UNIVERSITY OF CALIFORNIA AGRICULTURE AND NATURAL RESOURCES
COOPERATIVE EXTENSION
AGRICULTURAL ISSUES CENTER
UC DAVIS DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS

SAMPLE COSTS FOR BEEF CATTLE

COW – CALF PRODUCTION

100 Head Operation

PUBLIC LANDS-SAN FRANCISCO BAY AREA-2017

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100 Head Operation on Public Lands-San Francisco Bay Area-2017

STUDY CONTENTS

INTRODUCTION

The cattle industry in California has undergone dramatic changes in the last few decades. Issues such as international competition and opportunities, new regulatory requirements, changing feed costs, changing consumer demand, economies of scale, and competing land uses all affect the economics of ranching. Rangeland makes up the largest share of agricultural acreage in the state-accounting for approximately 62 percent of the total land in farms (Census of Agriculture). Cattle operations play an important role in California's environment (16% of the total land area of California) and landscape. They need to be economically viable to maintain the current landscape.

Sample costs to raise beef calves from a hypothetical cow-calf operation are presented in this study. This study is intended as a guide only. It can be used to guide production decisions, estimate potential returns, prepare budgets and evaluate production loans. Costs for labor, materials, equipment, and custom services are based on July 2017 figures. A blank column titled Your Costs is provided in Table 1 to enter your estimated costs.

For an explanation of calculations used in the study refer to the section titled Assumptions. For more information contact Donald Stewart; University of California Agriculture and Natural Resources, Agricultural Issues Center, Department of Agricultural and Resource Economics, at 530-752-4651 or destewart@ucdavis.edu. The local extension office can be contacted through Sheila Barry at 408-282-3106 or sbarry@ucanr.edu

Cost of Production studies for many commodities are available and can be down loaded from the website, http://coststudies.ucdavis.edu Archived studies are also available on the website.

Costs and Returns Study Program/Acknowledgements. A costs and returns study is a compilation of specific crop data collected from meetings with professionals working in production agriculture from the area the study is based. The authors thank rancher cooperators, UC Cooperative Extension, and other industry representatives who provided information, assistance, and expert advice. **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. *The University is an affirmative action/equal opportunity employer.*

ASSUMPTIONS

The assumptions refer to Tables 1 through 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.

This study explains the annual costs associated with an ongoing operation with the assumptions that the ranch was operated on this basis in prior years and will continue in subsequent years. 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 any single ranch and is intended as a guide only.

Overview. The cattle producer leases all rangeland from public agencies or non-profit organizations like land trusts or conservation organizations. In the San Francisco Bay Area over 30 different entities lease land to ranchers to benefit from grazing as a vegetation management tool. These entities include park districts, water and utility districts, cities and conservation organizations. The "typical" ranch in the San Francisco Bay Area is an owner-operated cow-calf operation using multiple private and public leases. Grazing requires 10 - 25- acres per cow-calf pair (annually), depending upon the location and the amount of forage available. Actual herd numbers vary with many Bay Area ranchers being part-time operators. This cost study is based a herd of 100 cows.

Ranching operations in California can be generally classified into four types. The first type can be described as a part-time operation that runs a small number of animals (less than 50) in order to utilize existing forage resources, keep the grass down, or on a hobby-type basis. The second type includes medium-sized operations (75-300 cows) that are run as a business, but the ranch is supplemented with income from other enterprises or from off-ranch sources. The third type includes large operations (over 300 cows) where cattle production is the primary enterprise and source of income for the ranch. The final category applies to cattle ranches of varying sizes that are part of a larger diversified operation with farming and other businesses.

The cost calculations are based on economic principles that include all cash costs. The analysis has used the lease value of the Animal Unit Month, (AUM) as the lease cost. Most of the public agencies require monthly stocking reports and charge lease rates based on AUM. An AUM is typically defined by the agencies as one cow and her suckling calf or one bull. A yearling is considered 0.75 AUM. Most agencies adjust their AUM each year basing it on a livestock price index. This approach attempts to reflect past livestock income. Livestock prices from nearby sales, video auctions or market reports i.e. (CATTLE FAX) provide the basis for the price index. The index is typically developed from an average of fixed months in the previous year. For example, the average price for 700 lb. steer calves in May, June, and July may provide a price for the index. An index commonly used in the Bay Area provides for $0.05 increase in Animal Unit Month (AUM) rate for every $0.50 increase in average calf price. Because this cost study is based upon public land leases, the AUM lease rate includes forage value and most infrastructure costs. Some public agencies also pay some costs associated with invasive species control out of these fees as well.

