



96

Photo: Chuck Peterson

District 1 Cost & Returns Estimates

EBB1-SWW-09 Soft White Winter Wheat

UNIVERSITY OF IDAHO

2009

Authored by: Kate Painter

Department of Agricultural Economics & Rural Sociology

District 1 Cost & Returns Estimates

EBB1-SWW-09 Soft White Winter Wheat

Soft White Winter Wheat

The University of Idaho uses economic costs in this publication. All resources are valued based on market price or opportunity cost. The costs and returns estimate shown here is typical for growing winter wheat in northern Idaho. Production practices most closely represent those in Latah County. Input costs are based on the **Idaho Crop Input Price Summary for 2009**, available online at

<http://www.cals.uidaho.edu/aers/PDF/AEES/2009/AEES09-04.pdf>

Production practices may be similar among individual farms, but each has a unique set of resources with varying levels of productivity and production problems, and therefore, slightly different costs. Farm size, crop rotation, age and type of equipment, soils, and quality of management are crucial factors that influence production costs.

The Model Farm The model farm for this costs and returns estimate consists of 2,500 acres in a traditional winter wheat, spring grain, dry pea or lentil rotation. Rotations can vary by field and moisture availability. A typical year would have one-third of the farm planted to winter wheat, one-third planted in a spring grain, and one-third planted to a non-grain crop such as peas, lentils, garbanzos, or canola.

Table 1: Schedule of Operations Each operation is described by month, tooling, and materials or service items used for each crop. This table is basically a calendar of activities for the crop year.

Table 2: Production Costs & Breakeven Analyses The production cost tables present gross returns and itemized variable and ownership costs by category, i.e., fertilizer, pesticides, etc. Land costs are calculated based on a crop-share arrangement with owners receiving one-third of the revenue less one-third of the chemical costs (fertilizers and pesticides), one-third of the crop insurance, and the land tax for grain crops. For lentils, peas, and garbanzos, owners receive one-fourth of the revenue less one-fourth of the chemical costs (fertilizers and pesticides), one-fourth of the crop insurance, and the land tax. These formulae, as well as all of the crop and input prices, can be easily altered in the [spreadsheet version](#) of this document. Even if this crop-share arrangement is not used, it is instructive, as it accounts for revenue and costs in any particular year on any particular farm. A good cash rent arrangement should take into account crop and input price and yield risk inherent in agriculture.

The breakeven analyses reveal prices and yields needed to cover operating costs, ownership costs, and total costs given the base yield and price assumptions as well as a 10% increase or decrease in yields and prices. These percentages can be altered in the [spreadsheet version](#) of this document. Click on a year under the Costs & Returns Estimates heading and you will be directed to the page with the Excel Spreadsheets for that year.

Table 3: Machinery Complement This table lists the assumptions on machinery, tractors, and trucks used to generate machinery costs by activity and costs for general farm usage for the typical farm used in this analysis. These values are based on farmer interviews in this region. Machinery complements vary significantly by operation; often these differences are just personal preference on trade-offs between new equipment with less repair costs and older equipment with higher repair costs and possibly higher risk of down time.

Table 4: Machinery Costs for Producing Soft White Winter Wheat This table lists per acre ownership, operating, and total costs by farm operation, both specific and general, using the [University of Idaho Machinery Costs](#) program. For example, per acre costs of operating a combine are listed as well as per acre costs of a pickup. The latter is a general cost that is simply spread out over all acreage. Machinery costs will vary significantly across farms, due to choice of machinery complement.

Table 1: Schedule of Operations for Conventional Tillage Soft White Winter Wheat

Month	Operation	Tooling	Materials/Service
September	Ripper Shooter	350HP-WT, 36' Ripper Shooter	Rental Ripper Shooter, 90 lb N, 30 lb P, 10 lb S
September	Cultiweed	350HP-WT, 36' Cultiweeder	
September	Drill	350HP-WT, 36' JD-455 Drill	90 lb Seed
April	Crop Insurance		
April	Spray Weeds	350HP-WT, 90' Sprayer	Rental Sprayer, 4.75 oz Osprey, 22 oz Starane+Salvo, 3.2 oz Excel 90, 1.6 oz Brox M
August	Harvest	30' Combine	

ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI publication do not substitute for instructions on the label. Pesticide laws and labels change frequently and may have changed since this publication was written. Some pesticides may have been withdrawn or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless the specific plant, animal, or other application site is specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

Trade Names--To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

Groundwater--To protect groundwater, when there is a choice of pesticides, the applicator should use the product least likely to leach.

