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Davis County Crop Production Costs and Returns, 2012

Shawn Olsen, Extension Professor, Davis County
Kynda Curtis, Associate Professor and Extension Specialist, Department of Applied Economics

Introduction

Sample costs and returns to establish and produce alfalfa hay, corn (silage), and wheat under flood irrigation in Davis 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 2012. 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 75 acres are cultivated for alfalfa production, 75 acres for wheat production, and 50 acres for corn silage production. The market value in 2012 was approximately $75,000 per acre for agricultural land in Davis County with water rights.

Crop Pricing. Four-year average pricing (2006-2010) for alfalfa hay is $125/ton, wheat $6.90/bu, and corn (silage) $34.60/ton (UDAF, 2011).

Owner Labor. Owner is provided $25,000 annually for the 200 acre farm, or $125/acre.

Hired Labor. Hired labor is paid $12/hr for an annual cost of $5,000 for the 200 acre farm, or $25/acre.

Irrigation System. Flood irrigation system is used for all crops.

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 .666 percent of the average asset value. Liability and crop insurance covers accidents and crop loss on the 200 acre farm at an annual cost of $1,500.

Fuel and 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 $2,000 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 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: Davis County Alfalfa Hay Establishment Costs, 75 acres, 2012.

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
OPERATING COSTS						
Insecticide	75.00	Acre	$ -	$ -	$ -	_____
Herbicide	75.00	Acre	$ 20.00	$ 1,500.00	$ 20.00	_____
Fertilizer	75.00	Acre	$ 125.00	$ 9,375.00	$ 125.00	_____
Testing (Soil & Forage)	1.00	Annual	$ 20.00	$ 20.00	$ 0.27	_____
Irrigation	75.00	Acre	$ 135.00	$ 10,125.00	$ 135.00	_____
Alfalfa Seed	75.00	Acre	$ 120.00	$ 9,000.00	$ 120.00	_____
Labor	75.00	Acre	$ 25.00	$ 1,875.00	$ 25.00	_____
Operator Labor	75.00	Acre	$ 125.00	$ 9,375.00	$ 125.00	_____
Fuel & Lube	1.00	Annual	$ 7,274.08	$ 7,274.08	$ 96.99	_____
Maintenance	1.00	Annual	$ 7,228.32	$ 7,228.32	$ 96.38	_____
Utilities	1.00	Annual	$ 300.00	$ 300.00	$ 4.00	_____
Miscellaneous	75.00	Acre	$ 5.00	$ 375.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 56,447.40	$ 752.63	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 570.00	$ 7.60	_____
Accounting & Legal				$ 380.00	$ 5.07	_____
Office & Travel				$ 760.00	$ 10.13	_____
Annual Investment Insurance				$ 893.11	$ 11.91	_____
Annual Investment Taxes				$ 400.40	$ 5.34	_____
TOTAL CASH OVERHEAD COSTS				$ 3,003.51	$ 40.05	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 1,980.00	$ 26.40	_____
Machinery & Vehicles				$ 18,639.94	$ 248.53	_____
TOTAL NONCASH OVERHEAD COSTS				$ 20,619.94	$ 274.93	
TOTAL OWNERSHIP COSTS				$ 23,623.46	$ 314.98	
TOTAL COSTS				$ 80,070.86	$ 1,067.61	
YEAR ONE INCOME						
Alfalfa Hay	6.00	Tons	$ 125.00	$ 56,250.00	$ 750.00	
TOTAL GROSS INCOME				$ 56,250.00	$ 750.00	
TOTAL ESTABLISHMENT INVESTMENT				**$ 23,820.86**	**$ 317.61**	

Table 2: Davis County Alfalfa Hay Production Costs and Returns, 75 acres, 2012.

