
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



YEARLING/STOCKER PRODUCTION
300 Head
NORTHERN SACRAMENTO VALLEY-2017

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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 revenue. 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. Ranches need to be economically viable to maintain the current landscape.

Sample costs to raise beef calves from a yearling/stocker operation are presented in this study. This study is intended as a guide only. It can be used to guide production decisions, estimate potential revenue, prepare budgets, and evaluate production loans. Sample costs for labor, materials, equipment, and custom services are based on April 2017 figures. A blank column titled “Your Costs” is provided in Tables 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 dstewart@ucdavis.edu. The local extension office can be contacted through; Larry Forero at lforero@ucanr.edu, or Jeff Stackhouse at jwstackhouse@ucanr.edu

Cost of Production studies for many commodities are available and can be downloaded 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 the ranchers, UC Cooperative Extension, and other industry representatives who provided information, assistance, and expert advice. *The University is an affirmative action/equal opportunity employer.*

ASSUMPTIONS

The assumptions refer to Tables 1 to 6 and pertain to sample costs to operate a beef cattle yearling/stocker operation. Practices described represent production practices and materials considered typical of a well-managed ranch in the region. This ranch has multiple production alternatives including a separate Cow-Calf operation. Some of the cost associated with ranching can be shared between the production alternatives and operations. A percentage of these costs are spread across the operations accordingly and noted in the narrative sections and tables.

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 will not apply to all situations. Production practices vary by rancher and the differences can be significant. This study does not represent any 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.**

The cost calculations are based on economic principles that include all cash costs plus non-cash overhead. This analysis has used a rental value of the Animal Unit Month, (AUM) as a cost of operation. Forage production per acre varies throughout California based on precipitation, elevation, soil type, range condition, and pasture management, slope, aspect and more. Because they are built into rental costs, land taxes, fence and building depreciation, and land value are not considered in the costs.

Overview. The cattle producer rents all range and pasture land. The farm is a “typical” owner-operated yearling/stocker ranch operation in the northern Sacramento Valley. Grazing requirements for yearling/stocker cows is variable depending upon the location and 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 and the stocker operation based on the calves entering the stocker herd calved from the 300 cow herd plus purchased calves.

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 basis. The second type includes medium-sized operations (75-200 cows) that are run as a business, but the ranch is supplemented with revenue from other enterprises or from off-ranch sources. The third type includes large operations (over 200 cows) where cattle production is the primary enterprise and source of revenue 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. Often the ranches in the first and second categories are not profitable as a stand-alone enterprise, while in categories three and four, the ranches are generally a profitable business enterprise, although they generally do not return a profit every year as cattle prices and weather varies.

This study focuses on yearling/stocker cattle that are retained or bought at weaning. It assumes that pasture is leased. The grazing lease is based on a \$150 per cow price for a six month season. A cow is calculated as one Animal Unit (AU). Stockers weighing 530 pounds are calculated as 0.5 AU and cost \$75 per animal for a six month contract. It also assumes cattle will be sold or moved into a feedlot once they reach 800 pounds. The herd size is 300 steers and heifers meaning that some calves must be purchased to compensate for calves that died, heifers entering the replacement herd and cows that did not have calves as explained in the 2017 “Sample Costs for Beef Cattle, Cow-Calf Production in the Sacramento Valley”. This study assumes a death loss of 2 percent for yearlings. The fixed costs will vary with the number of head involved or size of the operation. Across California, cattle production techniques and management vary.

Yearling/stocker cattle can come from several sources. A cattle producer can keep weaned calves from their cow-calf operation and/or stockers can be purchased. Different time periods throughout the calendar year can affect the availability of stocker cattle and may change the cost of purchase or revenue from sales.

In the United States, cattle are categorized into three general life stages before reaching market. These include the cow-calf phase, yearling/stocker phase, and finishing or feedlot phase, Figure A.

Figure A. Phases of Yearling/stocker Production.



The cow-calf phase is from birth to weaning (cattle are typically weaned at 8 to 9 months weighing around 600 pounds).

The yearling/stocker phase will take these weaned cattle and grow them out on grass to about 800 to 900 pounds (14 to 20 months).