Table 2: Production Costs for Conventional Tillage Soft White Winter Wheat

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Gross Returns				
Wheat	80	bu	\$5.00	\$400.00
Variable Costs				
Seed:				\$18.00
Wheat Seed	90	lb	\$0.20	\$18.00
Fertilizer:				\$78.50
<i>Base your rate on your soil test results.</i>				
<i>A typical recommendation might include the following:</i>				
Nitrogen (dry)	90	lb	\$0.61	\$54.90
Phosphorous (dry)	30	lb	\$0.64	\$19.20
Sulfur (dry)	10	lb	\$0.44	\$4.40
Pesticides:				\$29.65
<i>Rates & chemicals will depend on the pests in your crop.</i>				
<i>Consult a certified pesticide applicator or the PNW Pest Control Management Guides.</i>				
<i>The following cost estimates are typical:</i>				
Osprey	4.75	oz	\$3.70	\$17.58
Starane+Salvo	22	oz	\$0.49	\$10.80
Excel 90	3.2	oz	\$0.20	\$0.64
Brox M	1.6	oz	\$0.39	\$0.63
Machinery:				\$49.82
Fuel	8.08	gal	\$2.05	\$16.57
Lubricants	1	acre	\$2.36	\$2.36
Machinery Repairs	1	acre	\$10.63	\$10.63
Machinery Labor	1.30	acre	\$15.60	\$20.27
Custom & Consultants:				\$4.25
Rental Sprayer	1	acre	\$1.75	\$1.75
Rental Ripper Shooter	1	acre	\$2.50	\$2.50
Other:				\$15.00
Crop insurance	1	acre	\$15.00	\$15.00
Storage Facility & Equip. Repairs				\$0.00
Other Labor				
Operating Interest ¹				\$9.88
Total Variable Costs				\$205.11
Variable Costs per Unit				\$2.56
Net Returns Above Variable Costs				\$194.89

Table 2: Production Costs for Conventional Tillage Soft White Winter Wheat, cont.

Ownership Costs:				
Machinery depreciation				\$21.21
Machinery interest				\$12.55
Machinery insurance, taxes, housing, licenses				\$4.46
Land Cost*	1	acre	\$85.86	\$85.86
*Based on Share Rent Percentage:				
Landlord	33.00%			
Tenant	67.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Overhead ²				\$4.88
Management fee ³				\$20.00
Total Fixed Costs				\$154.46
Fixed Costs per Unit				\$1.93
Total Costs per Acre				\$359.56
Total Cost per Unit				\$4.49
Net Returns over Total Costs, or Returns to Risk				\$40.44

Notes:

¹Calculated as 6.75% interest on operating capital for 9 months.

²Covers legal, accounting, and utility fees. Calculated as 2.5% of operating expenses.

³The management fee is calculated as a 5% of gross revenue.

<u>Breakeven Analysis:</u>	-		+
	10%	Base Yield	10%
<u>Price</u>	72.00	80	88.00
Operating Cost Breakeven	\$2.85	\$2.56	\$2.33
Ownership Cost Breakeven	\$2.15	\$1.93	\$1.76
Total Cost Breakeven	\$4.99	\$4.49	\$4.09
	10%	Base Price	10%
<u>Yield</u>	\$4.50	\$5.00	\$5.50
Operating Cost Breakeven	45.6	41.0	37.3
Ownership Cost Breakeven	34.3	30.9	28.1
Total Cost Breakeven	79.9	71.9	65.4

Table 3: Machinery Complement for Conventional Tillage Dryland Grain Production, District I, North Idaho Counties

