
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2004

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

300 Head



SACRAMENTO VALLEY

Larry C. Forero	UC Cooperative Extension Farm Advisor, Shasta County
Glenn A. Nader	UC Cooperative Extension Farm Advisor, Sutter - Yuba Counties
Karen M. Klonsky	UC Cooperative Extension Specialist, Department of Agricultural and Resource Economics, UC Davis
Pete Livingston	UC Cooperative Extension Staff Research Associate, Department of Agricultural and Resource Economics, UC Davis
Richard L. De Moura	Staff Research Associate, Department of Agricultural and Resource Economics, UC Davis

UC COOPERATIVE EXTENSION
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300 Cow Head
Sacramento Valley – 2004

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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 grower and the differences can be significant. **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 only over short periods of time when there is limited feed available on rangeland and during weaning and shipping. 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 3,450 miles per year. Freight or trucking costs are commercial costs for hauling the cattle between summer and winter grazing. The gasoline price is \$1.88 per gallon. The price is averaged, based on four California locations surveyed in January 2004 plus \$0.24 per gallon, which is one-half the difference between the high and low price for regular gasoline in 2003 from the California State Automobile Association Monthly Survey. The price includes federal and state excise tax and 7.25% sales tax

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 90% calf crop born, 85% of the calf crop (cows exposed to bulls) weaned, 2% cow mortality, and 17% (15% 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 28 cull cows, 210 calves (83 heifer calves and 127 steer calves), 9 yearling heifers, and 3 cull bulls. Months of sales are shown in Table A.

Returns. Returns are based on the 2002 average market price, so as not to reflect the unusual high prices in 2003. 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 6.89% per year. A nominal interest rate is the typical market cost of borrowed funds.

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 \$5,000 per year or \$16.67 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 6.23% used to calculate capital recovery cost is the USDA-ERS's ten-year average of California's agricultural sector long-run rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that can only be used effectively in the agricultural sector.

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, 14 bulls, and 3 horses. Eleven bulls are in inventory overhead, because it is assumed that the producer will cull 3 bulls per year and in turn purchase 3 bulls, that are included in the cash operations. Livestock value is based on prices over the last five years 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. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

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 - 2004

	Weight Each (cwt)	Total Head Unit or Units	Price or Cost/Unit	Total Value	Value or Cost/Head	Your Costs
GROSS RECEIPTS						
Steer Calves	6.00	head	127	91.75	69,914	233.05
Heifer Calves	5.75	head	83	88.00	41,998	139.99
Yearling Heifers	7.50	head	9	79.75	5,383	17.94
Cull Cows	11.50	head	28	36.50	11,753	39.18
Cull Bulls	17.50	head	3	45.00	2,363	7.88
Total RECEIPTS					131,410	438.03
OPERATING COSTS						
Supplement		lbs	12,000	0.28	3,360	11.20
Alfalfa hay		lbs	100,000	0.06	6,000	20.00
Salt Supplement		lbs	10,000	0.12	1,200	4.00
Pasture: Winter		AUM	300	120.00	36,000	120.00
Pasture: Summer		AUM	300	126.00	37,800	126.00
Brand Inspection		head	300	1.00	300	1.00
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)		horse	3	346.40	1,039	3.46
Yearling Bulls Purchased		head	3	1,500.00	4,500	15.00
Veterinary Medicine		\$	7,251	1.00	7,251	24.17
Vehicles (fuel, lube, repair)		\$	5,417	1.00	5,417	18.06
Equipment (repair)		\$	731	1.00	731	2.44
Interest on Operating Capital		\$	46,162	0.07	3,181	10.60
Total OPERATING COSTS					119,229	397.43
INCOME ABOVE OPERATING COSTS					12,182	40.61
OWNERSHIP COSTS						
Cash Overhead:						
Insurance					3,492	11.64
Office					5,000	16.67
Non-Cash Overhead:						
Capital Recovery (Livestock, Equipment)					24,211	80.70
Total OWNERSHIP COSTS					32,702	109.01
Total COSTS					151,931	506.44
Returns to Labor, Management, Investment					-20,521	-68.40

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Table 2. MONTHLY SUMMARY OF CASH RETURNS AND EXPENSES
 300 Head, Cow-Calf Operation
 SACRAMENTO VALLEY - 2004