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
GROSS INCOME						
Alfalfa Hay	8.00	Tons	$ 125.00	$ 75,000.00	$ 1,000.00	_____
TOTAL GROSS INCOME				$ 75,000.00	$ 1,000.00	
OPERATING COSTS						
Insecticide	75.00	Acre	$ -	$ -	$ -	_____
Herbicide	75.00	Acre	$ 20.00	$ 1,500.00	$ 20.00	_____
Fertilizer	75.00	Acre	$ 125.00	$ 9,375.00	$ 125.00	_____
Testing (Soil & Forage)	1.00	Annual	$ 20.00	$ 20.00	$ 0.27	_____
Irrigation	75.00	Acre	$ 135.00	$ 10,125.00	$ 135.00	_____
Labor	75.00	Acre	$ 25.00	$ 1,875.00	$ 25.00	_____
Operator Labor	75.00	Acre	$ 125.00	$ 9,375.00	$ 125.00	_____
Fuel & Lube	1.00	Annual	$ 7,274.08	$ 7,274.08	$ 96.99	_____
Maintenance	1.00	Annual	$ 7,228.32	$ 7,228.32	$ 96.38	_____
Utilities	1.00	Annual	$ 300.00	$ 300.00	$ 4.00	_____
Miscellaneous	75.00	Acre	$ 5.00	$ 375.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 47,447.40	$ 632.63	
INCOME ABOVE OPERATING COSTS				$ 27,552.60	$ 367.37	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 570.00	$ 7.60	_____
Accounting & Legal				$ 380.00	$ 5.07	_____
Office & Travel				$ 760.00	$ 10.13	_____
Annual Investment Insurance				$ 893.11	$ 11.91	_____
Annual Investment Taxes				$ 400.40	$ 5.34	_____
TOTAL CASH OVERHEAD COSTS				$ 3,003.51	$ 40.05	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 5,382.98	$ 71.77	_____
Machinery & Vehicles				$ 18,639.94	$ 248.53	_____
TOTAL NONCASH OVERHEAD COSTS				$ 24,022.92	$ 320.31	
TOTAL OWNERSHIP COSTS				$ 27,026.43	$ 360.35	
TOTAL COSTS				$ 74,473.83	$ 992.98	
NET PROJECTED RETURNS				**$ 526.17**	**$ 7.02**	

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	$ 15,000,000.00	38%	$ 5,700,000.00	150.00	$ 5,700,000.00	$ -	$ -	TBD	$ -	$ -
Shop (40X40) & Tools	$ 60,000.00	38%	$ 22,800.00	40.00	$ 2,280.00	$ 513.00	$ 83.52	$ 125.40	$ 250.80	$ -
Hay Barn (50X100)	$ 50,000.00	100%	$ 50,000.00	40.00	$ 5,000.00	$ 1,125.00	$ 183.15	$ 275.00	$ 550.00	$ -
Implements	$ 15,000.00	38%	$ 5,700.00	15.00	$ 570.00	$ 342.00	$ 20.88	$ -	$ 62.70	$ -
Alfalfa Establishment	$ 23,820.86	100%	$ 23,820.86	7.00	$ -	$ 3,402.98	$ -	$ -	$ -	$ -
Sub Total Pre-Establishment	$ 15,125,000.00		$ 5,778,500.00		$ 5,707,850.00	$ 1,980.00	$ 287.55	$ 400.40	$ 863.50	$ -
Sub Total Post-Establishment	$ 15,148,820.86		$ 5,802,320.86		$ 5,707,850.00	$ 5,382.98	$ 287.55	$ 400.40	$ 863.50	$ -
Machinery and Vehicles										
2 - 85 HP Tractor (used)	$ 50,000.00	38%	$ 19,000.00	10.00	$ 1,900.00	$ 1,710.00	$ 69.60	$ -	$ 731.50	$ 836.00
2 - 125 HP Tractor (used)	$ 90,000.00	38%	$ 34,200.00	10.00	$ 3,420.00	$ 3,078.00	$ 125.27	$ -	$ 1,316.70	$ 1,504.80
185 HP Tractor (used)	$ 74,000.00	38%	$ 28,120.00	10.00	$ 2,812.00	$ 2,530.80	$ 103.00	$ -	$ 1,082.62	$ 1,237.28
Swather (used)	$ 35,000.00	100%	$ 35,000.00	7.00	$ 3,500.00	$ 4,500.00	$ 128.21	$ -	$ 1,347.50	$ 1,540.00
Bale Wagon (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	50%	$ 10,000.00	7.00	$ 1,000.00	$ 1,285.71	$ 36.63	$ -	$ 385.00	$ 440.00
4-Wheeler	$ 10,000.00	38%	$ 3,800.00	5.00	$ 380.00	$ 684.00	$ 13.92	$ -	$ 146.30	$ 167.20
3/4 Ton Pickup	$ 40,000.00	38%	$ 15,200.00	6.00	$ 1,520.00	$ 2,280.00	$ 55.68	$ -	$ 585.20	$ 668.80
Sub Total			$ 165,320.00		$ 16,532.00	$ 18,639.94	$ 605.57	$ -	$ 6,364.82	$ 7,274.08
Total			**$ 5,967,640.86**		**$ 5,724,382.00**	**$ 24,022.92**	**$ 893.11**	**$ 400.40**	**$ 7,228.32**	**$ 7,274.08**

