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Kane County Crop Production Costs and Returns, 2011

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Introduction

Sample costs and returns to establish and produce alfalfa hay and oat hay under wheel line irrigation in Kane 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 2011. 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 200 acres of land on which 100 acres are cultivated for alfalfa production and 100 acres for oat hay production. The market value in 2011 was approximately $5000 per acre for agricultural land in Kane County with water rights.

Crop Pricing. Five-year average pricing (2006-2010) for alfalfa hay is $125/ton and $104/ton for oat hay (UDAF, 2011).

Owner Labor. The owner is provided $15,000 annually for the 200 acre farm, or $75/acre.

Hired Labor. Hired labor is paid $10/hr for a total of $15,000 annually for the 200 acre farm, or $20/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 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, investment property taxes are calculated at 1 percent of the average asset value of the property.
>
> ***Insurance***. Insurance on farm 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 200 farm at an annual cost of $1,200.

Fuel and Lube. The fuel and lube for each piece of equipment is calculated at 8 percent of the purchase price.

Investment Repairs. Annual repairs on all farm investments or capital recovery items that require maintenance are calculated at 2 percent of the purchase price for buildings, improvements, and equipment and 7 percent of the purchase price for machinery and vehicles.

Office & Travel. Office and travel costs are estimated at $4,000 for an average year for the 200 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 $1,000 for an average year for the 200 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 new 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 (2011). 2011 Utah Agriculture Statistics and Utah Department of Agriculture and Food Annual Report.

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Table 1: Kane County Alfalfa Hay Establishment Costs, 100 acres, 2011.

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
OPERATING COSTS						
Insecticide	100.00	Acre	$ 15.00	$ 1,500.00	$ 15.00	_____
Herbicide	100.00	Acre	$ -	$ -	$ -	_____
Fertilizer	100.00	Acre	$ 50.00	$ 5,000.00	$ 50.00	_____
Irrigation	1.00	Annual	$ 1,000.00	$ 1,000.00	$ 10.00	_____
Alfalfa Seed	100.00	Acre	$ 15.00	$ 1,500.00	$ 15.00	_____
Labor	100.00	Acre	$ 20.00	$ 2,000.00	$ 20.00	_____
Operator Labor	100.00	Acre	$ 75.00	$ 7,500.00	$ 75.00	_____
Fuel & Lube	1.00	Annual	$ 4,851.00	$ 4,851.00	$ 48.51	_____
Maintenance	1.00	Annual	$ 4,877.13	$ 4,877.13	$ 48.77	_____
Miscellaneous	100.00	Acre	$ 5.00	$ 500.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 28,728.13	$ 287.28	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 600.00	$ 6.00	_____
Accounting & Legal				$ 500.00	$ 5.00	_____
Office & Travel				$ 2,000.00	$ 20.00	_____
Annual Investment Insurance				$ 614.47	$ 6.14	_____
Annual Investment Taxes				$ 275.00	$ 2.75	_____
TOTAL CASH OVERHEAD COSTS				$ 3,989.47	$ 39.89	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 1,575.00	$ 15.75	_____
Machinery & Vehicles				$ 12,807.86	$ 128.08	_____
TOTAL NONCASH OVERHEAD COSTS				$ 14,382.86	$ 143.83	
TOTAL OWNERSHIP COSTS				$ 18,372.33	$ 183.72	
TOTAL COSTS				$ 47,100.45	$ 471.00	
YEAR ONE INCOME						
Alfalfa Hay	3.00	Tons	$ 125.00	$ 37,500.00	$ 375.00	
TOTAL GROSS INCOME				$ 37,500.00	$ 375.00	
TOTAL ESTABLISHMENT INVESTMENT				**$ 9,600.45**	**$ 96.00**	

Table 2: Kane County Alfalfa Hay Production Costs and Returns, 100 acres, 2011.

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
GROSS INCOME						
Alfalfa Hay	4.00	Tons	$ 125.00	$ 50,000.00	$ 500.00	_____
TOTAL GROSS INCOME				$ 50,000.00	$ 500.00	
OPERATING COSTS						
Insecticide	100.00	Acre	$ 15.00	$ 1,500.00	$ 15.00	_____
Herbicide	100.00	Acre	$ -	$ -	$ -	_____
Fertilizer	100.00	Acre	$ 50.00	$ 5,000.00	$ 50.00	_____
Testing (Soil & Forage)	1.00	Annual	$ 20.00	$ 20.00	$ 0.20	_____
Irrigation	1.00	Annual	$ 1,000.00	$ 1,000.00	$ 10.00	_____
Labor	100.00	Acre	$ 20.00	$ 2,000.00	$ 20.00	_____
Operator Labor	100.00	Acre	$ 75.00	$ 7,500.00	$ 75.00	_____
Fuel & Lube	1.00	Annual	$ 4,851.00	$ 4,851.00	$ 48.51	_____
Maintenance	1.00	Annual	$ 4,877.13	$ 4,877.13	$ 48.77	_____
Miscellaneous	100.00	Acre	$ 5.00	$ 500.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 27,248.13	$ 272.48	
INCOME ABOVE OPERATING COSTS				$ 22,751.88	$ 227.52	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 600.00	$ 6.00	_____
Accounting & Legal				$ 500.00	$ 5.00	_____
Office & Travel				$ 2,000.00	$ 20.00	_____
Annual Investment Insurance				$ 614.47	$ 6.14	_____
Annual Investment Taxes				$ 275.00	$ 2.75	_____
TOTAL CASH OVERHEAD COSTS				$ 3,989.47	$ 39.89	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 3,495.09	$ 34.95	_____
Machinery & Vehicles				$ 12,807.86	$ 128.08	_____
TOTAL NONCASH OVERHEAD COSTS				$ 16,302.95	$ 163.03	
TOTAL OWNERSHIP COSTS				$ 20,292.42	$ 202.92	
TOTAL COSTS				$ 47,540.54	$ 475.41	
NET PROJECTED RETURNS				**$ 2,459.46**	**$ 24.59**	

