



Northern Utah Small Cow-Calf Pasture Finished Beef Production Costs & Returns, 2012

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Introduction

Sample costs and returns to raise pasture-fed beef cattle for direct to consumer sales on small cow-calf operations in northern Utah are presented in this publication. This publication is intended to be a guide used to make production decisions, determine potential returns and prepare business and marketing plans. The practices described are not the recommendations of Utah State University, but rather the production practices and materials considered typical of a well-managed cattle operation in the region, as determined by producer survey results from 2012. Producers surveyed participated in a Utah Natural Resources Conservation Service (NRCS) Conservation Innovation Grant (CIG) project. Costs, materials, and practices are not applicable to all situations as management and production practices vary among ranchers in the region. The “Your Ranch” column in all tables is provided for your use.

Ranch Description

Ranch

The representative ranch consists of 10 acres of land for ranch activities including 5 acres for birdsfoot trefoil* (BFT) pasture. Land is valued at \$5,000/acre. The ranch leases an additional 15 acres of improved pasture land for late spring and fall grazing at \$150/head (Neibergs and Nelson, 2009). Breeding livestock graze on leased pasture and/or federal lands at a cost of \$100/head in the summer months (Feuz et al., 2007).

Livestock

The livestock inventory consists of 12 cows and one bull. The weaned calf crop produced from over-wintered cows and replacement heifers is 92%. The death loss is 9%. Fall calving is practiced on the ranch. Calves are weaned in the spring and are put on BFT pasture in late May or early June at approximately 550 pounds. Calves are slaughtered and delivered to customers in October/November at a final live weight of 900-950 pounds. Two cull cows are marketed for delivery in November.

Production Practices

Feed

The forage base for the ranch consists of spring, summer, and fall grazing on leased land for breeding livestock (April to end-November) and winter (December to April) feeding of alfalfa and grass hay. Alfalfa costs are based on 2011 market prices, or \$200/head. Weaned calves graze on BFT pasture in the summer, at a cost of \$472/acre and a rate of two calves per acre (Curtis, Knudsen, and MacAdam, 2013). BFT pasture provides an ADG of 3 pounds per calf (MacAdam et al., 2011). Salt and mineral supplements are provided during the year at \$250/ton.

Veterinary/Medical

Total annual veterinary costs for breeding and weaned livestock are \$35 per head (Neibergs and Nelson, 2009; Feuz et al., 2007).

Marketing

Calves are marketed through direct to consumer methods such as farmers' markets, CSA programs, and through ranch websites from late May to early November. Delivery takes place in October/November. Cull animals are marketed through local auction markets. Annual marketing costs including website development, market fees, and transportation costs are calculated at \$100/head.

Labor

Labor includes one owner/manager, who receives a salary of \$500 per calf sold annually. All employee benefits and taxes are included in labor costs.

Livestock Pricing

Livestock pricing for grass-fed/pasture-fed beef, which averaged \$5.25/pound for cut and packaged half cow products is provided in Table 1. Final packaged weight ranges from 30-50% of live animal weight (CIV, 2012). A conversion rate of 40% is used here to calculate a \$2.20/pound live animal price for calves and cull cows in Table 2. However, pricing of \$2.80 to \$3.00/pound is not uncommon in Utah, so a price of \$2.80/pound live weight is provided in Table 3.

Ranch Investments

Cash Overhead

Cash overhead consists of various cash expenses paid out during the year. These costs include property taxes, interest, office expenses, liability and property insurance, accounting/legal costs, as well as investment/machinery repairs.

Property Taxes. Property taxes in Utah differ across counties. For the purposes of this publication, property taxes on buildings are calculated at 1 percent of the average asset value of the property. Property taxes on land should be taken into consideration, but are not included here.

Insurance. Insurance on ranch investments vary, depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss at .666 percent of the average asset value. Liability and crop insurance covers accidents and crop loss on the 10 acre ranch at an annual cost of \$250.

Fuel and Lube. The fuel and lube for machinery and vehicles is estimated at \$2,000 annually for the 10 acre ranch.

Maintenance. Annual repairs on all ranch investments or capital recovery items that require maintenance are calculated at 2 percent of the average asset value for buildings, improvements, and equipment and 7 percent of the average asset value for machinery and vehicles.

Office & Travel. Office and travel costs are estimated at \$150 for an average year for the 10 acre ranch. These expenses include office supplies, telephone service, Internet service, and travel expenses to educational seminars.