Table 4: Davis County Wheat Production Costs and Returns, 75 acres, 2012.

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
GROSS INCOME						
Wheat	130.00	Bushels	$ 6.90	$ 67,275.00	$ 897.00	_____
TOTAL GROSS INCOME				$ 67,275.00	$ 897.00	
OPERATING COSTS						
Insecticide	75.00	Acre	$ -	$ -	$ -	_____
Herbicide	75.00	Acre	$ 25.00	$ 1,875.00	$ 25.00	_____
Fertilizer	75.00	Acre	$ 140.00	$ 10,500.00	$ 140.00	_____
Custom Harvest/Haul	75.00	Acre	$ 75.00	$ 5,625.00	$ 75.00	_____
Testing (Soil)	1.00	Annual	$ 20.00	$ 20.00	$ 0.27	_____
Seed	75.00	Acre	$ 35.00	$ 2,625.00	$ 35.00	_____
Irrigation	75.00	Acre	$ 135.00	$ 10,125.00	$ 135.00	_____
Labor	75.00	Acre	$ 25.00	$ 1,875.00	$ 25.00	_____
Operator Labor	75.00	Acre	$ 125.00	$ 9,375.00	$ 125.00	_____
Fuel & Lube	1.00	Annual	$ 4,854.08	$ 4,854.08	$ 64.72	_____
Maintenance	1.00	Annual	$ 4,560.82	$ 4,560.82	$ 60.81	_____
Utilities	1.00	Annual	$ 300.00	$ 300.00	$ 4.00	_____
Miscellaneous	75.00	Acre	$ 5.00	$ 375.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 52,109.90	$ 694.80	
INCOME ABOVE OPERATING COSTS				$ 15,165.10	$ 202.20	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 380.00	$ 5.07	_____
Accounting & Legal				$ 570.00	$ 7.60	_____
Office & Travel				$ 760.00	$ 10.13	_____
Annual Investment Insurance				$ 508.50	$ 6.78	_____
Annual Investment Taxes				$ 125.40	$ 1.67	_____
TOTAL CASH OVERHEAD COSTS				$ 2,343.90	$ 31.25	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 855.00	$ 11.40	_____
Machinery & Vehicles				$ 11,568.51	$ 154.25	_____
TOTAL NONCASH OVERHEAD COSTS				$ 12,423.51	$ 165.65	
TOTAL OWNERSHIP COSTS				$ 14,767.41	$ 196.90	
TOTAL COSTS				$ 66,877.31	$ 891.70	
NET PROJECTED RETURNS				**$ 397.69**	**$ 5.30**	