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	$ 1,000,000.00	50%	$ 500,000.00	150.00	$ 500,000.00	$ -	$ -	TBD	$ -	$ -
Machine Shop (40X80)	$ 35,000.00	50%	$ 17,500.00	40.00	$ 1,750.00	$ 393.75	$ 64.10	$ 96.25	$ 192.50	$ -
Irrigation System (Wheel Line)	$ 32,500.00	100%	$ 32,500.00	40.00	$ 3,250.00	$ 731.25	$ 119.05	$ 178.75	$ 357.50	$ -
Implements	$ 15,000.00	50%	$ 7,500.00	15.00	$ 750.00	$ 450.00	$ 27.47	$ -	$ 82.50	$ -
Alfalfa Establishment	$ 9,600.45	100%	$ 9,600.45	5.00	$ -	$ 1,920.09	$ -	$ -	$ -	$ -
Sub Total Pre-Establishment	$ 1,082,500.00		$ 557,500.00		$ 505,750.00	$ 1,575.00	$ 210.62	$ 275.00	$ 632.50	$ -
Sub Total Post-Establishment	$ 1,092,100.45		$ 567,100.45		$ 505,750.00	$ 3,495.09	$ 210.62	$ 275.00	$ 632.50	$ -
Machinery and Vehicles										
45 HP Tractor (used)	$ 17,000.00	50%	$ 8,500.00	10.00	$ 850.00	$ 765.00	$ 31.14	$ -	$ 327.25	$ 374.00
95 HP Tractor (used)	$ 30,000.00	50%	$ 15,000.00	10.00	$ 1,500.00	$ 1,350.00	$ 54.95	$ -	$ 577.50	$ 660.00
125 HP Tractor (used)	$ 47,000.00	50%	$ 23,500.00	10.00	$ 2,350.00	$ 2,115.00	$ 86.08	$ -	$ 904.75	$ 1,034.00
Swather (used)	$ 20,000.00	50%	$ 10,000.00	7.00	$ 1,000.00	$ 1,285.71	$ 36.63	$ -	$ 385.00	$ 440.00
Bale Wagon (used)	$ 25,000.00	50%	$ 12,500.00	7.00	$ 1,250.00	$ 1,607.14	$ 45.79	$ -	$ 481.25	$ 550.00
2 - Harrow (used)	$ 3,500.00	50%	$ 1,750.00	7.00	$ 175.00	$ 225.00	$ 6.41	$ -	$ 67.38	$ 77.00
Backhoe (used)	$ 18,000.00	50%	$ 9,000.00	10.00	$ 900.00	$ 810.00	$ 32.97	$ -	$ 346.50	$ 396.00
4-Wheeler	$ 10,000.00	50%	$ 5,000.00	5.00	$ 500.00	$ 900.00	$ 18.32	$ -	$ 192.50	$ 220.00
1 Ton Pickup	$ 50,000.00	50%	$ 25,000.00	6.00	$ 2,500.00	$ 3,750.00	$ 91.58	$ -	$ 962.50	$ 1,100.00
Sub Total			$ 110,250.00		$ 11,025.00	$ 12,807.86	$ 403.85	$ -	$ 4,244.63	$ 4,851.00
Total			**$ 677,350.45**		**$ 516,775.00**	**$ 16,302.95**	**$ 614.47**	**$ 275.00**	**$ 4,877.13**	**$ 4,851.00**

Table 4: Kane County Oat Hay Production Costs and Returns, 100 acres, 2011.