Production Operations

Land/Pasture Rent, Hay and Supplements. This includes the market value of all feed (purchased or raised) that was used in the cow-calf operation.

This cost study includes three grazing parcels all owned by the same public entity. The operation maintains

approximately 60 cows on one parcel, 40 cows on a second parcel and replacement heifers on the third. Each parcel has corrals and a working facility (squeeze chute, loading chute and lead up). The parcels are located about ten miles apart. The three ranches produce forage to support year round grazing. The term of the leases is five years with option to renew.

For this analysis, one AUM (cow with calf up to weaning or one bull costs $20.00). Yearling heifers at .75 AUM costs $15.00. Weaning is typically 8 - 10 months of age.

Mineral supplements and salt are provided from May to October when the grass is dry. Livestock, especially 1st calf heifers may be fed alfalfa hay during the summer and early fall when feed is limited. Grass hay may be fed in fall and winter if feed is limited.

Table A. Operations Calendar. The Operations Calendar is for a beef breeding herd which shows the approximate dates for the operations. Operations will vary according to management and seasonal weather.

Month			Operation
Summer:			
1-May	to	1-Jul	Wean Calves, Preg check, vaccinate and deworm cows and heifers
1-May	to	1-Jul	Sell and ship calves (steers & heifers)
1-May	to	1-Jul	Cull and sell open cows and bulls
1-Jul	to	1-Aug	Breeding soundness check-bulls (**Trich test)
1-Aug	to	30-Sep	Yearling heifers (not being kept as replacements) are sold
1-Sep	to	13 Oct	Pre-breeding vaccines cows and heifers
15-Aug	to	1-Nov	Calving
1-Oct			Bulls purchased
Winter:			
1-Nov	to	15-Jan	Breeding
1-Dec	thru	31-Jan	Branding/vaccinating - cows & calves, castrating/dehorning – calves
1-Jan	to	29-Feb	Cull and sell dry cows
15-Mar	to	31-May	Preg check heifers
15-Mar	to	30-Apr	Sell open heifers

**Tritrichomonas foetus; "Trich," is a venereal disease of cattle.

Health, Veterinary Services, Medicine. This includes the cost of vaccines, medicines, veterinary services, breeding soundness exams, etc. Cows are vaccinated and dewormed at branding (Dec-Jan) and at weaning (May-June). Some ranchers do a pre-breeding vaccination in September-October but it is not common because it can be hard to gather cattle so often. Steer and heifer calves are branded, dehorned, and vaccinated in December -January. The bull calves are also castrated at this time. Booster vaccinations are given in May/June at weaning typically to all calves. Additionally, heifers retained for replacement need to receive a "bangs" or brucellosis vaccination from a veterinarian after weaning. It is assumed two-thirds of the costs occur in January and the rest is equally split between the other three months.

Fencing Materials, Maintenance, and Repair of Infrastructure. Fencing material is typically provided or paid for by the public agency. Some agencies will also reimburse ranchers for fence building and repair. Other ranching infrastructure including working corrals and access roads are also paid for by the public agency landowner, although the rancher may receive rent credit for doing the repair or maintenance work.

Freight/Trucking-Transportation of cattle. Transportation costs are for hauling the cattle between ranches or to a livestock auction. This operation utilizes a 3/4-ton 4WD pickup truck with a gooseneck attachment to the stock trailer for the bulk of their cattle transportation needs. This setup can haul 8 mature cows or 12,000 lbs.

per load. Commercial haulers may use a semi-truck, truck and trailer or double trailer outfits which can haul approximately 48,000 pounds (35 mature cows) or 68 - 700 lb calves. This transportation method is only utilized to haul calves to the livestock auction yard when they are sold.