Accounting & Legal. Annual accounting and legal costs are estimated at \$250 for an average year for the 10 acre ranch.

Interest on Retained Livestock. Annual costs of retaining breeding livestock are calculated at 5% of the animal sales value. Pasture-fed breeding cows in 2012 are valued at \$1,800 each.

Capital Recovery

Capital recovery costs are the annual depreciation (opportunity cost) of all ranch investments. Capital recovery costs are calculated using straight line depreciation. All equipment listed is new unless otherwise noted. For used machinery, the price is calculated as one-half of the new purchase price and useful life is two-thirds that of new machinery (Painter, 2011). The type of pasture feeding equipment required, as well as costs and useful life, were estimated from Neibergs and Nelson (2009).

Salvage Value

Salvage value is 10 percent of the purchase price for equipment and machinery, which is an estimate of the remaining value of an investment at the end of its useful life. The salvage value for land is the purchase price, as land does not normally depreciate. The salvage value for bulls is one half the purchase price.

Average Asset Value Computation

$$\left(\frac{\text{Purchase Price} + \text{Salvage Value}}{2} \right)$$

Straight Line Depreciation Computation

$$\left(\frac{\text{Purchase Price} - \text{Salvage Value}}{\text{Useful Life}} \right)$$

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*Birdsfoot trefoil (BFT) is a perennial forage legume, which like alfalfa, thrives under irrigation in the high-elevation West. The low concentration of condensed tannins in BFT prevents bloat, allowing BFT to be grazed in pure stands, as well as with grasses. The tannins in BFT turn excess plant protein into high-quality bypass protein, enhancing forage utilization and ruminant growth. BFT can utilize the nitrogen in ruminant waste returned to pasture soil or fix its own nitrogen as needed. Like alfalfa, BFT has a deep taproot and continues to produce forage during mid-summer under irrigation when grass growth slows (Curtis et al., 2012).

Table 1. 2011 Grass-fed Meat Prices by Cut/Type

Product Type/Cut	Unit	Low Price	High Price	Average Price
Half Cow	Animal	\$850	\$1,256	\$1,053
Half Cow	Pound	\$4.50	\$5.99	\$5.25
NY Steak	Pound	\$13.75	\$18.99	\$16.37
Ground Beef	Pound	\$4.00	\$5.99	\$5.00
Pork Chops	Pound	\$8.00	\$8.99	\$8.50
Whole Lamb	Animal	\$250.00	\$315.00	\$282.50
Leg of Lamb	Pound	\$10.49	\$10.99	\$10.74

Source: Internet Survey of Grass-Fed Meat Producers, 2011.

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Table 2. Pasture-Finished Beef Production Costs and Returns, 2012, 10 Head, \$2.20/pound

