

Soft White Winter Wheat Following Summer Fallow: Low Rainfall Dryland

Paul E. Patterson and Stanley R. Gortsema



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 dryland winter wheat grown in the lower rainfall areas of southeastern Idaho, including summer fallow costs. Production practices most closely represent those in Bannock, Oneida and Power counties. 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 3,000-acre dryland farm following a traditional winter wheat-summer fallow or a winter wheat-spring barley-summer fallow rotation. Rotation can vary by field and moisture availability. On average, 1,650 acres are planted and 1,350 acres left in summer fallow. A typical year would have 1,400 acres planted to winter wheat and 250 acres planted to spring barley (or spring wheat).

Tillage, Fertilization, and Pest Control

No tillage occurs in the fall after the previous crop is harvested. In the spring, the ground is chisel plowed. The summer fallow tillage operations to control weeds include the use of a rodweeder in May and again in June, and a cultiweeder in July. Wheat is planted and fertilizer is applied in one operation in August. Additional fertilizer is applied by a custom ground applicator the following May.

A tank-mix herbicide to control broadleaf weeds is applied by a ground sprayer in June. No wild oat herbicide is applied and no cost for insect control is included because treatment is infrequent and unpredictable. In August, wheat is harvested and hauled by a custom operator to on-farm storage.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and equipment used to produce winter wheat, along with their operating and ownership costs. All machinery except trucks and one tractor are valued at 75 percent of replacement cost new prices shown in Table 3. This adjustment reduces the machinery repair operating cost and the depreciation and interest ownership costs on equipment by 25 percent. A land charge is made on a cash rent equivalent basis. 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 labor. Labor to operate machinery is valued at \$13.15 per hour, while non-machine labor is valued at \$7.70. 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 machinery labor. A management fee, 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 calculated at a nominal rate of 7.5 percent. Interest on intermediate term capital is calculated using a rate of 7.75 percent. An 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
SEI Low Rainfall Dryland Soft White Winter Wheat**

EBB4-SWWD-05

	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
Gross Returns					
Wheat	38.00	bu	3.05	115.90	_____
Total Gross Returns For Wheat				115.90	_____
Operating Costs					
Seed:					
Wheat Seed - SWW	55.00	lb	0.14	7.70	_____
Fertilizer:					
Dry Nitrogen	20.00	lb	0.39	7.80	_____
Dry P2O5	15.00	lb	0.24	3.60	_____
Sulfur	10.00	lb	0.12	1.20	_____
Liquid Nitrogen	25.00	lb	0.43	10.75	_____
Other:					
Crop Insurance	1.00	acre	2.00	2.00	_____
Custom:					
Custom Fertilize	1.00	acre	4.95	4.95	_____
Custom Combine	1.00	acre	17.50	17.50	_____
Custom Haul	38.00	bu	0.15	5.70	_____
Pesticide:					
2,4-D Ester (LV6)	0.50	qt	5.60	2.80	_____
Banvel 4SC	0.20	qt	21.90	4.38	_____
Labor (machine)	0.84	hrs	13.15	11.00	_____
Labor (non-machine)	0.07	hrs	7.70	0.54	_____
Fuel - Diesel	6.18	gal	2.08	12.86	_____
Lube				1.93	_____
Machinery Repair				4.98	_____
Interest on Operating Capital @ 7.50%				5.06	_____
Total Operating Costs per Acre				104.76	_____
Net Returns Above Operating Costs				11.14	_____
Cash Ownership Costs					
General Overhead				2.50	_____
Land Rent				24.00	_____
Management Fee				6.00	_____
Property Taxes (machinery)				0.00	_____
Property Insurance				0.51	_____
Total Cash Ownership Costs per Acre				33.01	_____
Non-Cash Ownership Costs (depreciation and interest)					
Equipment				20.55	_____
Total Non-Cash Ownership Costs per Acre				20.55	_____
Total Costs per Acre				158.31	_____
Returns to Risk				-42.41	_____

