

## Spring Canola: Low Rainfall Dryland

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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 dryland spring canola grown in the lower rainfall counties of southeastern Idaho. Production practices most closely represent those in Bannock, Bonneville, 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. Crop 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 250 acres planted to a spring crop, such as barley or canola, and 1,400 acres planted to winter wheat.

#### Tillage, Fertilization, and Pest Control

In September after the previous crop of winter wheat is harvested, the ground is sprayed with glyphosate. Two tillage operations are done in April, one using a chisel plow and one using a cultiweeder and harrow. The second tillage operation incorporates an herbicide applied along with the fertilizer between the tillage operations. Occasionally, a second herbicide may be needed to control grass and volunteer grain. This is more likely with no-till. All fertilizer is custom applied preplant in April. Canola is planted

in April using a grain drill. A filler material is commonly mixed with the seed to get the proper seeding rate since a grain drill is not designed to handle extremely small seed. Generally, there is no cost for the filler material. An insecticide is applied by air in August. Canola is swathed before harvest because it tends to mature irregularly. In September canola is harvested using a combine that picks up two windrows at a time. Canola is hauled to on-farm storage by the custom harvester.

#### Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and equipment used for canola, 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 Canola  
SEI Low Rainfall Dryland Spring Canola**

**EBB4-SCD-05**

	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>Gross Returns</b>					
Canola	14.00	cwt	10.30	144.20	_____
<b>Total Gross Returns For Canola</b>				144.20	_____
<b>Operating Costs</b>					
<b>Pesticide:</b>					
Roundup	10.00	oz	0.32	3.20	_____
Treflan HFP	0.75	qt	4.90	3.68	_____
Methyl Parathion	0.50	qt	8.40	4.20	_____
<b>Other:</b>					
Crop Insurance	1.00	acre	3.75	3.75	_____
<b>Custom:</b>					
Custom Fertilize	1.00	acre	4.95	4.95	_____
Custom Air Spray-5g	1.00	acre	6.20	6.20	_____
Custom Swath-Canola	1.00	acre	15.00	15.00	_____
Custom Combine	1.00	acre	28.00	28.00	_____
Custom Haul	14.00	cwt	0.25	3.50	_____
<b>Fertilizer:</b>					
Dry Nitrogen	40.00	lb	0.39	15.60	_____
Dry P2O5	30.00	lb	0.24	7.20	_____
Sulfur	25.00	lb	0.12	3.00	_____
<b>Seed:</b>					
Canola Seed	5.00	lb	3.50	17.50	_____
Labor (machine)	0.77	hrs	13.15	10.15	_____
Labor (non-machine)	0.07	hrs	7.70	0.54	_____
Fuel - Diesel	5.74	gal	2.08	11.94	_____
Lube				1.79	_____
Machinery Repair				4.89	_____
Interest on Operating Capital @ 7.50%				3.99	_____
<b>Total Operating Costs per Acre</b>				149.08	_____
<b>Net Returns Above Operating Costs</b>				-4.88	_____
<b>Cash Ownership Costs</b>					
General Overhead				3.50	_____
Land Rent				21.00	_____
Management Fee				7.00	_____
Property Taxes (machinery)				0.00	_____
Property Insurance				0.40	_____
<b>Total Cash Ownership Costs per Acre</b>				31.90	_____
<b>Non-Cash Ownership Costs (depreciation and interest)</b>					
Equipment				16.41	_____
<b>Total Non-Cash Ownership Costs per Acre</b>				16.41	_____
<b>Total Costs per Acre</b>				197.40	_____
<b>Returns to Risk</b>				-53.20	_____

