

St John Site, Conventional Tillage



2009 Crop Rotation Budgets for 15" to 18" Precipitation Zone Under Conventional Tillage Dryland Grain Producing Region of the NW Wheat & Range Region

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Budget spreadsheets are available at the following links:
<http://csanr.wsu.edu/Publications/FarmMgmtEconomics.htm>
<http://www.uidaho.edu/~kpainter>



INSTRUCTIONS AND ASSUMPTIONS

General Instructions:

A color coding system is used to indicate the source of the data for each budget and to show which data can be adjusted. Orange cells can be changed without affecting the underlying equations in this cost calculator. Data in yellow cells are from the Summary sheet (click on yellow Summary tab or select it from the TabSelect drop-down menu). In the Summary sheet both crop price and yield are in orange cells. Adjusting any of those numbers will automatically update all calculations throughout the spreadsheet. You can quickly compare price and yield changes by crop and rotation on net returns and land costs. You can also see rotational impacts. For example, if you know that a crop will have a higher yield in a particular sequence, adjust the crop yield in the upper table and see the rotational impact in the second table. You can save the file with this data, then create another scenario and save it as a different file. The graphical tab will illustrate the results of these changes automatically.

Input Prices:

By entering input prices on the Input Prices sheet (click on the green Input Prices tab), all of the cost calculations will be automatically updated. Input cost changes can also be made on individual crop price sheets, over-riding the input cost formulae on that particular crop budget. Fertilizer prices are based on current (Apr 09) quotes, but they are subject to uncertainty. Chemical input prices are based on February, 2009, quotes from chemical and seed dealers. These prices are subject to change, however, and will affect profitability of different crops.

Crop Prices:

Crop prices can be adjusted on the Summary tab and the effects of this change will be reflected throughout all the budgets. (Yields can be adjusted similarly.) Grain prices are based on futures prices for August 2009, as of July 2009, FOB Lind, Washington. (Source: Union Elevator, <http://www.unionelevator.com>).

Machinery Costs:

The machinery complement and associated hourly machinery cost data are in the last two sheets. The hourly machinery cost data are used to create the individualized machinery cost data for each budget, located in a separate tab for each crop. In the crop budget sheets, entries in blue cells are calculated by the machinery cost program and come from the associated Machinery Cost sheet for that crop. Machinery fixed costs include capital recovery costs, 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. Your per acre fixed costs will change if the farm size differs significantly from the size used in these budgets.

Land Costs:

Land costs, included either as real or as opportunity costs, are based on a typical share rental arrangement. We calculate net land rental cost as a cost share as follows:

$\frac{1}{3} \text{ Crop Value} - (\frac{1}{3} \text{ Fertilizer Cost} + \frac{1}{3} \text{ Chemical Cost} + \frac{1}{3} \text{ Crop Insurance} + \text{Land Taxes})$

A 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.** If the percentage is adjusted on the Summary tab, it is changed for all crops. If you want different crop-share percentages for different crops, adjust the percentage on the budget sheet for that crop. 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. 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.

General 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

Please examine closely the assumptions we have used and make adjustments to reflect your particular operation. Adjustments in the variable costs can easily be made without affecting the overall accuracy of the budget information. Machinery costs are more difficult to adjust, due to the underlying complexity of machinery cost calculations. A separate machinery cost calculator program is used to develop the costs used in these budgets, which are based on specific machinery widths, tractor horsepower, type of operation, etc. The machinery cost program and data sets specific to this budget are available upon request.

Acknowledgments:

I wish to thank everyone who helped gather all of the information needed to create these worksheets. 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. However, I take responsibility for any errors in these budgets.

