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Grand County Crop Production Costs and Returns, 2013

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Introduction

Sample costs and returns to establish and produce alfalfa hay under wheel line irrigation in Grand County, 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 farm in the region, as determined by producer survey results from 2013. Costs, materials, and practices are not applicable to all situations as management and cultural practices vary among growers within the region. The "*Your Farm"* column in all tables is provided for your use.

Farm. The representative farm consists of 100 acres of land on which 70 acres are cultivated for alfalfa production. The market value in 2013 was approximately $9,000 per acre for agricultural land in Grand County with water rights.

Crop Pricing. Four-year average pricing (2007-2011) for alfalfa hay is $141.40/ton (UDAF, 2012).

Owner Labor. Owner is provided $7,500 annually for the 100 acre farm, or $75/acre.

Hired Labor. Hired labor is paid $10/hr for an annual cost of $2,500 for the 100 acre farm, or $25/acre.

Irrigation System. Wheel line system is estimated at $13,000 for a new ¼ mile with maximum of 40 acre coverage (Valley Irrigation Company, March 2011).

Cash Overhead. Cash overhead consists of various cash expenses paid out during the year. These costs include property taxes, interest, office expenses, liability, property insurance, and 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 farm investments vary, depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss at 0.666 percent of the average asset value. Liability and crop insurance covers accidents and crop loss on the 100 acre farm at an annual cost of $500.

Fuel & Lube. The fuel and lube for machinery and vehicles is calculated at 8 percent of the average asset value.

Investment Repairs. Annual repairs on all farm 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 100 acre farm. 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 $400 for an average year for the 100 acre farm.

Capital Recovery. Capital recovery costs are the annual depreciation (opportunity cost) of all farm 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).

Salvage Value. Salvage value is 10 percent of the purchase price, 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.

Average Asset Value Computation

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

Straight Line Depreciation Computation

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

References

Painter, Kathleen (2011). The Costs of Owning and Operating Farm Machinery in the Pacific Northwest 2011. A Pacific Northwest Publication #346. University of Idaho, Washington State University, and Oregon State University.

Utah Department of Agriculture and Food (2012). 2012 Utah Agriculture Statistics and Utah Department of Agriculture and Food Annual Report.

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Table 1: Grand County Alfalfa Hay Establishment Costs, 70 acres, 2013

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
OPERATING COSTS						
Insecticide	70.00	Acre	$ -	$ -	$ -	_____
Herbicide	70.00	Acre	$ 40.00	$ 2,800.00	$ 40.00	_____
Fertilizer	70.00	Acre	$ 110.00	$ 7,700.00	$ 110.00	_____
Custom Chemical App	70.00	Acre	$ 10.00	$ 700.00	$ 10.00	_____
Custom Spread and Fert	70.00	Acre	$ 5.00	$ 350.00	$ 5.00	_____
Testing (Soil & Forage)	1.00	Annual	$ 200.00	$ 200.00	$ 2.86	_____
Irrigation	1.00	Annual	$ 750.00	$ 750.00	$ 10.71	_____
Alfalfa Seed	20.00	Lbs/Acre	$ 1.10	$ 1,540.00	$ 22.00	_____
Labor	70.00	Acre	$ 25.00	$ 1,750.00	$ 25.00	_____
Operator Labor	70.00	Acre	$ 75.00	$ 5,250.00	$ 75.00	_____
Fuel & Lube	1.00	Annual	$ 6,124.80	$ 6,124.80	$ 87.50	_____
Maintenance	1.00	Annual	$ 6,503.20	$ 6,503.20	$ 92.90	_____
Miscellaneous	70.00	Acre	$ 5.00	$ 350.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 34,018.00	$ 485.97	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 500.00	$ 7.14	_____
Accounting & Legal				$ 400.00	$ 5.71	_____
Office & Travel				$ 1,000.00	$ 14.29	_____
Annual Investment Insurance				$ 890.84	$ 12.73	_____
Annual Investment Taxes				$ 390.50	$ 5.58	_____
TOTAL CASH OVERHEAD COSTS				$ 3,181.34	$ 45.45	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 2,953.50	$ 42.19	_____
Machinery & Vehicles				$ 17,303.14	$ 247.19	_____
TOTAL NONCASH OVERHEAD COSTS				$ 20,256.64	$ 289.38	
TOTAL OWNERSHIP COSTS				$ 23,437.98	$ 334.83	
TOTAL COSTS				$ 57,455.98	$ 820.80	
YEAR ONE INCOME						
Alfalfa Hay	5.00	Tons	$ 141.40	$ 49,490.00	$ 707.00	
TOTAL GROSS INCOME				$ 49,490.00	$ 707.00	
TOTAL ESTABLISHMENT INVESTMENT				**$ 7,965.98**	**$ 113.80**	

