
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



FINISHED ON GRASS

20 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 increases 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.

There is increased interest and effort among some California ranchers to offer a value-added, ranch-raised grass-fed product. The goal is to sell the beef product for a higher price and improve ranch profitability. The scale of operation can vary between companies marketing a few head per year to thousands of head per year. Ranch-raised meat products are increasingly found in natural food stores, restaurants, and farmers' markets.

Changing the business structure of the ranch from selling live animals to merchandising meat requires a new set of skills and knowledge. The producer must enjoy dealing with people and be comfortable marketing the family ranch experience and the wholesome product that is produced. It requires knowledge in food safety, marketing, and meat quality. Case studies have indicated the success of the new enterprise is highly correlated to how the business is constructed to minimize transportation and labor costs.

Sample costs to raise beef cattle finished on grass 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. 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 destewart@ucdavis.edu. The local extension office can be contacted through; Larry Forero at lcforero@ucanr.edu or Jeff Stackhouse at jwstackhouse@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 region the study is based. The authors thank rancher cooperators, 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 4 and pertain to sample costs to operate a forage-based beef cattle finishing operation. Practices described represent production methods and materials considered typical of a well-managed ranch in the northern Sacramento Valley. 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 in this study 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. **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 uses the rental value of the Animal Unit Month, (AUM) as a cost of operation. An AUM is defined as the amount of forage it takes to feed one cow and her suckling calf for one month. Forage production per acre varies throughout California based on precipitation, elevation, soil type, range 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.

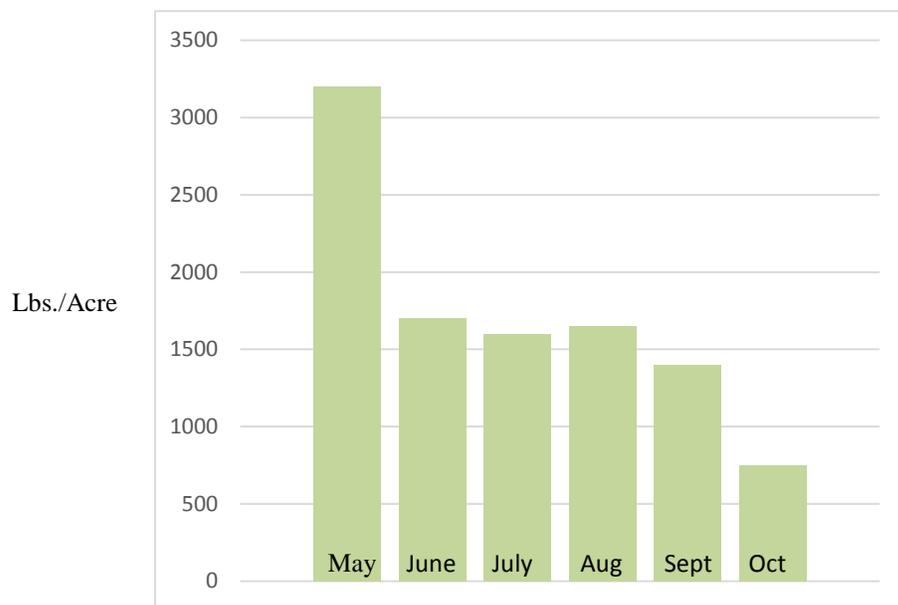
Overview. The hypothetical operation is on leased irrigated pasture and will focus on finishing cattle on grass. For the purposes of this study, 800 pound yearling heifers will be fattened on grass to 1,100 pounds. Cattle production techniques and management vary across California.

Feeder cattle can come from several sources. A cattle producer can keep their own yearling cattle or purchase them. Different time periods throughout the calendar year can affect the availability of feeder cattle and may change the cost of purchase or income from sales.

