



Northern Utah Grass-Fed Beef Production Costs and Returns, 2016

Kynda Curtis, Professor and Extension Specialist, Department of Applied Economics
Trevor Knudsen, Graduate Research Assistant, Department of Applied Economics

Introduction

Sample costs and returns to raise grass-fed beef cattle for direct-to-consumer sales on small-scale 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 as determined by 2016 producer survey results. Costs, materials, and practices are not applicable to all situations as management and production practices vary among ranchers in the region.

Ranch Description

Ranch

The representative ranch consists of 5 acres of land leased annually at \$1,100/acre (Realtor.com, 2016). The ranch leases an additional 10 acres of improved pasture land for weaned calf grazing from April to December at \$200/head (Neibergs and Nelson, 2009).

Livestock

The livestock inventory consists of 12 cows and one bull. The weaned calf crop is 10, of which 5 are steers and 5 are heifers (92% calving rate and 9% death loss). Fall calving (mid-October) is practiced on the ranch. Calves are weaned in the spring and are put on improved pasture in mid-April at approximately 450 pounds. Calves (8) are slaughtered and prepared for customers in late December at a final live weight of 950 pounds along with two cull breeding cows of 1,200 pounds each. Two

of the heifer calves are retained and placed with breeding stock.

Production Practices

Feed

The forage base for the ranch consists of spring, summer, and fall grazing (April to November) on federal land/leased pasture for breeding livestock at \$150/head annually (Neibergs and Nelson, 2009). Winter feed (December to March) for breeding livestock and calves consists of alfalfa and grass hay at \$288/head annually (\$120/ton premium alfalfa; USDA-AMS, 2016a), where calves consume on average at a 25% calf to cow ratio. Weaned calves are fed on improved pasture from April to December at a rate of \$200/head. Alfalfa pasture provides an ADG of 2 pounds per calf (Ringwall, 2012). 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).

Marketing

Calves are marketed through direct market channels such as farmers markets, CSA programs, and individual ranch websites. Cull animals are marketed through wholesale channels. Annual marketing costs including website development, market fees, and transportation costs are calculated at \$100 per animal sold.

Labor

Labor includes one owner/manager who is paid out of net returns to the operation.

Livestock Pricing

Livestock pricing for grass-fed beef sold through direct markets averaged \$550/cwt for a dressed steer or heifer (USDA-AMS, 2016). As dressed weight is 63% (iGrow, 2013) of live weight at slaughter, a dressed weight of 600 pounds was used to calculate the \$3.60/pound live animal price for calves (see Table 1). Grass-fed cull cows were valued at \$2,400 each or \$2.00/pound wholesale in 2016 (USDA-AMSb, 2016). Registered Angus bulls sold for \$3,500 on average in 2016 (RanchWorldAds, 2016). All livestock is sold live and any processing fees would need to be paid by the buyer or added to the costs provided.

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 (see Table 2).

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 5-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 5-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 \$1,000 for an average year for the 5-

acre ranch. These expenses include office supplies (\$200), telephone/internet service (\$600), and educational workshops (\$200).

Accounting & Legal. Annual accounting and legal costs are estimated at \$450 for an average year for the 5-acre ranch (Cook Martin Poulson, P.C., 2016).

Interest on Retained Livestock. Annual costs of retaining breeding livestock are calculated at 5% of the animal's sales value. Pasture-fed breeding heifers in 2016 were valued at \$2,400 each wholesale (USDA-AMS, 2016b). Two of the ten heifers are replaced annually and bulls every 5 years.

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 pasture feeding equipment required, as well as costs and useful life, were taken from Neiberger 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 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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Table 1. Northern Utah Grass-Fed Beef Production Costs and Returns, 10 Head