Vehicles. 3/4-Ton 4WD Pickup Truck-Gooseneck/Stock Trailer-Gooseneck/All-Terrain Vehicle (ATV). Business vehicle mileage for the 3/4-ton 4WD pickup truck is estimated at 12,000 miles per year and calculated at $0.57 per mile. The stock trailer is estimated at 7,500 miles per year at $.20 per mile. Estimated mileage of the 4WD All-Terrain Vehicle (ATV), is 1,500 miles per year and charged at $.25 per mile. The ATV is used extensively.

Horses. Rough terrain and limited access roads require the use of horses for gathering and moving cattle, and are also used to check cattle, water and fencing. The cost of owning two ranch horses is estimated at $600/head/year. This includes feed, horseshoes, and veterinarian expenses (2.5 tons of hay, shoeing twice, basic vaccination and deworming). The horses are replaced as needed.

Dogs. Cattle dogs are not used in this operation.

Lube/Repairs-Vehicle/Equipment. Repair and maintenance charges for the vehicles are included in the mileage charges. The equipment charges are listed as separate line items in tables 1 & 2.

Labor. Most ranches use little or no hired labor. Some ranches use volunteer help, especially on weekends for gathering cattle from individuals that supply their own horses. Some ranches hire cowboys/ranch hands, which have their own string of horses to work the cows. Some ranchers provide housing, tack, horse feeding and care in exchange for their work.

Additional labor from the rancher is required on public land. This includes work to manage livestock and recreation issues including putting back cattle when gates are left open, picking up trash, address broken and vandalized infrastructure. Cattle might need moving to accommodate for recreational events. Hired labor is estimated at two cowboys for 5 days at $200 (each) per day. Insurance for the employee/labor is included in the cash overhead.

Owner/Operator/Management. Returns to operator labor and management are included in net revenue. Owner/Operator labor for hauling, turnout, gathering, feeding, fence repair, salting, checking cows, and moving pastures is not included as cost. This labor would be included as a hired labor expense in some cost and returns studies, but in this study is included with the value of management time and effort in returns to management in net returns. The time demand of the rancher should be considered in assessing ranch profits.

Risk. Production risks are significant. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent all the financial and market risks, which affect the profitability and economic viability of cattle production. Because of so many potential risk factors, effective risk management must combine specific tactics in a detailed manner and in various combinations for a sustainable operation.

Livestock, Marketing and Revenue

Livestock. Livestock includes 100 bred cows and heifers, 20 replacement heifers, 6 bulls and 2 horses. A higher bull to cow ratio is required because this ranch has cattle in three groups on multiple leases. An 85 percent calf crop is assumed. This hypothetical ranch faces the same challenges that other operators face across the state that include managing for disease, limited access to some ranch sites, inadequate minerals, and predation (coyotes, dogs and mountain lions).

We assume half of the calves are steers (42) and half are heifers (43). Twenty heifers are retained at weaning as candidates for replacements. A 12 percent cull rate is assumed for the cow herd. Based on these assumptions, the rancher sells 12 cull cows, 65 calves; (23 heifer calves and 42 steer calves), 8 yearling heifers, (keeping 12 yearling heifers for replacements) and 2 cull bulls. There are 6 bulls included in inventory overhead, because it is assumed that the producer will cull 2 bulls per year and in turn purchase 2 bulls. Bull purchase and sales are included in the cash operations. The cow to bull ratio is assumed to be 17:1, with each bull lasting 3-4 years. The two horses are also included in livestock inventory, Table 4.

Marketing. Cull cows are sold in February and May, the cull bulls are sold in May, (at auctions). Steers and heifer calves (8 months old) are sold from May through July and yearling heifers not used for replacements are sold in September. Marketing costs include auction fees, brand inspection and an assessment for beef promotion (Checkoff).

Revenue/Sales. Estimates are based upon the average price differential between classes of livestock from 101 Livestock Market (Table 3). Revenue from animal sales are shown monthly in Table 2.