Budget spreadsheets are available at the following link:

<http://www.uidaho.edu/~kpainter/>

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

By Crop:	Total		Yield	Price*	Revenue	Returns over TC	Variable Costs (VC)	Returns over VC	Fixed Costs	Labor	Crop & Cost Share**	
	Costs (TC)	Unit									Operator:	Owner:
<i>Click on name to go to budget.</i>	(\$/acre)	(unit/ac)	(unit/ac)	per unit	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)	(\$/acre)
Winter Wheat (WW)	\$330	bu	78	4.99	\$389	\$59	\$85	\$304	\$245	\$16	\$95	67% Share to operator
Spring Barley (SB)	\$191	ton	1.5	125.835	\$189	-\$2	\$133	\$56	\$57	\$14	\$32	33% Share to owner
Summer Fallow (SF)***	\$111				\$0	-\$111	\$95	-\$95	\$17	\$14	\$0	

*August 2009 farmgate prices for grains, posted by the Union Elevator, Lind, WA, www.unionelevator.com, accessed Nov/Dec 2008.

**Crop- and cost-share land cost arrangements split the crop and the costs (chemicals) on pre-determined shares in order to share production risk and provide appropriate incentives for maximizing returns for both parties.

***All summer fallow costs are included in the costs for producing winter wheat, plus one year's interest. These figures are for informational purposes only.

By Rotation:	Total	Revenue per acre	Returns over TC	Total	Returns over VC	Fixed Costs	Labor	Land Payment (Cost-Share)
	Cost of Operation			Variable Costs (VC)				
	(\$/ac/yr)	(\$/ac/yr)	(\$/ac/yr)	(\$/ac/yr)	(\$/ac/yr)	(\$/ac/yr)	(\$/ac/yr)	(\$/ac/yr)
WW, SB, SF	\$174	\$193	\$19	\$73	\$120	\$101	\$15	\$42

Budget spreadsheets are available at the following links:

<http://www.uidaho.edu/~kpainter>

<http://csanr.wsu.edu/Publications/FarmMgmtEconomics.htm>

Input Prices

	Unit	2009 Price/unit
Fuel:		
Diesel	gal	\$2.25
Gas	gal	\$2.75
Seed:		
Wheat Seed	lb	\$0.15
Barley Seed	lb	\$0.12
Hard Red Spring Wheat	lb	\$0.22
Fertilizer:		
Nitrogen	lb	\$0.52
Phosphorous	lb	\$0.65
Sulfur	lb	\$0.44
Adjuvants:		
Excel 90	oz	\$0.20
Ultra Pro	oz	\$0.02
Pesticides:		
2,4-D	oz	\$0.16
Achieve SC	oz	\$2.00
Axial	oz	\$1.63
Brox M Ultra	oz	\$0.48
Brox M Xtra	oz	\$0.39
Discover	oz	\$1.05
Finesse	oz	\$19.97
FarGO	oz	\$14.40
Maverick	oz	\$19.82
Orion	oz	\$1.19
Quilt	oz	\$1.49
Roundup	oz	\$0.42
Starane + Sword	oz	\$0.51
Starane Ultra	oz	\$0.69
Custom Rental:		
90' Rental Sprayer	acre	\$1.75
Fertilizer Applicator	acre	\$1.00
Labor:		
Hourly machine labor*	hour	\$20.00
Cash rent:		
	acre	\$0.00
Land tax:		
	acre	\$3.90
Interest:		
Operating Loan	%	\$0.08
Machinery Loan	%	\$0.08

*Includes all applicable state and federal taxes.

