



Photo: Dennis Pittmann

2009 Crop Rotation Budgets, Over 18" Precipitation Zone Under Direct Seeding (No-Till), Eastern Washington

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INSTRUCTIONS AND ASSUMPTIONS

Since farming is inherently variable and constantly changing, we hope that this spreadsheet format will be helpful in adjusting these budgets to reflect your particular operation. Enterprise costs and returns vary from one location to the next and over time for any particular farming operation. Variability stems from differences in the following:

- Capital, labor, and natural resources
- Type and size of machinery complement
- Cultural practices
- Size of farm enterprise
- Crop yields
- Input prices
- Commodity prices
- Management skill

particular operation. Adjustments in the variable costs can easily be made without affecting the overall accuracy of the budget information. Fixed costs in these budgets are based on a budget generator program that incorporates detailed information on the machinery complement and performs complex calculations based on machinery width, tractor horsepower, type of operation, etc. In the variable costs section, fuel and machinery repair costs will be affected by changes in machinery usage. The fixed costs section of the budget presents costs that are incurred regardless of crop production practices. These costs will change if your machinery complement differs from those in the worksheet.

Machinery Costs:

The machinery complement and associated hourly machinery costs used in these calculations are presented in the last two tabs of this worksheet. Machinery fixed costs include depreciation, interest on the investment, property taxes, insurance, and housing. For the overall farm operation, these costs do not vary by crop, given the ownership of a specific machinery complement, and are incurred whether or not crops are grown. Machinery fixed costs for a specific field operation are determined by multiplying the machine hours per acre times per hour fixed cost. Per hour fixed costs are determined by dividing the total fixed cost by the annual hours of machinery use.

Machinery interest costs are calculated on the average annual investment in the machine. The formula used to calculate the average machine investment is:

(Purchase Cost + Salvage Value)/2

The machinery interest charge represents an opportunity cost (returns forgone by investing in a given machine implement rather than in an alternative investment) or interest paid on money borrowed to finance machine purchases, or both. Machinery interest cost for one acre of the crop enterprise being analyzed is determined by multiplying the respective machine hours per acre times the per hour interest costs shown in the machinery complement worksheet.

Land Costs:

system, regardless of production level, when land costs are not taken into consideration. Since the net land rental value is based on production level, land cost varies directly with production level, which in turn directly affects total cost. Land costs, included either as real or as opportunity costs, are based on the share rental arrangement typical in the area. In our study, net land rental cost was calculated as:

1/3 Crop Value – (1/3 Fertilizer Cost + 1/3 Chemical Cost + 1/3 Crop Insurance + Land Taxes)

Land fixed costs include taxes and net rent, which are based on rental agreements typical for the area minus expenditures typically covered by the landlord. The typical lease agreement in the areas surveyed is a one-third land owner and two-third tenant crop share, with the land owner paying land taxes, one-third of the fertilizer cost, one-third of the chemical cost, and one-third of the crop insurance. The tenant covers all other production expenses. **This crop-share percentage can be adjusted in the crop worksheets**, thanks to Herb Hinman's contribution. This valuable tool reveals how factors such as crop and input price increases as well as cropping choices affect revenue for landlords and operators differently.

While the owner-operator will not actually experience a land rental cost, this cost represents the minimum return owner-operators must realize to justify growing the crop themselves. This net rent return represents the income the owner-operator forgoes by producing the crop rather than renting to a tenant who produces the crop. As a result of owning land, the farmer receives both current returns from the farming operation and any long-term appreciation in land value. However, the farmer would continue to realize land value appreciation even if the land is rented out. Consequently, the appropriate land charge for growing the crop is only the forgone net rent. As used in this publication, for land that is owned and not rented, land cost is termed an opportunity cost to indicate that it is not an out-of-pocket expense, but rather a return that is forgone as a result of choosing to use the land to grow this crop. To determine the profitability of crop production relative to other activities, the owner-operator may want to consider these forgone returns, or opportunity costs, along with the usual production expenses.

Input Prices:

Fertilizer prices are based on current (Feb 09) quotes, but they are subject to uncertainty. Chemical input prices are based on February, 2008, quotes from chemical and seed dealers. These prices are subject to change, however, and will affect profitability of different crops. Input price changes can be made on the Input Costs tab (located after the crop budgets). If changes are made on this tab, all of the cost calculations will be automatically updated. If input cost changes are made on individual crop price sheets, the input cost formulas will be over-ridden and this function will no longer work.

Crop Prices:

Grain prices are based on futures prices for July and August 2009, as of Feb. 2009, FOB Lind, Washington. (Source: Union Elevator, http://www.unionelevator.com). Garbanzos, peas, and lentils prices are from USDA ag market news for Nov. 08. Canola cash prices are from northerncanola.com for Nov 2008.

Acknowledgments:

First and foremost, I thank the farmers who were willing to take the time to share their enterprise information in order to create this worksheet. Without their assistance we would not be able to provide this critical information to others. Several colleagues at Washington State University helped as well, including Herbert Hinman (collaborator, reviewer), Doug Young (reviewer), Richard Koenig, Dennis Roe, and Steve Van Vleet. Sherri Van Vleet and Ellen Miller also provided vital assistance in creating these budgets. In addition, I wish to acknowledge the generous assistance of Robert Smathers, formerly at the University of Idaho. With his permission, we have used the UI spreadsheet format to present our budget information. However, I take responsibility for any errors in these budgets.

Budget spreadsheets are available at the following links:

http://www.farm-mgmt.wsu.edu/WhatsNew.htm http://csanr.wsu.edu/Publications/FarmMgmtEconomics.htm

Summary of Returns by Crop and Rotation (\$/acre/yr)

									Crop & Cos	st	
					Total	Returns	Total	Returns	Share**		
		Yield	Price*	Revenue	Cost of	over TC	Variable	over VC	Operator:	67%	Share to operator
By Crop:	<u>Unit</u>	per acre	per unit	per acre	Operation	(\$/acre)	Costs	(\$/acre)	Owner:	33%	Share to owner
Winter Wheat (WW)	bu	90	\$5.28	\$475	\$358	\$117	\$220	\$255	\$104		
Spring Barley (SB)	ton	2	\$107.00	\$214	\$239	-\$25	\$176	\$38	\$28		
Soft White Spring Wheat (SWSW)	bu	50	\$5.28	\$264	\$293	-\$29	\$226	\$38	\$32		
Hard Red Spring Wheat (HRSW)	bu	50	\$7.87	\$394	\$356	\$38	\$252	\$142	\$70		
Peas (P)	lb	2000	\$0.14	\$280	\$235	\$45	\$149	\$131	\$52	75/25	
Lentils (L)	lb	1200	\$0.34	\$408	\$233	\$175	\$114	\$294	\$85	75/25	
Garbanzos (G)	lb	1200	\$0.38	\$456	\$302	\$154	\$173	\$283	\$94	75/25	
Spring Canola (SC)	lb	1500	\$0.16	\$240	\$273	-\$33	\$204	\$36	\$35		
Camelina (CML)	lb	1800	\$0.18	\$324	\$239	\$85	\$128	\$196	\$80		

^{*}August 2009 farmgate prices for grains, posted by the Union Elevator, Lind, WA, www.unionelevator.com, accessed Dec 2008. USDA ag market news prices for garbanzos, peas, and lentils for Nov 08. Canola cash prices from northerncanola.com for Nov 2008.

^{**}In a crop- and cost-share arrangement, the landowner and the farm manager split the crop and the specified costs, typically fertilizer, chemicals and crop insurance. Shares are 67% to the operator and 33% to the owner except as noted for peas, lentils, and garbanzos.

