

2013 Enterprise Budgets: Wheat and Canola Rotations in Eastern Washington Low Rainfall Regions (<12")



Adapted for 2011-2015 Average Farmgate Crop Prices

These budgets were constructed for the Washington Oilseed Cropping Systems (WOCS) project,
part of the Washington state biofuels initiative.

<http://css.wsu.edu/biofuels/>

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Introduction

The 2013 budgets for wheat and canola rotations in eastern Washington low rainfall regions (<12") were developed to estimate enterprise costs and returns for farm operations currently growing or considering growing canola. The budgets are available in two forms: an interactive Excel workbook and a PDF document showing the default cost and return scenarios.

Default budget data are based on a model farm, designed to reflect a "typical" dryland farm operation in the less than 12-inch (<12") low rainfall region of Washington (see details in Budget Assumptions section). Users can use and adapt the Excel workbook budgets to compare costs and returns between canola and non-canola rotations.

Inserting canola into traditional rotations may affect overall farm costs and returns due to changes in chemical use, weed control in subsequent crops, machinery operations to handle stubble, and the like.

Some farmers have experienced increases in wheat yields after growing canola. To allow costs and returns to reflect canola's rotational impacts, separate budgets are included in the Excel workbook for crops in a "canola rotation" or a (non-canola) "wheat rotation" (see Excel workbook tabs 1 through 5).

- Canola Rotation: Fallow – Winter Canola – Fallow – Winter Wheat
- Wheat Rotation: Fallow – Winter Wheat – Fallow – Winter Wheat

Crops included are Soft White Winter Wheat (SWWW), Hard Red Winter Wheat (HRWW), and Winter Canola (WC).

It is important to note that fallow costs are included in the cost of the following crop, so revenue and costs on the Summary tab (Table 1 and Table 2) are for a two-year period.

How to Use the Excel Workbook Budgets

Review the Budget Assumptions sections (listed below) that were used to create the budgets. You may need to adjust these budgets to accurately reflect your situation.

Adjust crop budgets in the Excel workbook for your specific farm operation:

Inputs

Update costs on the **green Input Costs tab** and the cost will update throughout the budgets. If you use a product that is not listed on the Input Costs tab, you can add (or remove) inputs and adjust quantities used on the individual crop budgets (tabs numbered 1 through 5).

Machinery operations

Update machinery operations on the **blue Machinery Costs tab** (scroll right through the tabs at the bottom of the Excel workbook to reach the Machinery Costs tab) and the costs will update throughout the budgets. You can adjust the number and type of machinery operations for each crop or fallow cycle (Tables 5 through 12) by adjusting the Number of Passes, listed in red text, for the operation that most closely matches your equipment.

The machinery information on the Machinery Complement tab (Table 3) was entered into the University of Idaho's Crop Machinery Cost Calculator to estimate cost per acre for common operations. Machinery values, depreciation, repairs, etc. for individual pieces of machinery cannot be directly adjusted in the Excel workbook for these crop budgets at this time. However, costs per acre can be overwritten in Table 4 of the Machinery Costs tab, if you know your own cost per acre for a particular operation.

Enter yield and price values in Table 1 on the **purple Summary tab**. Wheat yields can be different in the canola rotation versus the wheat rotation. Yield and price values changed on the Summary tab will update

throughout the budgets.

Choose rotation scenarios and compare returns between rotations in Table 2 on the **purple Summary tab**. Make sure you have updated the individual crop budgets (tabs numbered 1 through 5) used in the rotations you have chosen (wheat and/or canola rotations) as needed.

Color Coding

The text color coding system below is used to indicate the source of the data for each budget and to show which data can be adjusted by the user.

- **Red text** can be changed without affecting the underlying equations in this cost calculator.
- **Purple text** indicates that the information is from the purple Summary tab (Table 1). For example, yield values appear on the Summary tab in red text, but on the crop budget (tabs 1 through 5) in purple text; updating yields on the Summary tab will automatically update yields on the crop budgets tabs. This allows you to quickly compare net returns under different yield and price scenarios without leaving the Summary tab.
- **Green text** indicates that the information is from the green Input Cost tab and can only be adjusted in the Input Cost tab.
- **Blue text** indicates that the information is from the blue Machinery Cost tab. Please see below for more information on machinery cost assumptions and calculations.

The Excel workbook and PDF are available online: <http://css.wsu.edu/biofuels/>.

Budget Assumptions

Since farming is inherently variable and constantly changing, we hope that the Excel workbook 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

These budgets were created in an Excel workbook format in order to facilitate adjustments for different farming operations. Please note that these budgets will help you estimate future profitability, however, they cannot predict future conditions, both in the marketplace and on your own operation.

Production practices most closely represent those in the <12" low rainfall regions of Washington based on grower input. Seasonal operations are detailed in the **Calendar** tabs. Production practices may be similar among individual farms, but each farm 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.

Economic costs are used for these costs and returns estimates. All resources are valued based on market price or opportunity cost. An opportunity cost is determined based on the next most valuable use of the resource. For example, the opportunity cost of farming land you own would be estimated as the highest rental value for that land. The cost and return estimates shown here are typical for growing grain and rotational crops in the low rainfall regions of Washington.

Specific Budget Assumptions

The Model Farm

These budgets represent a 5000-acre farm that follows a typical 2-year rotation of hard red or soft white winter wheat preceded by fallow. Winter canola may be grown every other fallow-wheat cycle. In a typical year equal proportions would be devoted to each crop in a rotation. Crop choices will vary by year, depending on relative crop prices and other management considerations. Two-year returns for typical rotations are listed in Table 1 Summary of Returns by Crop (\$/acre) and Table 2 Summary of Returns by Rotation (\$/acre) in the Summary tab.

Crop Prices

Crop prices are calculated as three-year average prices received by Washington growers based on Portland prices less an off-coast adjustment for transportation and handling.

Input Costs

Input costs (green tab) are based on the University of Idaho's annual survey of agricultural supply companies, or retail prices shared by regional distributors. Input costs in the 2013 Idaho Crop Input Price Summary are considered close estimates for input costs in Washington State. This report is available online at: <http://web.cals.uidaho.edu/idaohoagbiz/files/2014/01/IDInputCosts20131.pdf>.

Machinery Costs

The machinery complement and per acre machinery cost estimates are in the last two tabs in the workbook. A "machinery complement" is a set of common machinery and implements that would be sufficient for performing standard operations in crop production on a farm in a given region.

The machinery complement used in these budgets was constructed based on farmer interviews and expert input, and is intended to be representative of a typical dryland farm in the <12" low rainfall regions of Washington.

The machinery complement was entered into the University of Idaho's Crop Machinery Cost Calculator to obtain per acre machinery costs in Table 4 on the Machinery Costs (blue) tab. The per acre machinery costs for each crop and fallow cycle (Tables 5-12) feed into the individual crop budgets (tabs numbered 1-5).

Machinery fixed costs include depreciation, interest, property taxes, insurance, and housing for all machinery used by the operation. Given ownership of a specific machinery complement, these fixed costs are incurred by the overall farm operation and are incurred whether or not crops are grown. **The user's machinery costs will vary if farm size, equipment size and value, or annual hours of use differ significantly from the values used in these budgets.**

Machinery cost files are available upon request. The University of Idaho Crop Machinery Cost Calculator is available at: <http://web.cals.uidaho.edu/idaohoagbiz/management-tools/>

Labor Costs

Labor to operate machinery is valued at \$20.00 per hour. 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. The base wage is based on average hourly wages reported by the Washington State Employment Security Department in the 2011 Agricultural Workforce Report.

Storage and Transportation Costs

These budgets assume all crops are sold at harvest, so no storage costs are incurred. However, monthly storage costs can be added on individual crop budget tabs if relevant to an operation. Storage rates from the Input Cost tab are per bushel, per month based on regional elevator storage rates.

Harvest transportation costs from field to local elevator/storage (average 10 miles one-way) are included in per acre machinery cost estimates. Some farmers may own or hire larger trucks for longer distance hauling. Long-distance hauling costs can be added by the user on individual crop budget tabs by entering the hauling distance, rate per mile, and load volume. The default scenario for wheat assumes a 100-mile roundtrip to either a rail or river sub-terminal, based on hired truck rates as quoted by several regional companies.