**Table 2. Monthly Summary of Cash Expenses per Acre**

**EBB4-SCD-05**

	Sep 04	Oct 04	Nov 04	Dec 04	Jan 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Total
<b>Preharvest:</b>														
Ground Spray	4.58													4.58
Crop Insurance								3.75						3.75
Plow								5.49						5.49
Fertilize								34.42						34.42
Cultivate								4.95						4.95
Seed Hauling								2.06						2.06
Plant								26.05						26.05
Aerial Application												10.40		10.40
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
<b>Total Preharvest Costs</b>	<b>5.16</b>	<b>0.57</b>	<b>0.57</b>	<b>0.57</b>	<b>0.57</b>	<b>0.57</b>	<b>0.57</b>	<b>77.30</b>	<b>0.57</b>	<b>0.57</b>	<b>0.57</b>	<b>10.97</b>		<b>98.59</b>
<b>Harvest:</b>														
Swath													15.00	15.00
Combine													28.00	28.00
Crop Hauling													3.50	3.50
<b>Total Harvest Costs</b>													<b>46.50</b>	<b>46.50</b>
Interest on Operating Capital	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.54	0.54	0.54	0.55	0.62	0.91	3.99
<b>Operating Costs per Acre</b>	<b>5.19</b>	<b>0.61</b>	<b>0.61</b>	<b>0.62</b>	<b>0.62</b>	<b>0.62</b>	<b>0.63</b>	<b>77.84</b>	<b>1.11</b>	<b>1.12</b>	<b>1.12</b>	<b>11.59</b>	<b>47.41</b>	<b>149.08</b>
<b>Cash Ownership</b>														
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							21.00							21.00
Management Fee	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58		7.00
Property Insurance								0.40						0.40
<b>Cash Ownership Costs</b>	<b>0.88</b>	<b>0.88</b>	<b>0.88</b>	<b>0.88</b>	<b>0.88</b>	<b>0.88</b>	<b>21.88</b>	<b>1.28</b>	<b>0.88</b>	<b>0.88</b>	<b>0.88</b>	<b>0.88</b>		<b>31.90</b>
<b>Total Cash Costs per Acre</b>	<b>6.06</b>	<b>1.48</b>	<b>1.49</b>	<b>1.49</b>	<b>1.49</b>	<b>1.50</b>	<b>22.50</b>	<b>79.12</b>	<b>1.99</b>	<b>1.99</b>	<b>2.00</b>	<b>12.46</b>	<b>47.41</b>	<b>180.99</b>

**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.		
Chisel Plow - 27'	20300	15	1949	135	12.57	0.31	0.00	5.12	0.00	5.12	18.00	
Cultiweeder - 36'	31000	15	2976	125	20.78	0.51	0.00	8.13	0.00	8.13	29.42	
Grain Drill - 30'	38000	10	6720	185	20.77	0.45	0.00	15.61	0.00	15.61	36.84	
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	14.78	0.26	0.00	3.59	9.57	13.16	28.21	
Spike Harrow - 36'	1900	15	182	100	1.59	0.04	0.00	0.24	0.00	0.24	1.87	
Sprayer - 60'	9000	15	864	75	10.08	0.25	0.00	2.66	0.00	2.66	12.99	
Tractor 2 - 200hp	134000	15	26087	450	24.07	0.67	0.00	3.89	27.76	31.65	56.38	
Tractor 2 - 250hp	134000	15	26087	480	22.57	0.63	0.00	1.78	34.71	36.49	59.69	
Truck 1 - 5 ton	55000	15	10708	400	11.10	0.31	0.00	7.35	1.59	8.94	20.35	

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

	9.80	11.20	12.60	14.00	15.40	16.80	18.20
7.21	-77	-68	-58	-48	-38	-29	-19
8.24	-67	-56	-45	-34	-23	-11	-0
9.27	-57	-45	-32	-19	-7	6	19
10.30	-47	-33	-19	-5	9	23	37
11.33	-37	-21	-6	10	25	41	56
12.36	-27	-10	7	24	41	58	75
13.39	-17	2	20	38	57	75	94

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

	9.80	11.20	12.60	14.00	15.40	16.80	18.20
7.21	-109	-100	-90	-80	-70	-61	-51
8.24	-99	-88	-77	-66	-54	-43	-32
9.27	-89	-76	-64	-51	-39	-26	-13
10.30	-79	-65	-51	-37	-23	-9	5
11.33	-69	-53	-38	-22	-7	9	24
12.36	-59	-42	-25	-8	9	26	43
13.39	-49	-30	-12	6	25	43	62

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

	9.80	11.20	12.60	14.00	15.40	16.80	18.20
7.21	-126	-116	-106	-96	-87	-77	-67
8.24	-116	-104	-93	-82	-71	-60	-48
9.27	-105	-93	-80	-68	-55	-42	-30
10.30	-95	-81	-67	-53	-39	-25	-11
11.33	-85	-70	-54	-39	-23	-8	8
12.36	-75	-58	-41	-24	-7	10	26
13.39	-65	-47	-28	-10	8	27	45

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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