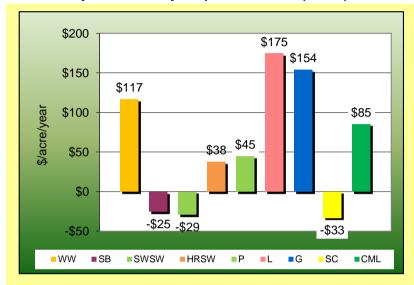
	Revenue per acre	Total Cost (TC)	Returns over TC	Variable Costs (VC	Returns over VC	Land Cost
By Rotation:	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)
WW, SWSW, P	\$340	\$296	\$44	\$198	\$141	\$63
WW, HRSW, P	\$383	\$317	\$66	\$207	\$176	\$75
WW, SB, P	\$323	\$278	\$45	\$182	\$141	\$61
WW, SWSW, L	\$382	\$295	\$87	\$187	\$196	\$74
WW, HRSW, L	\$426	\$316	\$110	\$195	\$230	\$86
WW, SB, L	\$366	\$277	\$89	\$170	\$196	\$72
WW, SWSW, G	\$398	\$318	\$81	\$206	\$192	\$77
WW, HRSW, G	\$442	\$339	\$103	\$215	\$227	\$89
WW, SB, G	\$382	\$300	\$82	\$190	\$192	\$75
WW, SWSW, SC	\$326	\$308	\$18	\$217	\$110	\$57
WW, HRSW, SC	\$370	\$329	\$40	\$225	\$145	\$69
WW, SB, SC	\$310	\$290	\$20	\$200	\$110	\$55
WW, SWSW, CML	\$354	\$297	\$58	\$191	\$163	\$72
WW, HRSW, CML	\$398	\$318	\$80	\$200	\$198	\$84
WW, SB, CML	\$338	\$279	\$59	\$175	\$163	\$70

Budget spreadsheets are available at the following link:

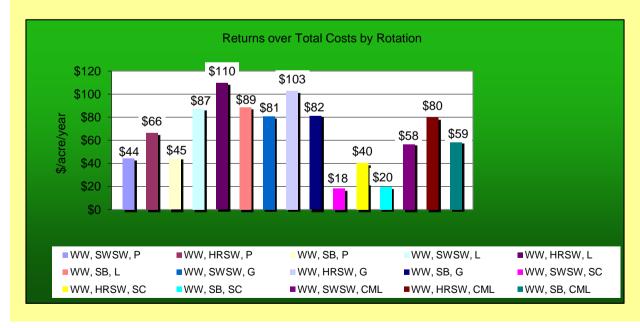
Crop-Share

Total

Summary of Returns by Crop and Rotation (\$/acre)



LEGEND:	Crop Prices:
Winter Wheat (WW)	\$5.28
Soft White Spring Wheat (SWSW)	\$5.28
Hard Red Spring Wheat (HRSW)	\$7.87
Spring Barley (SB)	\$107.00
Peas (P)	\$0.14
Lentils (L)	\$0.34
Garbanzos (G)	\$0.38
Spring Canola (SC)	\$0.16
Camelina (CML)	\$0.18
Jamionna (Jime)	Ψ0.10



Input Prices

		2009	
	Unit	Price/unit	
Fuel:			
Diesel (gal)	gal	\$1.75	
Gas (gal)	gal	\$2.25	
Seed:			
Wheat Seed (lb)	lb	\$0.15	
Barley Seed (lb)	lb	\$0.12	
Hard Red Spring Wheat	lb	\$0.22	
Spring Pea Seed	lb	\$0.21	
Lentil Seed	lb	\$0.33	
Garbanzo Seed	lb	\$0.45	
Canola Seed	lb	\$6.00	
Camelina Seed	lb	\$2.99	
Fertilizer:			
Nitrogen	lb	\$0.55	
Phosphorous	lb	\$1.17	
Sulfur	lb	\$0.23	
Potassium	lb	\$0.46	
Adjuvants:			
Ammonium Sulfate (liquid)	oz	\$0.02	
Ammonium Sulfate (20-0-0-24)	lb	\$0.12	
Crop Oil Concentrate	pt	\$1.00	
In-Place	OZ	\$0.24	
M90	OZ	\$0.01	
Surfactant	OZ	\$0.08	
Syltac Sticker	pt	\$6.25	
Custom Rental:			
26' Rental Shredder	acre	\$10.00	
36' Ripper Shooter	acre	\$2.50	
90' Rental Sprayer	acre	\$1.75	
Custom Aerial	acre	\$6.50	
Fertilizer Applicator	acre	\$1.00	

Input Prices

input Prices			
Pesticides:			
Achieve SC	oz	\$2.00	
Ally	oz	\$24.81	
Assure II	oz	\$1.20	
Axial	oz	\$1.81	
Bronate	pt	\$5.68	
Brox M	oz	\$0.30	
Capture	acre	\$10.17	
Dimethoate	pt	\$7.00	
Discover	oz	\$4.41	
FarGO	qt	\$12.52	
Finesse	oz	\$17.40	
Glyphosphate	oz	\$0.39	
lmidan 70	lb	\$9.85	
Maverick	oz	\$17.45	
Poast	pt	\$9.38	
Osprey	oz	\$3.55	
Prowl	oz	\$0.25	
Pursuit	oz	\$4.15	
Quadris	oz	\$2.23	
Quilt	oz	\$1.22	
R-11	oz	\$0.94	
Starane	oz	\$0.93	
Starane + Salvo	oz	\$0.43	
Starane + Sword	oz	\$0.43	
Labor:			
Hourly machine labor*	acre	\$20.00	
Cook Bonts			
Cash Rent	2222	\$0.00	
Cash Rent	acre	\$0.00	
Land Tax:			
Land Tax	acre	\$5.50	
	5.5.5	, 5.55	
Interest:			
Operating Loan	percent	7.50%	
Machinery Loan/investment	percent	7.50%	

^{*}Includes all applicable state and federal taxes.

Production Costs for No Tillage Soft White Winter Wheat, More Than 18" Precipitation

	Quantity		Price or	Value or
Item	Per Acre	Unit	Cost/Unit	Cost/Acre
Gross Returns	20		ΦΕ 00	# 475 00
Wheat	90	bu	\$5.28	\$475.20
Variable Costs				
Seed:				\$13.50
Wheat Seed	90	lb	\$0.15	\$13.50
Fertilizer:				\$88.05
Nitrogen (dry)	90	lb	\$0.55	\$49.50
Phosphorous (dry)	30	lb	\$1.17	\$35.10
Sulfur (dry)	15	lb	\$0.23	\$3.45
				\$0.00
Pesticides: Roundup	36	07	\$0.39	\$45.87 \$14.04
Ammonium Sulfate	100	OZ OZ	\$0.02	\$2.00
M90	3	OZ	\$0.01	\$0.03
Osprey	4.75	oz	\$3.55	\$16.86
Starane+Salvo	22	oz	\$0.43	\$9.46
R-11	3.2	oz	\$0.94	\$3.00
Brox M	1.6	OZ	\$0.30	\$0.48 \$0.00
Machinery: Fuel	5.74	gal	\$1.75	\$35.09 \$10.04
Lubricants	1	acre	\$1.38	\$1.38
Machinery Repairs	1	acre	\$6.80	\$6.80
Machinery Labor	0.84	acre	\$20.00	\$16.88
				\$0.00
Custom & Consultants:				\$5.25
Rental Sprayer	3	acre	\$1.75	\$5.25
				\$0.00
Other:			# 40.04	\$10.34
Crop insurance Storage Facility & Equip. Repairs.	1	acre	\$10.34	\$10.34 \$0.00
Storage Facility & Equip. Repairs.				\$0.00
Overhead ¹				\$9.91
Operating Interest ²				\$9.91 \$11.89
Total Variable Costs Variable Costs per Unit				\$219.90 \$2.44
Net Returns Above Variable Cost	S			\$255.30

Production Costs for No Tillage Soft White Winter Wheat, More Than 18" Precipitation

Fixed Costs:				
Machinery depreciation				\$16.24
Machinery interest				\$8.80
Machinery insurance, taxes, housir	ng, licenses			\$4.17
Land Cost*	1	acre	\$103.71	\$103.71
*Based on Share Rent Percentage	:			
Landlord	33.00%			
Tenant	67.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Total Fixed Costs				\$138.41
Fixed Costs per Unit				\$1.54
·				
Total Costs per Acre				\$358.31
Total Cost per Unit				\$3.98
Returns to Risk				\$116.89

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the Winter Wheat Machinery Costs table.