Production Costs for Conventionally Tilled Summer Fallow, 15-18" Precipitation

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Variable Costs				
Fertilizer:				\$56.03
Nitrogen (dry)	89.28	lb	\$0.52	\$46.43
Phosphorous (dry)	8	lb	\$0.65	\$5.20
Sulfur (dry)	10	lb	\$0.44	\$4.40
				\$0.00
Pesticides:				\$0.00
		oz		\$0.00
		oz		\$0.00
		oz		\$0.00
				\$0.00
Machinery:				\$29.51
Fuel	4.32	gal	\$2.25	\$9.73
Lubricants	1	acre	\$1.62	\$1.62
Machinery Repairs	1	acre	\$4.13	\$4.13
Machinery Labor	0.70	acre	\$20.00	\$14.03
				\$0.00
Custom & Consultants:				\$1.00
Rental Fertilizer Applicator	1	acre	\$1.00	\$1.00
				\$0.00
Overhead ¹				\$4.33
Operating Interest ²				\$3.79
Total Variable Costs				\$94.65
Fixed Costs:				
Machinery depreciation				\$6.78
Machinery interest				\$4.99
Machinery insurance, taxes, housing, licenses				\$0.92
Land Taxes				\$3.90
Total Fixed Costs				\$16.60
Total Costs per Acre				\$111.24

Notes:

Costs of producing summer fallow, plus a 9 percent interest charge, are added to the cost of wheat production.

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

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

Details on variable and fixed machinery costs, including fuel, repairs, and machine labor, are located in the [Summer Fallow Machinery Costs table](#).

Schedule of Operations for Summer Fallow Preceding Winter Wheat, 15-18" Precipitation

Month	Operation	Tooling	Materials/Service
March	Chisel	350HP-WT, 26' Chisel	
April	Cultivate	350HP-WT, 40' Cultivator	
April	Rodweed	350HP-WT, 40' Rodweeder	
June	Fertilize	350HP-WT, Rental Applicator	Rental Fertilizer Applicator, 89.28 lb N, 8 lb P, 10 lb S
June	Rodweed	350HP-WT, 40' Rodweeder	
July	Rodweed	350HP-WT, 40' Rodweeder	
Sept	Rodweed	350HP-WT, 40' Rodweeder	

*Soil test results will determine fertilizer needs, but a typical rate for this yield is provided.

Production Costs for Conventionally Tilled Winter Wheat, 15-18" Precipitation

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Gross Returns				
Wheat	78	bu	\$4.99	\$389.22
Variable Costs				
Seed:				\$9.00
Wheat Seed	60	lb	\$0.15	\$9.00
Fertilizer:				\$0.00
				\$0.00
Pesticides:				\$24.20
2,4-D	10	oz	\$0.16	\$1.60
Maverick ¹	0.33	oz	\$19.82	\$6.54
Axial	16.4	oz	\$0.98	\$16.06
Machinery:				\$34.68
Fuel	4.94	gal	\$2.25	\$11.10
Lubricants	1	acre	\$1.66	\$1.66
Machinery Repairs	1	acre	\$6.40	\$6.40
Machinery Labor	0.78	acre	\$20.00	\$15.51
				\$0.00
Custom & Consultants:				\$1.75
Rental Sprayer	1	acre	\$1.75	\$1.75
				\$0.00
Other:				\$8.42
Crop insurance ²	1	acre	\$8.42	\$8.42
Storage Facility & Equip. Repairs				\$0.00
Other Labor				\$0.00
Overhead ³				\$3.90
Operating Interest ⁴				\$3.41
Total Variable Costs				\$85.36
Variable Costs per Unit				\$1.09
Net Returns Above Variable Costs				\$303.86

Production Costs for Conventionally Tilled Winter Wheat, 15-18" Precipitation

Fixed Costs:				
Machinery depreciation				\$13.75
Machinery interest				\$9.70
Machinery insurance, taxes, housing, licenses				\$2.51
Summer Fallow Cost				\$119.59
Land Cost*	1	acre	\$95.29	\$95.29
*Based on Share Rent Percentage:				
Landlord	33.00%			
Tenant	67.00%			
Cash Rent				\$0.00
Land Taxes				\$3.90
Total Fixed Costs				\$244.74
Fixed Costs per Unit				\$3.14
Total Costs per Acre				\$330.10
Total Cost per Unit				\$4.23
Returns to Risk				\$59.12

Notes: Includes costs of previous year's summer fallow plus one year's interest.