Description	Weight Per Animal	Unit of Measure	Total Units	Price/Cost Per Unit	Total Value	Value/Cost Per Head
GROSS INCOME						
Cull Cows	1200.00	Pounds	2.00	\$ 2.20	\$ 5,280.00	\$ 2,640.00
Cull Bulls	1500.00	Pounds	0.00	\$ -	\$ -	\$ -
Heifer Calves	900.00	Pounds	5.00	\$ 2.20	\$ 9,900.00	\$ 1,980.00
Steer Calves	950.00	Pounds	5.00	\$ 2.20	\$ 10,450.00	\$ 2,090.00
TOTAL INCOME					\$ 25,630.00	\$ 2,563.00
OPERATING COSTS						
Birdsfoot Trefoil Pasture	June to August: Weaned Calves	Acre	5.00	\$ 472.00	\$ 2,360.00	\$ 236.00
Summer Pasture/Range	June to August: Breeding Livestock	Head	13.00	\$ 100.00	\$ 1,300.00	\$ 130.00
Winter Feed (Alfalfa)	December to March	Head	13.00	\$ 200.00	\$ 2,600.00	\$ 260.00
Improved Pasture	April, May, September to November	Head	13.00	\$ 150.00	\$ 1,950.00	\$ 195.00
Veterinary/Medical		Head	23.00	\$ 35.00	\$ 805.00	\$ 80.50
Marketing		Head	10.00	\$ 100.00	\$ 1,000.00	\$ 100.00
Salt & Minerals		Ton	1.00	\$ 250.00	\$ 250.00	\$ 25.00
Operator Labor		Annual	1.00	\$ 5,000.00	\$ 5,000.00	\$ 500.00
Maintenance		Annual	1.00	\$ 999.75	\$ 999.75	\$ 99.98
Fuel & Lube		Annual	1.00	\$ 2,000.00	\$ 2,000.00	\$ 200.00
Utilities		Annual	1.00	\$ 500.00	\$ 500.00	\$ 50.00
Miscellaneous		Head	13.00	\$ 5.00	\$ 65.00	\$ 6.50
TOTAL OPERATING COSTS					\$ 18,829.75	\$ 1,882.98
INCOME ABOVE OPERATING COSTS					\$ 6,800.25	\$ 680.03
OWNERSHIP COSTS						
Capital Recovery (Depreciation):						
Buildings, Improvements, & Equipment		Annual	1.00	\$ 780.00	\$ 780.00	\$ 78.00
Machinery & Vehicles		Annual	1.00	\$ 1,898.33	\$ 1,898.33	\$ 189.83
Purchased Livestock (Bulls)		Annual	1.00	\$ 583.33	\$ 583.33	\$ 58.33
Cash Overhead:						
Liability Insurance		Annual	1.00	\$ 250.00	\$ 250.00	\$ 25.00
Office & Travel		Annual	1.00	\$ 150.00	\$ 150.00	\$ 15.00
Accounting & Legal Fees		Annual	1.00	\$ 250.00	\$ 250.00	\$ 25.00
Interest on Retained Livestock		Annual	1.00	\$ 900.00	\$ 900.00	\$ 90.00
Annual Investment Insurance		Annual	1.00	\$ 125.21	\$ 125.21	\$ 12.52
Annual Investment Taxes		Annual	1.00	\$ -	\$ -	\$ -
TOTAL OWNERSHIP COSTS					\$ 4,936.87	\$ 493.69
TOTAL COSTS					\$ 23,766.62	\$ 2,376.66
NET PROJECTED RETURNS					\$ 1,863.38	\$ 186.34

Table 3. Pasture-Finished Beef Production Costs and Returns, 2012, 10 Head, \$2.80/pound

Description	Weight Per Animal	Unit of Measure	Total Units	Price/Cost Per Unit	Total Value	Value/Cost Per Head
GROSS INCOME						
Cull Cows	1200.00	Pounds	2.00	\$ 2.80	\$ 6,720.00	\$ 3,360.00
Cull Bulls	1500.00	Pounds	0.00	\$ -	\$ -	\$ -
Heifer Calves	900.00	Pounds	5.00	\$ 2.80	\$ 12,600.00	\$ 2,520.00
Steer Calves	950.00	Pounds	5.00	\$ 2.80	\$ 13,300.00	\$ 2,660.00
TOTAL INCOME					\$ 32,620.00	\$ 3,262.00
OPERATING COSTS						
Birdsfoot Trefoil Pasture	June to August: Weaned Calves	Acre	5.00	\$ 472.00	\$ 2,360.00	\$ 236.00
Summer Pasture/Range	June to August: Breeding Livestock	Head	13.00	\$ 100.00	\$ 1,300.00	\$ 130.00
Winter Feed (Alfalfa)	December to March	Head	13.00	\$ 200.00	\$ 2,600.00	\$ 260.00
Improved Pasture	April, May, September to November	Head	13.00	\$ 150.00	\$ 1,950.00	\$ 195.00
Veterinary/Medical		Head	23.00	\$ 35.00	\$ 805.00	\$ 80.50
Marketing		Head	10.00	\$ 100.00	\$ 1,000.00	\$ 100.00
Salt & Minerals		Ton	1.00	\$ 250.00	\$ 250.00	\$ 25.00
Operator Labor		Annual	1.00	\$ 5,000.00	\$ 5,000.00	\$ 500.00
Maintenance		Annual	1.00	\$ 999.75	\$ 999.75	\$ 99.98
Fuel & Lube		Annual	1.00	\$ 2,000.00	\$ 2,000.00	\$ 200.00
Utilities		Annual	1.00	\$ 500.00	\$ 500.00	\$ 50.00
Miscellaneous		Head	13.00	\$ 5.00	\$ 65.00	\$ 6.50
TOTAL OPERATING COSTS					\$ 18,829.75	\$ 1,882.98
INCOME ABOVE OPERATING COSTS					\$ 13,790.25	\$ 1,379.03
OWNERSHIP COSTS						
Capital Recovery (Depreciation):						
Buildings, Improvements, & Equipment		Annual	1.00	\$ 780.00	\$ 780.00	\$ 78.00
Machinery & Vehicles		Annual	1.00	\$ 1,898.33	\$ 1,898.33	\$ 189.83
Purchased Livestock (Bulls)		Annual	1.00	\$ 583.33	\$ 583.33	\$ 58.33
Cash Overhead:						
Liability Insurance		Annual	1.00	\$ 250.00	\$ 250.00	\$ 25.00
Office & Travel		Annual	1.00	\$ 150.00	\$ 150.00	\$ 15.00
Accounting & Legal Fees		Annual	1.00	\$ 250.00	\$ 250.00	\$ 25.00
Interest on Retained Livestock		Annual	1.00	\$ 900.00	\$ 900.00	\$ 90.00
Annual Investment Insurance		Annual	1.00	\$ 125.21	\$ 125.21	\$ 12.52
Annual Investment Taxes		Annual	1.00	\$ -	\$ -	\$ -
TOTAL OWNERSHIP COSTS					\$ 4,936.87	\$ 493.69
TOTAL COSTS					\$ 23,766.62	\$ 2,376.66
NET PROJECTED RETURNS					\$ 8,853.38	\$ 885.34