Breakeven Analysis:	-		+
	10%	Base Yield	10%
<u>Price</u>	81.00	90	99.00
Operating Cost Breakeven	\$2.71	\$2.44	\$2.22
Ownership Cost Breakeven	\$1.71	\$1.54	\$1.40
Total Cost Breakeven	\$4.42	\$3.98	\$3.62
	-		+
	10%	Base	10%
		Price	
<u>Yield</u>	\$4.75	\$5.28	\$5.81
Operating Cost Breakeven	46.3	41.6	37.9
Ownership Cost Breakeven	29.1	26.2	23.8
Total Cost Breakeven	75.4	67.9	61.7

¹Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

²Calculated at 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Winter Wheat, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate
September	Drill	350HP-WT, 35' Direct Seed Drill	90 lb Seed, 90 lb N, 30 lb P, 15 lb S
April	Crop Insurance		
			Rental Sprayer, 4.75 oz Osprey, 22 oz
April	Spray Weeds	350HP-WT, 90' Sprayer	Starane+Salvo, 3.2 oz R-11, 1.6 oz Brox M
August	Harvest	30' Combine	
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

Production Costs for No Tillage Soft White Spring Wheat, More Than 18" Precipitation

	Quantity		Price or	Value or
Item	Per Acre	Unit	Cost/Unit	Cost/Acre
	I EI ACIE	Offic	COST/OTH	COSTACIE
Gross Returns Soft White Wheat	50	b	ቀ ደ ጋር	\$264.00
	50	bu	\$5.28	\$264.00
Variable Costs				
Seed:				\$15.00
Soft White Wheat Seed	100	lb	\$0.15	\$15.00
Fertilizer:				\$84.05
Nitrogen (dry)	100	lb	\$0.55	\$55.00
Phosphorous (dry)	15	lb	\$1.17	\$17.55
Potassium (dry)	20	lb	\$0.46	\$9.20
Sulfur (dry)	10	lb	\$0.23	\$2.30
				\$0.00
Pesticides:				\$43.22
Roundup	36	OZ	\$0.39	\$14.04
M90 Ammonium Sulfate	3 103.2	OZ	\$0.01 \$0.02	\$0.03 \$2.06
Animonium Sullate Axial	8.2	OZ OZ	\$0.02 \$1.81	\$2.06 \$14.84
Brox M	12	OZ OZ	\$0.30	\$3.60
Starane	8	oz	\$0.93	\$7.44
InPlace	5	oz	\$0.24	\$1.20
				\$0.00
Fungicides:				\$11.67
Quilt ¹	7	oz	\$1.22	\$8.54
Syltac Sticker	0.5	pt	\$6.25	\$3.13
				\$0.00
Machinery:				\$35.09
Fuel	5.74	gal	\$1.75	\$10.04
Lubricants	1	acre	\$1.38	\$1.38
Machinery Repairs	0.84	acre	\$6.80	\$6.80 \$16.88
Machinery Labor Other Labor	0.64	acre	\$20.00	\$0.00
Custom & Consultants: Rental Sprayer	3	ooro	\$1.75	\$8.50 \$5.25
Custom Aerial	0.5	acre acre	\$6.50	\$3.25
Cuotom / tona	0.0	doic	ψ0.00	\$0.00
Other:				\$10.34
Crop insurance	1	acre	\$10.34	\$10.34
Storage Facility & Equip. Repairs		40.0	7	\$0.00
3 , 11 1				\$0.00
Overhead ²				\$10.39
Operating Interest ³				\$7.79
·				
Total Variable Costs Variable Costs per Unit				\$226.05 \$4.52
· ·				
Net Returns Above Variable Cost	3			\$37.95

Production Costs for No Tillage Soft White Spring Wheat, More Than 18" Precipitation

Fixed Costs:				
Machinery depreciation				\$16.24
Machinery interest				\$8.80
Machinery insurance, taxes, housing	ng, licenses			\$4.17
Land Cost*	1	acre	\$32.36	\$32.36
*Based on Share Rent Percentage	:			
Landlord	33.00%			
Tenant	67.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Total Fixed Costs				\$67.06
Fixed Costs per Unit				\$1.34
· ·				
Total Costs per Acre				\$293.12
Total Cost per Unit				\$5.86
Returns to Risk				-\$29.12

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the Soft White Spring Wheat Machinery Costs table.

Breakeven Analysis:	_		+
<u> 21 canto ron 7 maryolor</u>	10%	Base	10%
		Yield	
<u>Price</u>	45.00	50	55.00
Operating Cost Breakeven	\$5.02	\$4.52	\$4.11
Ownership Cost Breakeven	\$1.49	\$1.34	\$1.22
Total Cost Breakeven	\$6.51	\$5.86	\$5.33
	-		+
	10%	Base	10%
		Price	
<u>Yield</u>	\$4.75	\$5.28	\$5.81
Operating Cost Breakeven	47.6	42.8	38.9
Ownership Cost Breakeven	14.1	12.7	11.5
Total Cost Breakeven	61.7	55.5	50.5

¹Spraying for rust is assumed to occur about half the time. Budget values are 50% of actual cost.

²Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

³Calculated as 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Soft White Spring Wheat, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90
March	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate
April	Drill	350HP-WT, 35' Direct Seed Drill	100 lb Seed, 100 lb N, 15 lb P, 20 lb K, 10 lb S
May	Crop Insurance		
			Rental Sprayer, 8.2 oz Axial, 8 oz Starane, 12 oz
May	Spray Weeds	350HP-WT, 90' Sprayer	Brox M, 5 oz InPlace, 3.2 oz Ammonium Sulfate
June	Aerial Spray*	Airplane	Custom Aerial, 14 oz Quilt, 1 pt Syltac Sticker
	·		· •
August	Harvest	30' Combine	
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

Production Costs for No Tillage Hard Red Spring Wheat, More Than 18" Precipitation