Table 2. Monthly Summary of Cash Expenses per Acre

EBB4-SWWD-05

	Apr 04	May 04	Jun 04	Jul 04	Aug 04	Sep 04	Oct 04	Nov 04	Dec 04	Jan 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Total
Preharvest:																		
Plow	5.49																	5.49
Rodweed		1.83	1.83															3.67
Tillage				3.78														3.78
Seed Hauling					2.05													2.05
Plant					28.85													28.85
Crop Insurance														2.00				2.00
Fertilize														15.70				15.70
Ground Spray														8.07				8.07
General Pickup Use	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57						6.88
Total Preharvest Costs	6.07	2.41	2.41	4.35	31.48	0.57	0.57	0.57	0.57	0.57	0.57	0.57		25.77				76.50
Harvest:																		
Combine																		17.50
Crop Hauling																		5.70
Total Harvest Costs																		23.20
Total Harvest Costs																		23.20
Interest on Operating Capital	0.04	0.05	0.07	0.10	0.29	0.30	0.30	0.30	0.31	0.31	0.31	0.32	0.32	0.48	0.48	0.48	0.62	5.06
Operating Costs per Acre	6.10	2.46	2.48	4.45	31.77	0.87	0.87	0.88	0.88	0.88	0.89	0.89	0.32	26.25	0.48	0.48	23.82	104.76
Cash Ownership																		
General Overhead	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21						2.50
Land Rent													24.00					24.00
Management Fee	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50						6.00
Property Insurance	0.51																	0.51
Cash Ownership Costs	1.22	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	24.71						33.01
Total Cash Costs per Acre	7.32	3.17	3.18	5.16	32.48	1.58	1.58	1.58	1.59	1.59	1.59	25.60	0.32	26.25	0.48	0.48	23.82	137.77

Table 3. Machinery and Equipment Costs per Hour

Description	Purchase Price	Years to Trade	Salvage Value	Hours Used	<-Non-Cash->		<-----Cash----->		<-----Operating----->			Total Costs/Hr.
					Ownership Cap. Rec.	Insur.	Ownership Taxes	Repairs	Fuel & Lube	Total Oper.		
Chisel Plow - 27'	20300	15	1949	135	12.57	0.31	0.00	5.12	0.00	5.12	18.00	
Cr. Tractor-170hp	70000	15	13628	165	34.30	0.95	0.00	0.32	23.60	23.92	59.17	
Cultiweeder - 36'	31000	15	2976	125	20.80	0.51	0.00	8.13	0.00	8.13	29.44	
Grain Drill - 30'	38000	10	6720	185	20.82	0.45	0.00	15.61	0.00	15.61	36.89	
Pickup - used 3/4t	11000	8	2500	200	6.22	0.13	0.00	0.91	5.98	6.89	13.23	
Pickup 1 - 3/4 ton	37000	8	5000	300	14.76	0.26	0.00	3.59	9.57	13.16	28.18	
Rodweeder - 50'	22500	10	3979	110	20.67	0.45	0.00	4.94	0.00	4.94	26.06	
Sprayer - 60'	9000	15	864	75	10.03	0.25	0.00	2.66	0.00	2.66	12.93	
Tractor 2 - 250hp	134000	15	26087	480	22.56	0.63	0.00	1.78	34.71	36.49	59.67	
Truck 1 - 5 ton	55000	15	10708	400	11.11	0.31	0.00	7.35	1.59	8.94	20.35	

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

	26.60	30.40	34.20	38.00	41.80	45.60	49.40
2.13	-48	-40	-32	-24	-16	-8	0
2.44	-40	-31	-21	-12	-3	7	16
2.74	-32	-21	-11	-1	10	20	31
3.05	-24	-12	-0	11	23	34	46
3.35	-16	-3	10	23	35	48	61
3.66	-7	7	20	34	48	62	76
3.96	1	16	31	46	61	76	91

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

	26.60	30.40	34.20	38.00	41.80	45.60	49.40
2.13	-81	-73	-65	-57	-49	-41	-33
2.44	-73	-64	-54	-45	-36	-27	-17
2.74	-65	-54	-44	-34	-23	-13	-2
3.05	-57	-45	-33	-22	-10	1	13
3.35	-49	-36	-23	-10	2	15	28
3.66	-40	-27	-13	1	15	29	43
3.96	-32	-17	-2	13	28	43	58

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

	26.60	30.40	34.20	38.00	41.80	45.60	49.40
2.13	-102	-94	-85	-77	-69	-61	-53
2.44	-93	-84	-75	-66	-56	-47	-38
2.74	-85	-75	-65	-54	-44	-33	-23
3.05	-77	-66	-54	-42	-31	-19	-8
3.35	-69	-56	-44	-31	-18	-6	7
3.66	-61	-47	-33	-19	-5	9	22
3.96	-53	-38	-23	-8	7	22	37

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.

The Authors - Paul E. Patterson is an Extension agricultural economist in the University of Idaho District 4 Extension Office, Idaho Falls. Stanley R. Gortsema is an Extension agricultural agent in Power County at American Falls.



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