Table 5: Wheat 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	$ 15,000,000.00	38%	$ 5,700,000.00	150.00	$ 5,700,000.00	$ -	$ -	TBD	$ -	$ -
Shop (40X40) & Tools	$ 60,000.00	38%	$ 22,800.00	40.00	$ 2,280.00	$ 513.00	$ 83.52	$ 125.40	$ 250.80	$ -
Hay Barn (50X100)	$ 50,000.00	0%	$ -	40.00	$ -	$ -	$ -	$ -	$ -	$ -
Implements	$ 15,000.00	38%	$ 5,700.00	15.00	$ 570.00	$ 342.00	$ 20.88	$ -	$ 62.70	$ -
Sub Total			$ 5,728,500.00	NA	$ 5,702,850.00	$ 855.00	$ 104.40	$ 125.40	$ 313.50	$ -
Machinery and Vehicles										
2 - 85 HP Tractor (used)	$ 50,000.00	38%	$ 19,000.00	10.00	$ 1,900.00	$ 1,710.00	$ 69.60	$ -	$ 731.50	$ 836.00
2 - 125 HP Tractor (used)	$ 90,000.00	38%	$ 34,200.00	10.00	$ 3,420.00	$ 3,078.00	$ 125.27	$ -	$ 1,316.70	$ 1,504.80
185 HP Tractor (used)	$ 74,000.00	38%	$ 28,120.00	10.00	$ 2,812.00	$ 2,530.80	$ 103.00	$ -	$ 1,082.62	$ 1,237.28
Harrow (used)	$ 20,000.00	50%	$ 10,000.00	7.00	$ 1,000.00	$ 1,285.71	$ 36.63	$ -	$ 385.00	$ 440.00
4-Wheeler	$ 10,000.00	38%	$ 3,800.00	5.00	$ 380.00	$ 684.00	$ 13.92	$ -	$ 146.30	$ 167.20
3/4 Ton Pickup	$ 40,000.00	38%	$ 15,200.00	6.00	$ 1,520.00	$ 2,280.00	$ 55.68	$ -	$ 585.20	$ 668.80
Sub Total			$ 110,320.00	NA	$ 11,032.00	$ 11,568.51	$ 404.10	$ -	$ 4,247.32	$ 4,854.08
Total			**$ 5,838,820.00**	**NA**	**$ 5,713,882.00**	**$12,423.51**	**$ 508.50**	**$ 125.40**	**$ 4,560.82**	**$ 4,854.08**

Table 6: Davis County Corn (Silage) Production Costs and Returns, 50 acres, 2012.

	Total Units	Unit	Price/Cost Per Unit	Total Cost/Value	Total Cost/Value Per Acre	Your Farm
GROSS INCOME						
Corn Silage	30.00	Tons	$ 34.60	$ 51,900.00	$ 1,038.00	_____
TOTAL GROSS INCOME				$ 51,900.00	$ 1,038.00	
OPERATING COSTS						
Insecticide	50.00	Acre	$ -	$ -	$ -	_____
Herbicide	50.00	Acre	$ 30.00	$ 1,500.00	$ 30.00	_____
Fertilizer	50.00	Acre	$ 120.00	$ 6,000.00	$ 120.00	_____
Testing (Soil)	1.00	Annual	$ 20.00	$ 20.00	$ 0.40	_____
Seed	50.00	Acre	$ 105.00	$ 5,250.00	$ 105.00	_____
Irrigation	50.00	Acre	$ 135.00	$ 6,750.00	$ 135.00	_____
Labor	50.00	Acre	$ 25.00	$ 1,250.00	$ 25.00	_____
Operator Labor	50.00	Acre	$ 125.00	$ 6,250.00	$ 125.00	_____
Fuel & Lube	1.00	Annual	$ 3,667.84	$ 3,667.84	$ 73.36	_____
Maintenance	1.00	Annual	$ 4,257.36	$ 4,257.36	$ 85.15	_____
Utilities	1.00	Annual	$ 300.00	$ 300.00	$ 6.00	_____
Miscellaneous	50.00	Acre	$ 5.00	$ 250.00	$ 5.00	_____
TOTAL OPERATING COSTS				$ 35,495.20	$ 709.90	
INCOME ABOVE OPERATING COSTS				$ 16,404.80	$ 328.10	
OWNERSHIP COSTS						
CASH OVERHEAD COSTS						
Liability/Crop Insurance				$ 240.00	$ 4.80	_____
Accounting & Legal				$ 360.00	$ 7.20	_____
Office & Travel				$ 480.00	$ 9.60	_____
Annual Investment Insurance				$ 654.33	$ 13.09	_____
Annual Investment Taxes				$ 504.20	$ 10.08	_____
TOTAL CASH OVERHEAD COSTS				$ 2,238.53	$ 44.77	
NONCASH OVERHEAD COSTS (Capital Recovery)						
Buildings, Improvements, & Equipment				$ 2,240.00	$ 44.80	_____
Machinery & Vehicles				$ 8,294.40	$ 165.89	_____
TOTAL NONCASH OVERHEAD COSTS				$ 10,534.40	$ 210.69	
TOTAL OWNERSHIP COSTS				$ 12,772.93	$ 255.46	
TOTAL COSTS				$ 48,268.13	$ 965.36	
NET PROJECTED RETURNS				**$ 3,631.87**	**$ 72.64**	