	0	<u> </u>	Dulasa	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	Quantity		Price or	Value or
Item	Per Acre	Unit	Cost/Unit	Cost/Acre
Gross Returns				
Hard Red Wheat	50	bu	\$7.87	\$393.50
Variable Costs				
Seed:				\$22.00
Hard Red Wheat Seed	100	lb	\$0.22	· ·
	100	ID	Φ0.22	\$22.00
Fertilizer:				\$100.55
Nitrogen (dry)	130	lb 	\$0.55	\$71.50
Phosphorous (dry)	15	lb	\$1.17	\$17.55
Potassium (dry)	20	lb	\$0.46	\$9.20
Sulfur (dry)	10	lb	\$0.23	\$2.30 \$0.00
Pesticides:			40.00	\$43.22
Roundup	36	oz	\$0.39	\$14.04
M90	3	oz	\$0.01	\$0.03
Ammonium Sulfate	103.2	oz	\$0.02	\$2.06
Axial Brox M	8.2 12	oz	\$1.81 \$0.30	\$14.84
Starane	8	OZ OZ	\$0.93	\$3.60 \$7.44
InPlace	5	oz oz	\$0.24	\$1.20
III lace	3	02	Ψ0.24	\$0.00
Propostatula au				
Fungicides: Quilt ¹	7		#4.00	\$11.67
	7 0.5	OZ	\$1.22 \$6.25	\$8.54
Syltac Sticker	0.5	pt	\$6.25	\$3.13 \$0.00
Machinery: Fuel	E 74	a a l	¢4.7E	\$35.09
Lubricants	5.74 1	gal	\$1.75 \$1.38	\$10.04 \$1.38
Machinery Repairs	1	acre acre	\$6.80	\$6.80
Machinery Labor	0.84	acre	\$20.00	\$16.88
Wadimery Labor	0.04	acic	Ψ20.00	\$0.00
Custom 9 Consultants				
Custom & Consultants: Rental Sprayer Applicator	3	acre	\$1.75	\$8.50 \$5.25
Custom Aerial	0.5	acre	\$6.50	\$3.25
Odstom Achai	0.5	acie	ψ0.30	\$0.00
Otherm				
Other: Crop insurance	1	ooro	\$10.34	\$10.34 \$10.34
Storage Facility & Equip. Repairs	'	acre	φ10.3 4	\$0.00
Storage racility & Equip. Repairs				\$0.00
Overhead ²				\$11.57
Operating Interest ³				\$8.68
Total Variable Costs				\$251.61
Variable Costs per Unit				\$5.03
Net Returns Above Variable Cost	s			\$141.89
TOT NOTATIO ADOVE VALIABLE COST				Ψ171.03

Production Costs for No Tillage Hard Red Spring Wheat, More Than 18" Precipitation

Fixed Costs:				
Machinery depreciation Machinery interest				\$16.24 \$8.80
Machinery insurance, taxes, housi	ing, licenses			\$4.17
Land Cost*	1	acre	\$69.65	\$69.65
*Based on Share Rent Percentage	e:			
Landlord	33.00%			
Tenant	67.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Total Fixed Costs				\$104.35
Fixed Costs per Unit				\$2.09
r ixed dosts per driit				Ψ2.03
Total Costs per Acre				\$355.96
Total Cost per Unit				\$7.12
. o.a. ooo. po. o.m				ψ1.12
Returns to Risk				\$37.54
				ψοο.

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the <u>Hard Red Spring Wheat Machinery Costs table.</u>

Breakeven Analysis:	-		+
	10%	Base	10%
		Yield	
<u>Price</u>	45.00	50	55.00
Operating Cost Breakeven	\$5.59	\$5.03	\$4.57
Ownership Cost Breakeven	\$2.32	\$2.09	\$1.90
Total Cost Breakeven	\$7.91	\$7.12	\$6.47
	10%	Base	10%
		Price	
<u>Yield</u>	\$7.08	\$7.87	\$8.66
Operating Cost Breakeven	35.5	32.0	29.1
Ownership Cost Breakeven	14.7	13.3	12.1
Total Cost Breakeven	50.3	45.2	41.1

¹Spraying for rust is assumed to occur about half the time. Budget values are 50% of actual cost.

²Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

³Calculated as 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Hard Red Spring Wheat, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
		-	Rental Sprayer, 18 oz Roundup, 1.5 oz M90
March	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate
April	Drill	350HP-WT, 35' Direct Seed Drill	100 lb Seed, 130 lb N, 15 lb P, 20 lb K, 10 lb S
May	Crop Insurance		
			Rental Sprayer, 8.2 oz Axial, 8 oz Starane, 12 oz
May	Spray Weeds	350HP-WT, 90' Sprayer	Brox M, 5 oz InPlace, 3.2 oz Ammonium Sulfate
June	Aerial Spray*	Airplane	Custom Aerial, 14 oz Quilt, 1 pt Syltac Sticker
August	Harvest	30' Combine	
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90,
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

Production Costs for No Tillage Spring Barley, More Than 18" Precipitation

	Quantity		Price or	Value or
Item	Per Acre	Unit	Cost/Unit	Cost/Acre
Gross Returns				•
Barley	2	ton	\$107.00	\$214.00
Variable Costs				
Seed:				\$9.60
Barley Seed	80	lb	\$0.12	\$9.60
Fertilizer:				\$63.85
Nitrogen (dry)	80	lb	\$0.55	\$44.00
Phosphorous (dry)	15	lb "	\$1.17	\$17.55
Sulfur (dry)	10	lb	\$0.23	\$2.30 \$0.00
Pesticides:				\$43.95
Roundup	36	oz	\$0.39	\$14.04
Ammonium Sulfate	100	oz	\$0.02	\$2.00
M90	4.5	oz	\$0.01	\$0.05
Achieve SC	9.2	oz	\$2.00	\$18.40
Starane+Sword	22	oz	\$0.43	\$9.46
				\$0.00
Machinery:	F 74		Φ4.7E	\$35.09
Fuel Lubricants	5.74 1	gal acre	\$1.75 \$1.38	\$10.04 \$1.38
Machinery Repairs	1	acre	\$6.80	\$6.80
Machinery Labor	0.84	acre	\$20.00	\$16.88
,				\$0.00
Custom & Consultants:				\$5.25
Rental Sprayer	3	acre	\$1.75	\$5.25
				\$0.00
Other:				\$4.50
Crop insurance	1	acre	\$4.50	\$4.50
Storage Facility & Equip. Repairs				\$0.00 \$0.00
Overhead ¹				\$8.11
Operating Interest ²				\$6.08
Total Variable Costs				\$176.43
Variable Costs per Unit				\$17 6.43 \$88.22
Net Returns Above Variable Costs				\$37.57

Production Costs for No Tillage Spring Barley, More Than 18" Precipitation

Fixed Costs:				
Machinery depreciation				\$16.24
Machinery interest				\$8.80
Machinery insurance, taxes, housin	g, licenses			\$4.17
Land Cost*	1	acre	\$28.06	\$28.06
*Based on Share Rent Percentage:				
Landlord	33.00%			
Tenant	67.00%			
Cash rent				\$0.00
Land taxes				\$5.50
				^
Total Fixed Costs				\$62.77
Fixed Costs per Unit				\$31.38
Total Coata was Assa				\$220.00
Total Costs per Acre				\$239.20 \$440.60
Total Cost per Unit				\$119.60
Returns to Risk				-\$25.20
Neturns to Misk				-923.20

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the Spring Barley Machinery Costs table.