Pricing/Ranging Analysis. Cattle prices vary with age, size and quality. Price per head usually increases with size while price per pound decreases with size. Prices for livestock purchased or carried over from a Cow-Calf operation for resale are dependent on the expected value of the animal at resale and the expected costs of holding the animal until resale including the operating costs. Table 3 shows a range of returns using a range of prices. The initial investment and salvage values for the animals in Table #4 are reported at market values.

Table B. **Animal Inventory per Month.** This table shows one year of a multi-year operation that starts with 100 cows and bred heifers for the beginning of the breeding season in November. September and October shows that some of the calves, heifers & steers are born during those months. The heifer calves are called yearling heifers in June in which 20 are carried over as potential replacements. The following May, 8 yearlings heifers are sold, keeping 12 bred heifers.

Animals	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Cows	88	88	88	100	100	100	100	100	88	88	88	88
Steer Calves	0	0	0	10	20	42	42	42	42	42	42	42
Heifer Calves	0	0	0	10	20	43	43	43	43	43	43	43
*Yearling Heifers	20	20	20	20	20	20	20	20	20	20	20	0
**Bred Heifers	12	12	12	0	0	0	0	0	0	12	12	12
Bulls	4	4	4	4	6	6	6	6	6	6	6	4

*Open yearling heifers are sold after pregnancy checking in May (8). The bred yearling Heifers (12) are kept as replacements.

** Yearling heifers are bred during the winter and become cows after calving. Yearling heifers become bred heifers after Preg-check in May when open heifers are sold.

Note: The 12 bred heifers would be carried over from the previous year to have 100 bred cows and heifers in June.

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 can include property taxes, interest on operating capital, office expense, liability and property insurance, equipment repairs, sanitary services, and management.

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

Liability Insurance. For this study, a 2 million dollar general liability insurance policy per landlord requirement (public agency) of $4,000 is charged to the entire ranch as a standard farm liability insurance policy. This insurance will help cover the expenses for which you become legally obligated to pay for bodily injury claims on your property and damages to another person's property as a result of a covered accident. Common liability expenses covered under your policy include attorney fees and court costs, medical expenses for people injured on your property, injury or damage to another's property caused by your animals.

Livestock Insurance. No amount of livestock insurance is specified as the most common way to cover livestock is to insure them as a herd. Livestock (cows, swine, goats, lambs and sheep) and poultry (chickens and turkeys) coverages can vary widely among farm insurance companies. It's important to understand what is covered in your ranch insurance policy and what is not. Insurance packages provide broad causes of loss protection for livestock, which includes the following: accidental shooting, attacks by dogs or wild animals (does not apply to sheep), earthquake loss, electrocution, flood loss, loading and unloading accidents, and sudden and accidental collision damage causing death. Individual policies and blanket policies are available to cover all of your farm property (livestock, equipment, structures, etc.) in one lump sum amount.

Fire Insurance. No amount of fire insurance is specified. Some operations opt to purchase fire insurance for high-risk rangeland, such as areas near busy roads or areas prone to burn frequently.

USDA Insurance Programs. The USDA, through the Risk Management Agency and the Farm Services Agency, offers a number of insurance programs to livestock producers. Livestock Risk Protection (LRP) policy offers protection against a decline in feeder cattle prices during the term of the endorsement. Non-insured Crop Disaster Assistance Program (NAP) provides payments to producers based on percent forage loss over 50 percent and number of acres insured. Other insurance programs are offered through federal assistance programs. There are limitations to the number of head insured with application deadlines and endorsement ranges from 13 to 52 weeks that apply to all programs. This study assumes no participation in government insurance programs.

Office Expense. Office and business expenses are estimated at $3,000 per year for the Cow-Calf operation. These expenses include office supplies, telephones, internet, bookkeeping, accounting, shop and office utilities, and miscellaneous administrative charges.

Interest on Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until sale months at a rate of 5.5 percent per year.

Interest charge is the cost of your money that is tied up in the cattle production. It reflects the amount of money you pay on borrowed money (Line of Credit) or that amount you could have earned had you invested your own resources in alternative uses. The interest cost of post animal sales is discounted back to the last sale month using a negative interest charge. The interest rate will vary depending upon various factors, the rate in this study is considered a typical lending rate by a farm lending agency as of December 2017. As revenue is received from animal sales it is used to pay back the operating loan (Table 2).