¹Maverick should be used at the rate of 2/3 oz per acre on every other wheat crop in order to reduce herbicide resistance. 1/3 oz per acre rate represents an average cost of application per year.

²Average Whitman County CRC insurance premium based on 2008 rates at 75% coverage.

³Covers legal, accounting, and utility fees. Calculated as 5% of operating expenses.

⁴Calculated as 7% interest on operating capital for 6 months.

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%
Price	70.20	78	85.80
Operating Cost Breakeven	\$1.22	\$1.09	\$0.99
Ownership Cost Breakeven	\$3.49	\$3.14	\$2.85
Total Cost Breakeven	\$4.70	\$4.23	\$3.85
	- 10%	Base Price	+ 10%
Yield	\$4.49	\$4.99	\$5.49
Operating Cost Breakeven	19.0	17.1	15.6
Ownership Cost Breakeven	54.5	49.0	44.6
Total Cost Breakeven	73.5	66.2	60.1

Schedule of Operations for Conventionally Tilled Winter Wheat, 15-18" Precipitation

Month	Operation	Tooling	Materials/Service
September	Drill	350HP-WT, 36' JD-455 Drill	60 lb Wheat Seed
April	Crop Insurance		
May	Spray Weeds	350HP-WT, 90' Sprayer	Rental Sprayer, 10 oz 2,4-D, 1/3 oz Maverick ¹
August	Harvest	30' Combine	
October	Plow	350HP-WT, 10-Bottom Plow	

¹Maverick should be used at the rate of 2/3 oz per acre on every other wheat crop in order to reduce herbicide resistance. 1/3 oz per acre rate represents an average cost of application.

Production Costs for Conventionally Tilled Spring Barley, 15-18" Precipitation

Item	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
Gross Returns				
Barley	1.5	ton	\$125.84	\$188.75
Variable Costs				
Seed:				\$8.40
Barley Seed	70	lb	\$0.12	\$8.40
Fertilizer:				\$48.04
Nitrogen (dry)	71.43	lb	\$0.52	\$37.14
Phosphorous (dry)	10	lb	\$0.65	\$6.50
Sulfur (dry)	10	5 lb	\$0.44	\$4.40
				\$0.00
Pesticides:				\$26.50
Brox M Xtra	8	oz	\$0.39	\$3.09
Orion	17	oz	\$0.43	\$7.36
Axial	16.4	oz	\$0.98	\$16.06
Machinery:				\$29.51
Fuel	3.72	gal	\$2.25	\$8.36
Lubricants	1	acre	\$1.39	\$1.39
Machinery Repairs	1	acre	\$5.55	\$5.55
Machinery Labor	0.71	acre	\$20.00	\$14.21
				\$0.00
Custom & Consultants:				\$4.50
Rental Sprayer	2	acre	\$1.75	\$3.50
Rental Fertilizer Applicator	1	acre	\$1.00	\$1.00
				\$0.00
Other:				\$4.83
Crop insurance ¹	1	acre	\$4.83	\$4.83
Storage Facility & Equip. Repairs				\$0.00
Other Labor				\$0.00
Overhead ²				\$6.09
Operating Interest ³				\$5.33
Total Variable Costs				\$133.21
Variable Costs per Unit				\$88.81
Net Returns Above Variable Costs				\$55.54

Production Costs for Conventionally Tilled Spring Barley, 15-18" Precipitation

Fixed Costs:				
Machinery depreciation				\$11.10
Machinery interest				\$7.78
Machinery insurance, taxes, housing, licenses				\$2.33
Land Cost*	1	acre	\$32.19	\$32.19
*Based on Share Rent Percentage:				
Landlord	33.00%			
Tenant	67.00%			
Cash Rent				\$0.00
Land Taxes				\$3.90
Total Fixed Costs				\$57.31
Fixed Costs per Unit				\$38.21
Total Costs per Acre				\$190.52
Total Cost per Unit				\$127.01
Returns to Risk				-\$1.77

Notes:

¹Average Whitman County APH insurance premium based on 2008 rates at 75% coverage.