Land Costs

Land costs are based on a typical lease agreement for this region. While the owner-operator will not actually experience a land rental cost, this cost represents the minimum return owner-operators must receive to justify growing the crop themselves. To determine the profitability of crop production relative to other activities, the owner-operator may want to consider these forgone rental returns along with the usual production expenses.

A typical lease agreement in this region is a one-third land owner and two-thirds 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.

To approximate rental cost or foregone rental returns, the default land cost is calculated as one-third gross revenue minus one-third fertilizer, pesticide, and crop insurance costs. The crop-share percentages can be adjusted by crop on the individual crop budget tabs.

This valuable tool reveals how different factors affect revenue for landlords and operators differently, such as crop and input price increases, as well as cropping choices. Note that pea, lentil, and garbanzo crop-share arrangements are typically split with a one-fourth, three-fourths cost share.

Interest Costs

Interest on operating capital is charged on total operating costs for nine months and calculated at a nominal rate of 5.75 percent. The operating interest rate can be changed on the Input Costs tab.

Other Costs

A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated costs such as office expenses, phone service, legal and accounting fees, and utilities. A management fee is charged at the rate of 5 percent of gross revenue to cover management labor. Both overhead and management fee rates can be changed on the Input Costs tab.

Table 1. Summary of Returns by Crop (\$/acre) Over a Two-Year Period*

Adjust costs on the individual crop budgets in tabs numbered 1-5 and totals will update here on the Summary tab.

Budget:	By Crop**:	Unit	Yield per acre	Price per unit	Revenue per acre (\$/acre)	Variable Costs (VC) (\$/acre)	Fixed Costs (FC) (\$/acre)	Total Cost (TC) of Operation (\$/acre)	Returns over VC (\$/acre)	Returns over TC (\$/acre)	Crop & Cost Share*** Cost (\$/acre)	Percentage Share Owner	Operator Share
	<i>Oilseed Rotation: Fallow - WC - Fallow - WW</i>												
1	Winter Canola (WC)	lb	1500	\$0.21	\$312	\$219	\$115	\$334	\$93	\$ (22.04)	\$63	33%	67%
2	Soft White Winter Wheat (SWWW)	bu	50	\$6.44	\$322	\$186	\$120	\$306	\$136	\$ 16.45	\$72	33%	67%
	<i>Grain Rotation: Fallow - WW - Fallow - WW</i>												
4	Soft White Winter Wheat (SWWW)	bu	45	\$6.44	\$290	\$188	\$108	\$296	\$102	\$ (5.87)	\$61	33%	67%

*For average annual costs or returns, divide by two.

**Crop budgets include costs of preceding summer fallow. Individual crop costs and returns are for a two-year period.

***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.

Table 2. Summary of Returns by Rotation (\$/acre) over Two-Year Period*

Click on the rotations below (red text) to select and compare alternative rotations from the drop down menu.

Select the Rotation:	Revenue per acre (\$/acre)	Variable Costs (VC) (\$/acre)	Fixed Costs (FC) (\$/acre)	Total Cost (TC) of Operation (\$/acre)	Returns over VC (\$/acre)	Returns over TC (\$/acre)	Crop-Share Land Cost (\$/acre)
F-WC-F-SWWW	\$317	\$202	\$117	\$320	\$114	\$ (1.40)	\$68
F-SWWW-F-SWWW	\$290	\$188	\$108	\$296	\$102	\$ (2.93)	\$61

*For average annual costs or returns, divide by two.

Input Costs by Year

Item	Unit	2013 cost/unit
Fuel:		
Diesel, offroad, bulk	gal	\$3.40
Gas	gal	\$3.50
Seed:		
Soft White Winter Wheat	lb	\$0.24
Hard Red Winter Wheat	lb	\$0.30
Winter Canola	lb	\$3.25
Winter Canola - Roundup Ready	lb	\$5.90
Fertilizer:		
Nitrogen (liquid)	lb	\$0.77
Phosphorous (liquid)	lb	\$0.66
Sulfur (liquid)	lb	\$0.56
Potassium (dry)	lb	\$0.36
Boron	lb	\$8.20
Adjuvants:		
Amm. Sulf. (20-0-0-24)	lb	\$0.42
Amm. Sulf. (liquid)	oz	\$0.07
Crop Oil Concentrate	oz	\$0.10
In-Place	oz	\$0.28
M90	oz	\$0.19
Custom Rental/Services:		
Custom Aerial	acre	\$8.70
Fertilizer Applicator	acre	\$1.00
26' Rental Shredder	acre	\$10.00
36' Ripper Shooter	acre	\$2.50
90' Rental Sprayer	acre	\$2.00
Crop Insurance¹:		
HRWW	acre	\$13.00
SWWW	acre	\$13.75
Winter Canola	acre	\$19.50
Labor²:		
Hourly machine labor	hour	\$20.00
Other labor	hour	\$17.00

Input Costs by Year

Item	Unit	2013 cost/unit
Pesticides:		
Assure II EC	oz	\$0.84
Axial XL	oz	\$1.14
Bronate Advanced	pt	\$7.88
Brox M	oz	\$0.27
Glyphosphate (R-up Power Max.)	oz	\$0.20
Huskie	oz	\$0.88
Maverick	oz	\$18.25
Osprey	oz	\$3.90
Poast 1.5 EC	pt	\$10.63
Powerflex	oz	\$4.68
Pursuit	oz	\$3.37
Quadris Flowable	oz	\$2.72
Quilt	oz	\$1.39
Tilt	oz	\$2.06
Warrior II	oz	\$3.78
Other:		
Spodnam	pt	\$14.25
Storage costs:		
Wheat storage	per bu, per mo.	\$0.02
Canola storage	per bu, per mo.	\$0.03
Overhead:		
Overhead ³	percent	2.50%
Management fee:		
Management fee ⁴	percent	5.00%
Cash rent:		
Cash rent	acre	\$0.00
Interest:		
Operating Loan	percent	5.75%
Intermediate Loan (Machinery)	percent	6.00%

¹ Crop insurance estimates cost of premium for 75% of estimated revenue based on typical regional yields.

² Includes all applicable state and federal taxes.

³ Calculates legal, accounting, and utility fees as a percentage of operating expenses.

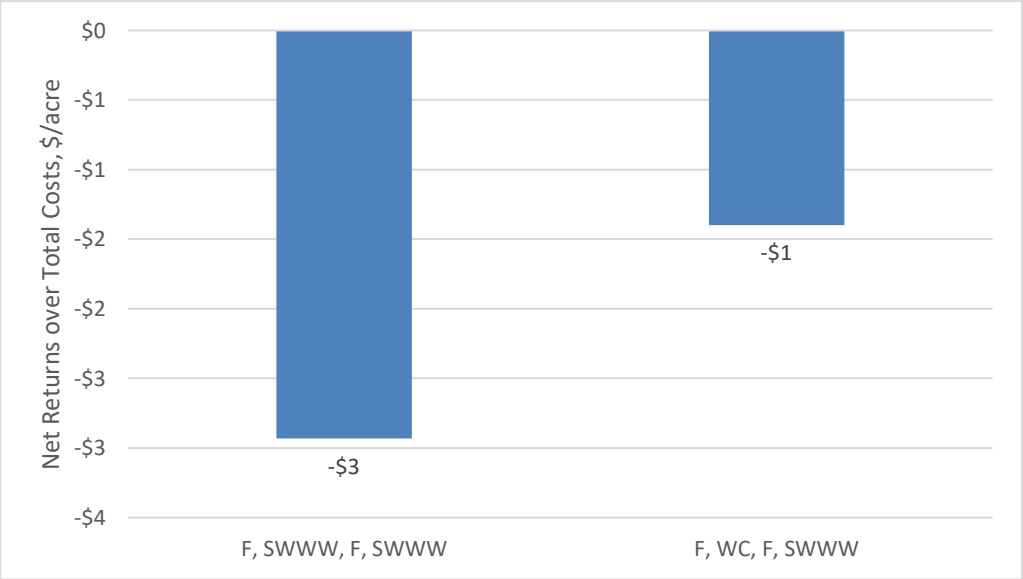
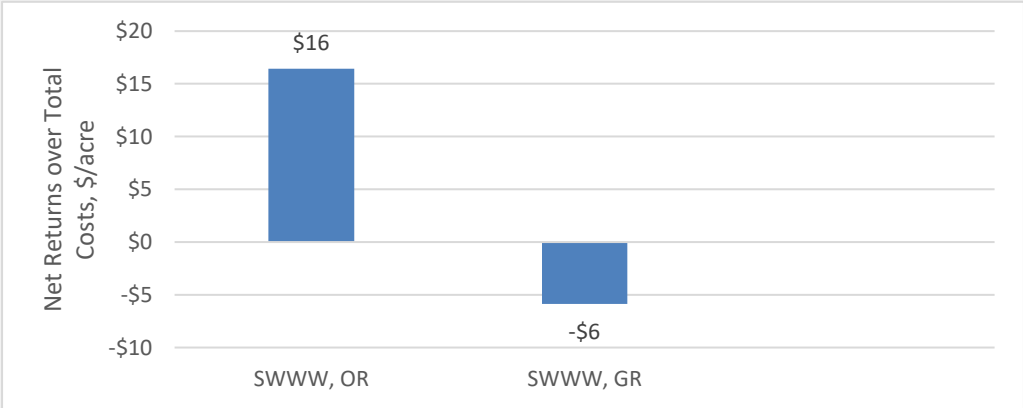
⁴ Calculated as a percentage of gross revenue.