Breakeven Analysis:	-		+
	10%	Base	10%
		Yield	
<u>Price</u>	1.80	2	2.20
Operating Cost Breakeven	\$92.61	\$83.35	\$79.38
Ownership Cost Breakeven	\$79.01	\$71.11	\$67.72
Total Cost Breakeven	\$171.61	\$154.45	\$147.10
	10%	Base	10%
		Price	
<u>Yield</u>	\$202.50	\$225.00	\$247.50
Operating Cost Breakeven	0.8	0.7	0.7
Ownership Cost Breakeven	0.7	0.6	0.6
Total Cost Breakeven	1.5	1.4	1.2

¹Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

²Calculated at 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Spring Barley, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90
April	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate
April	Drill	350HP-WT, 35' Direct Seed Drill	80 lb Seed, 80 lb N, 15 lb P, 10 lb S
May	Cran Ingurance		
May	Crop Insurance		Pontal Caravar, 0.2 oz Aphiova CC, 22 oz Starana
			Rental Sprayer, 9.2 oz Achieve SC, 22 oz Starane+
May	Spray Weeds	350HP-WT, 90' Sprayer	Sword, 1.5 oz M90
August	Harvest	30' Combine	
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90,
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

Production Costs for No Tillage Spring Peas, More Than 18" Precipitation

	Quantity		Price or	Value or
Item	Per Acre	Unit	Cost/Unit	Cost/Acre
Gross Returns				
Peas	2000	lb	\$0.14	\$280.00
Variable Costs				
Seed:				\$42.00
Pea Seed	200	lb	\$0.21	\$42.00
Fertilizer:				\$0.00
				\$0.00
				\$0.00
Pesticides:	0.0		# 0.00	\$46.68
Roundup	36	OZ	\$0.39	\$14.04
Pursuit Prowl	3 24	OZ	\$4.15 \$0.25	\$12.45 \$6.00
Ammonium Sulfate	100	0Z	\$0.25 \$0.02	\$0.00 \$2.00
M90	3	oz oz	\$0.02	\$0.03
Imidan 70	1	lb	\$9.85	\$9.85
Dimethoate	0.33	pt	\$7.00	\$2.31
Dimensate	0.00	۴,	ψ1.00	\$0.00
Machinery:				\$33.96
Fuel	5.40	gal	\$1.75	\$9.45
Lubricants	1	acre	\$1.29	\$1.29
Machinery Repairs	1	acre	\$6.72	\$6.72
Machinery Labor	0.83	acre	\$20.00	\$16.51
				\$0.00
Custom & Consultants:				\$10.00
Rental Sprayer	2	acre	\$1.75	\$3.50
Custom Aerial	1	acre	\$6.50	\$6.50 \$0.00
Other:			0.4.5.4	\$4.54
Crop insurance	1	acre	\$4.54	\$4.54 \$0.00
Storage Facility & Equip. Repairs				\$0.00
Overhead ¹				\$6.86
Operating Interest ²				\$5.14
Total Variable Costs				\$149.19
Variable Costs per Unit				\$149.19 \$0.07
Net Returns Above Variable Costs	•			\$130.81
Net Neturns Above Variable Cost	3			φ130.01

Production Costs for No Tillage Spring Peas, More Than 18" Precipitation

Fixed Costs:				
Machinery depreciation				\$16.11
Machinery interest				\$8.70
Machinery insurance, taxes, hous	sing, licenses			\$4.15
Land Cost*	1	acre	\$51.70	\$51.70
*Based on Share Rent Percentag	je:			
Landlord	25.00%			
Tenant	75.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Total Fixed Costs				\$86.15
Fixed Costs per Unit				\$0.04
·				
Total Costs per Acre				\$235.34
Total Cost per Unit				\$0.12
Returns to Risk				\$44.66

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are locateed in the Spring Peas Machinery Costs table.

Breakeven Analysis:	-	Base	+
	10%		10%
		Yield	
<u>Price</u>	1800	2000	2200
Operating Cost Breakeven	\$0.08	\$0.07	\$0.07
Ownership Cost Breakeven	\$0.05	\$0.04	\$0.04
Total Cost Breakeven	\$0.13	\$0.12	\$0.11
	10%	Base	10%
		Price	
<u>Yield</u>	\$0.13	\$0.14	\$0.15
Operating Cost Breakeven	1184.0	1065.6	968.8
Ownership Cost Breakeven	683.7	615.3	559.4
Total Cost Breakeven	1867.7	1681.0	1528.2

¹Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

²Calculated at 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Spring Peas, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
			Rental Sprayer, 18 oz Roundup, 3 oz Pursuit, 24 oz
March	Spray Weeds	350HP-WT, 90' Sprayer	Prowl, 50 oz Ammonium Sulfate, 1.5 oz M90
April	Drill	350HP-WT, 35' Direct Seed Drill	200 lb Seed
May	Crop Insurance		
June	Aerial Spray	Custom	Custom Aerial, 1 lb Imidan 70, 0.33 pt Dimethoate
Julie	Acriai Opiay	Oustoni	Custom Aenai, 1 ib imidan 70, 0.55 pt bimethoate
August	Harvest	30' Combine	
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90,
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

Production Costs for No Tillage Spring Lentils, More Than 18" Precipitation

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Gross Returns	1 01 7 1010			00071010
Lentils	1200	lb	\$0.34	\$408.00
			*	,
<u>Variable Costs</u>				
Seed:				\$14.85
Lentil Seed	45	lb	\$0.33	\$14.85
Fertilizer:				\$0.00
				\$0.00
				\$0.00
Pesticides:	00		#2.22	\$41.52
Roundup Pursuit	36 3	OZ OZ	\$0.39 \$4.15	\$14.04 \$12.45
Prowl	24	OZ OZ	\$0.25	\$6.00
Ammonium Sulfate	100	OZ	\$0.02	\$2.00
M90	3	oz	\$0.01	\$0.03
Dimethoate	1	pt	\$7.00	\$7.00
				\$0.00
Machinery:				\$33.96
Fuel	5.40	gal	\$1.75	\$9.45
Lubricants	1	acre	\$1.29	\$1.29
Machinery Repairs	0.83	acre	\$6.72 \$20.00	\$6.72 \$16.51
Machinery Labor	0.83	acre	\$20.00	\$0.00
Custom & Consultants:				\$10.00
Rental Sprayer	2	acre	\$1.75	\$3.50
Custom Aerial Spray	1	acre	\$6.50	\$6.50
, ,				\$0.00
Other:				\$4.54
Crop insurance	1	acre	\$4.54	\$4.54
Storage Facility & Equip. Repairs				\$0.00
				\$0.00
Overhead ¹				\$5.24
Operating Interest ²				\$3.93
Total Variable Costs				\$114.05
Variable Costs per Unit				\$0.10
Net Returns Above Variable Cost	ts			\$293.95
				7_30.00

Production Costs for No Tillage Spring Lentils, More Than 18" Precipitation

Fixed Costs:				
Machinery depreciation				\$16.11
Machinery interest				\$8.70
Machinery insurance, taxes, housir	ng, licenses			\$4.15
Land Cost*	1	acre	\$84.99	\$84.99
*Based on Share Rent Percentage	:			
Landlord	25.00%			
Tenant	75.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Total Fixed Costs				\$119.44
Fixed Costs per Unit				\$0.10
Total Costs per Acre				\$233.49
Total Cost per Unit				\$0.19
Returns to Risk				\$174.51
Neter				

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the Spring Lentils Machinery Costs table.