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

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

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 Yield	+ 10%
<u>Price</u>	1.35	1.5	1.65
Operating Cost Breakeven	\$98.67	\$88.81	\$80.73
Ownership Cost Breakeven	\$42.45	\$38.21	\$34.73
Total Cost Breakeven	\$141.12	\$127.01	\$115.47
	- 10%	Base Price	+ 10%
<u>Yield</u>	\$113.25	\$125.84	\$138.42
Operating Cost Breakeven	1.2	1.1	1.0
Ownership Cost Breakeven	0.5	0.5	0.4
Total Cost Breakeven	1.7	1.5	1.4

Schedule of Operations for Spring Barley, 15-18" Precipitation

Month	Operation	Tooling	Materials/Service
March	Cultivate/Spray	350HP-WT, 40' Cultivator, Rental Sprayer	Rental Sprayer, 16.4 oz Axial
March	Fertilize	350HP-WT, 50' Anhydrous App	71.43 lb N
March	Rodweed	350HP-WT, 40' Rodweeder	
April	Drill	350HP-WT, 36' JD-455 Drill	70 lb Barley Seed, 10 lb P
June	Spray Weeds	350HP-WT, 90' Sprayer	Rental Sprayer, 8 oz Brox M, 17 oz Orion
August	Harvest	30' Combine	

*Soil test results will determine fertilizer needs, but a typical rate for this yield is provided.

Machinery Costs for Conventional Tillage Dryland Grain Farm in the 15" to 18" Rainfall Zone (units/acre)

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

		Fixed Costs (\$/acre):				Variable Costs (units/acre):						Total Costs (\$/acre)
	Total Annual Usage (miles):	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Repairs (\$/acre)	Labor (\$/acre)	Labor (hr/ac)	Fuel (\$/acre)	Fuel (gal/ac)	Lube (\$/acre)	Total Cost	
Trucks:												
0.75-Ton 4WD Pickup	22000	\$1.09	\$0.58	\$0.26	\$0.79	\$4.61	0.23	\$1.44	0.72	\$0.22	\$8.99	
2-Ton Truck	1000	\$0.34	\$0.24	\$0.08	\$0.29	\$0.34	0.02	\$0.10	0.05	\$0.01	\$1.40	
Tandem Axle Truck	2000	\$0.58	\$0.42	\$0.03	\$0.57	\$0.68	0.03	\$0.19	0.10	\$0.03	\$2.50	
Trap Wagon	1000	\$0.34	\$0.19	\$0.10	\$0.11	\$0.34	0.02	\$0.13	0.07	\$0.02	\$1.23	
Tractors, other equipment:												
	Total Annual Usage (hours):	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Repairs (\$/acre)	Labor (\$/acre)	Labor (hr/ac)	Fuel (\$/acre)	Fuel (gal/ac)	Lube (\$/acre)	Total Cost	
4WD-ATV	200	\$0.16	\$0.08	\$0.01	\$0.03	\$1.25	0.06	\$0.19	0.09	\$0.03	\$1.75	
50HP-WT	100	\$0.16	\$0.20	\$0.03	\$0.06	\$0.63	0.03	\$0.14	0.07	\$0.02	\$1.24	
30' Combine	220	\$5.36	\$3.94	\$1.37	\$1.65	\$2.18	0.11	\$1.27	0.51	\$0.19	\$15.96	
<i>350HP-Challenger with:</i>												
36' JD455 Drill	160	\$1.68	\$0.97	\$0.29	\$1.35	\$1.44	0.07	\$2.01	1.01	\$0.30	\$8.04	
40' Cultivator	130	\$0.43	\$0.35	\$0.05	\$0.30	\$0.76	0.04	\$1.06	0.53	\$0.16	\$3.11	
10-Bottom Plow	80	\$3.86	\$2.92	\$0.32	\$1.51	\$3.56	0.18	\$4.96	2.48	\$0.74	\$17.87	
26' Chisel & Harrow	90	\$1.40	\$1.05	\$0.12	\$0.76	\$1.64	0.08	\$2.29	1.15	\$0.34	\$7.60	
40' Rodweeder	260	\$0.50	\$0.41	\$0.05	\$0.29	\$0.76	0.04	\$1.06	0.53	\$0.16	\$3.23	
90' Sprayer (Rental)		\$0.18	\$0.16	\$0.02	\$0.05	\$0.48	0.02	\$0.67	0.34	\$0.10	\$1.66	
50' Anhydrous App (Rental)		\$0.28	\$0.24	\$0.04	\$0.07	\$0.74	0.04	\$1.03	0.52	\$0.15	\$2.55	