Input cost reports are available on the University of Idaho AgBiz website under "Annual Input Cost Surveys":

<http://www.uidaho.edu/cals/idaho-agbiz/crop-budgets>

WC	NR over TC, crop	SWWW, OR	NR over TC, crop
SWWW, OR	-\$22	SWWW, GR	\$16
SWWW, GR	\$16		-\$6
	-\$6		

	NR over TC, rotation		
F, WC, F, SWWW	-\$1	F, SWWW, F, SWWW	-\$3
F, SWWW, F, SWWW	-\$3	F, WC, F, SWWW	-\$1



Calendars for Canola Rotation: F - WC - F - SWWW/HRWW

Default cost scenarios are based on these calendars for a reduced-till system.

Year 1: Schedule of Operations for Fallow (Rotation: after WW, before WC)

Month	Operation	Times	Tooling	Materials/Service
October	Chisel	1	35' Chisel & 300HP Tractor	
April	Spray	1	90' Sprayer & 300 HP Tractor	16 oz RoundUp
May	Cultivate & Fertilize	1	48' Cultivator w/rental fertilizer applicator & 300HP Tractor	50lb N, 4lb S, 1lb Boron
June-August	Rodweed	3	72' Rodweed & 300HP Tractor	

Year 2: Schedule of Operations for Winter Canola

Month	Operation	Times	Tooling	Materials/Service
August	Plant	1	36' seed drill & 300HP tractor	4lb seed
April	Fertilize	1	90' sprayer & 300HP tractor	25lb N, 7lb S
May	Spray, weeds	1	90' sprayer & 300HP tractor	Assure II 10 oz, COC 1pt
July	Spray, aphids	1	Custom aerial	Warrior II 1.6 oz
July	Spray, pod sealant	1	Custom aerial	Spodnam 1pt
August	Harvest	1	Combine & 30' header	1500lb/acre
August	Harvest	1	Tandem Axle	Avg. 20 mile roundtrip

Year 3: Schedule of Operations for Fallow (Rotation: after WC, before WW)

Month	Operation	Times	Tooling	Materials/Service
April	Spray	1	90' Sprayer & 300 HP Tractor	16 oz RoundUp
May	Cultivate & Fertilize	1	48' Cultivator w/rental fertilizer applicator & 300HP Tractor	SWWW: 75lb N, 11lb S HRWW: 90lb N, 13lb S
June-August	Rodweed	3	72' Rodweed & 300HP Tractor	

Year 4: Schedule of Operations for Winter Wheat (WW)

Month	Operation	Times	Tooling	Materials/Service
August	Plant	1	36' seed drill & 300HP tractor	45lbs/acre
April/May	Spray	1	90' sprayer & 300HP tractor	Bronate 1pt, Powerflex 2oz, Tilt 4 oz, M90 3oz.
August	Harvest	1	Combine & 30' header	SWWW: 50bu HRWW: 45 bu
August	Harvest	1	Tandem Axle	Avg. 20 mile roundtrip

Calendars for Wheat Rotation: F - SWWW/HRWW - F - SWWW/HRWW

Default cost scenarios are based on these calendars for a reduced-till system.

Year 1: Schedule of Operations for Fallow (Rotation: continuous WW)

Month	Operation	Times	Tooling	Materials/Service
October	Chisel	1	35' Chisel & 300HP Tractor	
April	Spray	1	90' Sprayer & 300 HP Tractor	16 oz RoundUp
May	Cultivate & Fertilize	1	48' Cultivator w/rental fertilizer applicator & 300HP Tractor	SWWW: 75lb N, 11lb S HRWW: 90lb N, 13lb S
June-August	Rodweed	3	72' Rodweed & 300HP Tractor	

Year 2: Schedule of Operations for Winter Wheat (WW)

Month	Operation	Times	Tooling	Materials/Service
August	Plant	1	36' seed drill & 300HP tractor	45lbs/acre
April/May	Spray	1	90' sprayer & 300HP tractor	Bronate 1pt, Osprey 2oz, Tilt 4 oz, M90 3oz. SWWW: 50bu HRWW: 45bu
August	Harvest	1	Combine & 30' header	
August	Harvest	1	Tandem Axle	Avg. 20 mile roundtrip

Year 3: Schedule of Operations for Fallow (Rotation: continuous WW)

Month	Operation	Times	Tooling	Materials/Service
October	Chisel	1	35' Chisel & 300HP Tractor	
April	Spray	1	90' Sprayer & 300 HP Tractor	16 oz RoundUp
May	Cultivate & Fertilize	1	48' Cultivator w/rental fertilizer applicator & 300HP Tractor	SWWW: 75lb N, 11lb S HRWW: 90lb N, 13lb S
June-August	Rodweed	3	72' Rodweed & 300HP Tractor	

Year 4: Schedule of Operations for Winter Wheat

Month	Operation	Times	Tooling	Materials/Service
August	Plant	1	36' seed drill & 300HP tractor	45lbs/acre
April/May	Spray	1	90' sprayer & 300HP tractor	Bronate 1pt, Osprey 2oz, Tilt 4 oz, M90 3oz. SWWW: 50bu HRWW: 45bu
August	Harvest	1	Combine & 30' header	
August	Harvest	1	Tandem Axle	Avg. 20 mile roundtrip

Canola Rotation: Winter Canola

Costs for Preceding Fallow Year

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Variable Costs				
Fertilizer:				\$48.94
Nitrogen	50	lb	\$0.77	\$38.50
Sulfur	4	lb	\$0.56	\$2.24
Boron	1	lb	\$8.20	\$8.20
				\$0.00
Pesticides:				\$3.20
Glyphosate	16.00	oz	\$0.20	\$3.20
				\$0.00
				\$0.00
				\$0.00
				\$0.00
				\$0.00
Machinery:				\$21.84
Go to machinery operations				
Fuel	1	acre	\$8.67	\$8.67
Lubricants	1	acre	\$1.30	\$1.30
Machinery Repairs	1	acre	\$2.87	\$2.87
Machinery Labor	0.45	hour	\$20.00	\$9.00
Custom & Consultants:				\$2.00
Rental Sprayer	1	acre	\$2.00	\$2.00
				\$0.00
				\$0.00
Other:				\$0.00
				\$0.00
				\$0.00
				\$0.00
Operating Interest ¹				\$3.28
Total Variable Costs				\$79.26

<u>Ownership Costs:</u>		
Machinery depreciation	\$4.09	\$4.09
Machinery interest	\$3.04	\$3.04
Machinery insurance, taxes, housing, licenses	\$1.14	\$1.14
Cash Rent		\$0.00
Land taxes		\$0.00
Overhead ²		\$2.00
Total Fixed Costs		\$10.27
Total Costs per Acre		\$89.53

Notes:

¹Calculated as 5.75% interest on operating capital for 9 months.