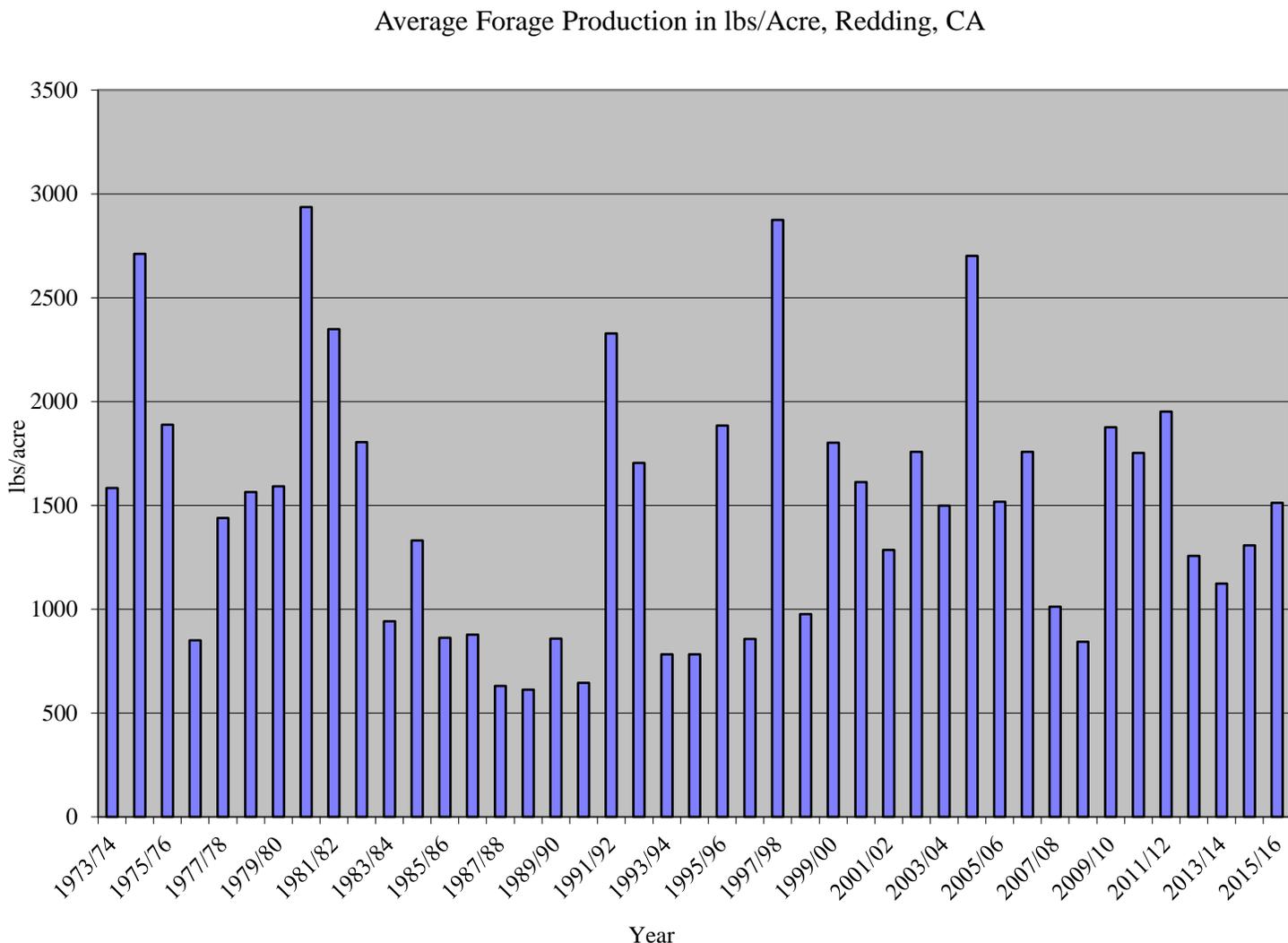
The feeding phase takes these yearlings off grass and places them in a feedlot for 90 to 120 days (or until they reach a desired finish weight).

Yearling/stocker operations are typically seasonal in California and primarily occur on rangeland where forage production is solely dependent upon seasonal rainfall. Figure B outlines the annual variability in forage production at a site in the northern Sacramento Valley - Shasta County. Producers must cope with stocking the ranches appropriately to manage this variation in forage production.

In the Central and Sacramento Valleys, and the Coast Range of California, cattle are typically grazed from late autumn through late spring. Irrigated pasture and mountain ranges are generally grazed from late spring through mid-autumn.

A goal of yearling/stocker cattle operations is to reduce the cost per pound of gain on heifers and steers. Average daily gain varies across the state. Depending upon location, producers might expect gains from 250 to 325 pounds per head for the season. Forage quality and quantity are the primary drivers in seasonal cattle gain. The rate of gain may also be affected by health, body condition, mineral nutrition, and the genetics of the cattle.

Figure B. Average Forage Production on Annual Range near Redding, CA across 43 Years.



Cattle Purchasing, Marketing and Risk Management

Producer Purchases Yearling/Stockers or Retains Owned Yearling/Stockers

These two alternatives can be treated the same. If producers retain their own calves after weaning, they have forgone the opportunity to market them as calves and have effectively transferred them to a yearling/stocker enterprise. The fair market value of those calves must be assigned to the yearling/stocker enterprise to evaluate the profitability of the enterprise.

At the onset of the grazing season, most yearling/stocker operations turn out purchased, weaned cattle on available grass.

The market fluctuation during the grazing season represents significant risk for producers purchasing or retaining calves. Risk management may be facilitated through the use of futures and options. Consult qualified professionals when considering which risk management technique is the most appropriate for you. Many operations have done a great job on calf performance only to have the market move against them during the

period that they own the calves. The feeder price spread is the price per pound difference between the lighter weight calves at purchase and the heavier weight calves at sale time. Receiving 20.5 cents less per pound is expected, based upon Western Video Auction sale averages from 2009 to 2016; if the market drops during the ownership period, any profit may be quickly lost. Table A shows the price spread for eighteen years on the Western Video Market price average for 500 to 600 pound steers compared to the price average of 800 pound steers during a six-month ownership for both a winter rangeland and summer irrigated pasture operation. Winter (October to May) operations had an average feeder price spread of minus 23.73 cents per pound, while cattle pastured over the summer (May to October), averaged a minus 17.37 cents.

