

## Southwestern Idaho: Treasure Valley

### Spring Wheat

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## Background and 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 growing spring wheat in southwestern 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 spring 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.

### Production Practices

After harvest of the previous crop, the wheat ground is disc-ripped in the fall, then 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 insecticides or fungicides because their use is infrequent and unpredictable. Spring wheat is irrigated seven times during the growing season: once in April, twice in May, three times in June, and once in July.

### Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce spring wheat, along with their operating and ownership costs. Except for trucks, machinery is valued at 75 percent of replacement cost new, Table 3. The truck's price includes the cost of a used truck and 75 percent of the cost of a new self-unloading bed. In the years between equipment price surveys, done approximately every five years, machinery prices are adjusted using USDA's Farm Machinery Prices Paid Index. The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) of the irrigation system.

A machinery labor charge is made for all field operations except those performed on a custom basis. Custom operations are listed separately. The non-machine labor accounts for extra planting and harvesting field labor. Labor to operate machinery is valued at \$15.60 per hour, while irrigation and non-machine labor are valued at \$11.05 and \$9.20, respectively. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor and 30 percent for irrigation labor and machinery labor. A management fee, approximately 5 percent of gross returns, is included as an ownership cost. Interest on operating capital is charged from the time an input is applied until the month of harvest and is calculated at a nominal rate of 6.75 percent. Interest on intermediate term capital is calculated using a rate of 7.0 percent. A general overhead charge, calculated at 2.5 percent of operating expenses, is included to cover unallocated whole-farm costs such as office expenses, legal and accounting fees, and utilities.

Table 1. 2009 Irrigated Soft White Spring Wheat Southwestern Idaho.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Gross Returns</b>				
Wheat: SWS	110	bu	\$4.55	\$500.50
<b>Operating Inputs</b>				
<b>Seed:</b>				\$31.50
Wheat Seed: SWS	150	lb	\$0.21	\$31.50
				\$0.00
<b>Fertilizer:</b>				\$90.50
Dry Nitrogen	135	lb	\$0.50	\$67.50
Dry P2O5	50	lb	\$0.46	\$23.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
<b>Pesticides:</b>				\$21.88
Starane Ultra	0.5	pt	\$29.00	\$14.50
Affinity Broadspec 50SG	0.6	oz	\$11.05	\$6.63
Non-ionic Surfactant + UAN	1	ac	\$0.75	\$0.75
<b>Custom &amp; Consultants:</b>				\$71.30
Custom Fertilize	2	ac	\$7.75	\$15.50
Custom Combine	1	ac	\$36.00	\$36.00
Custom Haul	110	bu	\$0.18	\$19.80
				\$0.00
				\$0.00
<b>Irrigation:</b>				\$46.00
Water Assessment	1	ac	\$43.25	\$43.25
Irrigation Repairs - CD	1	ac	\$2.75	\$2.75
				\$0.00
<b>Machinery:</b>				\$35.18
Fuel - Gas	1.25	gal	\$2.30	\$2.88
Fuel - Diesel	9.3	gal	\$2.00	\$18.60
Lube	1	ac	\$3.20	\$3.20
Machinery Repairs	1	ac	\$10.50	\$10.50
<b>Labor:</b>				\$59.47
Labor (machine)	1.9	hr	\$15.60	\$29.64
Labor (irrigation - cd)	2.45	hr	\$11.05	\$27.07
Labor (other)	0.3	hr	\$9.20	\$2.76
<b>Storage:</b>				\$0.00
				\$0.00
				\$0.00
<b>Other:</b>				\$8.00
Crop Insurance	1	ac	\$8.00	\$8.00
				\$0.00
Operating Interest @ 6.75%				\$10.10
Total Operating Costs				\$373.93
Operating Costs per Unit				\$3.40
Net Returns Above Operating Expenses				\$126.57

Table 1. 2009 Irrigated Soft White Spring Wheat Southwestern Idaho.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
<b>Ownership Costs:</b>				
Tractors & Equipment Insurance				\$1.20
Tractors & Equipment Depreciation & Interest				\$51.00
Irrigation Equipment Depreciation & Interest				
Land *				\$175.00
Overhead				\$15.00
Management Fee				\$30.00
<b>Total Ownership Costs</b>				\$272.20
<b>Ownership Costs per Unit</b>				\$2.47
<b>Total Costs per Acre</b>				\$646.13
<b>Total Cost per Unit</b>				\$5.87
Returns to Risk				-\$145.63

Notes:

\* Includes irrigation system ownership costs.