²Covers legal, accounting, and utility fees. Calculated as 2.5% of operating expenses, rounded to the nearest dollar.

Canola Rotation: Winter Canola

Production Costs for Winter Canola

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Gross Returns				
Winter Canola	1500	lb	\$0.21	\$311.55
Variable Costs				
Seed:				\$13.00
Winter Canola	4	lb	\$3.25	\$13.00
Fertilizer:				\$23.17
Nitrogen	25	lb	\$0.77	\$19.25
Sulfur	7	lb	\$0.56	\$3.92
				\$0.00
				\$0.00
Pesticides:				\$28.80
Assure II	10.00	oz	\$0.84	\$8.40
Crop Oil Concentrate	1.00	pt	\$0.10	\$0.10
Warrior II	1.60	oz	\$3.78	\$6.05
Spodnam	1.00	pt	\$14.25	\$14.25
				\$0.00
				\$0.00
Machinery:				\$31.88
Go to machinery operations				
Fuel	1	acre	\$10.81	\$10.81
Lubricants	1	acre	\$1.64	\$1.64
Machinery Repairs	1	acre	\$7.03	\$7.03
Machinery Labor	0.62	hour	\$20.00	\$12.40
Custom & Consultants:				\$17.40
Rental Sprayer	0	acre	\$2.00	\$0.00
Rental Ripper Shooter	0	acre	\$2.50	\$0.00
Custom Aerial	2	acre	\$8.70	\$17.40
Post-harvest storage and transportation³:				\$0.00
Storage	0	month(s)	\$22.50	\$0.00
Storage rate, share stored:				
Rate per bu, per month:	\$0.03			
Percentage of crop stored:	50%			
Long-haul transportation	30	bu	\$0.00	\$0.00
Transportation distance and volume:				
Roundtrip distance (miles):	0			
Rate per mile:	\$2.67			
Load volume (50lb bu):	1100			
Other:				\$19.50
Crop insurance	1	acre	\$19.50	\$19.50
Storage Facility & Equip. Repairs				\$0.00
Other Labor				\$0.00
Operating Interest ⁴				\$5.77
Total Variable Costs				\$139.52

2-Year Net Returns Above Variable Costs (Fallow + Crop Costs)					\$92.78
Fixed (Ownership) Costs:					
Machinery depreciation				\$8.25	\$8.25
Machinery interest				\$6.67	\$6.67
Machinery insurance, taxes, housing, licenses				\$4.21	\$4.21
Interest on summer fallow				\$3.42	\$3.42
Land cost	1	acre		\$63.00	\$63.00
Land cost based on crop share percentage:					
Landlord				33%	
Tenant				67%	
Overhead ⁵					\$3.00
Management fee ⁶					\$16.00
Total Fixed Costs					\$104.55
Total Costs per Acre					\$244.06
Return to Risk					
2-Year Net Returns over Total Costs (Fallow + Crop Costs)					-\$22.04

Notes:

³Storage rates based on regional elevator rates. Transportation cost based on hired rates for tractor+40' grain trailer, 100 mile roundtrip. Short distance (10-15 mi. one way) transportation to local elevator is included in machinery costs.

⁴Calculated as 5.75% interest on operating capital for 9 months.

⁵Covers legal, accounting, and utility fees. Calculated as 2.5% of operating expenses, rounded to the nearest dollar.

⁶The management fee is calculated as a 5% of gross revenue, rounded to the nearest dollar.

2-Year Costs	2-Year Total	Cost Per Unit	
Variable Cost	\$219	\$0.15	
Fixed Cost	\$115	\$0.08	
Total Cost	\$334	\$0.22	
Breakeven Analysis:			
	-		+
	10%	Base	10%
		Yield	
<u>Price</u>	1350.00	1500	1650.00
Operating Cost Breakeven	\$0.16	\$0.15	\$0.13
Ownership Cost Breakeven	\$0.09	\$0.08	\$0.07
Total Cost Breakeven	\$0.25	\$0.22	\$0.20
	-		+
	10%	Base	10%
		Price	
<u>Yield</u>	\$0.19	\$0.21	\$0.23
Operating Cost Breakeven	1170.3	1053.3	957.6
Ownership Cost Breakeven	614.2	552.8	502.6
Total Cost Breakeven	1784.6	1606.1	1460.1

Canola Rotation: Soft White Winter Wheat

Costs for Preceding Fallow Year

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
<u>Variable Costs</u>				
Fertilizer:				\$63.91
Nitrogen	75	lb	\$0.77	\$57.75
Sulfur	11	lb	\$0.56	\$6.16
				\$0.00
				\$0.00
Pesticides:				\$3.20
Glyphosate	16.00	oz	\$0.20	\$3.20
				\$0.00
				\$0.00
				\$0.00
				\$0.00
Machinery:				\$17.34
Go to machinery operations				
Fuel	1	acre	\$6.60	\$6.60
Lubricants	1	acre	\$0.99	\$0.99
Machinery Repairs	1	acre	\$2.35	\$2.35
Machinery Labor	0.37	hour	\$20.00	\$7.40
Custom & Consultants:				\$2.00
Rental Sprayer	1	acre	\$2.00	\$2.00
				\$0.00
				\$0.00
Other:				\$0.00
				\$0.00
				\$0.00
				\$0.00
Operating Interest ¹				\$3.73
Total Variable Costs				\$90.18

<u>Ownership Costs:</u>		
Machinery depreciation	\$3.41	\$3.41
Machinery interest	\$2.55	\$2.55
Machinery insurance, taxes, housing, licenses	\$1.07	\$1.07
Cash Rent		\$0.00
Land taxes		\$0.00
Overhead ²		\$2.00
Total Fixed Costs		\$9.03
Total Costs per Acre		\$99.21

Notes:

¹Calculated as 5.75% interest on operating capital for 9 months.

²Covers legal, accounting, and utility fees. Calculated as 2.5% of operating expenses, rounded to the nearest dollar.

Canola Rotation: Soft White Winter Wheat

Production Costs for Soft White Winter Wheat

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Gross Returns				
SWWW	50	bu	\$6.44	\$322.00
Variable Costs				
Seed:				\$10.80
Wheat Seed	45	lb	\$0.24	\$10.80
Fertilizer:				\$0.00
Nitrogen	0	lb	\$0.77	\$0.00
Sulfur	0	lb	\$0.56	\$0.00
				\$0.00
Pesticides:				\$26.05
Bronate	1.00	pt	\$7.88	\$7.88
Powerflex	2.00	oz	\$4.68	\$9.36
Tilt	4.00	oz	\$2.06	\$8.24
M90	3.00	oz	\$0.19	\$0.57
				\$0.00
				\$0.00
Machinery:				\$27.92
Go to machinery operations				
Fuel	1	acre	\$9.35	\$9.35
Lubricants	1	acre	\$1.42	\$1.42
Machinery Repairs	1	acre	\$5.95	\$5.95
Machinery Labor	0.56	hour	\$20.00	\$11.20
Custom & Consultants:				\$0.00
Rental Sprayer	0	acre	\$2.00	\$0.00
Rental Ripper Shooter	0	acre	\$2.50	\$0.00
Custom Aerial	0	acre	\$8.70	\$0.00
Post-harvest storage and transportation³:				\$13.35
Storage	0	month(s)	\$0.50	\$0.00
Storage rate, share stored:				
Rate per bu, per month:	\$0.02			
Percentage of crop stored:	50%			
Long-haul transportation	50	bu	\$0.27	\$13.35
Transportation distance and volume:				
Roundtrip distance (miles):	100			
Rate per mile:	\$2.67			
Load volume (60lb bu):	1000			
Other:				\$13.75
Crop insurance	1	acre	\$13.75	\$13.75
Storage Facility & Equip. Repairs				\$0.00
Other Labor				\$0.00
Operating Interest ⁴				\$3.96
Total Variable Costs				\$95.83
2-Year Net Returns Above Variable Costs (Fallow + Crop Costs)				\$135.99

<u>Fixed (Ownership) Costs:</u>			
Machinery depreciation		\$7.09	\$7.09
Machinery interest		\$5.67	\$5.67
Machinery insurance, taxes, housing, licenses		\$3.86	\$3.86
Interest on summer fallow		\$3.89	\$3.89
Land cost	1	acre	\$72.00
Land cost based on crop share percentage:			
Landlord	33%		
Tenant	67%		
Overhead ⁵			\$2.00
Management fee ⁶			\$16.00
Total Fixed Costs			\$110.51
Total Costs per Acre			\$206.34
<u>Return to Risk</u>			
2-Year Net Returns over Total Costs (Fallow + Crop Costs)			\$16.45

Notes:

³Storage rates based on regional elevator rates. Transportation cost based on hired rates for tractor+40' grain trailer, 100 mile roundtrip. Short distance (10-15 mi. one way) transportation to local elevator is included in machinery costs.