This study focuses on feeder heifers purchased in the spring. It assumes the irrigated pasture is leased. The grazing lease is based on a \$180 per animal price for a six-month grazing season (\$30/AUM). Because these feeder heifers are going onto pasture weighing 800 pounds and will be coming off at the end of the grazing season weighing 1,100 pounds, these animals will be considered 1 AU. It is imperative that these cattle have abundant, high quality forage available for this finishing phase. The example herd size is 20. This could be typical of startup grass-fed operations. The fixed costs will vary with the number of head involved or size of the operation.

In California, there are two grass sources available depending on the season. The coastal and inland valleys have green forage from February to June on non-irrigated rangelands. The feed tends to be high in protein early and increase in energy later in the season (George, 2001). The forage quantity and quality is highly variable with the seasonal timing of rainfall and temperature. The second source of green feed is irrigated pastures, providing forage from May to October. These pastures are generally cool season grasses and the bulk of the production is in the spring and fall. There are also native meadows in the Sierra Nevada Mountains and in the northeastern California intermountain area. This diversity of green forage provides many options for a grass-fed finishing operation in California. It is a challenge to consistently fatten the animals on forage of varying quality.

Figure A. Average Irrigated Forage Production in Shasta County.



In the Central and Sacramento Valleys cattle are typically grazed on irrigated pasture from late spring through mid-autumn. The goal of grass finishing operations is to get cattle to harvest weight and body condition standards as quickly as possible. Average daily gain varies by local environmental conditions (i.e., summer heat), forage quality, and genetic attributes of the cattle being pastured. Depending upon these attributes, producers might expect daily gains from 1.00 - 2.75 pounds per day across the grazing season. Forage quality and quantity are the primary drivers in seasonal cattle gain. Secondarily, rate of gain may also be affected by livestock health, body condition, mineral nutrition and the physical quality of the cattle.

Fattening of the cattle can depend on the grazing system, plant species present in the pasture, soil fertility, and irrigation management. To properly finish cattle on irrigated pasture there must be ample, good quality forage

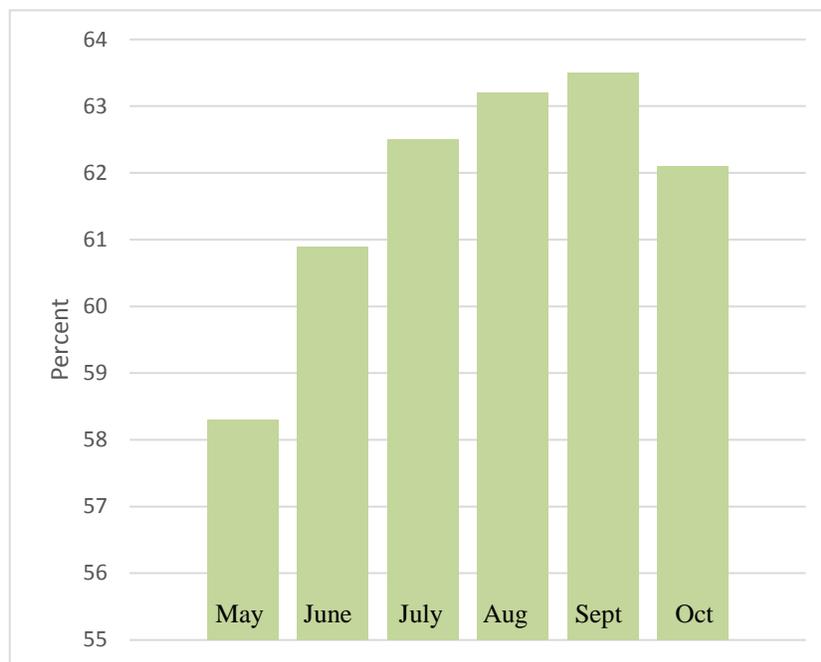
available throughout the feeding period. Forage quality is dependent upon species and vegetative state (rank forage of similar species is lower quality than forage in the vegetative state). Figures A & B illustrate the monthly energy level of irrigated pasture in the Sacramento Valley portion of Shasta County. These plots were harvested every 30 days.