Note: Farm size is assumed to be 3500 acres for the purpose of machinery cost calculations.

Costs by Crop:

In the following tables, machinery costs by operation are listed in separate tables for each crop:
Winter Wheat
Spring Barley
Summer Fallow

Machinery Costs for Conventional Tillage Summer Fallow in the 15" to 18" Rainfall Zone (\$/acre)											
		Fixed Costs (\$/acre):			Variable Costs (units/acre):						Total Costs (\$/acre)
Trucks:	Total Annual Usage (miles):	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Repairs (\$/acre)	Labor (\$/acre)	Labor (hr/ac)	Fuel (\$/acre)	Fuel (gal/ac)	Lube (\$/acre)	Total Cost
0.75-Ton 4WD Pickup	22000	\$1.09	\$0.58	\$0.26	\$0.79	\$4.61	0.23	\$1.44	0.58	\$0.22	\$8.99
2-Ton Truck	1000	\$0.34	\$0.24	\$0.08	\$0.29	\$0.34	0.02	\$0.10	0.04	\$0.01	\$1.40
Tandem Axle Truck	2000	\$0.58	\$0.42	\$0.03	\$0.57	\$0.68	0.03	\$0.19	0.08	\$0.03	\$2.50
Trap Wagon	1000	\$0.34	\$0.19	\$0.10	\$0.11	\$0.34	0.02	\$0.13	0.05	\$0.02	\$1.23
Tractors, other equipment:	Total Annual Usage (hours):	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Repairs (\$/acre)	Labor (\$/acre)	Labor (hr/ac)	Fuel (\$/acre)	Fuel (gal/ac)	Lube (\$/acre)	Total Cost
4WD-ATV	200	\$0.16	\$0.08	\$0.01	\$0.03	\$1.25	0.06	\$0.19	0.08	\$0.03	\$1.75
50HP-WT	100	\$0.16	\$0.20	\$0.03	\$0.06	\$0.63	0.03	\$0.14	0.06	\$0.02	\$1.24
<i>350HP-Challenger with:</i>											
26' Chisel & Harrow	90	\$1.40	\$1.05	\$0.12	\$0.76	\$1.64	\$0.08	\$2.29	\$1.15	\$0.34	\$7.60
40' Cultivator	130	\$0.43	\$0.35	\$0.05	\$0.30	\$0.76	0.04	\$1.06	0.42	\$0.16	\$3.11
40' Rodweeder	260	\$0.50	\$0.41	\$0.05	\$0.29	\$0.76	0.04	\$1.06	0.53	\$0.16	\$3.23
40' Rodweeder	260	\$0.50	\$0.41	\$0.05	\$0.29	\$0.76	0.04	\$1.06	0.53	\$0.16	\$3.23
40' Rodweeder	260	\$0.50	\$0.41	\$0.05	\$0.29	\$0.76	0.04	\$1.06	0.53	\$0.16	\$3.23
40' Rodweeder	260	\$0.50	\$0.41	\$0.05	\$0.29	\$0.76	0.04	\$1.06	0.53	\$0.16	\$3.23
50' Anhydrous App (Rental)		\$0.28	\$0.24	\$0.04	\$0.07	\$0.74	0.04	\$1.03	0.52	\$0.15	\$2.55
Total		\$6.78	\$4.99	\$0.92	\$4.13	\$14.03	0.70	\$10.81	4.32	\$1.62	\$43.29