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. This includes equipment, machinery and livestock. It is the amount of money required each year to recover the difference between the purchase prices 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: ((Purchase Price – Salvage Value) x Capital Recovery Factor) + (Salvage Value x 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 Table 4.

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 or other capital items.

Interest Rate. An interest rate of 5.0 percent is used to calculate capital recovery. The rate will vary depending upon loan amount and other lending business conditions, but is the basic suggested rate by a farm lending agency as of December 2017.

Portable Cattle Working Facilities. Facilities consist of portable panels for corrals which are provided by the public agency landowner. Manually operated portable squeeze chute and portable loading chute would be needed if transporting cows by a commercial hauler. Costs for the chutes and setup are not included.

Water Tanks (3,000 gal)/Troughs. Water tanks and troughs are included to account for necessary range improvements on leased pasture.

Shop & Fencing Tools. Inventory would include hand tools, gloves, a chainsaw, and other miscellaneous tools.

Tack. This category includes saddles and related necessary equipment, (blanket, headgear, lariat, etc.) which the cowboys supply themselves.

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

100 Head Operation on Public Lands-Bay Area - 2017

REVENUE/SALES	Head	Units/ Head	Unit	Price/Unit	Total Value	†Value/Head	Your Costs
Steer Calves	42	6.50	cwt	$140	$38,220	$910.00	
Heifer Calves	23	6.00	cwt	$127	$17,526	$762.00	
Yearling Heifers	8	8.00	cwt	$115	$7,388	$923.52	
Cull Cows	12	12.00	cwt	$69	$9,988	$832.32	
Cull Bulls	2	18.00	cwt	$80	$2,886	$1,442.88	
TOTAL REVENUE					**$76,008**		

OPERATING INPUTS	Units		Amounts/Unit		Cost/Unit	Total Costs	±Cost/Cow	
Alfalfa Hay	15	tons	1	year	$180.00	$2,700	$27.00	
Grass Hay	12	tons	1	year	$120.00	$1,440	$14.40	
Supplements (Combined)	5	tons	6	year	$405.00	$2,025	$20.25	
Pasture (Cows@ 1.0/AUM)	88	cows	7	months	$20.00	$12,320	$123.20	
Pasture (Cows@ 1.0/AUM)	100	cows	5	months	$20.00	$10,000	$100.00	
Pasture (Bred Heifers@ 0.75/AUM)	12	heifers	6	months	$15.00	$1,080	$10.80	
Pasture (Yearling Heifers@ 0.75/AUM)	20	heifers	11	months	$15.00	$3,300	$33.00	
Pasture (Bulls@ 1.0/AUM)	4	bulls	5	month	$20.00	$400	$4.00	
Pasture (Bulls@ 1.0/AUM)	6	bulls	7	month	$20.00	$840	$8.40	
Veterinary Service-cows	88	cows	1	each	$2.25	$198	$1.98	
Veterinary Service -heifers	32	heifers	1	each	$7.25	$232	$2.32	
Veterinary Service-bulls	6	bulls	1	each	$60.00	$360	$3.60	
Vaccine/Wormer/Etc.-cows	88	cows	1	each	$9.00	$792	$7.92	
Vaccine/Wormer/Etc.-heifers	32	heifers	1	each	$12.50	$400	$4.00	
Vaccine/Wormer/Etc.-bulls	6	bulls	1	each	$15.50	$93	$0.93	
Brand Inspection	88	head	1	inspection	$1.25	$110	$1.10	
Marketing Order Promo (checkoff)	88	head	1	checkoff	$1.00	$88	$0.88	
Freight/Trucking (calves to sale)	65	head	1	each	$9.23	$600	$6.00	
Yearling Bulls Purchased	2	bulls	1	each	$5,000.00	$10,000	$100.00	
Horse (shoes, vet, feed)	2	horses	1	each	$600.00	$1,200	$12.00	
Pickup Truck 3/4-Ton 4WD (gooseneck)	1	pickup	12,000	miles	$0.57	$6,840	$68.40	
Stock Trailer (gooseneck)	1	trailer	7,500	miles	$0.20	$1,500	$15.00	
ATV's	1	ATV	1,500	miles	$0.25	$375	$3.75	
Equipment (maintenance and repair)	1	ranch	1	$/year	$2,000.00	$2,000	$20.00	
Ranch Labor	2	cowboy	5	days	$200.00	$2,000	$20.00	
OPERATING COSTS						**$60,893**	**$608.93**	
Interest on Operating Capital @ 5.5%	(Table 2)					$1,333	$13.33	
TOTAL OPERATING COSTS						**$62,226**	**$622.26**	
CASH OVERHEAD COSTS								
Liability Insurance						$1,500	$15.00	
Labor/Employee Insurance						$1,500	$15.00	
Office Expenses						$3,000	$30.00	
TOTAL CASH OVERHEAD						**$6,000**	**$60.00**	
TOTAL CASH COSTS						**$68,226**	**$682.26**	
INCOME ABOVE CASH COSTS						**$7,782**	**$77.82**	
‡ANNUAL CAPITAL RECOVERY	(Table 4)					$18,318	$183.18	
TOTAL COSTS						**$86,544**	**$865.44**	
INCOME ABOVE TOTAL COSTS						**-$10,536**	**-$105.36**	