The production protocols vary for ranches claiming grass-fed beef. The USDA Agricultural Marketing Service (AMS) has established a voluntary standard for a grass (forage) fed livestock marketing claim. It is summarized as follows: Grass and forage shall be the feed source consumed for the lifetime of the ruminant animal, with the exception of milk consumed prior to weaning. The diet shall be derived solely from forage consisting of grass (annual and perennial), forbs (e.g., legumes, *Brassica*), browse, or cereal grain crops in the vegetative (pre-grain) state. Animals cannot be fed grain or grain byproducts and must have continuous access to pasture during the growing season. Hay, haylage, baleage, silage, crop residue without grain, and other roughage sources may also be included as acceptable feed sources. Routine mineral and vitamin supplementation may also be included in the feeding regimen. If incidental supplementation occurs due to inadvertent exposure to non-forage feedstuffs or to ensure the animal's well-being at all times during adverse environmental or physical conditions, the producer must fully document (e.g., receipts, ingredients, and tear tags) the supplementation that occurs including the amount, frequency, and the supplements provided.

The Federal Register notice (*January 12, 2016*) gives producers using the grass-fed label 30 days to either convert the newly revoked USDA grass-fed label claim into their own private grass-fed standard, or to develop a new grass-fed standard of their own. The federal register copy of the voluntary standards can be found at:

<https://www.ams.usda.gov/grades-standards/beef>.

Figure B. Average Monthly Irrigated Pasture TDN-Select Shasta Co. Ranches.



Production Alternatives

If producers retain their own stocker cattle at the end of the yearling phase, they have forgone the opportunity to market them as feeder cattle and have effectively transferred them to a beef grass finishing enterprise. The fair market value of those feeder cattle must be assigned to this enterprise to evaluate the profitability of the grass-fed enterprise.

Cattle Operations. In California, cattle will typically pass through three phases as they reach market weight. These include the cow-calf phase, yearling/stocker phase, and finishing phase.

Figure C. 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 500-600 pounds).

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

The feeding/finishing phase takes these yearlings and finishes them on higher energy forage to about 1,100 pounds (20-26 months).

Production Operations

Operations. The Operations Calendar for finishing beef cattle on grass is shown in Table A. The operations are affected by several factors such as weather, and quality/quantity of the irrigated pasture. Therefore, depending upon the annual weather, the operations will differ each year.

Table A. Operations Calendar for Grass-Fed Beef. Farmers Market based on range & pasture (20 head).

| <u>Month</u> | <u>Operation</u> |
|-------------------|--|
| April to October | Irrigated pasture/grazing |
| April and October | Veterinary/Medicine |
| September | Reserve harvest date |
| October | Start farmers market planning |
| October | Harvest animals & process into retail cuts |
| <u>November</u> | <u>Start farmers market sales</u> |

Calendar may vary according to the ranch and farmers' markets.

Pasture, Hay and Supplements. This includes the market value of all feed (purchased or raised) that was used in the beef cattle finishing operation. The assumption is that irrigated pasture is rented for \$30/AUM (an AUM [animal unit month] is the amount of forage a 1000 pound animal will consume each month) over a six-month period. It is assumed the landowner pays for water, fertilization and provides the irrigation labor. Some operations feed small amounts of hay when they receive or ship cattle.

Some areas of California are deficient in micro and macro-nutrients, which can greatly impact the weight gains on pasture. 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://animalsciency.ucdavis.edu/mineralproject/>.

Health, Veterinary Needs and 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 health management for yearling/stockers is when the producer receives a new shipment of cattle at a new location. Good health and nutrition management can greatly impact profitability. Cattle 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. This study assumes a death loss of 1 percent. This cost is based upon 1 percent of the total purchase amount of the 20 yearlings.

Vehicles/Transportation of Cattle. The 1-ton single axle Pickup business mileage is estimated at 1,000 miles per year and includes mileage while pulling the stock trailer. Estimated mileage for the stock trailer is 400 miles and the All-Terrain Vehicle (ATV) 4-wheeler is 1,000 miles per year. All hauling will be with the pickup and stock trailer by the livestock owner. This setup can haul fifteen-800 pound stockers or 12,000 lbs. per load.