Table 4. Investment Summary

Description	Purchase Price	Livestock Share (%)	Revised Purchase Price	Useful Life (yrs)	Salvage Value	Annual Capital Recovery	Annual Insurance	Annual Taxes	Annual Repairs
Buildings, Improvements, & Equipment									
Land	\$ 50,000.00	100%	\$ 50,000.00	150	\$ 50,000.00	\$ -	\$ -	TBD	\$ -
Portable Fencing	\$ 2,500.00	100%	\$ 2,500.00	15	\$ 250.00	\$ 150.00	\$ 9.16	\$ -	\$ 27.50
Portable Corrals/Chutes	\$ 6,000.00	100%	\$ 6,000.00	15	\$ 600.00	\$ 360.00	\$ 21.98	\$ -	\$ 66.00
Watering Facilities	\$ 2,000.00	100%	\$ 2,000.00	10	\$ 200.00	\$ 180.00	\$ 7.33	\$ -	\$ 22.00
Misc. Tools/Equipment	\$ 1,000.00	100%	\$ 1,000.00	10	\$ 100.00	\$ 90.00	\$ 3.66	\$ -	\$ 11.00
Sub Total	\$ 61,500.00	NA	\$ 61,500.00	NA	\$ 51,150.00	\$ 780.00	\$ 42.12	\$ -	\$ 126.50
Machinery & Vehicles									
Case Skip Loader (used)	\$ 20,000.00	10%	\$ 2,000.00	10	\$ 600.00	\$ 140.00	\$ 8.66	\$ -	\$ 91.00
3/4 Ton Pickup	\$ 40,000.00	10%	\$ 4,000.00	8	\$ 1,200.00	\$ 350.00	\$ 17.32	\$ -	\$ 182.00
Livestock Trailer (used)	\$ 10,000.00	100%	\$ 10,000.00	10	\$ 1,000.00	\$ 900.00	\$ 36.63	\$ -	\$ 385.00
Flatbed Trailer (used)	\$ 5,000.00	100%	\$ 5,000.00	10	\$ 500.00	\$ 450.00	\$ 18.32	\$ -	\$ 192.50
4-Wheeler (used)	\$ 5,000.00	10%	\$ 500.00	6	\$ 150.00	\$ 58.33	\$ 2.16	\$ -	\$ 22.75
Sub Total	\$ 80,000.00	NA	\$ 21,500.00	NA	\$ 3,450.00	\$1,898.33	\$ 83.08	\$ -	\$ 873.25
Purchased Livestock									
Bulls (1)	\$ 3,500.00	100%	\$ 3,500.00	3	\$ 1,750.00	\$ 583.33	\$ -	\$ -	\$ -
Sub Total	\$ 3,500.00	NA	\$ 3,500.00	NA	\$ 1,750.00	\$ 583.33	\$ -	\$ -	\$ -
Total	\$ 145,000.00	NA		NA	\$ 56,350.00	\$3,261.67	\$ 125.21	\$ -	\$ 999.75
Retained Livestock (interest only)									
Heifers (10)	\$ 18,000.00	100%	\$ 18,000.00	NA	\$ 18,000.00	\$ 900.00	\$ -	\$ -	\$ -
Total	\$ 18,000.00				\$ -	\$ 900.00	\$ -	\$ -	\$ -