

2015 Costs and Returns for Irrigated Soft White Wheat, Box Elder County

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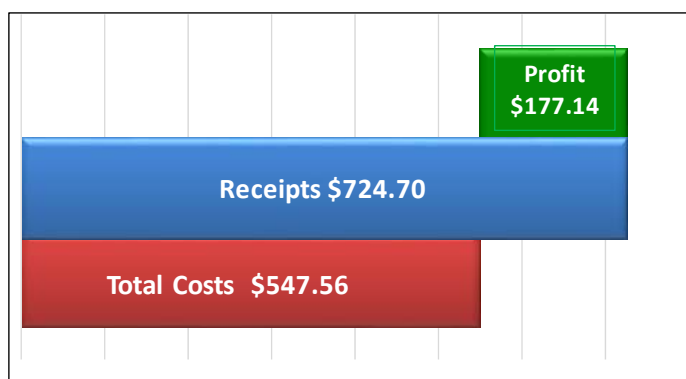


Figure 1. Estimated Receipts, Costs and Profit for Irrigated Soft White Wheat.

INTRODUCTION

Enterprise budgets are the building blocks of a farm or ranch. They represent estimates of income and expenses for a specific period of time using a set of production practices and inputs for that enterprise.

The budget in Table 1 on the following page contains sample costs and returns to establish and produce soft white wheat under flood irrigation in Box Elder County. It is intended to be a guide used to estimate income and expenses, list inputs and production practices and provide a framework for the whole farm plan.

Farm. The representative farm consists of 720 acres of farmland that is both leased and owned on which 200 acres are cultivated for irrigated soft white wheat production and the remaining acres consist of alfalfa or grain corn production. The market value for irrigated agricultural land with water rights varies widely by area and soil type. In this budget, land is valued at \$4,500 per acre. Flood irrigation is used for all crops. Water is leased at the rate of \$18/acre.

Receipts. Commodity prices were determined from an average of December 2014 and January 2015 weekly Utah Department of Agriculture and Food Market News Reports. Production average of 110 bushels per acre is determined by interviews with local producers and crop advisors.

Inputs and Services. Inputs and services include crop insurance, fertilizer, pesticides, seed, seasonal employees, irrigation and water assessment. Input and chemical prices are determined from interviews with seed, fertilizer and chemical dealers.

Seasonal Employees. Two seasonal employees are hired a total of 2,500 hrs. per year and are paid a base wage plus FICA at the rate of \$13.07/hr. including employer's share of payroll tax (USDA ERS) The total annual cost is \$32,680 for the 720 acre farm. The average labor cost per acre is estimated at \$45.39.

Field Operations and Operating Interest. The practices described are not the recommendations of Utah State University, but rather the production practices and materials considered as typical of a well-managed farm in the region, as determined by interviews with producers and agribusiness representatives. Costs, materials, and practices are not applicable to all situations as management and cultural practices vary among growers and regions. The interest rate of 5% is charged for 6 months on operating capital needed to produce this crop. Fuel costs were significantly lower at the time of this printing, as a result field operation costs were lowered by 5.5%.

Machinery Costs. Machinery variable costs are determined by using average established custom rates to cover machine and equipment operating costs. These rates were obtained from two publications: 1) USU Custom Rates Survey Report 2009/2010 (Drollette). 2) Custom Rates for Idaho Agricultural Operations 2010-2011 (Patterson and Painter).

Table 1. 2015 Costs and Returns for Irrigated Soft White Wheat (200 Acres)

