



Hard Red Spring Wheat

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Background and Assumptions

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing hard red spring wheat in southcentral Idaho. Production practices most closely represent those in Twin Falls County. Although production practices may be similar for individual farms, each 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 quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 500 acres in spring wheat, 250 acres in other grains, 375 acres in potatoes or sugarbeets, 225 acres in dry beans, and 150 acres in corn. The farm uses center pivot irrigation and surface water delivered by the irrigation district. The district charges a flat fee per acre for water.

Tillage, Fertilization, Pest Control, and Irrigation

Wheat acreage is plowed, disked twice, and planted in the spring. The crop is then custom combined and hauled to on-farm storage in August. Fertilizer is applied by a custom applicator before planting in April and through the sprinkler system in June. The farm operator performs weed control using tillage, cultivation, and herbicides. Two post-emergence herbicides are applied in the spring for control of broadleaf weeds. No costs are included in this budget for insect control. Wheat receives about 22 inches of water during the growing season using approximately 44 irrigations (pivot rotations): 5 inches in May, 6 inches in June,

and 11 inches in July. Each irrigation generally applies .5 inch of water.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used for wheat, along with their operating and ownership costs. All machinery except trucks is valued at 75 percent of new prices. This adjustment reduces the machinery repair operating cost, and the depreciation and interest ownership costs on equipment by 25 percent. Each truck's price includes the cost of a used truck and a new self-unloading bed.

The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) on the irrigation system. A labor charge is made for all labor pertaining to field operations and includes a base rate plus overhead expenses. Custom charges account for those field operations that are contracted out. A management charge, 5 percent of gross returns, is included as an ownership cost.

Labor to operate machinery is valued at \$13.15 per hour, while irrigation and non-machine labor are valued at \$8.75 and \$7.70, respectively. The non-machine rate accounts for extra planting labor. 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, 25 percent for irrigation labor, and 30 percent for machinery labor.

Interest on operating capital is charged from the time an input is applied until the month of harvest and calculated at a nominal rate of 7.5 percent. Interest on intermediate term capital is calculated using a rate of 7.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated costs such as office expenses, legal and accounting fees, and utilities.

**Table 1. Costs And Returns Per Acre to Produce Wheat
SCI Hard Red Spring**

EBB3-HRS-05

	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
Gross Returns					
Wheat	105.00	bu	3.75	393.75	_____
Total Gross Returns For Wheat				393.75	=====
Operating Costs					
Custom:					
Custom Fertilize	1.00	acre	5.70	5.70	_____
Custom Combine	1.00	acre	28.00	28.00	_____
Custom Hauling	105.00	bu	0.15	15.75	_____
Fertilizer:					
Dry Nitrogen	100.00	lb	0.39	39.00	_____
Dry P2O5	40.00	lb	0.23	9.20	_____
Liquid Nitrogen	40.00	lb	0.45	18.00	_____
Seed:					
HRSW Seed	100.00	lb	0.17	17.00	_____
Irrigation:					
Irrigation Repairs	22.00	acin	0.55	12.10	_____
Water Assessment	1.00	acre	30.20	30.20	_____
Irrigation Power	22.00	acin	1.39	30.58	_____
Labor (irrigation)	1.11	hr	8.75	9.71	_____
Pesticide:					
Bronate	0.50	qt	12.50	6.25	_____
Achieve	0.50	lb	30.90	15.45	_____
Other:					
Crop Insurance	1.00	acre	8.00	8.00	_____
Labor (machine)	1.90	hrs	13.15	24.92	_____
Labor (non-machine)	0.29	hrs	7.70	2.23	_____
Fuel - Gas	1.69	gal	2.26	3.82	_____
Fuel - Diesel	8.45	gal	2.07	17.50	_____
Lube				3.20	_____
Machinery Repair				7.56	_____
Interest on Operating Capital @ 7.50%				6.62	_____
Total Operating Costs per Acre				310.80	=====
Net Returns Above Operating Costs				82.95	_____
Cash Ownership Costs					
General Overhead				8.00	_____
Land Rent				110.00	_____
Management Fee				20.00	_____
Property Taxes (machinery)				0.00	_____
Property Insurance				0.84	_____
Total Cash Ownership Costs per Acre				138.84	=====
Non-Cash Ownership Costs (depreciation and interest)					
Equipment				31.77	_____
Total Non-Cash Ownership Costs per Acre				31.77	=====
Total Costs per Acre				481.41	_____
Returns to Risk				-87.66	_____