Table A. Price Differential for Winter & Summer Operation - from Western Video Market Auction, Shasta Livestock Sales.

YEAR Winter	Buy-Sell Differential	YEAR Summer	Buy-Sell Differential
Oct to May	cents/lb	May to Oct	cents/lb
1997-1998	-20.43	1997	-3.53
1998-1999	-11.79	1998	-23.34
1999-2000	-9.62	1999	-3.95
2000-2001	-18.48	2000	-11.15
2001-2002	-30.40	2001	-11.89
2002-2003	-8.59	2002	-18.5
2003-2004	-6.92	2003	-10.32
2004-2005	-24.99	2004	-3.82
2005-2006	-27.31	2005	-34.16
2006-2007	-23.08	2006	-20.08
2007-2008	-21.68	2007	-12.30
2008-2009	-22.63	2008	-21.68
2009-2010	-6.26	2009	14.24
2010-2011	-17.76	2010	-18.42
2011-2012	-7.64	2011	-8.40
2012-2013	-41.98	2012	-39.40
2013-2014	23.26	2013	-35.67
2014-2015	-58.56	2014	-6.05
2015-2016	-116.00	2015	-61.56
Averages	-23.73		-17.37

For winter pasture yearlings, 7 out of 18 years the market moved down below the normal buy-sell differential (resulting in buy-sell differential of more than 23.73 cents) and price insurance would have been helpful. For example in Table A, the winter feeder buy-sell differential in 2014-15 grew to 58.56 cents. Table 6 illustrates the impact of market price shifts for winter grazing of purchased yearlings over the same period on the operation profitability.

Natural Production

There has been much interest to determine if there is a financial advantage to “natural” production (no implants, hormones, or antibiotics used in production) of stocker or yearling cattle. Previous studies showed that from 1997 to 2015, the average premium for natural calves weighing 500 to 625 pounds was 2.25 cents. We assumed that the 764 pound natural steers would sell at a 3.78 cent premium (Blank et. al 2009). Additional costs of operation are identifying any sick animals that require antibiotic treatment and selling them separately at an auction yard in a smaller lot that will bring a 9.0 cent reduction in price per pound (Shasta Livestock Auction Yard). It is estimated that not using implants and ionophores will reduce the animal gain by 0.084 to 0.30 and 0.11 to 0.18 pound of gain per day respectively (Fields and Taylor). Because the “natural” calves gained 36 pounds less than the conventional cattle, a three cent price differential was used. This price differential

(generated by the lighter sale weight) coupled with the premium paid resulted in a seven cent higher price per pound for the natural cattle (Western Video Auction data). Using these data inputs, this study found yearling/stocker cattle pastured under a “natural” regime had per calf net revenue of \$30.55 more than the standard operation that used conventional production tools (implants, antibiotics, ionophores, etc.). If you presently do not use implants or ionophores, your revenue may be greater with natural production.

Futures-(Options, Markets and Contracts)

Options. Options are similar to insurance programs. A premium is paid irrespectively of whether the option is exercised or allowed to lapse. If exercised an option position is converted to a futures position which presumably will lock in a price for the ranchers. Purchase of an option can be secured though a commodities broker and ranchers can choose the level of risk that they want to insure against. Some choose to buy the lowest cost option to provide cheap insurance against a large negative price swing. The assumptions, procedures and calculations used in making these decisions are very complex.

Markets. Futures markets represent one way to anticipate or forecast the prices of commodities. Although this method is often used as the expected price at a future point in time, it has many pitfalls that limit its effectiveness as a forward planning tool. Furthermore, the basis varies seasonally and by the market conditions that exist. Thus, futures prices should be used cautiously as a method of calculating projected prices. It is important in collecting prices to obtain the price received for the commodity in the cash market and the costs associated with the futures contract. These costs would include the commission fees paid and interest on the money used to meet the margin requirements.

Contracts. Tables 1 & 2, show the option of \$0.03 per pound purchased based on the out weight of the 300 head purchased. It is a minimal price protection and used only to insure against extreme price declines. Option contracts generally cost from \$0.01 to \$0.05 cents per pound. Contracts are sold on a truckload or 44,000 pound lot. Using a video auction to forward contract calves can also be used to reduce price risk. Table 6 shows that options are an important business consideration that should not be overlooked to assure profitability or at least avert a financial disaster.

Producer Custom Grazes Yearling/Stockers Based On Per Pound of Weight Gain

In this scenario, a ranch lease holder grazes non-owned yearling/stockers and is paid on the body weight gain. Stockers usually will weigh between 500 to 600 pounds upon arrival.

