, 13 bulls, and 3 horses. Nine bulls are in inventory overhead, because it is assumed that the producer will cull 4 bulls per year and in turn purchase 4 bulls, which are included in the cash operations. Cow values are based on the average of prices over a 16 year period approved by Farm Credit for use in liquidation and collateral valuations and does not reflect the current market.

Equipment. Farm equipment is purchased new or used, but the study shows the current purchase price for new equipment. Annual ownership costs for equipment and other investments are shown in the Equipment, Investment, and Business Overhead Costs table. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. The operating costs consist of repairs, fuel, and lubrication.

Table Values. Due to rounding, the totals may be slightly different from the sum of the components.

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Table 1. COSTS AND RETURNS FOR BEEF COW - CALF PRODUCTION
 300 Head, Cow-Calf Operation
 SACRAMENTO VALLEY - 2008

	Weight Each (cwt)	Total Head Unit or Units	Price or Cost/Unit	Total Value	Value or Cost/Head	Your Costs
GROSS RECEIPTS						
Steer Calves	6.38	head	131	103.62	86,604	288.68
Heifer Calves	6.15	head	86	92.29	48,812	162.71
Yearling Heifers	8.25	head	15	90.77	11,233	37.44
Cull Cows	12.50	head	27	47.00	15,863	52.88
Cull Bulls	18.00	head	4	55.10	3,967	13.22
Total RECEIPTS				166,478	554.93	
OPERATING COSTS						
Mineral Supplements		lbs	12,000	0.39	4,680	15.60
Alfalfa Hay (stock quality)		lbs	300,000	0.10	30,000	100.00
Salt Supplement		lbs	10,000	0.12	1,200	4.00
Pasture: Winter		AUM	300	140.00	42,000	140.00
Pasture: Summer		AUM	300	162.00	48,600	162.00
Brand Inspection		head	300	1.05	315	1.05
Marketing Order Promo (Checkoff)		head	300	1.00	300	1.00
Freight/trucking		head	300	30.00	9,000	30.00
Marketing		head	300	10.50	3,150	10.50
Horse (Shoes, Vet, Feed)		month	12	90.00	1,080	3.60
Yearling Bulls Purchased		head	4	2,058.00	8,232	27.44
Veterinary Medicine		\$	9,000	1.00	9,000	30.00
Vehicles (fuel, lube, repair)		\$	9,514	1.00	9,514	31.71
Equipment (repair)		\$	532	1.00	532	1.77
Interest on Operating Capital @ 6.75%		\$	70,893	0.07	4,785	15.95
Total OPERATING COSTS				172,388	574.63	
INCOME ABOVE OPERATING COSTS				-5,910	-19.70	
OWNERSHIP COSTS						
Cash Overhead:						
Taxes and Insurance				2,000	6.67	
Office				3,500	11.67	
Non-Cash Overhead:						
Capital Recovery (Livestock, Equipment)				22,015	73.38	
Total OWNERSHIP COSTS				27,515	91.72	
Total COSTS				199,902	666.34	
Returns to Labor, Management, Investment				-33,424	-111.41	

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Table 2. MONTHLY SUMMARY OF CASH RETURNS AND EXPENSES
 300 Head, Cow-Calf Operation
 SACRAMENTO VALLEY - 2008