Type of Machine	Replacement Value \$	Age When Purchased	Years of Life	Annual Hours of Use	Salvage Value \$	Annual Repairs (Materials & Labor) \$	Gallons of Fuel/Hr.	Taxes, Housing, Insur., Licenses %	Labor Multiplier	Acres per Hour
<i>Tractors, ATVs:</i>										
4WD-ATV	6,500	0	10	150	1,000	100	1.2	1.2	1.1	
50HP-WT w/Bucket	15,000	15	20	100	3,500	200	3	1.2	1.1	
350HP-WT	95,000	5	15	600	20,000	3,000	15	1.2	1.1	
<i>Equipment:</i>										
10-Bottom Plow	22,000	0	15	80	2,500	600	15	0.6	1.1	6
23' Chisel Plow	17,500	0	15	40	2,000	700	15	0.6	1.1	12
36' Cultivator w/Harrow	18,000	5	15	150	3,500	750	14	0.6	1.1	17
36' Cultiweeder	22,000	5	15	32	4,000	750	15	0.6	1.1	26
40' Heavy Harrow	20,000	0	15	40	2000	750	15	0.6	1.1	23
60' Flex Harrow	15,500	0	15	25	2500	550	10	0.6	1.1	33
36' JD 455 Drill	35,000	0	12	180	5,000	2,800	15	3.0	1.2	15
30' Combine	225,000	5	15	240	30,000	4,000	7	2.6	1.2	11
<i>Trucks:</i>										
				Miles/year:			MPG:			
2-Ton Truck	20,000	15	15	1,000	2,000	1,000	6		1.2	
Tandem Axle Truck	35,000	15	15	2,000	4,500	2,000	6	10.1	1.2	
Trap Wagon	15,000	10	10	500	3,000	400	12	3.8	1.2	
3/4-Ton Pickup	22,000	5	7	12,000	7,500	1,500	12	6.8	1.2	

Note: Farm size is assumed to be 2500 acres for the purposes of machinery cost calculations.

Table 4: Machinery Costs for Conventional Tillage Soft White Winter Wheat (\$/acre) from the University of Idaho Machinery Cost Calculator

	Ownership Costs (\$/acre):				Operating Costs (\$/acre):				Labor		Fuel Use	Total Cost (\$/acre)
	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Total Ownership Costs	Repairs	Fuel	Lubricants	Total	(\$/acre)	(hr/acre)	(gal/acre)	
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.05	\$0.75	\$1.50	\$0.23	\$2.48	\$4.80	0.31	0.59	\$9.33
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.08	0.16	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.08	0.16	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.05	0.08	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.06	0.05	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.06	0.12	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.12	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.26	0.98	\$20.51
<i>350HP Wheel Tractor with:</i>												
36' Cultivweeder	\$1.76	\$1.36	\$0.13	\$3.25	\$1.09	\$1.48	\$0.22	\$2.79	\$0.85	0.05	0.58	\$6.89
36' Ripper Shooter	\$0.94	\$0.75	\$0.13	\$1.82	\$0.56	\$1.79	\$0.27	\$2.62	\$1.03	0.07	0.70	\$5.47
36' JD455 Drill	\$1.46	\$0.95	\$0.30	\$2.71	\$1.35	\$2.51	\$0.38	\$4.24	\$1.44	0.09	0.98	\$8.39
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.23	\$1.38
23' Chisel Plow	\$1.44	\$1.01	\$0.11	\$2.56	\$0.95	\$1.62	\$0.25	\$2.82	\$0.93	0.06	0.64	\$6.30
10 Bottom Plow	\$1.99	\$1.41	\$0.17	\$3.57	\$1.01	\$3.10	\$0.47	\$4.58	\$1.78	0.11	1.22	\$9.93
Total:	\$21.21	\$12.55	\$4.46	\$38.20	\$10.63	\$16.57	\$2.36	\$29.55	\$20.27	\$1.30	\$6.50	\$88.02

Issued in furtherance of cooperative extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Charlotte V. Eberlein, Director University of Idaho Extension, University of Idaho, Moscow, Idaho 83843.

The University of Idaho provides equal opportunity in education and employment on the basis of race, color, national origin, religion, sex, sexual orientation, age, disability, or status as a disabled veteran, Vietnam-era veteran, as required by state and federal laws.