Table 2: Grand County Alfalfa Hay Production Costs and Returns, 70 acres, 2013

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
GROSS INCOME						
Alfalfa Hay	6.00	Tons	$ 141.40	$ 59,388.00	$ 848.40	_____
TOTAL GROSS INCOME				$ 59,388.00	$ 848.40	
OPERATING COSTS						
Insecticide	70.00	Acre	$ -	$ -	$ -	_____
Herbicide	70.00	Acre	$ 40.00	$ 2,800.00	$ 40.00	_____
Fertilizer	70.00	Acre	$ 110.00	$ 7,700.00	$ 110.00	_____
Custom Chemical App	70.00	Acre	$ 10.00	$ 700.00	$ 10.00	_____
Custom Fertilizer App	70.00	Acre	$ 5.00	$ 350.00	$ 5.00	_____
Testing (Soil & Forage)	1.00	Annual	$ 200.00	$ 200.00	$ 2.86	_____
Irrigation	1.00	Annual	$ 750.00	$ 750.00	$ 10.71	_____
Labor	70.00	Acre	$ 25.00	$ 1,750.00	$ 25.00	_____
Operator Labor	70.00	Acre	$ 75.00	$ 5,250.00	$ 75.00	_____
Fuel & Lube	1.00	Annual	$ 6,124.80	$ 6,124.80	$ 87.50	_____
Maintenance	1.00	Annual	$ 6,503.20	$ 6,503.20	$ 92.90	_____
Miscellaneous	70.00	Acre	$ 5.00	$ 350.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 32,478.00	$ 463.97	
INCOME ABOVE OPERATING COSTS				$ 26,910.00	$ 384.43	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 500.00	$ 7.14	_____
Accounting & Legal				$ 400.00	$ 5.71	_____
Office & Travel				$ 1,000.00	$ 14.29	_____
Annual Investment Insurance				$ 890.84	$ 12.73	_____
Annual Investment Taxes				$ 390.50	$ 5.58	_____
TOTAL CASH OVERHEAD COSTS				$ 3,181.34	$ 45.45	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 4,546.70	$ 64.95	_____
Machinery & Vehicles				$ 17,303.14	$ 247.19	_____
TOTAL NONCASH OVERHEAD COSTS				$ 21,849.84	$ 312.14	
TOTAL OWNERSHIP COSTS				$ 25,031.18	$ 357.59	
TOTAL COSTS				$ 57,509.18	$ 821.56	
NET PROJECTED RETURNS				**$ 1,878.82**	**$ 26.84**	

Table 3: Alfalfa Hay Production Investment Summary

Description	Purchase Price	Percentage Use	Purchase Price	Useful Life (Yrs)	Salvage Value	Annual Capital Recovery	Annual Insurance	Annual Taxes	Annual Repairs	Annual Fuel & Lube
Buildings, Improvements, and Equipment										
Land	$ 900,000.00	70%	$ 630,000.00	150.00	$ 630,000.00	$ -	$ -	TBD	$ -	$ -
Shop (20X40) & Tools	$ 30,000.00	70%	$ 21,000.00	40.00	$ 2,100.00	$ 472.50	$ 76.92	$ 115.50	$ 231.00	$ -
Hay Barn (50X100)	$ 50,000.00	100%	$ 50,000.00	40.00	$ 5,000.00	$ 1,125.00	$ 183.15	$ 275.00	$ 550.00	$ -
Irrigation System (Wheel Line)	$ 26,000.00	100%	$ 26,000.00	25.00	$ 2,600.00	$ 936.00	$ 95.24	$ -	$ 286.00	$ -
Implements	$ 10,000.00	70%	$ 7,000.00	15.00	$ 700.00	$ 420.00	$ 25.64	$ -	$ 77.00	$ -
Alfalfa Establishment	$ 7,965.98	100%	$ 7,965.98	5.00	$ -	$ 1,593.20	$ -	$ -	$ -	$ -
Sub Total Pre-Establishment	$ 1,016,000.00		$ 734,000.00		$ 640,400.00	$ 2,953.50	$ 380.95	$ 390.50	$ 1,144.00	$ -
Sub Total Post-Establishment	$ 1,023,965.98		$ 741,965.98		$ 640,400.00	$ 4,546.70	$ 380.95	$ 390.50	$ 1,144.00	$ -
Machinery and Vehicles										
125 HP Tractor (used)	$ 45,000.00	70%	$ 31,500.00	10.00	$ 3,150.00	$ 2,835.00	$ 115.38	$ -	$ 1,212.75	$ 1,386.00
85 HP Tractor (used)	$ 25,000.00	70%	$ 17,500.00	10.00	$ 1,750.00	$ 1,575.00	$ 64.10	$ -	$ 673.75	$ 770.00
Swather (used)	$ 25,000.00	100%	$ 25,000.00	7.00	$ 2,500.00	$ 3,214.29	$ 91.58	$ -	$ 962.50	$ 1,100.00
Baler (used)	$ 20,000.00	100%	$ 20,000.00	7.00	$ 2,000.00	$ 2,571.43	$ 73.26	$ -	$ 770.00	$ 880.00
Harrow (used)	$ 20,000.00	100%	$ 20,000.00	7.00	$ 2,000.00	$ 2,571.43	$ 73.26	$ -	$ 770.00	$ 880.00
4-Wheeler (used)	$ 6,000.00	70%	$ 4,200.00	5.00	$ 420.00	$ 756.00	$ 15.38	$ -	$ 161.70	$ 184.80
3/4 Ton Pickup (used)	$ 30,000.00	70%	$ 21,000.00	5.00	$ 2,100.00	$ 3,780.00	$ 76.92	$ -	$ 808.50	$ 924.00
Sub Total			$ 139,200.00		$ 13,920.00	$ 17,303.14	$ 509.89	$ -	$ 5,359.20	$ 6,124.80
Total			**$ 881,165.98**		**$ 654,320.00**	**$ 21,849.84**	**$ 890.84**	**$ 390.50**	**$ 6,503.20**	**$ 6,124.80**