[Back to Costs by Crop](#)

Machinery Costs for Conventional Tillage Winter Wheat in the 15" to 18" Rainfall Zone (\$/acre)											
		Fixed Costs (\$/acre):			Variable Costs (units/acre):						Total Costs (\$/acre)
Trucks:	Total Annual Usage (miles):	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Repairs (\$/acre)	Labor (\$/acre)	Labor (hr/ac)	Fuel (\$/acre)	Fuel (gal/ac)	Lube (\$/acre)	Total Cost
0.75-Ton 4WD Pickup	22000	\$1.09	\$0.58	\$0.26	\$0.79	\$4.61	0.23	\$1.44	0.58	\$0.22	\$8.99
2-Ton Truck	1000	\$0.34	\$0.24	\$0.08	\$0.29	\$0.34	0.02	\$0.10	0.04	\$0.01	\$1.40
Tandem Axle Truck	2000	\$0.58	\$0.42	\$0.03	\$0.57	\$0.68	0.03	\$0.19	0.08	\$0.03	\$2.50
Trap Wagon	1000	\$0.34	\$0.19	\$0.10	\$0.11	\$0.34	0.02	\$0.13	0.05	\$0.02	\$1.23
Tractors, other equipment:	Total Annual Usage (hours):	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Repairs (\$/acre)	Labor (\$/acre)	Labor (hr/ac)	Fuel (\$/acre)	Fuel (gal/ac)	Lube (\$/acre)	Total Cost
4WD-ATV	200	\$0.16	\$0.08	\$0.01	\$0.03	\$1.25	0.06	\$0.19	0.08	\$0.03	\$1.75
50HP-WT	100	\$0.16	\$0.20	\$0.03	\$0.06	\$0.63	0.03	\$0.14	0.06	\$0.02	\$1.24
30' Combine	220	\$5.36	\$3.94	\$1.37	\$1.65	\$2.18	0.11	\$1.27	0.51	\$0.19	\$15.96
<i>350HP-Challenger with:</i>											
36' JD455 Drill	160	\$1.68	\$0.97	\$0.29	\$1.35	\$1.44	0.07	\$2.01	0.80	\$0.30	\$8.04
90' Sprayer	0	\$0.18	\$0.16	\$0.02	\$0.05	\$0.48	0.02	\$0.67	0.27	\$0.10	\$1.66
10-Bottom Plow	80	\$3.86	\$2.92	\$0.32	\$1.51	\$3.56	0.18	\$4.96	2.48	\$0.74	\$17.87
Total		\$13.75	\$9.70	\$2.51	\$6.40	\$15.51	\$0.78	\$11.10	\$4.94	\$1.66	\$60.64

