



Southwestern Idaho: Treasure Valley

Soft White Spring Wheat

Ben Eborn

Introduction to Costs & Returns Estimates

The University of Idaho Extension produces crop costs and returns estimates every other year. The overall goal of this project is to provide the Idaho agricultural industry with an unbiased and consistently calculated estimate of the cost of producing various crops and to track the change in production costs per acre and per unit over time.

The University of Idaho's costs and returns estimates are based on economic costs, not just accounting costs. All resources are valued at a market rate or "opportunity cost". Input prices are taken from the U of I's annual survey of agricultural supply companies. The selling price is a historical average, not a current year's price. Production practices are based on data from growers, crop consultants, and extension personnel throughout Idaho. Although production practices may be similar for individual farms, each farm has a unique set of resources with different levels of productivity, different production problems, and therefore different costs. Farm size, crop rotation, age and type of equipment, and the quality and intensity of management are all crucial factors that influence costs. The cost of production estimates show the typical or representative production costs by region based on documented production practices. These production costs are not area averages, rather they are based on model farms for four areas of the state.

University of Idaho costs and returns estimates can be used as a management tool to help producers in three ways:

1. **Templates.** Excel spreadsheets have been created by the University of Idaho to make enterprise budgeting and record keeping an easy task. You can start by substituting our costs and returns estimates with your own numbers. You can also enter them in the "Your Cost" column.
2. **Marketing.** Estimating production costs on a per acre or per unit basis can help you calculate your farm's break-even prices. Knowing your break-even price to cover operating costs and total costs can help with contract negotiations and selling on the open market.
3. **Benchmarks.** The University of Idaho costs and returns estimates are based on a typical or model farm and are calculated annually using consistent methodology. You can use these estimates as benchmarks by comparing your own total costs or specific cost categories to our estimates. This is a good way to find strengths and weaknesses in your production practices.

It's important to remember, just because your production costs are similar to our estimates, that isn't necessarily a good thing. Our model farms are also typically unprofitable! Average producers usually don't make an economic profit (which includes opportunity costs and non-cash costs such as depreciation). Being profitable requires fine-tuned management and a competitive advantage that the average producer doesn't have.

Background & Assumptions

The University of Idaho's costs and returns estimates are based on economic costs, not accounting costs. All resources are valued at a market rate or "opportunity cost." Input prices are taken from the U of I's annual survey of agricultural supply companies. The selling price is a historical average, not a current year's price. The cost estimate shown here is typical for producing alfalfa in northern Idaho. Production practices most closely resemble those in Canyon, Payette and Owyhee counties. Although production practices may be similar for individual farms, each farm has a unique set of resources with different levels of productivity, different production problems, and therefore different costs. Farm size, crop rotation, age and type of equipment, and the quality and intensity of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,200-acre farm with 300 acres in spring wheat. In addition to winter wheat, the farm grows 300 acres of potatoes or sugarbeets, 300 acres of corn, 150 acres of dry beans or onions, and 150 acres of alfalfa seed or alfalfa hay. The farm uses a concrete ditch and siphon tube irrigation system with water delivered to the farm from an irrigation district. The district charges a flat fee per acre for water.

Tillage, Fertilization, Pest Control & Irrigation

After harvest of the previous crop, the ground is disced in the fall, then roller harrowed and planted in the spring. The field is corrugated once after planting. The crop is harvested and hauled to storage by a custom operator in August. Fertilizer is split applied fall and spring by a custom applicator. A post-emergence two-way tank mix herbicide is applied in the spring for weed control. No costs are included for insects or fungicides because their use is infrequent and unpredictable. Winter wheat is irrigated once in October, and six times during the following growing season: once in April, twice in May and 3 times in July.

Table 1 lists costs and returns by cost category (fertilizers, pesticides, machinery) for soft white spring wheat production in southwestern Idaho.

Resources: Machinery, Land, Labor & Capital

Machinery ownership cost (capital recovery) is based on 75% of the replacement cost of a new piece of equipment, except for trucks. Capital recovery combines depreciation and interest into a single value. Equipment capital recovery (depreciation and interest) is calculated as a cost per acre. This non-cash overhead is shown in the lower part of Table 1. To keep machinery prices current between years in which a comprehensive survey is conducted, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. Equipment prices are collected approximately every five years.

Land rent for alfalfa production is estimated to be \$225 per acre. The cost of the irrigation system is included in the rent. The University of Idaho uses the budget generator program *Budget Planner* from the University of California-Davis to produce the various tables shown in this publication. Machinery operating and ownership costs are calculated based on engineering equations in this program. Machinery operating costs include fuel, lubricants and repairs.

The cost of labor used in this study includes a base wage, plus a percentage to account for various payroll taxes (FICA, SUTA & FUTA), and workman's compensation, as well as benefits such as paid vacation/personal leave days, health insurance and bonuses. Labor is classified by the type of work performed. Labor classifications, labor rates and payroll overhead are shown below.

Labor Values

Labor Class	Base Rate	Payroll Overhead	Effective Rate
General Farm Labor	\$14.00	15%	\$17.55
Truck Drivers	\$14.00	15%	\$17.55
Equipment Operators	\$18.00	25%	\$22.50
Irrigation Labor			
Set Move: HL & WL	\$14.00	30%	\$17.55
Continuous Move: CP & L	\$18.00	25%	\$22.50

Set Move includes: handlines and wheellines

Continuous Move includes: center pivots and linear move

Payroll overhead for set move systems includes housing

Based on the speed, width and overall field efficiency, *Budget Planner* calculates equipment operator labor hours for all field operations except those performed on a custom basis. Custom operations are listed separately. General farm labor accounts for extra field labor used during planting or harvest.