In most contracts a 2 percent death loss is acceptable to the cattle owner. Missing cattle, not verified as dead, may be the responsibility of the lease holder. Any amount above that is the responsibility of the lease holder providing the pasture. Payment is based on per pound of gain basis. Generally, the owner of the cattle provides medication and processing vaccine, and the lease holder provides the labor. The amount paid for cattle on pasture on the gain basis ranges from \$0.40 to \$0.45 per pound of gain. This study assumes the producer will receive \$0.42, (heifers are typically charges \$.05/lb. more than steers) per pound of gain. The shrink weight can be an important item of consideration. In most gain payment contracts, calves' weights are determined at the time of purchase and are generally shrunk. Cattle are gathered, weighed and shipped at the end of the grazing season. Shrink is generally figured at 3 percent. Net gain is calculated by subtracting the shrunk weight from the in weight. The quality of calves that are received can greatly vary the pounds of gain. Some producers have a contract clause allowing loads to be rejected on quality or health. We assume that the cattle will gain 270 pounds (or 1.5 pounds per day) during the grazing period. In this cost study, it was found that the net revenue above operating costs for gain cattle (at \$0.42 per pound) was \$14.75/ head.

Production Operations

Land/Pasture Rent, Hay and Supplements. This includes the market value of all feed (purchased or raised) that was used in the stocker operation. The assumption that the pasture is rented for \$75/AUM (an AUM [animal unit month] is the amount of forage a 1,000 pound animal will consume in one month) over a six-month period. Some operations feed small amounts of hay when they receive or ship cattle. Hay may also be fed when weather conditions are not conducive to production of forage. Mineral supplements and salt are provided to the animals during the grazing season. There is no pasture charge for the horses.

Table B. Operations Calendar. Operations Calendar is based on range and pasture for weaned calves. The operations are affected by several factors such as weather and available feed. Therefore, depending upon the seasonal weather, the operations will vary each year. Some areas of California are deficient in micro and macro-nutrients. Consult your local veterinarian to learn about what might be deficient in your area. For Se, Cu, Zn and P a good reference by county is the UC Website, <http://animalscience.ucdavis.edu/extension/trace-minerals-for-california-beef-cattle/index.html>.

Table B. Operations Calendar for Beef Weaned Calves-
Based on Range & Pasture (300 head, 2% calf mortality)

<u>Month</u>			<u>Operation</u>
November	-	April	Winter Range/Grazing
November	-	December	Vaccination/Deworming
March			Deworming/Implants
May			Yearlings/Calves Sold

Health, Veterinary, Medicine. Since the cattle encounter different environments, they have potentially been exposed to a variety of diseases. Because of the higher risk of stress occurring, the most critical period of managing yearling/stockers is when the producer receives a new shipment of cattle at a new location. Good health and nutrition management during this critical period can greatly impact profitability. Cattle being received should be treated to reduce risk from parasites (external and internal) and disease. Consult your local veterinarian on the best program for your cattle. Cattle should be appropriately identified. Cattle will be gathered and processed again mid-season.

Horses/Dogs Care and Feed. Costs for replacement animals, shoeing horses, feed, and veterinary expenses are based on costs reported by the participating producers. Cattle dogs are for herding. Charges are for food, veterinary care, and training. A percentage of the costs for the horses and dogs are included since they are used over the entire ranch.

Freight/Trucking-Transportation of Cattle. The majority of operations in the area utilize a 1-ton Pickup-single rear axle with dual tires with a 5th wheel stock trailer for the bulk of their cattle transportation needs. This setup can haul 15-800 pound stockers or 12,000 lbs. per load. Freight or trucking costs are commercial costs for hauling the cattle. The purchase of the calves requires transportation to the ranch, which costs \$20 per head. The 800 pound stockers are sold by video auction and the terms require no transportation costs at the time of sale.

Vehicles. 1-Ton 5th Wheel-4WD Pickup/5th Wheel Stock Trailer/All-Terrain Vehicle (ATV). Business vehicle mileage for the pickup truck is estimated at 25,000 miles per year and calculated at \$0.535 per mile. The stock trailer is estimated at 10,000 miles per year at \$.20 per mile. Estimated mileage of the All-Terrain Vehicle (ATV) 4-wheeler is 3,500 miles per year at \$.35 per mile. The major percentage of these costs are charged to the Cow-Calf operation. The remaining charges are split and shown over each of the three production alternatives.

Lube/Repairs – Vehicle/Equipment. Repair and maintenance charges for equipment are not include in the Yearling/Stocker operations. All costs are charged to the Cow-Calf operation.

Fencing Materials, Maintenance, and Repair of Infrastructure. This includes fencing wire, t-posts, and miscellaneous purchases of wood and other construction materials and supplies. Charges for these materials are not included in this study. The charges are included in the cow/calf operation.

Labor. This study does not include any wages for hired labor or costs associated with volunteer 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 to work the cows and some provide housing, tack, horse feeding and care.

Owner/Operator/Management. Returns to operator labor and management are included in net revenue. Assignment of Ranch Management costs differ by operation. Some ranches hire direct labor and some hire management that is paid a monthly salary. Owner/Operator labor for hauling, turnout, gathering, feeding, fence repair, irrigation, salting, checking cows, and moving pastures is not included as an explicit cost, but the value of management time and effort must be considered in assessing ranch profits.