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, and horse feeding/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.

Management-Niche Beef Business. The development of a grass finished niche beef business requires a tremendous amount of time to produce the product, develop the market, and manage sales and inventory. Not all of these costs are included in this cost study, Tables 1 & 2. It will be very important to track your labor to determine the time needed for the activities listed. This time can be assessed a labor rate to determine if there is sufficient returns to cover labor costs and generate a profit.

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, 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 3 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. Any returns above total costs are considered returns on risk and investment to management, (or owners).

Revenue

Marketing Grass Finished Beef. There are two different grass-fed business plans in this cost study. Both involve the same number of head (20). They include selling 20 animals to consumers as sides of whole carcass beef or as packages of cuts at a Farmers market.

Twenty heifers averaging 800 pounds will be turned onto leased irrigated pasture on April 15. The value of the heifers (April 28, 2017 Shasta Livestock Auction Yard, \$127-\$144 per hundred-weight) is estimated at

\$1.35 per pound. Assumed value of the heifers into the fed cattle enterprise is \$1,080. The animals are assumed to be ready for harvest on Oct. 1 (168 days). The assumption is they will need to reach a 1,100 pound finish weight. To do this they will need to gain about 1.78 pounds per day. Keep in mind that some cattle will not perform as well as others and that there will be variation in the time required to reach a finished weight. Cattle will be processed and packaged at a USDA inspected processing plant located 100 miles from the ranch. The ranch will pay the harvest costs (\$100/head) and cut and wrap charges (\$1.00/lb).

For a niche beef business to be successful the operation must produce a high quality product consistently. Off quality product sold to consumers could result in dissatisfied customers and lower future meat sales. The structure of the business needs to be carefully considered so that opportunities to scale the business up can be implemented in response to market demand. The marginal return on a few head may not make this enterprise economically attractive, whereas if that same per-head return was realized across many head it might be more attractive.

Sides of Carcass. The target market size is 40 people interested in purchasing a side of beef. The product is defined as grass-fed beef delivered to a USDA-inspected facility (should this be a slaughter and processing plant) required to sell processed beef. Adding this enterprise will require additional labor from the owner. To obtain the costs of forage, we have the cattle on leased pasture. No additional equipment or facilities have been charged against the operation. The cattle will be marketed to friends and neighbors. Limited advertisement in local media will be done as well. Additional revenue could be potentially earned through the sale of offal (heart, liver, and tongue), dog bones and other by-products, but is not considered in this cost study.

Farmers Markets. Marketing at a farmers' market will require that the beef be frozen and stored at a facility that has temperature monitoring or control systems. Equipment to transport and store the meat at a guaranteed temperature will need to be purchased. Costs for permits, stall rental at farmers' market, and travel to markets needs to be considered. Development of flyers or promotional information for consumer education and sales support will be needed. This example assumes meat sales will be in fifty-pound packages of assorted cuts of meat to address the inventory issues by getting consumers to buy a wide array of cuts. The price is \$7 per pound or about \$350 per fifty-pound box. This example assumes there will be seven of these 50 pound boxes per carcass. For purposes of this analysis two farmers' markets are attended weekly for 40 weeks of the year. This model assumes that approximately two of the 50 pound boxes will be sold at each farmers' market each week and that 100 miles per week of driving is necessary to service these markets. Additional revenue could be potentially earned through the sale of offal (heart, liver, and tongue), dog bones, and other by-products, but is not considered in this cost study.

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 production costs. This means the price of the animals and the costs and efficiencies must be estimated in a consistent manor. Table 3 shows a range of costs and returns prices used for calculating net revenue for each of the production alternatives - carcass sales and farmers' markets - 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 include property taxes, interest on operating capital, office expense, liability and property insurance, equipment repairs, and management.

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

coverage.

Liability Insurance. In this study, \$267 per year is charged to each of these 20-cow production alternatives. This type of 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.