Description	Weight Per Animal	Unit of Measure	Total Units	Price/Cost Per Unit	Total Value	Value/Cost Per Head Sold
GROSS INCOME						
Cull Cows	1200.00	Pounds	2.00	\$ 2.00	\$ 4,800.00	\$ 2,400.00
Cull Bulls	1500.00	Pounds	0.00	\$ -	\$ -	\$ -
Heifer Calves	950.00	Pounds	3.00	\$ 3.60	\$ 10,260.00	\$ 3,420.00
Steer Calves	950.00	Pounds	5.00	\$ 3.60	\$ 17,100.00	\$ 3,420.00
TOTAL INCOME					\$ 32,160.00	\$ 3,216.00
OPERATING COSTS						
Improved Pasture	April to December: Weaned Calves	Head	10.00	\$ 200.00	\$ 2,000.00	\$ 200.00
Summer Pasture/Range	April to November: Breeding Livestock	Head	13.00	\$ 150.00	\$ 1,950.00	\$ 195.00
Winter Feed (Alfalfa)	November to March	Head	15.50	\$ 288.00	\$ 4,464.00	\$ 446.40
Land Lease		Acre	5.00	\$ 1,100.00	\$ 5,500.00	\$ 550.00
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
Maintenance		Annual	1.00	\$ 954.25	\$ 954.25	\$ 95.43
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	23.00	\$ 5.00	\$ 115.00	\$ 11.50
TOTAL OPERATING COSTS					\$ 19,538.25	\$ 1,953.83
INCOME ABOVE OPERATING COSTS					\$ 12,621.75	\$ 1,262.18
OWNERSHIP COSTS						
Capital Recovery (Depreciation):						
Buildings, Improvements, & Equipment		Annual	1.00	\$ 780.00	\$ 780.00	\$ 78.00
Machinery & Vehicles		Annual	1.00	\$ 2,055.00	\$ 2,055.00	\$ 205.50
Purchased Livestock (Bulls)		Annual	1.00	\$ 350.00	\$ 350.00	\$ 35.00
Cash Overhead:						
Liability Insurance		Annual	1.00	\$ 250.00	\$ 250.00	\$ 25.00
Office & Travel		Annual	1.00	\$ 1,000.00	\$ 1,000.00	\$ 100.00
Accounting & Legal Fees		Annual	1.00	\$ 450.00	\$ 450.00	\$ 45.00
Interest on Retained Livestock		Annual	1.00	\$ 1,200.00	\$ 1,200.00	\$ 120.00
Annual Investment Insurance		Annual	1.00	\$ 120.88	\$ 120.88	\$ 12.09
Annual Investment Taxes		Annual	1.00	\$ -	\$ -	\$ -
TOTAL OWNERSHIP COSTS					\$ 6,205.88	\$ 620.59
TOTAL COSTS					\$ 25,744.13	\$ 2,574.41
NET PROJECTED RETURNS					\$ 6,415.87	\$ 641.59

Table 2. Ranch 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									
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
Tools/Equipment	\$ 1,000.00	100%	\$ 1,000.00	10	\$ 100.00	\$ 90.00	\$ 3.66	\$ -	\$ 11.00
Sub Total	\$ 11,500.00	NA	\$ 11,500.00	NA	\$ 1,150.00	\$ 780.00	\$ 42.12	\$ -	\$ 126.50
Machinery & Vehicles									
Case Skip Loader (used)	\$ 20,000.00	10%	\$ 2,000.00	10	\$ 200.00	\$ 180.00	\$ 7.33	\$ -	\$ 77.00
3/4 Ton Pickup	\$ 40,000.00	10%	\$ 4,000.00	8	\$ 400.00	\$ 450.00	\$ 14.65	\$ -	\$ 154.00
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	\$ 50.00	\$ 75.00	\$ 1.83	\$ -	\$ 19.25
Sub Total	\$ 80,000.00	NA	\$ 21,500.00	NA	\$ 2,150.00	\$2,055.00	\$ 78.75	\$ -	\$ 827.75
Purchased Livestock									
Bulls (1)	\$ 3,500.00	100%	\$ 3,500.00	5	\$ 1,750.00	\$ 350.00	\$ -	\$ -	\$ -
Sub Total	\$ 3,500.00	NA	\$ 3,500.00	NA	\$ 1,750.00	\$ 350.00	\$ -	\$ -	\$ -
Total	\$ 95,000.00	NA		NA	\$ 5,050.00	\$3,185.00	\$ 120.88	\$ -	\$ 954.25
Retained Livestock (interest only)									
Heifers (10)	\$ 24,000.00	100%	\$ 24,000.00	NA	\$ 24,000.00	\$ 1,200.00	\$ -	\$ -	\$ -
Total	\$ 24,000.00				\$ -	\$ 1,200.00	\$ -	\$ -	\$ -

Table 3. Total Ranch Income and Net Returns by Sales Price

Price Per Pound (Live Weight)	Total Ranch Income	Income Per Head Sold	Total Ranch Net Returns
\$ 2.80	\$ 26,080.00	\$ 2,608.00	\$ 335.87
\$ 3.00	\$ 27,600.00	\$ 2,760.00	\$ 1,855.87
\$ 3.20	\$ 29,120.00	\$ 2,912.00	\$ 3,375.87
\$ 3.40	\$ 30,640.00	\$ 3,064.00	\$ 4,895.87
\$ 3.60	\$ 32,160.00	\$ 3,216.00	\$ 6,415.87
\$ 3.80	\$ 33,680.00	\$ 3,368.00	\$ 7,935.87
\$ 4.00	\$ 35,200.00	\$ 3,520.00	\$ 9,455.87
\$ 4.20	\$ 36,720.00	\$ 3,672.00	\$ 10,975.87
\$ 4.40	\$ 38,240.00	\$ 3,824.00	\$ 12,495.87
\$ 4.60	\$ 39,760.00	\$ 3,976.00	\$ 14,015.87
\$ 4.80	\$ 41,280.00	\$ 4,128.00	\$ 15,535.87