Table 2. Monthly Summary of Cash Expenses per Acre

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	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Total
Preharvest:													
Plow	14.28												14.28
Disk	5.51	5.51											11.03
Fertilize		53.90											53.90
Seed Hauling		2.91											2.91
Plant		26.67											26.67
Repairs		12.10											12.10
Irrigate			40.30	19.09	29.10								88.49
Ground Spray			8.90	18.10									27.01
Crop Insurance				8.00									8.00
General Pickup Use	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	16.05
Total Preharvest Costs	21.13	102.43	50.53	46.53	30.44	1.34	1.34	1.34	1.34	1.34	1.34	1.34	260.43
Harvest:													
Combine						28.00							28.00
Crop Hauling						15.75							15.75
Total Harvest Costs						43.75							43.75
Interest on Operating Capital	0.13	0.77	1.09	1.38	1.57	1.85	-0.01	-0.02	-0.03	-0.03	-0.04	-0.05	6.62
Operating Costs per Acre	21.27	103.20	51.62	47.91	32.01	46.94	1.33	1.32	1.31	1.30	1.30	1.29	310.80
Cash Ownership													
General Overhead	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	8.00
Land Rent	110.00												110.00
Management Fee	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	20.00
Property Insurance		0.84											0.84
Cash Ownership Costs	112.33	3.17	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	138.84
Total Cash Costs per Acre	133.60	106.37	53.96	50.25	34.34	49.27	3.66	3.65	3.65	3.64	3.63	3.62	449.63

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	6500	10	1920	350	1.76	0.05	0.00	0.11	3.40	3.51	5.31	
Grain Drill - 12'	9700	12	1344	165	5.45	0.13	0.00	4.17	0.00	4.17	9.74	
Moldboard Plow 5b	9700	15	931	150	5.41	0.13	0.00	3.40	0.00	3.40	8.94	
Pickup - Used 3/4t	11000	8	3839	200	5.74	0.14	0.00	0.91	5.95	6.86	12.74	
Pickup 1 - 3/4 ton	37000	8	12913	300	12.89	0.31	0.00	3.59	10.40	13.99	27.20	
Pickup 2 - 3/4 ton	37000	8	12913	300	12.89	0.31	0.00	3.59	10.40	13.99	27.20	
Sprayer - 30'	3800	15	365	115	2.76	0.07	0.00	1.28	0.00	1.28	4.10	
Tandem Disk - 18'	22000	15	2112	130	14.15	0.35	0.00	4.06	0.00	4.06	18.55	
Tractor - 160hp	113000	15	21999	475	19.24	0.53	0.00	3.46	22.10	25.56	45.33	
Tractor - 200hp	134000	15	26087	350	30.98	0.86	0.00	3.02	27.63	30.65	62.49	
Tractor - 95hp	68000	15	13238	400	13.72	0.38	0.00	1.76	11.11	12.87	26.97	
Truck 1 - 5 ton	55000	15	10708	400	11.12	0.31	0.00	7.35	11.90	19.25	30.68	

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

	73.50	84.00	94.50	105.00	115.50	126.00	136.50
Price (dollars/bu)							
2.63	-113	-87	-61	-35	-9	17	43
3.00	-86	-56	-26	4	34	64	94
3.38	-58	-24	10	44	78	112	146
3.75	-30	7	45	83	121	159	196
4.13	-2	39	81	123	165	206	248
4.50	25	70	116	162	207	253	299
4.88	53	102	152	202	251	301	351

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

	73.50	84.00	94.50	105.00	115.50	126.00	136.50
Price (dollars/bu)							
2.63	-252	-226	-200	-173	-147	-121	-95
3.00	-224	-194	-165	-135	-105	-75	-45
3.38	-196	-163	-129	-95	-61	-27	7
3.75	-169	-131	-94	-56	-18	20	57
4.13	-141	-100	-58	-16	26	68	109
4.50	-114	-68	-23	23	69	114	160
4.88	-86	-37	13	63	112	162	212

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

	73.50	84.00	94.50	105.00	115.50	126.00	136.50
Price (dollars/bu)							
2.63	-283	-257	-231	-205	-179	-153	-127
3.00	-256	-226	-196	-166	-136	-107	-77
3.38	-228	-194	-160	-127	-93	-59	-25
3.75	-201	-163	-125	-88	-50	-12	26
4.13	-173	-131	-90	-48	-6	36	78
4.50	-146	-100	-55	-9	37	82	128
4.88	-118	-68	-19	31	81	130	180

The practices and chemicals specified here are based on survey information representative of typical operations. They are not recommendations. Because of constantly changing labels, laws, and regulations, the University of Idaho can assume no liability for the consequences of use of chemicals specified here. In all cases, read and follow the directions and precautionary statements on the specific pesticide product label. 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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