Southwestern Idaho: Treasure Valley Winter Wheat

District II

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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 winter 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 winter 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.

Production Practices

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

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used to produce winter 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 Winter Wheat Southwestern Idaho.

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
Gross Returns				
Wheat: SWW	130	bu	$4.55	$591.50
Operating Inputs				
Seed:				$17.00
Wheat Seed: SWW	100	lb	$0.17	$17.00
				$0.00
Fertilizer:				$93.00
Dry Nitrogen	140	lb	$0.50	$70.00
Dry P2O5	50	lb	$0.46	$23.00
				$0.00
				$0.00
				$0.00
				$0.00
Pesticides:				$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
				$0.00
Custom & Consultants:				$74.90
Custom Fertilize	2	ac	$7.75	$15.50
Custom Combine	1	ac	$36.00	$36.00
Custom Haul	130	bu	$0.18	$23.40
				$0.00
				$0.00
Irrigation:				$46.00
Water Assessment	1	ac	$43.25	$43.25
Irrigation Repairs - CD	1	ac	$2.75	$2.75
				$0.00
Machinery:				$33.03
Fuel - Gas	1.25	gal	$2.30	$2.88
Fuel - Diesel	8.5	gal	$2.00	$17.00
Lube	1	ac	$3.00	$3.00
Machinery Repairs	1	ac	$10.15	$10.15
Labor:				$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
Storage:				$0.00
				$0.00
				$0.00
Other:				$8.00
Crop Insurance	1	ac	$8.00	$8.00
				$0.00
Operating Interest @ 6.75%				$13.00
Total Operating Costs				$366.28
Operating Costs per Unit				$2.82
Net Returns Above Operating Expenses				$225.22

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

Item	Quantity Per Acre	Unit	Price or Cost	Value or Cost/Acre
Ownership Costs:				
Tractors & Equipment Insurance				$1.25
Tractors & Equipment Depreciation & Interest				$51.00
Irrigation Equipment Depreciation & Interest				
Land *				$175.00
Overhead				$15.00
Management Fee				$30.00
Total Ownership Costs				$272.25
Ownership Costs per Unit				$2.09
Total Costs per Acre				$638.53
Total Cost per Unit				$4.91
Returns to Risk				-$47.03

Notes:
* Includes irrigation system ownership costs.

Breakeven Analysis:	- 10%	Base	+ 10%
		Yield	
Price	117	130	143
Operating Cost Breakeven	$3.13	$2.82	$2.56
Ownership Cost Breakeven	$2.33	$2.09	$1.90
Total Cost Breakeven	$5.46	$4.91	$4.47
		Price	
Yield	$4.10	$4.55	$5.01
Operating Cost Breakeven	89.4	80.5	73.2
Ownership Cost Breakeven	66.5	59.8	54.4
Total Cost Breakeven	155.9	140.3	127.6

Table 2. Monthly Summary of Cash Expenses per Acre **EBB2-SWW-09**

	Oct 08	Nov 08	Dec 08	Jan 09	Feb 09	Mar 09	Apr 09	May 09	Jun 09	Jul 09	Aug 09	Sep 09	Total
Preharvest:													
Rip/subsoil	11.04												11.04
Harrow	10.95												10.95
Plane	5.14												5.14
Fertilize	65.75						42.75						108.50
Seed Hauling	3.63												3.63
Plant	29.00												29.00
Corrugate	5.78												5.78
Irrigate	3.87						3.87	7.74	11.60				27.07
Crop Insurance							8.00						8.00
Assessments							43.25						43.25
Repairs							2.75						2.75
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
Total Preharvest Costs	136.33	1.17	1.17	1.17	1.17	1.17	126.59	8.90	12.77	1.17	1.17	1.17	293.95
Harvest:													
Combine											36.00		36.00
Crop Hauling											23.40		23.40
Total Harvest Costs											59.40		59.40
Interest on Operating Capital	0.77	0.77	0.78	0.79	0.79	0.80	1.51	1.56	1.63	1.64	1.98	-0.01	13.02
Operating Costs per Acre	137.09	1.94	1.95	1.96	1.96	1.97	128.11	10.47	14.40	2.81	62.55	1.16	366.37
Cash Ownership													
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							1.28						1.28
Cash Ownership Costs	3.75	3.75	178.75	3.75	3.75	3.75	5.03	3.75	3.75	3.75	3.75	3.75	221.28
Total Cash Costs per Acre	140.84	5.69	180.70	5.71	5.71	5.72	133.14	14.22	18.15	6.56	66.30	4.91	587.65

Table 3. Machinery and Equipment Costs per Hour

Description	Purchase Price	Years to Trade	Salvage Value	Hours Used	<-Non-Cash-> Ownership Cap. Rec.	<-----Cash-----> Ownership Insur.	Taxes	<---------Operating---------> Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
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	23.33	0.64	0.00	2.92	16.69	19.61	43.57
Tractor - 200hp	134000	15	26087	338	39.15	1.07	0.00	4.11	26.70	30.81	71.03
Tractor - 75hp	52000	15	10123	301	17.07	0.46	0.00	1.20	8.47	9.67	27.20
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: Sww

Price (dollars/bu) \ Yield (bu/acre)	91.00	104.00	117.00	130.00	143.00	156.00	169.00
3.19	-69	-30	9	48	87	127	166
3.64	-28	17	62	107	152	197	242
4.10	14	65	116	167	218	269	319
4.55	55	112	168	225	282	339	396
5.01	97	159	222	285	348	410	473
5.46	138	206	275	343	412	481	549
5.92	179	254	329	403	478	552	627

Net Returns Per Acre Above Cash Costs For Wheat: Sww

Price (dollars/bu) \ Yield (bu/acre)	91.00	104.00	117.00	130.00	143.00	156.00	169.00
3.19	-290	-251	-212	-173	-134	-95	-56
3.64	-249	-204	-159	-114	-69	-25	20
4.10	-207	-157	-106	-55	-4	47	98
4.55	-167	-110	-53	4	61	117	174
5.01	-125	-62	1	64	126	189	252
5.46	-84	-15	54	122	191	259	328
5.92	-42	33	107	182	257	331	406

Net Returns Per Acre Above Total Costs For Wheat: Sww

Price (dollars/bu) \ Yield (bu/acre)	91.00	104.00	117.00	130.00	143.00	156.00	169.00
3.19	-341	-302	-263	-224	-184	-145	-106
3.64	-300	-255	-210	-165	-120	-75	-30
4.10	-258	-207	-156	-105	-54	-3	48
4.55	-217	-160	-104	-47	10	67	124
5.01	-175	-113	-50	13	76	139	201
5.46	-134	-66	3	72	140	209	277
5.92	-92	-18	57	131	206	281	355

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