†Value/head based on animals sold. ±Cost/head based on 100 cows. ‡ From table 4 at 67%.

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Table 2. MONTHLY SUMMARY FOR BEEF COW – CALF PRODUCTION

100 Head Operation on Public Lands-Bay Area - 2017

	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Total
REVENUE													
Steer Calves	0	0	0	0	0	0	0	0	0	0	0	38,220	38,220
Heifer Calves	0	0	0	0	0	0	0	0	0	0	0	17,526	17,526
Yearling Heifers	0	0	0	3,694	0	0	0	0	0	0	0	3,694	7,388
Cull Cows	0	0	0	0	0	0	0	0	4,994	0	0	4,994	9,988
Cull Bulls	0	0	0	0	0	0	0	0	0	0	0	2,886	2,886
TOTAL REVENUE	**0**	**0**	**0**	**3,694**	**0**	**0**	**0**	**0**	**4,994**	**0**	**0**	**67,320**	**76,008**
OPERATING INPUTS													
Hay (alfalfa & grass)	240	240	450	450	450	450	450	450	240	240	240	240	4,140
Supplements (combined)	338	338	338	338	338	0	0	0	0	0	0	338	2,025
Pasture (Cows@ 1.0/AUM)	1,760	1,760	1,760	2,000	2,000	2,000	2,000	2,000	1,760	1,760	1,760	1,760	22,320
Pasture (Bred Heifers@ 0.75/AUM)	180	180	180	0	0	0	0	0	0	180	180	180	1,080
Pasture (Yearling Heifers@ 0.75/AUM)	300	300	300	300	300	300	300	300	300	300	300	0	3,300
Pasture (Bulls@ 1.0/AUM)	80	80	80	80	120	120	120	120	120	120	120	80	1,240
Veterinary/Vaccines (all costs)	228	0	0	0	0	0	228	1,390	0	0	0	228	2,075
Brand Inspection	0	0	0	0	0	0	0	0	0	0	0	110	110
Marketing Order Promo (checkoff)	0	0	0	0	0	0	0	0	0	0	0	88	88
Freight/Trucking (calves to sale)	0	0	0	0	0	0	0	0	0	0	0	600	600
Yearling Bulls Purchased (3)	0	0	0	0	10,000	0	0	0	0	0	0	0	10,000
Horse (shoes, vet, feed)	100	100	100	100	100	100	100	100	100	100	100	100	1,200
Vehicles/Trailer (combined)	726	726	726	726	726	726	726	726	726	726	726	726	8,715
Equipment (repair)	167	167	167	167	167	167	167	167	167	167	167	167	2,000
Ranch Labor	167	167	167	167	167	167	167	167	167	167	167	167	2,000
OPERATING COSTS	**4,285**	**4,057**	**4,267**	**4,327**	**14,367**	**4,030**	**4,258**	**5,420**	**3,580**	**3,760**	**3,760**	**4,783**	**60,892**
Net Returns above Op. Costs (cumulative)	-4,285	-8,342	-12,610	-13,243	-27,610	-31,639	-35,897	-41,317	-39,902	-43,662	-47,421	15,115	15,115
Interest on Operating Capital @ 5.5%	20	38	58	61	127	145	165	189	183	200	217	-69	1,333
TOTAL OPERATING COSTS	**4,305**	**4,095**	**4,325**	**4,388**	**14,494**	**4,175**	**4,422**	**5,609**	**3,762**	**3,960**	**3,977**	**4,714**	**62,225**
NET RETURNS ABOVE OPERATING COSTS													**13.782**
NET RETURNS PER COW													**137.82**