⁴Calculated as 5.75% interest on operating capital for 9 months.

⁵Covers legal, accounting, and utility fees. Calculated as 2.5% of operating expenses, rounded to the nearest dollar.

⁶The management fee is calculated as a 5% of gross revenue, rounded to the nearest dollar.

<u>2-Year Costs</u>	<u>2-Year Total</u>	<u>Cost Per Unit</u>	
Variable Cost	\$186	\$3.72	
Fixed Cost	\$120	\$2.39	
Total Cost	\$306	\$6.11	
<u>Breakeven Analysis:</u>	-		+
	10%	Base	10%
		Yield	
<u>Price</u>	45.00	50	55.00
Operating Cost Breakeven	\$4.13	\$3.72	\$3.38
Ownership Cost Breakeven	\$2.66	\$2.39	\$2.17
Total Cost Breakeven	\$6.79	\$6.11	\$5.56
	-		+
	10%	Base	10%
		Price	
<u>Yield</u>	\$5.80	\$6.44	\$7.08
Operating Cost Breakeven	32.1	28.9	26.3
Ownership Cost Breakeven	20.6	18.6	16.9
Total Cost Breakeven	52.7	47.4	43.1

Grain Rotation: Soft White Winter Wheat

Costs for Preceding Fallow Year

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
<u>Variable Costs</u>				
Fertilizer:				\$63.91
Nitrogen	75	lb	\$0.77	\$57.75
Sulfur	11	lb	\$0.56	\$6.16
				\$0.00
				\$0.00
Pesticides:				\$3.20
Glyphosate	16.00	oz	\$0.20	\$3.20
				\$0.00
				\$0.00
				\$0.00
				\$0.00
Machinery:				\$21.84
Go to machinery operations				
Fuel	1	acre	\$8.67	\$8.67
Lubricants	1	acre	\$1.30	\$1.30
Machinery Repairs	1	acre	\$2.87	\$2.87
Machinery Labor	0.45	hour	\$20.00	\$9.00
Custom & Consultants:				\$2.00
Rental Sprayer	1	acre	\$2.00	\$2.00
				\$0.00
				\$0.00
Other:				\$0.00
				\$0.00
				\$0.00
				\$0.00
Operating Interest ¹				\$3.92
Total Variable Costs				\$94.87

<u>Fixed (Ownership) Costs:</u>		
Machinery depreciation	\$4.09	\$4.09
Machinery interest	\$3.04	\$3.04
Machinery insurance, taxes, housing, licenses	\$1.14	\$1.14
Cash Rent		\$0.00
Land taxes		\$0.00
Overhead ²		\$2.00
Total Fixed Costs		\$10.27
Total Costs per Acre		\$105.14

Notes:

¹Calculated as 5.75% interest on operating capital for 9 months.

²Covers legal, accounting, and utility fees. Calculated as 2.5% of operating expenses, rounded to the nearest dollar.

Grain Rotation: Soft White Winter Wheat

Production Costs for Soft White Winter Wheat

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Gross Returns				
SWWW	45	bu	\$6.44	\$289.80
Variable Costs				
Seed:				\$10.80
Wheat Seed	45	lb	\$0.24	\$10.80
Fertilizer:				\$0.00
Nitrogen	0	lb	\$0.77	\$0.00
Sulfur	0	lb	\$0.56	\$0.00
				\$0.00
Pesticides:				\$24.49
Bronate	1.00	pt	\$7.88	\$7.88
Osprey	2.00	oz	\$3.90	\$7.80
Tilt	4.00	oz	\$2.06	\$8.24
M90	3.00	oz	\$0.19	\$0.57
				\$0.00
				\$0.00
Machinery:				\$27.92
Go to machinery operations				
Fuel	1	acre	\$9.35	\$9.35
Lubricants	1	acre	\$1.42	\$1.42
Machinery Repairs	1	acre	\$5.95	\$5.95
Machinery Labor	0.56	hour	\$20.00	\$11.20
Custom & Consultants:				\$0.00
Rental Sprayer	0	acre	\$2.00	\$0.00
Rental Ripper Shooter	0	acre	\$2.50	\$0.00
Custom Aerial	0	acre	\$8.70	\$0.00
Post-harvest storage and transportation³:				\$12.02
Storage	0	month(s)	\$0.45	\$0.00
Storage rate, share stored:				
Rate per bu, per month:	\$0.02			
Percentage of crop stored:	50%			
Long-haul transportation	45	bu	\$0.27	\$12.02
Transportation distance and volume:				
Roundtrip distance (miles):	100			
Rate per mile:	\$2.67			
Load volume (60lb bu):	1000			
Other:				\$13.75
Crop insurance	1	acre	\$13.75	\$13.75
Storage Facility & Equip. Repairs				\$0.00
Other Labor				\$0.00
Operating Interest ⁴				\$3.84
Total Variable Costs				\$92.81
2-Year Net Returns Above Variable Costs (Fallow + Crop Costs)				\$102.12

<u>Fixed (Ownership) Costs:</u>			
Machinery depreciation		\$7.09	\$7.09
Machinery interest		\$5.67	\$5.67
Machinery insurance, taxes, housing, licenses		\$3.86	\$3.86
Interest on summer fallow		\$4.09	\$4.09
Land cost	1	acre	\$61.00
Land cost based on crop share percentage:			
Landlord	33%		
Tenant	67%		
Overhead ⁵			\$2.00
Management fee ⁶			\$14.00
Total Fixed Costs			\$97.71
Total Costs per Acre			\$190.52
<u>Return to Risk</u>			
2-Year Net Returns over Total Costs (Fallow + Crop Costs)			-\$5.87

Notes:

³Storage rates based on regional elevator rates. Transportation cost based on hired rates for tractor+40' grain trailer, 100 mile roundtrip. Short distance (10-15 mi. one way) transportation to local elevator is included in machinery costs.

⁴Calculated as 5.75% interest on operating capital for 9 months.

⁵Covers legal, accounting, and utility fees. Calculated as 2.5% of operating expenses, rounded to the nearest dollar.

⁶The management fee is calculated as a 5% of gross revenue, rounded to the nearest dollar.