Receipts		Quantity per acre	Unit	2015 Values			2014 Values		
				Price/Uni	Value/Acr	%	Price/Uni	Value/Acr	% Change
Soft White Wheat		110	bushels	\$5.77	\$634.70		\$6.45	\$709.50	-10.5%
Straw		2	tons	\$45.00	\$90.00		\$45.00	\$90.00	
Subtotal Receipts						\$724.70		\$799.50	-9.4%
Inputs and Services									
Crop Insurance (CAT)		1	acre	\$1.50	\$1.50		\$1.50	\$1.50	0.0%
Fertilizer									
46-0-0 (Fall Application)		20	units	\$0.55	\$10.95		\$0.60	\$11.90	-8.0%
11-52-0		40	units	\$0.56	\$22.45		\$0.50	\$19.89	12.9%
46-0-0 (Spring Application)		100	units	\$0.55	\$54.76		\$0.60	\$59.51	-8.0%
Application		2	acre	\$6.00	\$12.00		\$6.00	\$12.00	0.0%
Herbicides									
Affinity		0.6	oz	\$13.51	\$8.11		\$12.18	\$7.31	11.0%
2,4-D		0.7	pt	\$4.54	\$3.18		\$3.22	\$2.25	41.1%
MCPA		0.7	pt	\$3.21	\$2.25		\$3.50	\$2.45	-8.2%
Surfactant		3.2	oz	\$0.25	\$0.81		\$0.17	\$0.56	45.6%
Application		1	acre	\$4.50	\$4.50		\$4.50	\$4.50	0.0%
Seed		120	pounds	\$0.21	\$25.20		\$0.20	\$24.00	5.0%
Seasonal Employees		1	acre	\$45.39	\$45.39		\$45.39	\$45.39	0.0%
Irrigation Water Assessment		1	acre	\$18.00	\$18.00		\$18.00	\$18.00	0.0%
Interest on Operating Capital and Cash Lease		'15 Rate	Term	Principle		'14 Rate	Principle		
		5.0%	0.5/yr	\$334.10	\$8.35	5.5%	\$334.25	\$9.19	-9.1%
Subtotal Inputs and Services						\$217.45		\$218.45	-0.5%
Field Operations		Times	Unit	per Unit	Acre		per Unit	Acre	
Discing		1	acre	\$14.54	\$14.54		\$15.39	\$15.39	-5.5%
Chisel Plow		1	acre	\$17.96	\$17.96		\$19.00	\$19.00	-5.5%
Roller Harrow		1	acre	\$13.51	\$13.51		\$14.30	\$14.30	-5.5%
Land Plane		1	acre	\$8.51	\$8.51		\$9.00	\$9.00	-5.5%
Plant		1	acre	\$15.18	\$15.18		\$16.06	\$16.06	-5.5%
Combine (Custom Cost)		1	acre	\$34.68	\$34.68		\$36.70	\$36.70	-5.5%
Swath Stubble		1	acre	\$17.01	\$17.01		\$18.00	\$18.00	-5.5%
Bale		1	acre	\$16.54	\$16.54		\$17.50	\$17.50	-5.5%
Storage		110	bushels	\$0.20	\$22.00		\$0.20	\$22.00	0.0%
Trucking		110	bushels	\$0.33	\$36.41		\$0.35	\$38.50	-5.4%
Subtotal Field Operations Costs						\$196.34		\$206.45	-4.9%
Total Input, Services and Field Operation Costs						\$413.79		\$424.90	-2.6%
Contribution Margin						\$310.91		\$374.60	-17.0%
Overhead									
Accounting, liability insurance, vehicle cost, office expense					\$10.00		\$10.00		0.0%
Cash lease for land (includes property tax)					\$125.00		\$125.00		0.0%
Total Overhead						\$135.00		\$135.00	0.0%
Total Costs						\$548.79		\$559.90	-2.0%
Net Returns or Profit to Owner (for unpaid management and risk)						\$175.91		\$239.60	-26.6%
Breakeven Yield		2014	2013	% Change	Breakeven Price		2014	2013	% Change
Bushels Necessary to Cover Variable Cos		71.7 bu.	64.2 bu.	11.8%	Operating Costs (\$/bu)		\$3.76	\$3.86	-2.6%
Bushels Necessary to Cover Fixed Costs		23.4 bu.	20.9 bu.	11.8%	Fixed Costs (\$/bu)		\$1.23	\$1.23	0.0%
Bushels Necessary to Cover Total Costs		95.1 bu.	85.1 bu.	11.8%	Total Costs (\$/bu)		\$4.99	\$5.09	-2.0%

FINANCIAL AND PRODUCTION ANALYSIS

Contribution Margin. This represents the portion of sales revenue from the operation that is not consumed by variable costs and so contributes to the coverage of fixed costs and net profit. This concept is one of the key building blocks of breakeven analysis as well as whole farm budgeting.

Contribution Margin Ratio. A percentage total sales that is not consumed by variable costs. For example, a contribution margin ratio of 22.2% means that for each dollar increase in sales, total contribution margin will increase by 22.2 cents.

Fixed Costs (Overhead). These are costs that take place irrespective of production. For example, fixed costs include depreciation on equipment and buildings, property taxes, interest on land, equipment or buildings, etc.

Net Income or Profit. Sometimes referred to as net profit, is the operation's total sales minus total costs.

Net Income or Profit Ratio. A ratio of profitability calculated as net income divided by total sales. The net income or profit ratio is very useful in determining profitability and is displayed as a percentage. A profit margin of 8.2% means the farm has a net income of 8.2 cents for every dollar of sales.

Price Breakeven. Breakeven analysis is a tool used to determine the relationship between the revenue and costs associated with an enterprise. Price breakeven represents the price point which must be reached to cover costs of the enterprise. Breakeven can be calculated on variable costs and fixed costs.

Production or Yield Breakeven. This is the production point which total expenses and total revenue are equal or the bushels or tons needed to cover costs of the enterprise.

Variable Costs (Operating). Variable or input costs are those costs that change with production. These costs include fertilizer, seed, chemicals, hourly wages and other inputs which are directly associated with corn silage production.