Most producers have assumed that their farm or ranch liability policy will cover this extended ranch business. Most insurance agents have stated that their general farm liability packages do not cover processed foods or off-farm retail activity. In these cases, the policy does not provide product liability coverage that producers need to have if they are selling meat products to the public. Some farmers' markets will require product and business liability policies and may also ask that they are listed as "additionally insured". The American Grass-Fed Association (AGA) is providing a service to its members by working with a specific company to offer a Commercial General Liability insurance product specifically for direct meat marketers, including Products and Completed Operations coverage. Based on favorable claims experience and business longevity, the average cost of 2017 policies was \$640 per year.

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 \$250 per year or \$12.50 per head. These expenses include office supplies, telephones, bookkeeping, accounting, utilities, special permits, and miscellaneous administrative charges. A percentage of the total office expenses are split between production alternatives over the entire ranch accordingly.

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, borrowing 40 percent of the combined costs over the 6-month grazing period.

Non-Cash Overhead

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Capital recovery costs are included and shown in Tables 1 and 2.

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 1984). 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 1984). 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 for the entire ranch are shown in Table 4. Tables 1 and 2 shows the capital recovery for equipment and investments required for these production alternatives. The remaining capital recovery costs is shared between production alternatives over the entire ranch.

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 and the life of the equipment.

Interest Rate. The interest rate of 5.0 percent is used to calculate capital recovery cost and is the effective 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.

Equipment. Refrigeration or storage equipment will be required for the farmers' market operations. The amount of expenditure will depend on the requirements of the County Health Dept. and/or farmers' market requirements to mechanize meat.

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 FINISHED ON GRASSCarcass Beef

20 Head Sacramento Valley – 2017

| Production/Sales: | | Animals | Weight | Dollar Value | Gross Value | \$/Cow (1) |
|---|--------------|----------------|----------------|---------------------|--------------------|-------------------|
| Calves Purchased | | 20 | 800 | 1.35 | 21,600 | 1,080.00 |
| Carcasses Sold | | 20 | 627 | 3.75 | 47,025 | 2,351.25 |
| Gross Sales Revenue: | | | | | 25,425 | 1,271.25 |
| Operating Inputs: | Units | | Animals | \$/Unit | Total Costs | \$/Cow |
| Pasture (2) | AUM | 6.00 | 20 | 30.00 | 3,600 | 180.00 |
| Salt/Mineral Supplements | Tons | 0.50 | 20 | 240.00 | 120 | 6.00 |
| Hay | Tons | 1.00 | 20 | 120.00 | 120 | 6.00 |
| Veterinary/Medical | Each | | 20 | 3.95 | 79 | 3.95 |
| Death Loss (1% of purchased price) | | | | 216.00 | 216 | 10.80 |
| Brand Inspection | Each | | 20 | 1.25 | 25 | 1.25 |
| Checkoff (Marketing Order Promotion) | Each | | 20 | 1.00 | 20 | 1.00 |
| Harvest Costs | Carcass | | 20 | 100.00 | 2,000 | 100.00 |
| Cut and Wrap | Pounds | 627 | 20 | 1.00 | 12,540 | 627.00 |
| Marketing Costs (Advertisement) | Each | | 20 | 35.00 | 700 | 35.00 |
| 1-Ton Pickup Truck | Miles | 1,000 | | 0.54 | 535 | 26.75 |
| Stock Trailer | Miles | 400 | | 0.20 | 80 | 4.00 |
| ATV-4WD | Miles | 1,000 | | 0.35 | 350 | 17.50 |
| Horse (shoes, vet, & feed) | Each | | 1 | 200.00 | 200 | 10.00 |
| Total Operating Input Costs: | | | | | 20,585 | 1,029.25 |
| Net Revenue Above Operating Input Costs: | | | | | 4,840 | 242.00 |
| Cash Overhead Costs: | | | | | | |
| Interest on Operating Capital (3) | | | | | 506 | 25.31 |
| Insurance (Liability) | | | | | 907 | 45.35 |
| Overhead (Office Expenses) | | | | | 250 | 12.50 |
| Total Cash Overhead Costs: | | | | | 1,663 | 83.16 |
| Total Cash Costs: | | | | | 22,248 | 1,112.41 |
| Net Revenue Above Total Cash Costs: | | | | | 3,177 | 158.84 |
| Annual Capital Recovery | | | | | 2,177 | 108.85 |
| Total Costs: | | | | | 24,425 | 1,221.26 |
| Net Revenue Above Total Costs: | | | | | 1,000 | 49.99 |