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Table 3. RANGING ANALYSIS FOR BEEF COW – CALF PRODUCTION

100 Head Operation on Public Lands-Bay Area – 2017

Revenue	Total Head	Weight -cwt	*Average Market Prices ($/cwt)									
Steers Calves	42	6.50	$100	$110	$120	$130	$140	$150	$160	$170	$180	$190
Heifer Calves	23	6.00	$87	$97	$107	$117	$127	$137	$147	$157	$167	$177
Yearling Heifers	8	8.00	$75	$85	$95	$105	$115	$125	$135	$145	$155	$165
Cull Cows	12	12.00	$29	$39	$49	$59	$69	$79	$89	$99	$109	$119
Cull Bulls	2	18.00	$40	$50	$60	$70	$80	$90	$100	$110	$120	$130
Gross Revenue			**$49,722**	**$56,272**	**$62,822**	**$69,372**	**$75,922**	**$82,472**	**$89,022**	**$95,572**	**$102,122**	**$108,672**
†Total Operating Costs			$62,226	$62,226	$62,226	$62,226	$62,226	$62,226	$62,226	$62,226	$62,226	$62,226
Net Income			-$12,504	-$5,954	$596	$7,146	$13,696	$20,246	$26,796	$33,346	$39,896	$46,446
Net Revenue/Head			**-$125**	**-$60**	**$6**	**$71**	**$137**	**$202**	**$268**	**$333**	**$399**	**$464**

*Average Market Price Differentiation between Classes of Livestock are from Hwy 101 Livestock Market.

†Total Operating Costs Based On 2017 Data.

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Table 4. EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD

100 Head Operation on Public Lands-Bay Area – 2017

OVERHEAD	Initial Investment	Salvage/Cull Value	Livestock Share (%)	Useful Life (yrs.)	†Annual Taxes and Insurance	Annual Capital Recovery
***LIVESTOCK INVENTORY**						
Bulls (6)	30,000	7,484	100	4	0	6,724
Cows Bred (100)	120,000	82,800	100	8	0	9,895
Yearling Heifers (20)	28,500	30,160	100	0.7	0	1,460
Horses (2)	6,030	0	100	10	0	781
TOTAL LIVESTOCK INVENTORY	**184,530**	**120,444**	**100**		**0**	**18,079**
EQUIPMENT AND IMPROVEMENTS						
Water Tanks 3,000 gal, troughs (2)	3,200	224	100	20	0	250
Shop/Fencing Tools	3,850	270	100	20	0	301
TOTAL EQUIPMENT AND IMPROVEMENTS	**7,050**	**494**	**100**		**0**	**550**
MACHINERY AND VEHICLES						
ATV	8,500	2,125	100	8	63	1,092
Stock Trailer Gooseneck (hauling cattle)	14,500	3,625	100	10	93	1,590
Pickup 3/4-Ton 4WD Gooseneck	55,000	13,750	100	10	2,400	6,029
TOTAL MACHINERY AND VEHICLES	**78,000**	**19,500**			**2,556**	**8,711**
TOTAL COMBINED OVERHEAD	**269,580**	**140,438**	**100**		**2,556**	**27,341**

*This table accounts for all equipment, investment, overhead, and depreciation costs. Total overhead costs from this table are shown as Annual Capital Recovery at 67% of the total in Table #1.

The remaining 33% is charged to the other production operations on the ranch.

The interest rate for capital recovery is calculated at 5%/year.

†The costs of insurance on the cattle is not included in this study.