Table 7: Corn (Silage) 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	$ 15,000,000.00	24%	$ 3,600,000.00	150.00	$ 3,600,000.00	$ -	$ -	TBD	$ -	$ -
Shop (40X40) & Tools	$ 60,000.00	24%	$ 14,400.00	40.00	$ 1,440.00	$ 324.00	$ 52.75	$ 79.20	$ 158.40	$ -
Silage Pit (60X150X12)	$ 85,000.00	100%	$ 85,000.00	50.00	$ -	$ 1,700.00	$ 283.05	$ 425.00	$ 850.00	$ -
Implements	$ 15,000.00	24%	$ 3,600.00	15.00	$ 360.00	$ 216.00	$ 13.19	$ -	$ 39.60	$ -
Sub Total			$ 3,703,000.00	NA	$ 3,601,800.00	$ 2,240.00	$ 348.98	$ 504.20	$ 1,048.00	$ -
Machinery and Vehicles										
2 - 85 HP Tractor (used)	$ 50,000.00	24%	$ 12,000.00	10.00	$ 1,200.00	$ 1,080.00	$ 43.96	$ -	$ 462.00	$ 528.00
2 - 125 HP Tractor (used)	$ 90,000.00	24%	$ 21,600.00	10.00	$ 2,160.00	$ 1,944.00	$ 79.12	$ -	$ 831.60	$ 950.40
185 HP Tractor (used)	$ 74,000.00	24%	$ 17,760.00	10.00	$ 1,776.00	$ 1,598.40	$ 65.05	$ -	$ 683.76	$ 781.44
Chopper (used)	$ 20,000.00	100%	$ 20,000.00	10.00	$ 2,000.00	$ 1,800.00	$ 73.26	$ -	$ 770.00	$ 880.00
4-Wheeler	$ 10,000.00	24%	$ 2,400.00	5.00	$ 240.00	$ 432.00	$ 8.79	$ -	$ 92.40	$ 105.60
3/4 Ton Pickup	$ 40,000.00	24%	$ 9,600.00	6.00	$ 960.00	$ 1,440.00	$ 35.16	$ -	$ 369.60	$ 422.40
Sub Total			$ 83,360.00	NA	$ 8,336.00	$ 8,294.40	$ 305.35	$ -	$ 3,209.36	$ 3,667.84
Total			**$ 3,786,360.00**	**NA**	**$ 3,610,136.00**	**$10,534.40**	**$ 654.33**	**$ 504.20**	**$ 4,257.36**	**$ 3,667.84**