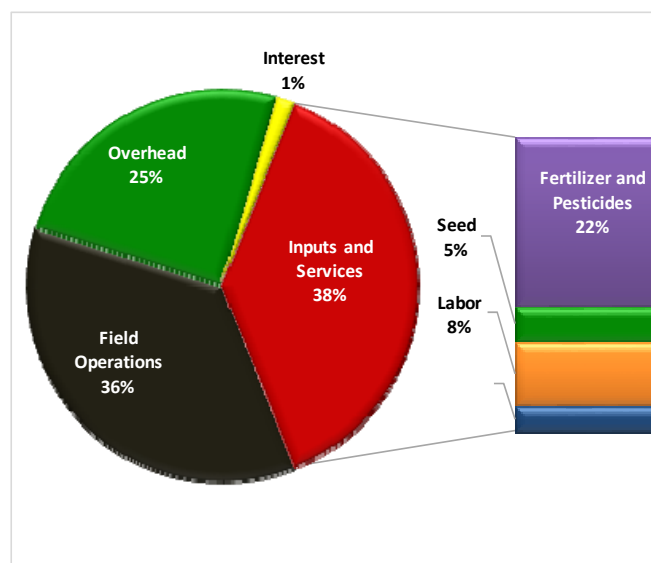


Figure 2. Percent input, Field Operations, Overhead and Interest Costs Required to Produce Irrigated SWW.

Calculating your Own Budget with Excel. To download a free Excel spreadsheet of this and other crop and livestock enterprise budgets, go to <http://extension.usu.edu/boxelder> and select the Agriculture – Crop/Livestock Budgets link.

REFERENCES

- Drollette, S.A. (2010). Custom Rates Survey Report 2009/2010. Department of Applied Economics, Utah State University. AG/ECON/2010-02RM.
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Table 2. Net Income (Total Sales per Acre - Total Costs per Acre)

Total Costs per Acre	Total Sales per Acre				
	\$625	\$675	\$725	\$775	\$825
\$449	\$175.91	\$225.91	\$275.91	\$325.91	\$375.91
\$499	\$125.91	\$175.91	\$225.91	\$275.91	\$325.91
\$549	\$75.91	\$125.91	\$175.91	\$225.91	\$275.91
\$599	\$25.91	\$75.91	\$125.91	\$175.91	\$225.91
\$649	-\$24.09	\$25.91	\$75.91	\$125.91	\$175.91

Table 3. Net Income / Total Sales Ratio (Net Income per Acre / Total Sales per Acre)

Net Income/Acre	Total Sales per Acre				
	\$625	\$675	\$725	\$775	\$825
\$276	44.2%	40.9%	38.1%	35.6%	33.5%
\$226	36.2%	33.5%	31.2%	29.2%	27.4%
\$176	28.2%	26.1%	24.3%	22.7%	21.3%
\$126	20.2%	18.7%	17.4%	16.3%	15.3%
\$76	12.2%	11.3%	10.5%	9.8%	9.2%

Table 4. Contribution Margin (Total Sales per Acre - Variable Costs per Acre)

Variable Costs per Acre	Total Sales per Acre				
	\$625	\$675	\$725	\$775	\$825
\$314	\$310.91	\$360.91	\$410.91	\$460.91	\$510.91
\$364	\$260.91	\$310.91	\$360.91	\$410.91	\$460.91
\$414	\$210.91	\$260.91	\$310.91	\$360.91	\$410.91
\$464	\$160.91	\$210.91	\$260.91	\$310.91	\$360.91
\$514	\$110.91	\$160.91	\$210.91	\$260.91	\$310.91

Table 5. Contribution Margin Ratio (Contribution Margin per Acre / Total Sales per Acre)

Contribution Margin	Total Sales per Acre				
	\$625	\$675	\$725	\$775	\$825
\$411	65.8%	60.9%	56.7%	53.0%	49.8%
\$361	57.8%	53.5%	49.8%	46.6%	43.8%
\$311	49.8%	46.1%	42.9%	40.1%	37.7%
\$261	41.8%	38.7%	36.0%	33.7%	31.6%
\$211	33.8%	31.3%	29.1%	27.2%	25.6%

Table 6. Production Breakeven (Total Costs per Acre / SWW Price per bu.)

Price per bushel	Total Costs				
	\$364	\$389	\$414	\$439	\$464
\$6.77	54 bu.	57 bu.	61 bu.	65 bu.	69 bu.
\$6.27	58 bu.	62 bu.	66 bu.	70 bu.	74 bu.
\$5.77	63 bu.	67 bu.	72 bu.	76 bu.	80 bu.
\$5.27	69 bu.	74 bu.	79 bu.	83 bu.	88 bu.
\$4.77	76 bu.	82 bu.	87 bu.	92 bu.	97 bu.

Table 7. Price Breakeven (Total Costs per Acre / SWW Yield per Acre)

Yield per Acre	Total Costs				
	\$364	\$389	\$414	\$439	\$464
90.0 bu	\$4.04/bu.	\$4.32/bu.	\$4.60/bu.	\$4.88/bu.	\$5.15/bu.
100.0 bu	\$3.64/bu.	\$3.89/bu.	\$4.14/bu.	\$4.39/bu.	\$4.64/bu.
110.0 bu	\$3.31/bu.	\$3.53/bu.	\$3.76/bu.	\$3.99/bu.	\$4.22/bu.
120.0 bu	\$3.03/bu.	\$3.24/bu.	\$3.45/bu.	\$3.66/bu.	\$3.86/bu.
130.0 bu	\$2.80/bu.	\$2.99/bu.	\$3.18/bu.	\$3.38/bu.	\$3.57/bu.