	Jun 08	Jul 08	Aug 08	Sep 08	Oct 08	Nov 08	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	May 09	Total
PRODUCTION													
Steer Calves	0	0	0	0	0	0	0	0	0	0	0	86,604	86,604
Heifer Calves	0	0	0	0	0	0	0	0	0	0	0	48,812	48,812
Yearling Heifers	0	0	0	11,233	0	0	0	0	0	0	0	0	11,233
Cull Cows	0	0	0	0	0	0	0	0	0	15,863	0	0	15,863
Cull Bulls	0	0	0	0	0	0	0	0	0	3,967	0	0	3,967
Total RECEIPTS	0	0	0	11,233	0	0	0	0	0	19,830	0	135,416	166,478
OPERATING INPUTS													
Mineral Supplements	390	390	390	390	390	390	390	390	390	390	390	390	4,680
Alfalfa hay	0	0	0	5,000	5,000	5,000	5,000	5,000	5,000	0	0	0	30,000
Salt Supplement	100	100	100	100	100	100	100	100	100	100	100	100	1,200
Pasture: Winter	0	0	0	0	0	21,000	0	0	0	0	21,000	0	42,000
Pasture: Summer	0	0	0	0	24,300	0	0	0	0	0	0	24,300	48,600
Brand Inspection	0	0	0	0	0	0	0	0	0	0	0	315	315
Marketing Order Promo (Checkoff)	0	0	0	0	0	0	0	0	0	0	0	300	300
Freight/trucking	0	0	0	0	0	0	4,500	0	0	0	0	4,500	9,000
Marketing	0	0	0	0	0	0	0	0	0	0	0	3,150	3,150
Horse (Shoes, Vet, Feed)	90	90	90	90	90	90	90	90	90	90	90	90	1,080
Yearling Bulls Purchased	0	0	0	0	0	8,232	0	0	0	0	0	0	8,232
Veterinary Medicine	0	0	1,110	0	0	1,140	0	0	0	0	6,750	0	9,000
Vehicles (Fuel and Repair)	793	793	793	793	793	793	793	793	793	793	793	793	9,514
Equipment (Repair)	44	44	44	44	44	44	44	44	44	44	44	44	532
Taxes and Insurance	0	0	0	0	0	0	2,000	0	0	0	0	0	2,000
Total Costs	1,418	1,417	2,528	6,417	30,718	36,789	12,918	6,417	6,417	1,417	29,167	33,982	169,603
Net Returns	-1,418	-1,417	-2,528	4,816	-30,718	-36,789	-12,918	-6,417	-6,417	18,413	-29,167	101,434	-3,125
OPERATING INTEREST													
Cumulative Operating Costs	1,418	2,835	5,362	11,779	42,497	79,286	92,204	98,621	105,037	106,454	135,621	169,603	169,603
Interest on Operating Expenses	7.97	15.94	30.16	66.26	239.05	445.98	518.65	554.74	590.84	598.81	762.87	954.02	4,785

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Table 3. RANGING ANALYSIS FOR BEEF COW - CALF PRODUCTION
 300 Head Cow-Calf Operation
 SACRAMENTO VALLEY - 2008

	Total Head	Weight cwt	Market Prices (\$ per cwt)									
Steer Calves	131	6.38	91.75	94.75	97.75	100.75	103.75	106.75	109.75	112.75	115.75	118.75
Heifer Calves	86	6.15	86.00	89.00	92.00	95.00	98.00	101.00	104.00	107.00	110.00	113.00
Yearling Heifers	15	8.25	79.75	82.75	85.75	88.75	91.75	94.75	97.75	100.75	103.75	106.75
Cull Cows	27	12.50	36.50	39.50	42.50	45.50	48.50	51.50	54.50	57.50	60.50	63.50
Cull Bulls	4	18.00	45.00	48.00	51.00	54.00	57.00	60.00	63.00	66.00	69.00	72.00
Gross Income			147,596	153,290	158,984	164,677	170,371	176,065	181,759	187,453	193,146	198,840
Total Operating Costs			172,388	172,388	172,388	172,388	172,388	172,388	172,388	172,388	172,388	172,388
Net Income			-24,792	-19,098	-13,405	-7,711	-2,017	3,677	9,370	15,064	20,758	26,452
Net Income per Head	300		-82.64	-63.66	-44.68	-25.70	-6.72	12.26	31.23	50.21	69.19	88.17

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Table 4. EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD
 300 Head, Cow-Calf Operation
 Sacramento Valley – 2008

	Purchase Price	Salvage/Cull Value	Livestock Share (%)	Useful Life (yr)	Annual Taxes and Insurance	Annual Capital Recovery
BUILDINGS, IMPROVEMENTS AND EQUIPMENT						
Gooseneck trailer 16'	10,000	1,000	100	20	100	719.48
Squeeze. Loading Chute	9,500	1,700	100	20	0	658.96
Shop/Fencing Tools	4,100	0	100	10	0	511.80
Saddles (2)/Tack	3,000	0	100	10	0	374.49
Total BUILDINGS, IMPROVEMENTS AND EQUIPMENT	26,600				100	2,264.73
LIVESTOCK Inventory						
Bulls (9)	18,522	8,926	100	4		3,038.50
Cows Bred (300)	187,500	176,250	100	5		10,035.45
Horses (3)	7,500	1,500	100	10		812.73
Total LIVESTOCK Inventory Value	213,522					13,886.68
MACHINERY AND VEHICLES						
ATV	5,500	500	100	7	50	847.39
Pickup 4x4 3/4 ton	32,000	3,000	75	5	1,850	5,015.63
Total MACHINERY AND VEHICLES	37,500				1,900	5,863.02