	Jun 03	Jul 03	Aug 03	Sep 03	Oct 03	Nov 03	Dec 03	Jan 04	Feb 04	Mar 04	Apr 04	May 04	Total
PRODUCTION													
Steer Calves	0	0	0	0	0	0	0	0	0	0	0	69,914	69,914
Heifer Calves	0	0	0	0	0	0	0	0	0	0	0	41,998	41,998
Yearling Heifers	0	0	0	5,383	0	0	0	0	0	0	0	0	5,383
Cull Cows	0	0	0	0	0	0	0	0	0	11,753	0	0	11,753
Cull Bulls	0	0	0	0	0	0	0	0	0	2,363	0	0	2,363
Total RECEIPTS	0	0	0	5,383	0	0	0	0	0	14,116	0	111,912	131,410
OPERATING INPUTS													
Supplements	275	275	275	275	275	275	275	275	275	275	275	275	3,300
Alfalfa hay	0	0	0	917	917	917	917	917	917	0	0	0	5,500
Salt Supplement	96	96	96	96	96	96	96	96	96	96	96	96	1,150
Pasture: Winter	0	0	0	0	0	18,000	0	0	0	0	18,000	0	36,000
Pasture: Summer	0	0	0	0	18,900	0	0	0	0	0	0	18,900	37,800
Brand Inspection	0	0	0	0	0	0	0	0	0	0	0	300	300
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)	87	87	87	87	87	87	87	87	87	87	87	87	1,039
Yearling Bulls Purchased	0	0	0	0	0	4,500	0	0	0	0	0	0	4,500
Veterinary Medicine	0	0	894	0	0	918	0	0	0	0	5,438	0	7,251
Machinery (Fuel, Oil, Lube, Repair)	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicles (Fuel and Repair)	451	451	451	451	451	451	451	453	451	451	451	451	5,417
Equipment (Repair)	61	61	61	61	61	61	61	61	61	61	61	61	731
Insurance	0	0	0	0	0	0	0	3,491	0	0	0	0	3,491
Total Costs	970	970	1,864	1,886	20,786	25,305	6,386	5,379	1,886	970	24,408	28,120	118,929
Net Returns	-970	-970	-1,864	3,497	-20,786	-25,305	-6,386	-5,379	-1,886	13,146	-24,408	83,792	12,481
OPERATING INTEREST													
Interest on Operating Expenses	6	11	22	33	152	297	334	365	376	381	521	683	3,181

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Table 3. RANGING ANALYSIS FOR BEEF COW - CALF PRODUCTION
 300 Head Cow-Calf Operation
 SACRAMENTO VALLEY - 2004

	Total Head	Weight cwt	Market Prices (\$ per cwt)									
Steer Calves	127	6.00	85.75	88.75	91.75	94.75	97.75	100.75	103.75	106.75	109.75	112.75
Heifer Calves	83	5.75	80.00	83.00	86.00	89.00	92.00	95.00	98.00	101.00	104.00	107.00
Yearling Heifers	9	7.50	73.75	76.75	79.75	82.75	85.75	88.75	91.75	94.75	97.75	100.75
Cull Cows	28	11.50	30.50	33.50	36.50	39.50	42.50	45.50	48.50	51.50	54.50	57.50
Cull Bulls	3	17.50	39.00	42.00	45.00	48.00	51.00	54.00	57.00	60.00	63.00	66.00
Gross Income		120,368	125,412	130,456	135,499	140,543	145,587	150,631	155,674	160,718	165,762	
Total Operating Costs		120,001	120,001	120,001	120,001	120,001	120,001	120,001	120,001	120,001	120,001	
Net Income		367	5,411	10,455	15,499	20,542	25,586	30,630	35,674	40,717	45,761	
Net Income per Head	300	1.22	18.04	34.85	51.66	68.47	85.29	102.10	118.91	135.72	152.54	

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Table 4. EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD
 300 Head, Cow-Calf Operation
 Sacramento Valley – 2004

	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		861.68
Squeeze. Loading Chute	17,000	1,700	100	20		1,464.85
Shop/Fencing Tools	3,850	0	100	10		528.81
Saddles (2)/Tack	5,700	0	100	10		782.91
Total BUILDINGS, IMPROVEMENTS AND EQUIPMENT	36,551					3,638.30
LIVESTOCK Inventory						
Bulls (11)	16,500	8,662	100	4		2,813.43
Cows Bred (300)	183,000	183,000	100	5		11,400.90
Horses (3)	5,100	1,887	100	10		558.87
Total LIVESTOCK Inventory Value	204,600					14,773
MACHINERY AND VEHICLES						
ATV	5,000	500	100	7	208.96	821.67
Pickup 4x4 3/4 ton	30,000	3,000	75	5	2,725.50	4,977.57
Total MACHINERY AND VEHICLES	35,000				3,491.63	5,799.24