<u>2-Year Costs</u>	<u>2-Year Total</u>	<u>Cost Per Unit</u>	
Variable Cost	\$188	\$4.17	
Fixed Cost	\$108	\$2.40	
Total Cost	\$296	\$6.57	
<u>Breakeven Analysis:</u>			
	-		+
	10%	Base	10%
		Yield	
<u>Price</u>	40.50	45	49.50
Operating Cost Breakeven	\$4.63	\$4.17	\$3.79
Ownership Cost Breakeven	\$2.67	\$2.40	\$2.18
Total Cost Breakeven	\$7.30	\$6.57	\$5.97
	-		+
	10%	Base	10%
		Price	
<u>Yield</u>	\$5.80	\$6.44	\$7.08
Operating Cost Breakeven	32.4	29.1	26.5
Ownership Cost Breakeven	18.6	16.8	15.2
Total Cost Breakeven	51.0	45.9	41.7

Table 3. Machinery Complement for <12" Low Rainfall Region in Washington State

Type of Machine	Replacement Value \$	Age When Purchased	Years of Life	Annual Hours of Use	Salvage Value \$	Annual Repairs (Materials & Labor) \$	Taxes, Housing, Insur., Licenses %	Labor Multiplier	Field Speed (mph)	Width (ft)	Field Efficiency %	Gallons of Fuel/Hr.	Acres per Hour
Tractors, ATVs:													
150HP 4WD Tractor	20,000	5	10	300	5,000	500	1.2	1.2				6.5	
300HP 4WD Tractor	100,000	5	10	1200	40,000	3,000	1.2	1.1				9	
4WD ATV	7,000	5	10	200	2,000	100	1.2	1.2				1.2	
Equipment:													
300HP Tractor + 26' Shredder	30,000	5	15	100	10,000	770	2.5	1.1	6	26	80	9	15
300HP Tractor + 48' Harrow	9,000	5	15	120	1,500	550	0.6	1.1	6	48	85	9	30
300HP Tractor + 35' Chisel plow	18,500	5	15	200	4,000	1000	0.6	1.1	4	35	85	9	14
300HP Tractor + 72' Rodweeder	15,000	5	15	90	5,000	850	0.6	1.1	4	72	80	9	28
300HP Tractor + 48' Cultivator	18,000	5	15	100	3,000	500	0.6	1.1	5	48	85	9	25
300HP Tractor + 34' Tandem disk	30,000	5	15	130	15,000	1650	0.6	1.1	6	34	80	9	20
300HP Tractor + 60' Coil packer	15,000	5	15	100	8,000	50	0.6	1.1	5	60	85	9	31
300HP Tractor + 90' Sprayer	30,000	5	15	200	10,000	1700	0.6	1.1	5.5	90	60	9	36
300HP Tractor + 36' Grain drill	40,000	5	15	230	20,000	2,000	3.0	1.1	4	36	70	9	12
30' Combine	125,000	5	15	200	60,000	6,000	2.6	1.2	4	30	90	7	13
300HP Tractor + Bankout wagon	15,000	5	15	200	3,000	500	0.6	1.1					13
Trucks:													
				Miles/year:						MPG:			Miles/acre
Tandem Axle Truck	35,000	5	15	1500	14,500	2000	10.1	1.2		6		6	0.6
Tandem Axle Truck	35,000	5	15	1500	14,500	2000	10.1	1.2		6		6	0.6
2-Ton Truck	20,000	5	15	1000	9,000	1000	2.6	1.2		6		6	0.2
Trap Wagon	15,000	5	10	1000	3,000	400	3.8	1.2		12		12	0.2
3/4-Ton Pickup	34,000	5	7	12000	13,000	600	6.8	1.2		12		12	2.4

Note: A "machinery complement" is a set of common machinery and implements that would be sufficient for performing standard operations in crop production on a farm in a given region. In these budgets, farm size is assumed to be 5000 acres for the purposes of machinery cost calculations.

Table 4. Total Machinery Costs (\$/acre) from the University of Idaho Machinery Cost Calculator

Operation	Fixed (Ownership) Costs						Variable Costs					Total Cost (\$/Acre)
	Depreciation	Interest	Taxes, housing, insurance, licenses	Total Fixed Costs	Repairs	Lube Cost	Fuel		Labor		Total Variable Costs	
							Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost		
Seasonal operations:												
300HP Tractor & 26' shredder	\$ 1.21	\$ 1.07	\$ 0.38	\$ 2.66	\$ 0.83	\$ 0.30	0.58	\$ 1.97	0.07	\$ 1.40	\$ 4.50	\$ 7.16
300HP Tractor & 48' harrow	\$ 0.31	\$ 0.21	\$ 0.03	\$ 0.55	\$ 0.23	\$ 0.15	0.30	\$ 1.02	0.04	\$ 0.80	\$ 2.20	\$ 2.75
300HP Tractor & 35' chisel plow	\$ 0.68	\$ 0.49	\$ 0.07	\$ 1.24	\$ 0.52	\$ 0.31	0.61	\$ 2.07	0.08	\$ 1.60	\$ 4.50	\$ 5.74
300HP Tractor & 72' rodweeder	\$ 0.45	\$ 0.38	\$ 0.05	\$ 0.88	\$ 0.43	\$ 0.16	0.32	\$ 1.09	0.04	\$ 0.80	\$ 2.48	\$ 3.36
300HP Tractor & 36' cultivator	\$ 0.60	\$ 0.42	\$ 0.06	\$ 1.08	\$ 0.30	\$ 0.18	0.35	\$ 1.19	0.04	\$ 0.80	\$ 2.47	\$ 3.55
300HP Tractor & 34' tandem disk harrow	\$ 0.64	\$ 0.73	\$ 0.09	\$ 1.46	\$ 0.77	\$ 0.23	0.44	\$ 1.50	0.06	\$ 1.20	\$ 3.70	\$ 5.16
300HP Tractor & 60' coil-packer	\$ 0.31	\$ 0.35	\$ 0.04	\$ 0.70	\$ 0.10	\$ 0.14	0.28	\$ 0.95	0.04	\$ 0.80	\$ 1.99	\$ 2.69
300HP Tractor & 90' sprayer	\$ 0.33	\$ 0.27	\$ 0.04	\$ 0.64	\$ 0.31	\$ 0.13	0.25	\$ 0.85	0.03	\$ 0.60	\$ 1.89	\$ 2.53
300HP Tractor & 36' grain drill	\$ 0.88	\$ 0.97	\$ 0.38	\$ 2.23	\$ 0.91	\$ 0.37	0.72	\$ 2.45	0.09	\$ 1.80	\$ 5.53	\$ 7.76
Combine & 30' header ** 4 mph **	\$ 2.48	\$ 2.21	\$ 0.92	\$ 5.61	\$ 2.29	\$ 0.27	0.52	\$ 1.77	0.09	\$ 1.80	\$ 6.13	\$ 11.74
Combine & 30' header ** 3 mph **	\$ 3.31	\$ 2.94	\$ 1.23	\$ 7.48	\$ 3.06	\$ 0.36	0.70	\$ 2.38	0.12	\$ 2.40	\$ 8.20	\$ 15.68
300HP Tractor & Bankout wagon	\$ 0.69	\$ 0.50	\$ 0.08	\$ 1.27	\$ 0.39	\$ 0.35	0.68	\$ 2.31	0.09	\$ 1.80	\$ 4.85	\$ 6.12
Annual Costs:												
Tandem axle truck	\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	\$ 4.09
Tandem axle truck	\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	\$ 4.09
2-ton truck	\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	\$ 1.21
Trap wagon	\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	\$ 0.93
3/4-ton pick-up	\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	\$ 3.92
ATV	\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	\$ 2.15
Fixed Cost \$/Acre	\$ 14.60	\$ 12.26	\$ 5.81	\$ 32.67	\$ 12.19	\$ 3.25		\$ 21.52		\$ 21.00	\$ 57.96	\$ 90.63

Note: Per acre machinery costs are calculated in the University of Idaho Machinery Cost Program using the values in the Machinery Complement tab.