1 Per Cow based on 20 head purchased.

2 Pasture (leased-based on 6 months at \$180/cow or 1-AU).

3 Interest on 40% of the Operating Capital (calves purchased + operating costs) @ 6.0% over 6 months.

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

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Table 2. PURCHASED YEARLINGS FINISHED ON GRASS

Sold at Farmers Markets

20 Head Sacramento Valley – 2017

| Production/Sales: | | Animals | Weight | Dollar Value | Gross Value | \$/Cow (1) |
|---|--------------|----------------|---------------|---------------------|--------------------|-------------------|
| Calves Purchased | | 20 | 800 | 1.35 | 21,600 | 1,080 |
| Farmers' market sales (50 pound boxes at \$7/pound) | | 20 | 350 | 7.00 | 49,000 | 2,450 |
| Gross Sales Revenue: | | | | | 27,400 | 1,370 |
| Operating Inputs: | Units | Animals | | \$/Unit | Total Costs | \$/Cow |
| Pasture (2) | AUM | 6.00 | 20 | 30.00 | 3,600 | 180.00 |
| Salt | Tons | 0.5 | 20 | 240.00 | 120 | 6.00 |
| Hay | Tons | 1.00 | 20 | 120.00 | 120 | 6.00 |
| Veterinary/Medical | Each | | 20 | 3.95 | 79 | 3.95 |
| Death Loss- (1% of Purchase Price) (3) | | | | 216.00 | 216 | 10.80 |
| Brand inspection | Each | | 20 | 1.25 | 25 | 1.25 |
| Checkoff (Marketing Order Promotion) | Each | | 20 | 1.00 | 20 | 1.00 |
| Harvest Cost | Carcass | | 20 | 100.00 | 2,000 | 100.00 |
| Cut and Wrap | Pounds | 350 | 20 | 1.00 | 7,000 | 350.00 |
| Marketing Costs | Each | | 20 | 35.00 | 700 | 35.00 |
| Pickup Truck 1-Ton | Miles | 1,000 | | 0.54 | 535 | 26.75 |
| Stock Trailer | Miles | 400 | | 0.20 | 80 | 4.00 |
| ATV | Miles | 1,000 | | 0.35 | 350 | 17.50 |
| Horse (shoes, vet, & feed) | Each | | 1 | 200.00 | 200 | 10.00 |
| Total Operating Input Costs: | | | | | 15,045 | 752.25 |
| Net Revenue Above Operating Input Costs: | | | | | 12,355 | 617.75 |
| Cash Overhead Costs: | | | | | | |
| Interest on Operating Capital (4) | | | | | 440 | 21.99 |
| Farmers' Market Membership Fees (\$30/each) | | | | | 60 | 3.00 |
| Farmers' Market (two markets per week, 40 weeks/year) | | | | | 2,400 | 120.00 |
| Frozen Storage | | | | | 400 | 20.00 |
| Transportation Costs to Farmer Markets | | | | | 2,140 | 107.00 |
| Insurance (Liability) | | | | | 907 | 45.35 |
| Overhead (Office Expenses) | | | | | 250 | 12.50 |
| Total Cash Overhead Costs: | | | | | 6,597 | 329.84 |
| Total Cash Costs: | | | | | 21,642 | 1082.09 |
| Net Revenue Above Total Cash Costs: | | | | | 5,758 | 287.91 |
| Annual Capital Recovery | | | | | 2,177 | 108.85 |
| Total Costs: | | | | | 23,819 | 1190.94 |
| Net Revenue Above Total Costs: | | | | | 3,581 | 179.06 |