Breakeven Analysis:	-		+
	10%	Base	10%
		Yield	
<u>Price</u>	1080	1200	1320
Operating Cost Breakeven	\$0.11	\$0.10	\$0.09
Ownership Cost Breakeven	\$0.11	\$0.10	\$0.09
Total Cost Breakeven	\$0.22	\$0.19	\$0.18
	10%	Base	10%
		Price	
<u>Yield</u>	\$0.31	\$0.34	\$0.37
Operating Cost Breakeven	372.7	335.4	304.9
Ownership Cost Breakeven	390.3	351.3	319.4
Total Cost Breakeven	763.0	686.7	624.3

¹Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

²Calculated at 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Spring Lentils, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
	<u> </u>		Rental Sprayer, 18 oz Roundup, 3 oz Pursuit, 24 oz
March	Spray Weeds	350HP-WT, 90' Sprayer	Prowl, 50 oz Ammonium Sulfate, 1.5 oz M90
April	Drill	350HP-WT, 35' Direct Seed Drill	45 lb Seed
May	Crop Insurance		
June	Aerial Spray	Custom	Custom Aerial, 1 pt Dimethoate
August	Harvest	30' Combine	
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90,
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

Production Costs for No Tillage Garbanzos, More Than 18" Precipitation

	Quantity		Price or	Value or
Item	Per Acre	Unit	Cost/Unit	Cost/Acre
<u>Gross Returns</u>				.
Garbanzos	1200	lb	\$0.38	\$456.00
Variable Costs				
Seed:				\$58.50
Garbanzo Seed	130	lb	\$0.45	\$58.50
Fertilizer:				\$0.00
				\$0.00 \$0.00
Pesticides:				\$34.52
Roundup	36	oz	\$0.39	\$14.04
Pursuit	3	oz	\$4.15	\$12.45
Prowl Ammonium Sulfate	24 100	OZ	\$0.25 \$0.02	\$6.00 \$2.00
M90	3	oz oz	\$0.02	\$0.03
90		02	Ψ0.0.	\$0.00
Fungicide:				\$17.84
Quadris	8	OZ	\$2.23	\$17.84
				\$0.00
Machinery: Fuel	5.40	gal	\$1.75	\$33.96 \$9.45
Lubricants	1	acre	\$1.29	\$1.29
Machinery Repairs	1	acre	\$6.72	\$6.72
Machinery Labor	0.83	acre	\$20.00	\$16.51
				\$0.00
Custom & Consultants: Rental Sprayer	2	acre	\$1.75	\$10.00 \$3.50
Custom Aerial Spray	1	acre	\$6.50	\$6.50
, ,				\$0.00
Other:				\$4.54
Crop insurance	1	acre	\$4.54	\$4.54
Storage Facility & Equip. Repairs				\$0.00 \$0.00
Overhead ¹				\$7.97
Operating Interest ²				\$5.98
Total Variable Costs				\$173.31
Variable Costs per Unit				\$0.14
Net Returns Above Variable Costs	S			\$282.69

Production Costs for No Tillage Garbanzos, More Than 18" Precipitation

Fixed Costs:				
Machinery depreciation				\$16.11
Machinery interest				\$8.70
Machinery insurance, taxes, hous	ing, licenses			\$4.15
Land Cost*	1	acre	\$94.28	\$94.28
*Based on Share Rent Percentag	e:			
Landlord	25.00%			
Tenant	75.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Total Fixed Costs				\$128.73
				·
Fixed Costs per Unit				\$0.11
T-1-1 01 4				****
Total Costs per Acre				\$302.04
Total Cost per Unit				\$0.25
Returns to Risk				\$153.96
restante to mon				\$100.50

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the <u>Garbanzos Machinery Costs table.</u>

Breakeven Analysis:	<u>-</u>		+
<u>D. Garlo voll. 7 analyolo.</u>	10%	Base	10%
		Yield	
<u>Price</u>	1080	1200	1320
Operating Cost Breakeven	\$0.16	\$0.14	\$0.13
Ownership Cost Breakeven	\$0.12	\$0.11	\$0.10
Total Cost Breakeven	\$0.28	\$0.25	\$0.23
	10%	Base	10%
		Price	
<u>Yield</u>	\$0.34	\$0.38	\$0.42
Operating Cost Breakeven	506.7	456.1	414.6
Ownership Cost Breakeven	376.4	338.8	308.0
Total Cost Breakeven	883.1	794.8	722.6

¹Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

²Calculated at 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Garbanzos, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
			Rental Sprayer, 18 oz Roundup, 3 oz Pursuit, 24 oz
March	Spray Weeds	350HP-WT, 90' Sprayer	Prowl, 50 oz Ammonium Sulfate, 1.5 oz M90
April	Drill	350HP-WT, 35' Direct Seed Drill	130 lb Seed
May	Crop Insurance		
June	Aerial Spray	Custom	Custom Aerial, 8 oz Quadris Fungicide
August	Harvest	30' Combine	
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90,
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

Production Costs for No Tillage Spring Canola, More Than 18" Precipitation

	Quantity		Price or	Value or
Item	Per Acre	Unit	Cost/Unit	Cost/Acre
Gross Returns				
Canola	1500	lb	\$0.16	\$240.00
Variable Costs				
Seed:				\$24.00
Canola Seed	4	lb	\$6.00	\$24.00
Fertilizer:				\$76.00
Nitrogen (dry)	100	lb	\$0.55	\$55.00
Phosphorous (dry)	15	lb	\$1.17	\$17.55
Sulfur (dry)	15	lb	\$0.23	\$3.45 \$0.00
Pesticides:				\$38.24
Roundup	36	oz	\$0.39	\$14.04
Ammonium Sulfate	100	OZ	\$0.02	\$2.00
M90	3	oz	\$0.01	\$0.03
Assure II	10	oz	\$1.20	\$12.00
Capture	1	acre	\$10.17	\$10.17
				\$0.00
Machinery:				\$35.09
Fuel	5.74	gal	\$1.75	\$10.04 \$1.38
Lubricants Machinery Repairs	1	acre acre	\$1.38 \$6.80	\$1.38 \$6.80
Machinery Labor	0.84	acre	\$20.00	\$16.88
		5.5.5		\$0.00
Custom & Consultants:				\$10.00
Rental Sprayer	2	acre	\$1.75	\$3.50
Custom Aerial Spray	1	acre	\$6.50	\$6.50
				\$0.00
Other:				\$3.88
Crop insurance	1	acre	\$3.88	\$3.88
Storage Facility & Equip. Repairs				\$0.00
				\$0.00
Overhead ¹				\$9.36
Operating Interest ²				\$7.02
Total Variable Costs				\$203.60
Variable Costs per Unit				\$0.14
Net Returns Above Variable Cos	ts			\$36.40

Production Costs for No Tillage Spring Canola, More Than 18" Precipitation

Fired Octo				
Fixed Costs: Machinery depreciation				\$16.24
Machinery interest				\$8.80
Machinery insurance, taxes, hous	sing, licenses			\$4.17
Land Cost*	1	acre	\$34.72	\$34.72
*Based on Share Rent Percentag	e:			
Landlord	33.00%			
Tenant	67.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Total Fixed Costs				\$69.42
Fixed Costs per Unit				\$0.05
·				
Total Costs per Acre				\$273.02
Total Cost per Unit				\$0.18
Returns to Risk				-\$33.02

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the Spring Canola Machinery Costs table.

Breakeven Analysis:	_		+
	10%	Base	10%
		Yield	
<u>Price</u>	1350	1500	1650
Operating Cost Breakeven	\$0.15	\$0.14	\$0.12
Ownership Cost Breakeven	\$0.05	\$0.05	\$0.04
Total Cost Breakeven	\$0.20	\$0.18	\$0.17
	10%	Base	10%
		Price	
<u>Yield</u>	\$0.14	\$0.16	\$0.18
Operating Cost Breakeven	1413.9	1272.5	1156.8
Ownership Cost Breakeven	482.1	433.9	394.4
Total Cost Breakeven	1896.0	1706.4	1551.2

¹Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

²Calculated at 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Spring Canola, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
			Rental Sprayer, 18 oz Roundup, 50 oz Ammonium
March	Spray Weeds	350HP-WT, 90' Sprayer	Sulfate, 1.5 oz M90
April	Drill	350HP-WT, 35' Direct Seed Drill	4 lb Treated Canola Seed, 100 lb N, 15 lb P, 15 lb S
			Rental Sprayer, 10 oz Assure II, 50 oz
May	Spray Weeds	350HP-WT, 90' Sprayer	Ammonium Sulfate, 1.5 oz M90
May	Crop Insurance		
li ima	Assist Consu	Custom	Custom Assial Conture \$40.47/Assa
June	Aerial Spray	Custom	Custom Aerial, Capture \$10.17/Acre
August	Harvest*	30' Combine	
August	i iai vest	30 COMBINE	Rental Sprayer, 18 oz Roundup, 1.5 oz M90,
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

^{*}Harvest canola at 1.5 mph (half as fast as grain crops).