Risk. Production and marketing risks are significant in the cattle business. This study makes every effort to model a production system based on typical, real world practices. However, it cannot fully represent financial, agronomic and market risks, which affect profitability and economic viability of cattle operations. Because there are so many potential risk factors, effective risk management must combine specific tactics in a detailed manner, in various combinations for a sustainable operation. Moreover, Table 5 reflects a ranging analysis of returns based on various assumptions which is therefore hypothetical in nature. It is important to realize that actual results may differ from the returns contained in this study.

Revenue

Marketing. The animals are marketed through Western Video Market auction. Marketing costs include video and/or auction fees, brand inspection, and an assessment for beef promotion (Checkoff).

Revenue/Sales. Revenue is based on the livestock sales operations listed above. The range of prices are shown in Table 6. This study uses the average price received from a nine year (2008 to 2016) study of prices (Blank et. al 2009) to place a value at the beginning and end of the six month grazing season. To arrive at the feeder price spread (difference in price of the calves at purchase and then at sale), the averages of 500 to 550 pound calves were subtracted from the following year's 800-850 pound steers to determine the average feeder price spread during the period.

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. This means the price of the animals and the costs and efficiencies must be estimated in a consistent manor. Table 5 shows a range of costs and returns prices used for calculating net returns for each of the production alternatives – Purchased Yearlings, Natural Yearlings, and Per Pound of Weight Gain - using a range of prices.

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. In this study, \$4,000 is charged to the entire ranch as a standard farm liability insurance policy 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, and injury or damage to another's property caused by your animals. The Cow-Calf operation is charged at 67 percent of the total cost. A percentage of the remaining insurance costs are charged to each of the Yearling/Stocker production alternatives.

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 farm 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 and application deadlines that apply to all programs. This study assumes no participation in government insurance programs.

Office Expense. Office and business expenses are estimated at \$4,000 per year for the entire ranch and charged at 67 percent of the total to the Cow-Calf operation. The other 33 percent is charged to the Yearling/Stocker operation. These expenses include office supplies, social media, bookkeeping, accounting, permit acquisition, and miscellaneous administrative charges.

Interest on Operating Capital. Interest on the operating loan is calculated as a cash cost (calves purchased and operating costs) and is calculated at 6.0 percent annually, borrowed over the 6-month grazing period.

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 is considered a typical lending rate by a farm lending agency as of April 2017. As revenue is received from animal sales it is used

to pay back the operating loan.

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: $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$. A percentage of these costs are shown over each of the three production alternatives.

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.

Interest Rate. The interest rate of 5.0 percent used to calculate capital recovery cost is the current long-term interest rate effective April 2017. The interest rate is provided by a local farm lending business and will vary according to risk and amount of loan.

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-head stocker operation is used in this study.

Equipment. Annual ownership costs for equipment and other investments are shown in Table 4, Equipment, Investment, and Business Overhead. These charges are allocated across the different production operations on this ranch including the Cow-Calf operation. The remaining costs are spread across the production alternatives accordingly and are listed in Tables 1, 2, and 3 as Capital Recovery.

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

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

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Table 1. PURCHASED YEARLINGS/STOCKERS

300 Head, Yearling/Stocker Operation
Sacramento Valley 2017

Production/Sales:	Number	Weight (Lbs.)	Value \$/cwt	Gross Value \$	\$ per Calf (1)
Calves Purchased	300	530.00	1.44	228,960	763.20
Calves Sold (2)	294	800.00	1.24	290,472	968.24
Gross Revenue: (Sold minus Purchased)				61,512	205.04
Operating Inputs:	Units/Animals		\$/Unit	Total Costs	\$/Calf
Pasture (leased-based upon seasonal \$150/cow) (3)	300		75	22,500	75.00
Salt/Mineral Supplements-Tons	3.0	294	550	1,650	5.50
Hay-Tons	13.0	294	150	1,950	6.50
Veterinary/Medical		294	20	5,880	19.60
Transportation of Cattle		300	20	6,000	20.00
Pickup Truck 1-Ton Mileage	2,750		0.54	1,471	4.90
Stock Trailer Mileage	1,100		0.20	220	0.73
ATV-4WD Mileage	385		0.35	135	0.45
Brand Inspection		294	1.25	368	1.23
Checkoff		294	1.00	294	0.98
Marketing Costs Video or Auction Fees		294	35	10,290	34.30
Dogs (Food, Vet) (4)		1	1,000	250	0.83
Horse Costs - Shoes, Vet, & Feed (5)		1	3,000	990	3.30
Options (Based on out weight of 800 lbs.) (6)		1	0.03	7,200	24.00
Total Operating Costs:				59,198	197.33
Net Revenue Above Operating Costs:				2,315	7.72
Cash Overhead Costs:					
Interest on Operating Capital (7)				3,458	11.53
Insurance (Liability, etc.)				440	1.47
Overhead (Office Expenses)				440	1.47
Total Cash Overhead Costs				4,338	14.46
Total Cash Costs:				63,535	211.78
Net Revenue Above Total Cash Costs:				-2,023	-6.74
Annual Capital Recovery				7,426	24.75
Total Costs:				70,962	236.54
Net Revenue Above Total Costs:				-9,450	-31.50