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
GROSS INCOME						
Oat Hay	4.00	Ton	$ 104.00	$ 41,600.00	$ 416.00	_____
TOTAL GROSS INCOME				$ 41,600.00	$ 416.00	
OPERATING COSTS						
Insecticide	100.00	Acre	$ 12.00	$ 1,200.00	$ 12.00	_____
Herbicide	100.00	Acre	$ 9.00	$ 900.00	$ 9.00	_____
Fertilizer	100.00	Acre	$ 40.00	$ 4,000.00	$ 40.00	_____
Seed	100.00	Acre	$ 15.00	$ 1,500.00	$ 15.00	_____
Irrigation	1.00	Annual	$ 1,000.00	$ 1,000.00	$ 10.00	_____
Labor	100.00	Acre	$ 20.00	$ 2,000.00	$ 20.00	_____
Operator Labor	100.00	Acre	$ 75.00	$ 7,500.00	$ 75.00	_____
Fuel & Lube	1.00	Annual	$ 4,851.00	$ 4,851.00	$ 48.51	_____
Maintenance	1.00	Annual	$ 4,877.13	$ 4,877.13	$ 48.77	_____
Miscellaneous	100.00	Acre	$ 5.00	$ 500.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 28,328.13	$ 283.28	
INCOME ABOVE OPERATING COSTS				$ 13,271.88	$ 132.72	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 600.00	$ 6.00	_____
Accounting & Legal				$ 500.00	$ 5.00	_____
Office & Travel				$ 2,000.00	$ 20.00	_____
Annual Investment Insurance				$ 614.47	$ 6.14	_____
Annual Investment Taxes				$ 275.00	$ 2.75	_____
TOTAL CASH OVERHEAD COSTS				$ 3,989.47	$ 39.89	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 1,575.00	$ 15.75	_____
Machinery & Vehicles				$ 12,807.86	$ 128.08	_____
TOTAL NONCASH OVERHEAD COSTS				$ 14,382.86	$ 143.83	
TOTAL OWNERSHIP COSTS				$ 18,372.33	$ 183.72	
TOTAL COSTS				$ 46,700.45	$ 467.00	
NET PROJECTED RETURNS				**$ (5,100.45)**	**$ (51.00)**	

Table 5: Oat 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	$ 1,000,000.00	50.0%	$ 500,000.00	150.00	$ 500,000.00	$ -	$ -	TBD	$ -	$ -
Machine Shop (40X80)	$ 35,000.00	50.0%	$ 17,500.00	40.00	$ 1,750.00	$ 393.75	$ 64.10	$ 96.25	$ 192.50	$ -
Irrigation System (Wheel Line)	$ 32,500.00	100.0%	$ 32,500.00	40.00	$ 3,250.00	$ 731.25	$ 119.05	$ 178.75	$ 357.50	$ -
Implements	$ 15,000.00	50.0%	$ 7,500.00	15.00	$ 750.00	$ 450.00	$ 27.47	$ -	$ 82.50	$ -
Sub Total			$ 557,500.00	NA	$ 505,750.00	$ 1,575.00	$ 210.62	$ 275.00	$ 632.50	$ -
Machinery and Vehicles										
45 HP Tractor (used)	$ 17,000.00	50.0%	$ 8,500.00	10.00	$ 850.00	$ 765.00	$ 31.14	$ -	$ 327.25	$ 374.00
95 HP Tractor (used)	$ 30,000.00	50.0%	$ 15,000.00	10.00	$ 1,500.00	$ 1,350.00	$ 54.95	$ -	$ 577.50	$ 660.00
125 HP Tractor (used)	$ 47,000.00	50.0%	$ 23,500.00	10.00	$ 2,350.00	$ 2,115.00	$ 86.08	$ -	$ 904.75	$ 1,034.00
Sw ather (used)	$ 20,000.00	50.0%	$ 10,000.00	7.00	$ 1,000.00	$ 1,285.71	$ 36.63	$ -	$ 385.00	$ 440.00
Bale Wagon (used)	$ 25,000.00	50.0%	$ 12,500.00	7.00	$ 1,250.00	$ 1,607.14	$ 45.79	$ -	$ 481.25	$ 550.00
2 - Harrow (used)	$ 3,500.00	50.0%	$ 1,750.00	7.00	$ 175.00	$ 225.00	$ 6.41	$ -	$ 67.38	$ 77.00
Backhoe (used)	$ 18,000.00	50.0%	$ 9,000.00	10.00	$ 900.00	$ 810.00	$ 32.97	$ -	$ 346.50	$ 396.00
4-Wheeler	$ 10,000.00	50.0%	$ 5,000.00	5.00	$ 500.00	$ 900.00	$ 18.32	$ -	$ 192.50	$ 220.00
1 Ton Pickup	$ 50,000.00	50.0%	$ 25,000.00	6.00	$ 2,500.00	$ 3,750.00	$ 91.58	$ -	$ 962.50	$ 1,100.00
Sub Total			$ 110,250.00	NA	$ 11,025.00	$ 12,807.86	$ 403.85	$ -	$ 4,244.63	$ 4,851.00
Total			**$ 667,750.00**	**NA**	**$ 516,775.00**	**$14,382.86**	**$ 614.47**	**$ 275.00**	**$ 4,877.13**	**$ 4,851.00**