**Breakeven Analysis:**

	- 10%	Base Yield	+ 10%
<u>Price</u>	99	110	121
Operating Cost Breakeven	\$3.78	\$3.40	\$3.09
Ownership Cost Breakeven	\$2.75	\$2.47	\$2.25
Total Cost Breakeven	\$6.53	\$5.87	\$5.34
		<u>Price</u>	
<u>Yield</u>	\$4.10	\$4.55	\$5.01
Operating Cost Breakeven	91.3	82.2	74.7
Ownership Cost Breakeven	66.5	59.8	54.4
Total Cost Breakeven	157.8	142.0	129.1

**Table 2. Monthly Summary of Cash Expenses per Acre**

**EBB2-SWS-09**

	Nov 08	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	May 09	Jun 09	Jul 09	Aug 09	Sep 09	Oct 09	Total
<b>Preharvest:</b>													
Fertilize	35.75				70.25								106.00
Rip/subsoil					11.04								11.04
Harrow					10.95								10.95
Plane					5.14								5.14
Crop Insurance						8.00							8.00
Assessments						43.25							43.25
Repairs						2.75							2.75
Seed Hauling						3.63							3.63
Plant						43.50							43.50
Corrugate						7.93							7.93
Irrigate						3.87	7.74	11.60	3.87				27.07
Ground Spray							24.81						24.81
General Pickup Use	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	14.02
<b>Total Preharvest Costs</b>	<b>36.92</b>	<b>1.17</b>	<b>1.17</b>	<b>1.17</b>	<b>98.55</b>	<b>114.09</b>	<b>33.71</b>	<b>12.77</b>	<b>5.04</b>	<b>1.17</b>	<b>1.17</b>	<b>1.17</b>	<b>308.09</b>
<b>Harvest:</b>													
Combine										36.00			36.00
Crop Hauling										19.80			19.80
<b>Total Harvest Costs</b>										<b>55.80</b>			<b>55.80</b>
Interest on Operating Capital	0.21	0.21	0.22	0.23	0.78	1.42	1.61	1.68	1.71	2.03	-0.01	-0.01	10.10
<b>Operating Costs per Acre</b>	<b>37.13</b>	<b>1.38</b>	<b>1.39</b>	<b>1.40</b>	<b>99.33</b>	<b>115.51</b>	<b>35.33</b>	<b>14.46</b>	<b>6.75</b>	<b>59.00</b>	<b>1.16</b>	<b>1.16</b>	<b>373.99</b>
<b>Cash Ownership</b>													
General Overhead	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	15.00
Land Rent		175.00											175.00
Management Fee	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	30.00
Property Insurance						1.26							1.26
<b>Cash Ownership Costs</b>	<b>3.75</b>	<b>178.75</b>	<b>3.75</b>	<b>3.75</b>	<b>3.75</b>	<b>5.01</b>	<b>3.75</b>	<b>3.75</b>	<b>3.75</b>	<b>3.75</b>	<b>3.75</b>	<b>3.75</b>	<b>221.26</b>
<b>Total Cash Costs per Acre</b>	<b>40.88</b>	<b>180.13</b>	<b>5.14</b>	<b>5.15</b>	<b>103.08</b>	<b>120.52</b>	<b>39.08</b>	<b>18.21</b>	<b>10.50</b>	<b>62.75</b>	<b>4.91</b>	<b>4.91</b>	<b>595.25</b>