1. Per Calf based on 300 head purchased.
2. Assumes a 2% death loss or 6 head of 300 calves = 294 calves.
3. Assumes calves at 0.5 AU over 6 months for the 300 head purchased and does not account for death loss.
4. There are two dogs on the ranch, costs are shown on two of the production alternatives.
5. There are three horses on the ranch, costs are shown in each production alternatives.
6. Based on 300 head purchased.
7. Based on 40% of total operating costs and calves purchased borrowed over 6 months at 6%.

Note. The cost of labor and health insurance is not included.

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
Table 2. PURCHASED YEARLINGS/STOCKERS – NATURAL
 300 Head, Yearling/Stocker Operation
 Sacramento Valley 2017

Production/Sales:	Number	Weight	Value \$/lb	Gross Value \$	\$ Per Calf (1)
Calves Purchased	300	530	1.44	228,960	763.20
Natural Calves Sold (2)	289	764	1.31	288,757	999.16
Non Program Calves (3)	5	800	1.15	4,600	920.00
GROSS Revenue: (Natural + Non Program less Purchased)				64,397	214.66
Operating Inputs:	Units/Animals		\$/Unit	Total Costs	\$/Calf
Pasture (leased-based upon seasonal \$150/cow) (4)		300	75	22,500	75.00
Salt/Mineral Supplement-Tons	3.0	294	550	1,650	5.50
Hay-Tons	13.0	294	150	1,950	6.50
Veterinary/Medical		294	0	0	0
Transportation of Cattle		300	20	6,000	20.00
Pickup Truck 1-Ton Mileage	2,750		0.54	1,471	4.90
Stock Trailer Mileage	1,100		0.20	220	0.73
ATV-4WD Mileage	385		0.35	135	0.45
Brand Inspection		294	1.25	368	1.23
Checkoff		294	1.00	294	0.98
Marketing Costs Video or Auction Fees		294	35	10,290	34.30
Dogs (Food, Vet)		1	1,000	250	0.83
Horse costs - Shoes, Vet, & Feed		1	3,000	990	3.30
Options (Based on out weight of 764 lbs.) (5)		1	0.03	6,876	22.92
Total Operating Costs:				52,994	176.65
Net Revenue Above Operating Costs:				11,404	38.01
Cash Overhead Costs:					
Interest on Operating Capital (6)				3,383	11.28
Insurance (Liability, etc.)				440	1.47
Overhead (Office Expenses)				440	1.47
Total Cash Overhead Costs:				4,263	14.21
Total Cash Costs:				57,257	190.86
Net Revenue Above Total Cash Costs:				7,140	23.80
Capital Recovery				7,426	24.75
Total Costs:				64,683	215.61
Net Revenue Above Total Costs:				-286	-0.95

1. Based on 300 head purchased.
 2. Assumes price for calves sold on Table 1 (\$1.24) plus Natural premium (\$0.0378) and higher price (\$.03) due to lighter weight = \$1.31.
 3. Assumes a 2% death loss or 6 head of 300 calves = 289 + 5 non-program calves or 294 calves sold.
Assumes price for calves sold on Table 1 (\$1.24) minus the (\$.09) reduction = \$1.15.
 4. Assumes calves at 0.5 AU over 6 months for the 300 head purchases and does not account for death loss.
 5. Based on 300 head purchased.
 6. Based on 40% of total operating costs and calves purchased borrowed over 6 months at 6%.
- Note-**The cost of labor and health insurance is not included.

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
Table 3. YEARLINGS/STOCKERS BASED ON PER POUND OF WEIGHT GAIN
 300 Head, Yearling/Stocker Operation
 Sacramento Valley 2017

Production/Sales:	Number	Weight Gain	Value \$/lb	Gross Value	\$ Per Calf (2)
Gross Revenue: Calf gain/pound (1)	294	270	0.42	33,340	111.13
Operating Inputs:	Units	Animals	\$/Unit	Total Cost	\$/Calf
Pasture (leased-based upon seasonal \$150/cow/Yr.) (3)		300	75	22,500	75.00
Salt/Mineral Supplements-Tons	3.0	294	550	1,650	5.50
Hay-Tons	13.0	294	150	1,950	6.50
Pickup Truck 1-Ton Mileage	2,750		0.54	1,471	4.90
Stock Trailer Mileage	1,100		0.20	220	0.73
ATV-4WD Mileage	385		0.35	135	0.45
Horses - Shoes, Vet, & Feed		1	3,000	990	3.30
Total Operating Costs:				28,916	96.39
Net Revenue Above Operating Costs:				4,424	14.75
Cash Overhead Costs:					
Interest on Operating Capital (4)				347	1.16
Insurance (Liability, etc.)				440	1.47
Overhead (Office Expenses)				440	1.47
Total Cash Overhead Costs:				1,227	4.09
Total Cash Costs:				30,143	100.48
Net Revenue Above Total Cash Costs:				3,197	10.66
Annual Capital Recovery				7,426	24.75
Total Costs:				37,569	125.23
Net Revenue Above Total Costs:				-4,230	-14.10

1. Assumes a 2% death loss or 6 head of 300 calves = 294 calves.
 2. Based on 300 head received.
 3. Assumes calves at 0.5 AU over 6 months for the 300 head purchased and does not account for death loss.
 4. Based on 40% of total operating costs borrowed over 6 months at 6%.
- Note-**The cost of labor and health insurance is not included.