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Machinery Costs for Conventional Tillage Spring Barley in the 15" to 18" Rainfall Zone (\$/acre)											
		Fixed Costs (\$/acre):			Variable Costs (units/acre):						Total Costs (\$/acre)
	Total Annual Usage (miles):	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Repairs (\$/acre)	Labor (\$/acre)	Labor (hr/ac)	Fuel (\$/acre)	Fuel (gal/ac)	Lube (\$/acre)	Total Cost
Trucks:											
0.75-Ton 4WD Pickup	22000	\$1.09	\$0.58	\$0.26	\$0.79	\$4.61	0.23	\$1.44	0.58	\$0.22	\$8.99
2-Ton Truck	1000	\$0.34	\$0.24	\$0.08	\$0.29	\$0.34	0.02	\$0.10	0.04	\$0.01	\$1.40
Tandem Axle Truck	2000	\$0.58	\$0.42	\$0.03	\$0.57	\$0.68	0.03	\$0.19	0.08	\$0.03	\$2.50
Trap Wagon	1000	\$0.34	\$0.19	\$0.10	\$0.11	\$0.34	0.02	\$0.13	0.05	\$0.02	\$1.23
Tractors, other equipment:	Total Annual Usage (hours):	Depreciation	Interest	Taxes, Housing, Insurance, Licenses	Repairs	Labor	Labor (hr/ac)	Fuel	Fuel (gal/ac)	Lube	Total Cost
4WD-ATV	200	\$0.16	\$0.08	\$0.01	\$0.03	\$1.25	0.06	\$0.19	0.08	\$0.03	\$1.75
50HP-WT	100	\$0.16	\$0.20	\$0.03	\$0.06	\$0.63	0.03	\$0.14	0.06	\$0.02	\$1.24
30' Combine	220	\$5.36	\$3.94	\$1.37	\$1.65	\$2.18	0.11	\$1.27	0.51	\$0.19	\$15.96
<i>350HP-Challenger with:</i>											
36' JD455 Drill	160	\$1.68	\$0.97	\$0.29	\$1.35	\$1.44	0.07	\$2.01	0.80	\$0.30	\$8.04
40' Cultivator	130	\$0.43	\$0.35	\$0.05	\$0.30	\$0.76	0.04	\$1.06	0.42	\$0.16	\$3.11
40' Rodweeder	260	\$0.50	\$0.41	\$0.05	\$0.29	\$0.76	0.04	\$1.06	0.53	\$0.16	\$3.23
50' Anhydrous App (Rental)		\$0.28	\$0.24	\$0.04	\$0.07	\$0.74	0.04	\$1.03	0.52	\$0.15	\$2.55
90' Sprayer		\$0.18	\$0.16	\$0.02	\$0.05	\$0.48	0.02	\$0.67	0.27	\$0.10	\$1.66
Total		\$11.10	\$7.78	\$2.33	\$5.55	\$14.21	0.71	\$9.29	3.72	\$1.39	\$51.66

Machinery Complement for Conventional Tillage Dryland Grain Farm in the 15" to 18" Rainfall Zone, Northwest Wheat and Range Region

Type of Machine	Replacement Value	Age When Purchased	Years of Life	Annual Hours of Use	Salvage Value	Annual Repairs (Materials & Labor)	Gallons of Fuel/Hr.	Taxes, Housing, Insur., Licenses	Labor Multiplier	Acres per Hour
	\$				\$	\$		%		
<i>Tractors, ATVs:</i>										
4WD-ATV	6,500	0	10	200	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 Challenger	95,000	0	15	655	20,000	1,200	11	1.2	1.1	
<i>Equipment:</i>										
26' Chisel with Harrow	15,000	12	12	90	3,000	750	13	0.6	1.1	13
40' Cultivator	9,500	12	12	130	2,000	900	11	0.6	1.1	29
10-Bottom Plow	22,000	0	15	80	2,500	600	11	0.6	1.1	6
40' Rodweeder	15,500	5	15	130	2,000	850	11	0.6	1.1	29
35' JD 455 Drill	25,000	10	12	175	1,500	5,000	12	3.0	1.2	15
30' Combine	225,000	5	15	220	30,000	4,000	7	2.6	1.2	11
<i>Trucks:</i>										
				<i>Miles/year:</i>			<i>MPG:</i>			
2-Ton Truck	20,000	15	15	1000	2,000	1,000	6	2.4	1.2	
Tandem Axle Truck	35,000	15	15	2000	4,500	2,000	6	10.1	1.2	
Trap Wagon	15,000	10	10	500	3,000	400	12	3.8	1.2	
3/4-Ton Pickup	22,000	5	7	12000	7,500	1,500	12	3.4	1.1	