



District I

Winter Rapeseed After Summer Fallow

Robert L. Smathers



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 winter rapeseed in northern Idaho. Production practices most closely represent those in Latah County.

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

This costs and returns estimate models a 1,500-acre dryland farm following a traditional winter wheat-spring barley-dry pea or lentil rotation, but with some of the acreage in rapeseed and fallow. The rotation includes 500 acres in winter wheat, 500 acres in spring barley, 250 acres in peas or lentils, and 250 acres split between winter rapeseed and fallow.

Tillage, Fertilization, and Pest Control

Rapeseed is a two-year crop with fallow one year and production the next. After the previous year's crop is harvested, the ground is fall plowed. During the spring and summer of the fallow year, the ground is rodweeded four times, then cultivated and planted to rapeseed in August. The crop is harvested the next August by the farm operator and hauled to on-farm storage. Fertilizer is applied before tillage and after planting in the fall. Pesticide is applied by a custom applicator in June for insect control. No cost for weed control is included.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used for rapeseed, along with their operating and ownership costs. All machinery except the 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.

The land charge is based on a crop share arrangement. The landowner pays one-third of the fertilizer, seed, and chemical costs in exchange for one-third of the crop. 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 and non-machine labor is valued at \$7.70 per hour. The non-machine rate accounts for extra harvest 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, 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 Rapeseed
NI Winter**

EBB1-WR-05

	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
Gross Returns					
Rapeseed	20.00	cwt	9.50	190.00	_____
Total Gross Returns For Rapeseed				190.00	_____
Operating Costs					
Custom:					
Fertilizer Spreader	1.00	acre	2.00	2.00	_____
Air Apply - dry	1.00	acre	6.50	6.50	_____
Custom Air Spray 5g	1.00	acre	6.50	6.50	_____
Fertilizer:					
Nitrogen	100.00	lb	0.40	40.00	_____
P2O5	90.00	lb	0.25	22.50	_____
Sulfur	20.00	lb	0.17	3.40	_____
Seed:					
Rape Seed	12.00	lb	0.20	2.40	_____
Pesticide:					
Pesticide	0.25	qt	10.95	2.74	_____
Labor (machine)	1.04	hrs	13.15	13.67	_____
Labor (non-machine)	0.25	hrs	7.70	1.92	_____
Fuel - Gas	1.69	gal	2.66	4.49	_____
Fuel - Diesel	4.81	gal	2.45	11.77	_____
Lube				2.44	_____
Machinery Repair				6.32	_____
Interest on Operating Capital @ 7.50%				6.10	_____
Total Operating Costs per Acre				132.76	_____
Net Returns Above Operating Costs				57.24	_____
Cash Ownership Costs					
General Overhead				3.50	_____
Land Rent				39.00	_____
Management Fee				9.50	_____
Fallow Cost				61.00	_____
Property Taxes (machinery)				0.00	_____
Property Insurance				1.04	_____
Total Cash Ownership Costs per Acre				114.04	_____
Non-Cash Ownership Costs (depreciation and interest)					
Equipment				43.60	_____
Total Non-Cash Ownership Costs per Acre				43.60	_____
Total Costs per Acre				290.40	_____
Returns to Risk				-100.40	_____

Table 2. Monthly Summary of Cash Expenses per Acre

EBB1-WR-05

	Aug 04	Sep 04	Oct 04	Nov 04	Dec 04	Jan 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Total
Preharvest:													
Fertilize	50.89								26.50				77.39
Cultivate	3.67												3.67
Seed Hauling	2.45												2.45
Plant	7.30												7.30
Aerial Application											9.24		9.24
General Pickup Use	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	9.56
Total Preharvest Costs	65.10	0.80	0.80	0.80	0.80	0.80	0.80	0.80	27.30	0.80	10.03	0.80	109.60
Harvest:													
Combine												14.61	14.61
Crop Hauling												2.45	2.45
Total Harvest Costs												17.06	17.06
Interest on Operating Capital	0.41	0.41	0.42	0.42	0.43	0.43	0.44	0.44	0.61	0.62	0.68	0.79	6.10
Operating Costs per Acre	65.51	1.21	1.21	1.22	1.22	1.23	1.23	1.24	27.91	1.41	10.71	18.65	132.76
Cash Ownership													
General Overhead	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	3.50
Land Rent								39.00					39.00
Management Fee	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	9.50
Fallow Cost	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	5.08	61.00
Property Insurance								1.04					1.04
Cash Ownership Costs	6.17	6.17	6.17	6.17	6.17	6.17	6.17	45.17	7.20	6.17	6.17	6.17	114.04
Total Cash Costs per Acre	71.68	7.38	7.38	7.39	7.39	7.40	7.40	46.41	35.11	7.58	16.88	24.81	246.79

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.	
Cr. Tractor-255hp	175000	15	34069	350	40.43	1.12	0.00	1.69	27.80	29.49	71.03
Cultivator - 40'	32000	15	3072	150	17.89	0.44	0.00	11.22	0.00	11.22	29.55
Grain Drill - 36'	46500	12	6441	100	42.99	0.99	0.00	11.52	0.00	11.52	55.50
Hill Combine - 22'	281000	10	53005	200	141.67	3.14	0.00	15.73	34.34	50.07	194.87
Pickup 1 - 3/4 ton	37000	8	12913	300	12.88	0.31	0.00	3.59	12.24	15.83	29.03
Pickup 2 - 3/4 ton	11000	8	3839	200	5.76	0.14	0.00	0.91	7.65	8.56	14.45
Tractor 2 - 300hp	158000	15	30760	500	25.53	0.71	0.00	2.18	49.05	51.23	77.47
Truck 1 - 2 ton	31000	15	6035	125	19.97	0.55	0.00	3.44	10.20	13.64	34.17
Truck 2 - 2 ton	31000	15	6035	125	19.97	0.55	0.00	3.44	10.20	13.64	34.17

Net Returns Per Acre Above Operating Costs For Rapeseed
Yield (cwt/acre)

	14.00	16.00	18.00	20.00	22.00	24.00	26.00
6.65	-35	-23	-12	0	12	24	36
7.60	-22	-8	6	19	33	47	60
8.55	-8	7	23	38	54	69	85
9.50	5	22	40	57	75	92	110
10.45	18	37	57	76	96	115	134
11.40	31	53	74	95	117	138	159
12.35	45	68	91	114	137	161	184

Net Returns Per Acre Above Cash Costs For Rapeseed
Yield (cwt/acre)

	14.00	16.00	18.00	20.00	22.00	24.00	26.00
6.65	-149	-137	-126	-114	-102	-90	-79
7.60	-136	-122	-108	-95	-81	-68	-54
8.55	-122	-107	-91	-76	-60	-45	-29
9.50	-109	-92	-74	-57	-39	-22	-5
10.45	-96	-76	-57	-38	-18	1	20
11.40	-82	-61	-40	-19	2	24	45
12.35	-69	-46	-23	0	23	46	70

Net Returns Per Acre Above Total Costs For Rapeseed
Yield (cwt/acre)

	14.00	16.00	18.00	20.00	22.00	24.00	26.00
6.65	-185	-176	-167	-157	-148	-139	-129
7.60	-172	-161	-150	-138	-127	-116	-105
8.55	-158	-145	-132	-119	-106	-93	-80
9.50	-145	-130	-115	-100	-85	-70	-55
10.45	-132	-115	-98	-81	-64	-47	-30
11.40	-119	-100	-81	-62	-44	-25	-6
12.35	-105	-85	-64	-43	-23	-2	19

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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