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
Table 4. EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD
 300 Head, Yearling/Stocker Operation
 Sacramento Valley – 2017

†OVERHEAD	Purchase Price	Salvage/Cull Value	Livestock Share (%)	Useful Life (yr.)	Annual Taxes and Insurance	*Annual Capital Recovery
BUILDINGS, IMPROVEMENTS AND EQUIPMENT						
Squeeze/Loading Chute & Corral Panels	17,000	1,190	100	15	0	1,582
Shop/Fencing Tools	3,850	270	100	20	0	301
Saddles (3)/Tack	11,400	798	100	10	0	1,413
TOTAL BUILDINGS, IMPROVEMENTS AND EQUIPMENT	32,250	2,258			0	3,295
LIVESTOCK INVENTORY						
Bulls (15)	90,000	21,645	100	4	0	20,358
Cows Bred (300)	360,000	260,100	100	8	0	28,460
Yearling Heifers (60)	85,500	90,480	100	0.7	0	4,381
Horses (3)	9,000	0	100	8	0	1,392
Dogs (2)	1,000	0	100	7	0	173
TOTAL LIVESTOCK INVENTORY	545,500	372,225			0	54,764
MACHINERY AND VEHICLES						
ATV	8,500	2,125	100	8	63	1,092
Trailer-5th Wheel (Hauling cattle)	16,000	1,120	100	10	93	1,983
Pickup 1 Ton 4X4 Dual Rear	60,000	17,500	100	10	2,100	6,379
TOTAL MACHINERY AND VEHICLES	84,500	20,745			2,256	9,454
TOTAL OVERHEAD	662,250	395,228			2,256	67,513

* This table accounts for all equipment, investment, overhead, and depreciation costs. Total overhead costs from this table are shown in Tables 1, 2 and 3 as Annual Capital Recovery at 11% of the total for each Production Alternative. The Cow-calf Operation is charged at 67% of the total Capital Recovery shown in this table.

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

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

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
Table 5. RANGING ANALYSIS FOR YEARLING/STOCKER PRODUCTION
 300 Head Yearling/Stocker Operation
 Sacramento Valley – 2017

PURCHASED YEARLINGS

Operation	Yearlings/Calves	Pounds				Units				
Calves Sold	294	800	0.78	0.88	0.98	1.08	1.18	1.28	1.38	
Calves Purchased	300	530	0.93	1.03	1.13	1.23	1.33	1.43	1.53	
GROSS REVENUE: (Sold minus Purchased)			35,586	43,206	50,826	58,446	66,066	73,686	81,306	
Total Operating Costs (Table 1)			59,198	59,198	59,198	59,198	59,198	59,198	59,198	
Total Operating Costs/Calf	300		197	197	197	197	197	197	197	
Total Revenue Above Operating Costs:			-23,612	-15,992	-8,372	-752	6,868	14,489	22,109	
Total Revenue Above Operating Costs/Calf	300		-78.71	-53.31	-27.91	-2.51	22.89	48.30	73.70	
Total Cash Costs (Table 1)			63,535	63,535	63,535	63,535	63,535	63,535	63,535	
Total Cash Costs/Calf	300		212	212	212	212	212	212	212	
Total Revenue Above Cash Costs:			-27,949	-20,329	-12,709	-5,089	2,531	10,151	17,771	
Total Costs (Table 1)			70,962	70,962	70,962	70,962	70,962	70,962	70,962	
Total Costs/Calf	300		237	237	237	237	237	237	237	
Total Net Revenue:			-44,306	-36,686	-29,066	-21,446	-13,826	-6,206	1,414	
Total Net Revenue/Calf:	300		-147.69	-122.29	-96.89	-71.49	-46.09	-20.69	4.71	