Production Costs for No Tillage Camelina, More Than 18" Precipitation

ltem	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Gross Returns				
Camelina	1800	lb	\$0.18	\$324.00
Variable Costs				
Seed:				\$13.46
Camelina Seed	4.5	lb	\$2.99	\$13.46
Fertilizer:				\$29.80
Nitrogen (dry) Sulfur (dry)	50 10	lb lb	\$0.55 \$0.23	\$27.50 \$2.30 \$0.00
Pesticides:				\$32.14
Roundup Ammonium Sulfate M90 Poast COC	36 100 3 1.5 2	oz oz oz pt pt	\$0.39 \$0.02 \$0.01 \$9.38 \$1.00	\$14.04 \$2.00 \$0.03 \$14.07 \$2.00 \$0.00
Machinery:				\$30.98
Fuel Lubricants Machinery Repairs Machinery Labor	4.67 1 1 0.79	gal acre acre hour	\$1.75 \$1.10 \$5.99 \$20.00	\$8.18 \$1.10 \$5.99 \$15.72 \$0.00
Custom & Consultants:				\$7.75
Rental Sprayer Valmar applicatir	3 1	acre acre	\$1.75 \$2.50	\$5.25 \$2.50
Other:				\$3.88
Crop insurance Storage Facility & Equip. Repairs	1	acre	\$3.88	\$3.88 \$0.00 \$0.00
Overhead ¹ Operating Interest ²				\$5.90 \$4.43
Total Variable Costs Variable Costs per Unit				\$128.33 \$0.07
Net Returns Above Variable Costs	s			\$195.67

Production Costs for No Tillage Camelina, More Than 18" Precipitation

Fixed Costs:				
Machinery depreciation				\$14.14
Machinery interest				\$7.48
Machinery insurance, taxes, housing, lie	censes			\$3.70
Land Cost*	1	acre	\$79.70	\$79.70
*Based on Share Rent Percentage:				
Landlord	33.00%			
Tenant	67.00%			
Cash rent				\$0.00
Land taxes				\$5.50
Total Fixed Costs				\$110.51
Fixed Costs per Unit				\$0.06
i med decie per dim				φσ.σσ
Total Costs per Acre				\$238.85
Total Cost per Unit				\$0.13
Total Cool por Offic				ψ0.13
Returns to Risk				\$85.15
Noturns to Man				\$05.15

Notes:

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the <u>Camelina Machinery Costs table.</u>

Breakeven Analysis:	_		+
<u> </u>	10%	Base	10%
		Yield	
<u>Price</u>	1620	1800	1980
Operating Cost Breakeven	\$0.08	\$0.07	\$0.06
Ownership Cost Breakeven	\$0.07	\$0.06	\$0.06
Total Cost Breakeven	\$0.15	\$0.13	\$0.12
	10%	Base	10%
		Price	
<u>Yield</u>	\$0.16	\$0.18	\$0.20
Operating Cost Breakeven	792.2	713.0	648.2
Ownership Cost Breakeven	682.2	614.0	558.1
Total Cost Breakeven	1474.4	1326.9	1206.3

¹Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

²Calculated at 7% interest on operating capital for 6 months.

Schedule of Operations for No Tillage Camelina, More Than 18" Precipitation

Month	Operation	Tooling	Materials/Service
			Rental Sprayer, 18 oz Roundup, 50 oz Ammonium
March	Spray Weeds	350HP-WT, 90' Sprayer	Sulfate, 1.5 oz M90
		350HP-WT, 35' Direct Seed Drill	
March/April	Drill	or Valmar applicator (broadcast method)	4-5 lb Camelina Seed, 50 lb N, 10 lb S
May	Spray Weeds	350HP-WT, 90' Sprayer	Rental Sprayer, 1.5 pt Poast, 2 pt COC
May	Crop Insurance		
August	Harvest*	30' Combine	3 mph
			Rental Sprayer, 18 oz Roundup, 1.5 oz M90
September	Spray Weeds	350HP-WT, 90' Sprayer	50 oz Ammonium Sulfate

^{*}Harvest camelina at 3 mph (2/3 as fast as grain crops).

Machinery Costs (\$/acre) from the University of Idaho Machinery Cost Calculator

Note: Per hour machinery costs can be changed in this master table and they will update throughout. Per acre costs are caluclated in the Machine Cost program using the values listed in the Macinery Complement tab.

in the Machery Complement	iau.											
		Fixed Cos	sts (\$/acre):			Variable C	costs (\$/acre):		La	bor	Fuel Use	
			Taxes, Housing, Insurance,	Total Fixed								Total Cost
	Depreciation	Interest	License	Costs	Repairs	Fuel	Lubricants	Total	(0/)	(/	(1/)	(\$/
									(\$/acre)	(hr/acre)	(gal/acre)	(\$/acre)
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	\$4.80	0.24	0.71	\$9.05
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
350HP Wheel Tractor	\$2.00	\$1.61	\$0.28	\$3.89	\$1.20	\$9.20	\$1.38	\$11.78	\$5.28	0.26	5.26	\$20.95
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$17.98	\$10.21	\$4.41	\$32.59	\$7.84	\$18.06	\$2.58	\$28.47	\$21.42	\$1.07	\$10.32	\$82.49

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

Costs By Crop:

Click on crop to see machinery costs by crop.
Soft White Winter Wheat
Soft White Spring Wheat
Hard Red Spring Wheat
Spring Barley
Spring Peas
Spring Lentils
Garbanzos
Spring Canola
<u>Camelina</u>

Machinery Costs for No	-Till Soft Whi	ite Winter V	Vheat (\$/acre) f	rom the U	niversity	of Idaho	Machinery	Cost Ca	Iculator			
		Fixed Cos	sts (\$/acre):		_	Variable (Costs (\$/acre)	:	La	bor	Fuel Use	
	Depreciation	Interest	Taxes, Housing, Insurance, License	Total Fixed Costs	Repairs	Fuel	Lubricants	Total	(\$/acre)	(hr/acre)	(gal/acre)	Total Cos (\$/acre)
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	\$4.80	0.24	0.71	\$9.05
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
350HP Wheel Tractor with:		-	•	•	•	•	•	•	•	-	•	-
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$16.24	\$8.80	\$4.17	\$29.20	\$6.80	\$10.04	\$1.38	\$18.21	\$16.88	0.84	5.74	\$64.30

		Fixed Co	sts (\$/acre):	; (\$/acre):			Variable Costs (\$/acre):				Fuel Use	
	Depreciation	Interest	Taxes, Housing, Insurance, License	Total Fixed Costs	Repairs	Fuel	Lubricants	Total	(0)	(1. ()		Total Cos
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	(\$/acre) \$4.80	(hr/acre) 0.24	(gal/acre) 0.71	(\$/acre) \$9.05
						T -		· ·				
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
350HP Wheel Tractor with:					•				•			
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$16.24	\$8.80	\$4.17	\$29.20	\$6.80	\$10.04	\$1.38	\$18.21	\$16.88	0.84	5.74	\$64.30