1 Per Cow based on 20 head purchased.

2 Pasture (leased-based at \$30/month for 6 months).

3 Assumes a 1% death loss calculated on the total purchase price of the 20 head.

4 Interest on 40% of the Operating Capital (calves purchased + operating costs) @ 6.0% over 6 months.

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

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Table 3. RANGING ANALYSIS FINISHED ON GRASS

Beef Cattle

20-Head Sacramento Valley-2017

Carcass Sales

| | | | | | | | |
|---|----------------|----------------|---------------|---------------|---------------|---------------|---------------|
| Weight per Animal (lb) | 627 | 627 | 627 | 627 | 627 | 627 | 627 |
| Animals Sold | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| \$/lb | 2.50 | 2.75 | 3.25 | 3.75 | 4.25 | 4.75 | 5.25 |
| Gross Sales Revenue: | 31,350 | 34,485 | 40,755 | 47,025 | 53,295 | 59,565 | 65,835 |
| Animal Purchase Cost (20 calves) | 21,600 | 21,600 | 21,600 | 21,600 | 21,600 | 21,600 | 21,600 |
| Revenue less Purchase Cost: | 9,750 | 12,885 | 19,155 | 25,425 | 31,695 | 37,965 | 44,235 |
| Total Operating Input Costs | 20,585 | 20,585 | 20,585 | 20,585 | 20,585 | 20,585 | 20,585 |
| Revenue above Operating Input Costs: | -10,835 | -7,700 | -1,430 | 4,840 | 11,110 | 17,380 | 23,650 |
| Total Cash Costs | 22,248 | 22,248 | 22,248 | 22,248 | 22,248 | 22,248 | 22,248 |
| Net Revenue above Total Cash Costs: | -12,498 | -9,363 | -3,093 | 3,177 | 9,447 | 15,717 | 21,987 |
| Total Operating Costs | 24,425 | 24,425 | 24,425 | 24,425 | 24,425 | 24,425 | 24,425 |
| Net Revenue above Total Costs: | -14,675 | -11,540 | -5,270 | 1,000 | 7,270 | 13,540 | 19,810 |

Farmers' Market Sales

| | | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Weight per Animal (lb) | 350 | 350 | 350 | 350 | 350 | 350 | 350 |
| Animals Sold | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| \$/lb | 5.50 | 6.00 | 6.50 | 7.00 | 7.50 | 8.00 | 8.50 |
| Gross Sales Revenue: | 38,500 | 42,000 | 45,500 | 49,000 | 52,500 | 56,000 | 59,500 |
| Animal Purchase Cost (20 calves) | 21,600 | 21,600 | 21,600 | 21,600 | 21,600 | 21,600 | 21,600 |
| Revenue less Purchase Cost: | 16,900 | 20,400 | 23,900 | 27,400 | 30,900 | 34,400 | 37,900 |
| Total Operating Input Costs | 15,045 | 15,045 | 15,045 | 15,045 | 15,045 | 15,045 | 15,045 |
| Revenue above Operating Input Costs: | 1,855 | 5,355 | 8,855 | 12,355 | 15,855 | 19,355 | 22,855 |
| Total Cash Costs | 21,642 | 21,642 | 21,642 | 21,642 | 21,642 | 21,642 | 21,642 |
| Net Revenue above Total Cash Costs: | -4,742 | -1,242 | 2,258 | 5,758 | 9,258 | 12,758 | 16,258 |
| Total Costs | 23,819 | 23,819 | 23,819 | 23,819 | 23,819 | 23,819 | 23,819 |
| Net Revenue above Total Costs: | -6,919 | -3,419 | 81 | 3,581 | 7,081 | 10,581 | 14,081 |

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Table 4. EQUIPMENT, INVESTMENT AND BUSINESS OVERHEADBeef Cattle

300 Head 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 |
| 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 for the entire ranch.

A percentage of the costs from this table are shown in Tables 1 & 2 as Annual Capital Recovery.

The interest rate for capital recovery is calculated at 5.0%.