PURCHASED YEARLINGS – NATURAL

Operation	Yearlings/Calves	Pounds				Units				
Natural Calves Sold	289	764	0.83	0.93	1.03	1.13	1.23	1.33	1.43	
Non-Program Calves Sold	5	764	0.69	0.79	0.89	0.99	1.09	1.19	1.29	
Calves Purchased	300	530	1.00	1.05	1.15	1.25	1.35	1.45	1.55	
GROSS REVENUE: (Sold minus Purchased)			26,896	41,408	47,970	54,531	61,093	67,654	74,216	
Total Operating Costs (Table 2)			52,994	52,994	52,994	52,994	52,994	52,994	52,994	
Total Operating Costs/Calf	300		177	177	177	177	177	177	177	
Total Revenue Above Operating Costs:			-41,624	-27,112	-20,551	-13,989	-7,428	-866	5,696	
Total Revenue Above Operating Costs/Calf	300		-41.20	-27.97	-14.74	-1.51	11.72	24.95	38.18	
Total Cash Costs (Table 2)			57,257	57,257	57,257	57,257	57,257	57,257	57,257	
Total Cash Costs/Calf	300		191	191	191	191	191	191	191	
Total Revenue Above Cash Costs:			-30,360	-15,849	-9,287	-2,726	3,836	10,398	16,959	
Total Costs (Table 2)			64,683	64,683	64,683	64,683	64,683	64,683	64,683	
Total Costs/Calf	300		216	216	216	216	216	216	216	
Total Net Revenue:			-52,646	-38,134	-31,573	-25,011	-18,450	-11,888	-5,326	
Total Net Revenue/Calf:	300		-225.02	-176.64	-154.77	-132.90	-111.03	-89.16	-67.28	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

Table 5. CONTINUED

300 Head Yearling/Stocker Operation

Sacramento Valley - 2017

YEARLINGS - PER POUND OF GAIN

Operation	Yearlings/Calves	Pounds					Units			
CALF Gain/Pound	294	270	0.15	0.20	0.25	0.30	0.35	0.40	0.45	
GROSS REVENUE:			11,907	15,876	19,845	23,814	27,783	31,752	35,721	
Total Operating Costs (Table 3)			28,916	28,916	28,916	28,916	28,916	28,916	28,916	
Total Operating Costs/Calf	300		96	96	96	96	96	96	96	
Total Revenue Above Operating Costs:			-17,009	-13,040	-9,071	-5,102	-1,133	2,836	6,805	
Total Revenue Above Operating Costs/Calf	300		-56.70	-43.47	-30.24	-17.01	-3.78	9.45	22.68	
Total Cash Costs (Table 3)			30,143	30,490	30,490	30,490	30,490	30,490	30,490	
Total Cash Costs/Calf	300		100	102	102	102	102	102	102	
Total Revenue Above Cash Costs:			-18,236	-14,614	-10,645	-6,676	-2,707	1,262	5,231	
Total Costs (Table 3)			37,569	37,569	37,569	37,569	37,569	37,569	37,569	
Total Costs/Calf	300		125	125	125	125	125	125	125	
Total Net Revenue:			-25,662	-21,693	-17,724	-13,755	-9,786	-5,817	-1,848	
Total Net Revenue/Calf:	300		-85.54	-72.31	-59.08	-45.85	-32.62	-19.39	-6.16	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
Table 6. IMPACT OF FEEDER PRICE SPREAD ON PROFITABILITY
 300 Head Yearling/Stocker Operation
 Sacramento Valley – 2017

NINE YEAR PRICE SPREAD COMPARISON 2008-09 THROUGH 2015-16 SEASONS

PURCHASED YEARLINGS – WINTER RANGELAND STOCKERS

Operation	Number	Pounds	2009	2010	2011	2012	2013	2014	2015	2016	Average
Yearlings SOLD (1)	294	800	0.91	1.02	1.07	1.42	1.28	1.91	2.08	1.37	\$1.38
Less Weaned Calves Purchased (2)	300	530	1.15	1.08	1.25	1.49	1.7	1.59	2.66	2.53	\$1.68
GROSS REVENUE: (Sold minus Purchased)			31,182	68,184	52,914	97,074	30,756	196,422	66,276	-80,046	\$57,845
Total Operating Costs (Table 1)			59,198	59,198	59,198	59,198	59,198	59,198	59,198	59,198	\$59,198
Total Operating Costs/Calf	300		197	197	197	197	197	197	197	197	\$197
Total Revenue Above Operating Costs:			-28,016	8,986	-6,284	37,877	-28,442	137,225	7,078	-139,244	-\$1,352
Total Revenue Above Operating Costs/Calf	300		-93	30	-21	126	-95	457	24	-464	-\$5
Total Cash Costs (Table 1)			63,535	63,535	63,535	63,535	63,535	63,535	63,535	63,535	\$63,535
Total Cash Costs/Calf	300		212	212	212	212	212	212	212	212	\$212
Total Revenue Above Cash Costs:			-32,353	4,649	-10,621	33,539	-32,779	132,887	2,741	-143,581	-\$5,690
Total Costs (Table 1)			70,962	70,962	70,962	70,962	70,962	70,962	70,962	70,962	\$70,962
Total Costs/Calf	300		237	237	237	237	237	237	237	237	\$237
Total Net Revenue:			-39,780	-2,778	-18,048	26,112	-40,206	125,460	-4,686	-151,008	-\$13,117
Total Net Revenue/Calf:	300		-132.60	-9.26	-60.16	87.04	-134.02	418.20	-15.62	-503.36	-\$43.72

1. Yearling prices are based on the average of 800-850 lbs. on the May video sale with May delivery.
2. Weaned Calves prices are based on the average of 500–550 lbs. on the July video sales with October delivery in the year prior, as the cattle are held over the winter and sold in the next calendar year.