A management fee is charged based on approximately 5% of total production costs.

Capital and Overhead Costs

Interest on operating capital is charged from the time an input is applied until harvest and is calculated at a nominal rate of 7.00 percent. Interest on intermediate term capital, primarily equipment, is calculated using a rate of 6.75 percent. A general overhead charge, calculated at approximately 2.5 percent of operating expenses, is included to cover unallocated whole-farm costs such as office

expenses, legal and accounting fees, cell phones, internet service and utilities. Irrigation power is not included as part of general farm utilities.

Sensitivity Analysis

Impacts of changes in crop price and yield assumptions on net returns, known as sensitivity or ranging analysis, can be found at the bottom of the table.

University of Idaho costs and returns estimates for both crops and livestock can be found at:
<https://www.uidaho.edu/cals/idaho-agbiz>

Author

Ben Eborn is an Extension agricultural economist with the University of Idaho.

Disclaimer

The practices and chemicals specified in the publication are not recommendations. Always read and follow the directions printed on the pesticide label. Due to constantly changing pesticide laws and labels, some pesticides may have been cancelled or had certain uses prohibited. The use of trade names for various products simplifies presentation of this material and should not be considered an endorsement, nor is any criticism implied of similar products not mentioned.



Soft White Spring Wheat - Treasure Valley - 2019				Number of acres: 300	
Item	Quantity Per Acre	Unit	Price or Cost	Total Value	Value or Cost/Acre
Gross Returns					
Soft White Wheat	110.00	bu	4.55	150,150	\$500.50
				0	\$0.00
				0	\$0.00
Total Gross Returns				\$150,150	\$500.50
Operating Inputs					
Seed:				\$9,900	\$33.00
Wheat Seed: SWS	150.00	lb	0.22	9,900	33.00
				0	0.00
Fertilizer:				\$29,718	\$99.06
Dry Nitrogen	125.00	lb	0.42	15,750	52.50
Dry P2O5	50.00	lb	0.41	6,150	20.50
K2O	50.00	lb	0.31	4,650	15.50
Sulfur	48.00	lb	0.22	3,168	10.56
				0	0.00
				0	0.00
				0	0.00
Pesticides:				\$2,805	\$9.35
Bronate Advanced	0.80	pint	5.50	1,320	4.40
Affinity Broad Spectrum	0.60	oz	7.00	1,260	4.20
N-I Surfactant + UAN	1.00	acre	0.75	225	0.75
				0	0.00
				0	0.00
Custom & Consultants:				\$38,100	\$127.00
Custom Fertilize	2.00	acre	7.50	4,500	15.00
Custom Spraying	1.00	acre	7.50	2,250	7.50
Custom Combine	1.00	acre	66.00	19,800	66.00
Custom Haul	110.00	bu	0.35	11,550	38.50
				0	0.00
Irrigation:				\$18,300	\$61.00
Water Assessment	1.00	acre	57.00	17,100	57.00
Repairs - Conc. Ditch	1.00	acre	4.00	1,200	4.00
				0	0.00
Machinery:				\$12,414	\$41.38
Fuel - Gas	1.28	gal	3.25	1,248	4.16
Fuel - Diesel	7.02	gal	3.00	6,318	21.06
Fuel - Road Diesel	0.10	gal	3.50	105	0.35
Lube	1.00	\$	3.48	1,044	3.48
Machinery Repair	1.00	\$	12.33	3,699	12.33
Labor:				\$26,359	\$87.86
Equipment Operator Labor	1.76	hrs	22.50	11,880	39.60
General Farm Labor	0.30	hrs	17.55	1,580	5.27
Irrigation Labor	2.45	hrs	17.55	12,899	43.00
Other:				\$4,500	\$15.00
Crop Insurance	1.00	acre	15.00	4,500	15.00
				0	0.00
				0	0.00
Interest on Operating Capital at : 7.00%				\$3,957	\$13.19
Total Operating Costs				\$146,053	\$486.84
Operating Costs per Unit				\$1,328	\$4.43
Net Returns Above Operating Costs				\$4,097	\$13.66

Soft White Spring Wheat - Treasure Valley - 2019		Number of acres: 300	
Ownership Costs:			
General Overhead		3,600	12.00
Land Rent		67,500	225.00
Management Fee		11,700	39.00
Property Taxes		0	
Property Insurance		441	1.47
Investment Repairs		0	
Capital Recovery - Equipment		14,559	48.53
		0	
Total Ownership Costs		\$97,800	\$326.00
Ownership Costs per Unit		\$889	\$2.96
Total Costs per Acre		\$243,853	\$812.84
Total Cost per Unit		\$2,217	\$7.39
Returns to Risk		-\$93,703	-\$312.34

Notes:

Breakeven Analysis:	-	Base	+
	10%		10%
		Yield	
<u>Price</u>	99	110	121
Operating Cost Breakeven	\$4.92	\$4.43	\$4.02
Ownership Cost Breakeven	\$3.29	\$2.96	\$2.69
Total Cost Breakeven	\$8.21	\$7.39	\$6.72
		Price	
<u>Yield</u>	\$4.10	\$4.55	\$5.01
Operating Cost Breakeven	118.9	107.0	97.3
Ownership Cost Breakeven	79.6	71.6	65.1
Total Cost Breakeven	198.5	178.6	162.4