Machinery Costs for No	-Till Hard Re	d Spring W	heat (\$/acre) fr	om the Un	iversity o	of Idaho	Machinery	Cost Cal	culator			
		Fixed Cos	sts (\$/acre):			Variable (Costs (\$/acre)	:	La	bor	Fuel Use	
	Depreciation	Interest	Taxes, Housing, Insurance, License	Total Fixed Costs	Repairs	Fuel	Lubricants	Total	(\$/acre)	(hr/acre)	(gal/acre)	Total Cos (\$/acre)
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	\$4.80	0.24	0.71	\$9.05
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
350HP Wheel Tractor with:											•	
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$16.24	\$8.80	\$4.17	\$29.20	\$6.80	\$10.04	\$1.38	\$18.21	\$16.88	0.84	5.74	\$64.30

Machinery Costs for No	o-Till Spring E	Barley (\$/ac	re) from the Un	iversity of	Idaho M	achinery	Cost Calc	ulator				
		Fixed Co	sts (\$/acre):			Variable (Costs (\$/acre)):	La	bor	Fuel Use	
	Depreciation	Interest	Taxes, Housing, Insurance, License	Total Fixed Costs	Repairs	Fuel	Lubricants	Total	(\$/acre)	(hr/acre)	(gal/acre)	Total Cos (\$/acre)
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	\$4.80	0.24	0.71	\$9.05
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
350HP Wheel Tractor with:												
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$16.24	\$8.80	\$4.17	\$29.20	\$6.80	\$10.04	\$1.38	\$18.21	\$16.88	0.84	5.74	\$64.30

		Fixed Co	sts (\$/acre):		Variable Costs (\$/acre):				La	bor	Fuel Use	
	Depreciation	Interest	Taxes, Housing, Insurance, License	Total Fixed Costs	Repairs	Fuel	Lubricants	Total				Total Cos
									(\$/acre)	(hr/acre)	(gal/acre)	(\$/acre)
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	\$4.80	0.24	0.71	\$9.05
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
350HP Wheel Tractor with:		•	•	•	-		•		•		•	
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$16.11	\$8.70	\$4.15	\$28.95	\$6.72	\$9.45	\$1.29	\$17.45	\$16.51	0.83	5.40	\$62.92

Machinery Costs for No-Till Spring Lentils (\$/acre) from the University of Idaho Machinery Cost Calculator												
-	Fixed Costs (\$/acre):				Variable Costs (\$/acre):				Labor		Fuel Use	
	Depreciation	Interest		Total Fixed Costs	Repairs	Fuel	Lubricants	Total				Total Cos
									(\$/acre)	(hr/acre)	(gal/acre)	(\$/acre)
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	\$4.80	0.24	0.71	\$9.05
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
350HP Wheel Tractor with:												
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$16.11	\$8.70	\$4.15	\$28.95	\$6.72	\$9.45	\$1.29	\$17.45	\$16.51	0.83	5.40	\$62.92

	Fixed Costs (\$/acre):				Variable Costs (\$/acre):				Labor		Fuel Use	
	Depreciation Interest		Taxes, Housing, Insurance, License Costs		Repairs	Fuel	Lubricants	Total				Total Cos
	A 1.01	00.50	A = 0	00.00	A 0. T =	A	A 2 4 2	00.40	(\$/acre)	(hr/acre)	(gal/acre)	(\$/acre)
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	\$4.80	0.24	0.71	\$9.05
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
350HP Wheel Tractor with:	•	•	•	•	-		•		•		•	
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$16.11	\$8.70	\$4.15	\$28.95	\$6.72	\$9.45	\$1.29	\$17.45	\$16.51	0.83	5.40	\$62.92

Machinery Costs for No-Till Spring Canola (\$/acre) from the University of Idaho Machinery Cost Calculator													
-	Fixed Costs (\$/acre):				Variable Costs (\$/acre):				Labor		Fuel Use		
	Depreciation	Interest	· · · · · · · · · · · · · · · · · · ·	Total Fixed Costs	Repairs	Fuel	Lubricants	Total	(0)	0.7		Total Cos	
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	(\$/acre) \$4.80	(hr/acre) 0.24	(gal/acre) 0.71	(\$/acre) \$9.05	
	· ·		· '	· ·				· ·				*	
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07	
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06	
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58	
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28	
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84	
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52	
350HP Wheel Tractor with:													
35' Direct Seed Drill	\$2.36	\$1.52	\$0.51	\$4.39	\$0.97	\$3.04	\$0.46	\$4.47	\$1.90	0.10	1.74	\$10.76	
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38	
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38	
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38	
Total:	\$16.24	\$8.80	\$4.17	\$29.20	\$6.80	\$10.04	\$1.38	\$18.21	\$16.88	0.84	5.74	\$64.30	

Machinery Costs for No-Till Camelina (\$/acre) from the University of Idaho Machinery Cost Calculator												
	Fixed Costs (\$/acre):						Costs (\$/acre)		Labor		Fuel Use	
	Depreciation	Interest	Taxes, Housing, Insurance, License	Total Fixed Costs	Repairs	Fuel	Lubricants	Total	(\$/acre)	(hr/acre)	(gal/acre)	Total Cos (\$/acre)
0.75-Ton 4WD Pickup	\$1.04	\$0.52	\$0.50	\$2.06	\$0.75	\$1.25	\$0.19	\$2.19	\$4.80	0.24	0.71	\$9.05
2-Ton Truck	\$1.20	\$0.77	\$0.42	\$2.39	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.07
Tandem Axle Truck	\$1.02	\$0.69	\$0.67	\$2.38	\$1.00	\$0.42	\$0.06	\$1.48	\$1.20	0.06	0.24	\$5.06
Trap Wagon	\$2.40	\$1.26	\$0.68	\$4.34	\$1.20	\$0.21	\$0.03	\$1.44	\$0.80	0.04	0.12	\$6.58
4WD-ATV	\$0.15	\$0.07	\$0.01	\$0.23	\$0.03	\$0.12	\$0.02	\$0.17	\$0.88	0.04	0.07	\$1.28
50HP Wheel Tractor	\$0.23	\$0.26	\$0.04	\$0.53	\$0.08	\$0.30	\$0.05	\$0.43	\$0.88	0.04	0.17	\$1.84
30' Combine	\$7.45	\$3.41	\$1.27	\$12.13	\$1.53	\$2.51	\$0.24	\$4.28	\$4.11	0.21	1.43	\$20.52
350HP Wheel Tractor with:	•	-	•	•	•		•	•	•		•	
40' Valmar	\$0.26	\$0.20	\$0.04	\$0.50	\$0.16	\$1.18	\$0.18	\$1.52	\$0.74	\$0.04	\$0.67	\$2.76
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
90' Sprayer (Rental)	\$0.13	\$0.10	\$0.02	\$0.25	\$0.08	\$0.59	\$0.09	\$0.76	\$0.37	0.02	0.34	\$1.38
Total:	\$14.14	\$7.48	\$3.70	\$25.31	\$5.99	\$8.18	\$1.10	\$15.26	\$15.72	0.79	4.67	\$56.30

Machinery Complement for Direct Seed/No Tillage, Over 18" Precipitation, Eastern Washington

Type of Machine	Replacement Value \$	Age When Purchased	Years of Life	Annual Hours of Use	Salvage Value \$	Annual Repairs (Materials & Labor) \$	Gallons of	Taxes, Housing, Insur., Licenses %	Labor Multiplier	Acres per Hour				
Tractors, ATVs:														
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					
Equipment:														
35' Direct Seed Drill	40,000	0	10	140	10,000	1,000	15	3	1.2	13				
30' Combine	225,000	5	10	240	30,000	4,000	7	2.6	1.2	11				
Trucks:				Miles/year:			MPG:							
2-Ton Truck	20,000	15	15	1,000	2,000	1,000	6	3.8	1.2					
Tandem Axle Truck	35,000	15	15	2,000	4,500	2,000	6	6.8	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					