Canola Rotation

Increase or decrease the number of passes for each operation by changing the numbers in **red text**

Green text indicates the crop's place in the full rotation

Table 5. Machinery Costs for Fallow (\$/acre) after Winter Wheat, before Winter Canola

Oilseed Rotation: F - WC - F - SWWW/HRWW

		Fixed (Ownership) Costs					Variable Costs						
				Taxes, housing, insurance, licenses				Fuel		Labor			
	Number of Passes	Depreciation	Interest		Total Fixed Costs	Repairs	Lube Cost	Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost	Total Variable Costs	Total Cost (\$/Acre)
Seasonal operations:													
300HP Tractor & 26' shredder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 48' harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 35' chisel plow	1	\$ 0.68	\$ 0.49	\$ 0.07	\$ 1.24	\$ 0.52	\$ 0.31	0.61	\$ 2.07	0.08	\$ 1.60	\$ 4.50	
300HP Tractor & 72' rodweeder	3	\$ 1.35	\$ 1.14	\$ 0.15	\$ 2.64	\$ 1.29	\$ 0.48	0.96	\$ 3.27	0.12	\$ 2.40	\$ 7.44	
300HP Tractor & 36' cultivator	1	\$ 0.60	\$ 0.42	\$ 0.06	\$ 1.08	\$ 0.30	\$ 0.18	0.35	\$ 1.19	0.04	\$ 0.80	\$ 2.47	
300HP Tractor & 34' tandem disk harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 60' coil-packer	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 90' sprayer	1	\$ 0.33	\$ 0.27	\$ 0.04	\$ 0.64	\$ 0.31	\$ 0.13	0.25	\$ 0.85	0.03	\$ 0.60	\$ 1.89	
300HP Tractor & 36' grain drill	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Combine & 30' header ** 4 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Combine & 30' header ** 3 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & Bankout wagon	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Annual Costs:													
2-ton truck		\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	
Trap wagon		\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	
3/4-ton pick-up		\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	
ATV		\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	
Fixed Cost \$/Acre		\$ 4.09	\$ 3.04	\$ 1.14	\$ 8.27	\$ 2.87	\$ 1.30	2.54	\$ 8.67	0.45	\$ 9.00	\$ 21.84	\$ 30.11

Table 6. Machinery Costs for Winter Canola (\$/acre)

Oilseed Rotation: F - WC - F - SWWW/HRWW

		Fixed (Ownership) Costs				Variable Costs							
				Taxes, housing, insurance, licenses				Fuel		Labor			
	Number of Passes	Depreciation	Interest		Total Fixed Costs	Repairs	Lube Cost	Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost	Total Variable Costs	Total Cost (\$/Acre)
Seasonal operations:													
300HP Tractor & 26' shredder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 48' harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 35' chisel plow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 72' rodweeder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 36' cultivator	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 34' tandem disk harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 60' coil-packer	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 90' sprayer	2	\$ 0.66	\$ 0.54	\$ 0.08	\$ 1.28	\$ 0.62	\$ 0.26	0.50	\$ 1.70	0.06	\$ 1.20	\$ 3.78	
300HP Tractor & 36' grain drill	1	\$ 0.88	\$ 0.97	\$ 0.38	\$ 2.23	\$ 0.91	\$ 0.37	0.72	\$ 2.45	0.09	\$ 1.80	\$ 5.53	
Combine & 30' header ** 4 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Combine & 30' header ** 3 mph **	1	\$ 3.31	\$ 2.94	\$ 1.23	\$ 7.48	\$ 3.06	\$ 0.36	0.70	\$ 2.38	0.12	\$ 2.40	\$ 8.20	
300HP Tractor & Bankout wagon	1	\$ 0.69	\$ 0.50	\$ 0.08	\$ 1.27	\$ 0.39	\$ 0.35	0.68	\$ 2.31	0.09	\$ 1.80	\$ 4.85	
Annual Costs:													
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
2-ton truck		\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	
Trap wagon		\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	
3/4-ton pick-up		\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	
ATV		\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	
Fixed Cost \$/Acre		\$ 8.25	\$ 6.67	\$ 4.21	\$ 19.13	\$ 7.03	\$ 1.64	3.17	\$ 10.81	0.62	\$ 12.40	\$ 31.88	\$ 51.01

Table 7. Machinery Costs for Fallow (\$/acre) after Winter Canola, before Winter Wheat

Oilseed Rotation: F - WC - F - SWWW/HRWW

		Fixed (Ownership) Costs				Variable Costs							
	Number of Passes	Depreciation	Interest	Taxes, housing, insurance, licenses	Total Fixed Costs	Repairs	Lube Cost	Fuel		Labor		Total Variable Costs	Total Cost (\$/Acre)
								Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost		
Operation													
Seasonal operations:													
300HP Tractor & 26' shredder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 48' harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 35' chisel plow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 72' rodweeder	3	\$ 1.35	\$ 1.14	\$ 0.15	\$ 2.64	\$ 1.29	\$ 0.48	0.96	\$ 3.27	0.12	\$ 2.40	\$ 7.44	
300HP Tractor & 36' cultivator	1	\$ 0.60	\$ 0.42	\$ 0.06	\$ 1.08	\$ 0.30	\$ 0.18	0.35	\$ 1.19	0.04	\$ 0.80	\$ 2.47	
300HP Tractor & 34' tandem disk harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 60' coil-packer	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 90' sprayer	1	\$ 0.33	\$ 0.27	\$ 0.04	\$ 0.64	\$ 0.31	\$ 0.13	0.25	\$ 0.85	0.03	\$ 0.60	\$ 1.89	
300HP Tractor & 36' grain drill	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Combine & 30' header ** 4 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Combine & 30' header ** 3 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & Bankout wagon	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Annual Costs:													
2-ton truck		\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	
Trap wagon		\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	
3/4-ton pick-up		\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	
ATV		\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	
Fixed Cost \$/Acre		\$ 3.41	\$ 2.55	\$ 1.07	\$ 7.03	\$ 2.35	\$ 0.99	1.93	\$ 6.60	0.37	\$ 7.40	\$ 17.34	\$ 24.37

Table 8. Machinery Costs for Soft White Winter Wheat (\$/acre)

Oilseed Rotation: F - WC - F - SWWW/HRWW

		Fixed (Ownership) Costs				Variable Costs							
	Number of Passes	Depreciation	Interest	Taxes, housing, insurance, licenses	Total Fixed Costs	Repairs	Lube Cost	Fuel		Labor		Total Variable Costs	Total Cost (\$/Acre)
								Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost		
Operation													
Seasonal operations:													
300HP Tractor & 26' shredder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 48' harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 35' chisel plow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 72' rodweeder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 36' cultivator	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 34' tandem disk harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 60' coil-packer	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 90' sprayer	1	\$ 0.33	\$ 0.27	\$ 0.04	\$ 0.64	\$ 0.31	\$ 0.13	0.25	\$ 0.85	0.03	\$ 0.60	\$ 1.89	
300HP Tractor & 36' grain drill	1	\$ 0.88	\$ 0.97	\$ 0.38	\$ 2.23	\$ 0.91	\$ 0.37	0.72	\$ 2.45	0.09	\$ 1.80	\$ 5.53	
Combine & 30' header ** 4 mph **	1	\$ 2.48	\$ 2.21	\$ 0.92	\$ 5.61	\$ 2.29	\$ 0.27	0.52	\$ 1.77	0.09	\$ 1.80	\$ 6.13	
Combine & 30' header ** 3 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & Bankout wagon	1	\$ 0.69	\$ 0.50	\$ 0.08	\$ 1.27	\$ 0.39	\$ 0.35	0.68	\$ 2.31	0.09	\$ 1.80	\$ 4.85	
Annual Costs:													
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
2-ton truck		\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	
Trap wagon		\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	
3/4-ton pick-up		\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	
ATV		\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	
Fixed Cost \$/Acre		\$ 7.09	\$ 5.67	\$ 3.86	\$ 16.62	\$ 5.95	\$ 1.42	2.74	\$ 9.35	0.56	\$ 11.20	\$ 27.92	\$ 44.54

Table 9. Machinery Costs for Hard Red Winter Wheat (\$/acre)

Oilseed Rotation: F - WC - F - SWWW/HRWW

Operation	Number of Passes	Fixed (Ownership) Costs				Variable Costs							Total Cost (\$/Acre)
		Depreciation	Interest	Taxes, housing, insurance, licenses	Total Fixed Costs	Repairs	Lube Cost	Fuel		Labor		Total Variable Costs	
								Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost		
Seasonal operations:													
300HP Tractor & 26' shredder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 48' harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 35' chisel plow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 72' rodweeder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 36' cultivator	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 34' tandem disk harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 60' coil-packer	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 90' sprayer	1	\$ 0.33	\$ 0.27	\$ 0.04	\$ 0.64	\$ 0.31	\$ 0.13	0.25	\$ 0.85	0.03	\$ 0.60	\$ 1.89	
300HP Tractor & 36' grain drill	1	\$ 0.88	\$ 0.97	\$ 0.38	\$ 2.23	\$ 0.91	\$ 0.37	0.72	\$ 2.45	0.09	\$ 1.80	\$ 5.53	
Combine & 30' header ** 4 mph **	1	\$ 2.48	\$ 2.21	\$ 0.92	\$ 5.61	\$ 2.29	\$ 0.27	0.52	\$ 1.77	0.09	\$ 1.80	\$ 6.13	
Combine & 30' header ** 3 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & Bankout wagon	1	\$ 0.69	\$ 0.50	\$ 0.08	\$ 1.27	\$ 0.39	\$ 0.35	0.68	\$ 2.31	0.09	\$ 1.80	\$ 4.85	
Annual Costs:													
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
2-ton truck		\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	
Trap wagon		\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	
3/4-ton pick-up		\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	
ATV		\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	
Fixed Cost \$/Acre		\$ 7.09	\$ 5.67	\$ 3.86	\$ 16.62	\$ 5.95	\$ 1.42	2.74	\$ 9.35	0.56	\$ 11.20	\$ 27.92	\$ 44.54