**Table 3. Machinery and Equipment Costs per Hour**

Description	Purchase Price	Years to Trade	Salvage Value	Hours Used	<-Non-Cash-> Ownership		<-----Cash-----> Ownership		<-----Operating----->			Total Costs/Hr.
					Cap. Rec.	Insur.	Taxes	Repairs	Fuel & Lube	Total Oper.		
4-wheeler	5500	10	1625	200	3.18	0.08	0.00	0.58	0.00	0.58	3.85	
Corrugator - 6R GR	1600	15	154	59	2.77	0.07	0.00	0.15	0.00	0.15	2.99	
Disk-Ripper - 13'	46000	15	4416	100	47.00	1.14	0.00	13.91	0.00	13.91	62.05	
Grain Drill - 12'	9700	12	1344	75	14.52	0.33	0.00	2.09	0.00	2.09	16.94	
Landplane - 16'	13300	15	1277	76	17.77	0.43	0.00	2.18	0.00	2.18	20.38	
Pickup 1 - 3/4 ton	37000	8	5000	376	14.28	0.25	0.00	4.71	8.82	13.53	28.05	
Pickup 2 - 3/4 ton	37000	8	8000	376	13.60	0.27	0.00	4.71	8.82	13.53	27.40	
Roller Harrow -12'	17000	15	1632	177	9.78	0.24	0.00	4.71	0.00	4.71	14.72	
Sprayer - 30'	3800	15	365	198	1.95	0.05	0.00	1.80	0.00	1.80	3.80	
Tractor - 125hp	95000	15	18495	402	23.35	0.64	0.00	2.92	16.69	19.61	43.59	
Tractor - 200hp	134000	15	26087	398	33.24	0.91	0.00	4.11	26.70	30.81	64.96	
Tractor - 75hp	52000	15	10123	301	17.05	0.46	0.00	1.20	8.47	9.67	27.18	
Truck 1 - 5 ton	55000	15	10708	398	13.66	0.37	0.00	8.79	1.53	10.32	24.35	

Net Returns Per Acre Above Operating Costs For Wheat: Sws  
Yield (bu/acre)

	77.00	88.00	99.00	110.00	121.00	132.00	143.00
3.19	-122	-89	-56	-23	10	43	76
3.64	-88	-50	-12	26	64	103	141
4.10	-52	-9	34	77	120	163	206
4.55	-18	30	78	127	175	223	271
5.01	18	71	124	177	230	283	336
5.46	52	110	169	227	285	343	401
5.92	88	151	214	277	340	403	467

Net Returns Per Acre Above Cash Costs For Wheat: Sws  
Yield (bu/acre)

	77.00	88.00	99.00	110.00	121.00	132.00	143.00
3.19	-344	-311	-277	-244	-211	-178	-145
3.64	-309	-271	-233	-195	-157	-119	-81
4.10	-274	-230	-187	-144	-101	-58	-15
4.55	-239	-191	-143	-95	-47	1	49
5.01	-204	-150	-97	-44	9	62	115
5.46	-169	-111	-53	5	63	121	180
5.92	-133	-70	-7	56	119	182	245

Net Returns Per Acre Above Total Costs For Wheat: Sws  
Yield (bu/acre)

	77.00	88.00	99.00	110.00	121.00	132.00	143.00
3.19	-393	-360	-327	-294	-261	-228	-195
3.64	-359	-321	-283	-245	-207	-169	-130
4.10	-323	-280	-237	-194	-151	-108	-65
4.55	-289	-241	-193	-145	-96	-48	-0
5.01	-253	-200	-147	-94	-41	12	65
5.46	-219	-161	-103	-44	14	72	130
5.92	-183	-120	-57	6	69	132	196

The practices and chemicals specified in this publication are based on survey information representative of typical operations. They are not recommendations. ALWAYS read and follow the instructions printed on the pesticide label. Due to constantly changing pesticide laws and labels, some pesticides may have been cancelled or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless both the pest and the plant, animal or other applicable site are specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets and livestock. To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

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