Wheat Rotation

Table 10. Machinery Costs for Fallow (\$/acre) after Winter Wheat, before Winter Wheat

Wheat Rotation: F - SWWW/HRWW - F - SWWW/HRWW

		Fixed (Ownership) Costs				Variable Costs							
	Number of Passes	Depreciation	Interest	Taxes, housing, insurance, licenses	Total Fixed Costs	Repairs	Lube Cost	Fuel		Labor		Total Variable Costs	Total Cost (\$/Acre)
								Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost		
Operation													
Seasonal operations:													
300HP Tractor & 26' shredder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 48' harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 35' chisel plow	1	\$ 0.68	\$ 0.49	\$ 0.07	\$ 1.24	\$ 0.52	\$ 0.31	0.61	\$ 2.07	0.08	\$ 1.60	\$ 4.50	
300HP Tractor & 72' rodweeder	3	\$ 1.35	\$ 1.14	\$ 0.15	\$ 2.64	\$ 1.29	\$ 0.48	0.96	\$ 3.27	0.12	\$ 2.40	\$ 7.44	
300HP Tractor & 36' cultivator	1	\$ 0.60	\$ 0.42	\$ 0.06	\$ 1.08	\$ 0.30	\$ 0.18	0.35	\$ 1.19	0.04	\$ 0.80	\$ 2.47	
300HP Tractor & 34' tandem disk harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 60' coil-packer	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 90' sprayer	1	\$ 0.33	\$ 0.27	\$ 0.04	\$ 0.64	\$ 0.31	\$ 0.13	0.25	\$ 0.85	0.03	\$ 0.60	\$ 1.89	
300HP Tractor & 36' grain drill	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Combine & 30' header ** 4 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Combine & 30' header ** 3 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & Bankout wagon	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
Annual Costs:													
2-ton truck		\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	
Trap wagon		\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	
3/4-ton pick-up		\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	
ATV		\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	
Fixed Cost \$/Acre		\$ 4.09	\$ 3.04	\$ 1.14	\$ 8.27	\$ 2.87	\$ 1.30	2.54	\$ 8.67	0.45	\$ 9.00	\$ 21.84	\$ 30.11

Table 11. Machinery Costs for Soft White Winter Wheat (\$/acre)

Wheat Rotation: F - SWWW/HRWW - F - SWWW/HRWW

		Fixed (Ownership) Costs				Variable Costs							
	Number of Passes	Depreciation	Interest	Taxes, housing, insurance, licenses	Total Fixed Costs	Repairs	Lube Cost	Fuel		Labor		Total Variable Costs	Total Cost (\$/Acre)
								Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost		
Operation													
Seasonal operations:													
300HP Tractor & 26' shredder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 48' harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 35' chisel plow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 72' rodweeder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 36' cultivator	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 34' tandem disk harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 60' coil-packer	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 90' sprayer	1	\$ 0.33	\$ 0.27	\$ 0.04	\$ 0.64	\$ 0.31	\$ 0.13	0.25	\$ 0.85	0.03	\$ 0.60	\$ 1.89	
300HP Tractor & 36' grain drill	1	\$ 0.88	\$ 0.97	\$ 0.38	\$ 2.23	\$ 0.91	\$ 0.37	0.72	\$ 2.45	0.09	\$ 1.80	\$ 5.53	
Combine & 30' header ** 4 mph **	1	\$ 2.48	\$ 2.21	\$ 0.92	\$ 5.61	\$ 2.29	\$ 0.27	0.52	\$ 1.77	0.09	\$ 1.80	\$ 6.13	
Combine & 30' header ** 3 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & Bankout wagon	1	\$ 0.69	\$ 0.50	\$ 0.08	\$ 1.27	\$ 0.39	\$ 0.35	0.68	\$ 2.31	0.09	\$ 1.80	\$ 4.85	
Annual Costs:													
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
2-ton truck		\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	
Trap wagon		\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	
3/4-ton pick-up		\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	
ATV		\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	
Fixed Cost \$/Acre		\$ 7.09	\$ 5.67	\$ 3.86	\$ 16.62	\$ 5.95	\$ 1.42	2.74	\$ 9.35	0.56	\$ 11.20	\$ 27.92	\$ 44.54

Table 12. Machinery Costs for Hard Red Winter Wheat (\$/acre)

Wheat Rotation: F - SWWW/HRWW - F - SWWW/HRWW

		Fixed (Ownership) Costs				Variable Costs							
	Number of Passes	Depreciation	Interest	Taxes, housing, insurance, licenses	Total Fixed Costs	Repairs	Lube Cost	Fuel		Labor		Total Variable Costs	Total Cost (\$/Acre)
								Fuel Use gal/acre	Fuel Cost	Labor hrs/acre	Labor Cost		
Operation													
Seasonal operations:													
300HP Tractor & 26' shredder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 48' harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 35' chisel plow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 72' rodweeder	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 36' cultivator	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 34' tandem disk harrow	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 60' coil-packer	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & 90' sprayer	1	\$ 0.33	\$ 0.27	\$ 0.04	\$ 0.64	\$ 0.31	\$ 0.13	0.25	\$ 0.85	0.03	\$ 0.60	\$ 1.89	
300HP Tractor & 36' grain drill	1	\$ 0.88	\$ 0.97	\$ 0.38	\$ 2.23	\$ 0.91	\$ 0.37	0.72	\$ 2.45	0.09	\$ 1.80	\$ 5.53	
Combine & 30' header ** 4 mph **	1	\$ 2.48	\$ 2.21	\$ 0.92	\$ 5.61	\$ 2.29	\$ 0.27	0.52	\$ 1.77	0.09	\$ 1.80	\$ 6.13	
Combine & 30' header ** 3 mph **	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0.00	\$ -	0.00	\$ -	\$ -	
300HP Tractor & Bankout wagon	1	\$ 0.69	\$ 0.50	\$ 0.08	\$ 1.27	\$ 0.39	\$ 0.35	0.68	\$ 2.31	0.09	\$ 1.80	\$ 4.85	
Annual Costs:													
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
Tandem axle truck		\$ 0.79	\$ 0.50	\$ 0.81	\$ 2.10	\$ 0.80	\$ 0.05	0.10	\$ 0.34	0.04	\$ 0.80	\$ 1.99	
2-ton truck		\$ 0.22	\$ 0.18	\$ 0.29	\$ 0.69	\$ 0.20	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.52	
Trap wagon		\$ 0.24	\$ 0.11	\$ 0.18	\$ 0.53	\$ 0.08	\$ 0.02	0.03	\$ 0.10	0.01	\$ 0.20	\$ 0.40	
3/4-ton pick-up		\$ 0.42	\$ 0.29	\$ 0.32	\$ 1.03	\$ 0.12	\$ 0.10	0.19	\$ 0.67	0.10	\$ 2.00	\$ 2.89	
ATV		\$ 0.25	\$ 0.14	\$ 0.03	\$ 0.42	\$ 0.05	\$ 0.06	0.12	\$ 0.42	0.06	\$ 1.20	\$ 1.73	
Fixed Cost \$/Acre		\$ 7.09	\$ 5.67	\$ 3.86	\$ 16.62	\$ 5.95	\$ 1.42	2.74	\$ 9.35	0.56	\$ 11.20	\$ 27.92	\$ 44.54