

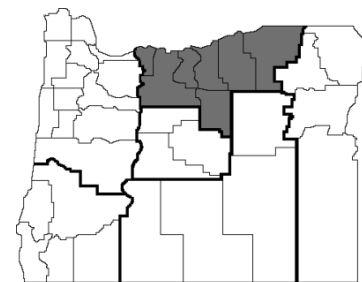
# Enterprise Budget

## Wheat (Winter) Following Fallow, Direct Seed, 10 to 14-inch Precipitation Zone, North Central Region

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This enterprise budget estimates the typical costs and returns of producing winter wheat in 2020 using direct seed production practices in a 10 to 14-inch precipitation zone using Clearfield wheat varieties (non-genetically modified crop herbicide tolerance). It should be used as a guide to estimate actual costs and returns and is not representative of any particular farm. The major assumptions used in constructing this budget are discussed below. Assistance provided by area producers and agribusinesses is greatly appreciated.

### Cropping Pattern

This budget is based on a 3,450-acre farm with 1,725 acres in winter wheat production each year following 1,725 acres of fallow. The average annual precipitation is 10 to 14-inches. Wheat yields in this cropping system range from 40 to 70 bushels per acre. A typical yield in this budget is 50 bushels per acre.

### Land

A land lease charge of \$67 per acre is included to represent the cost of leasing or owning land. This correlates to the payment a landowner would receive under a one-third crop-share lease and paying one-third of the chemicals and fertilizer costs, the most common arrangement in this area, under our assumed prices and yields.

### Labor

Typically, tractor and combine operator labor costs are \$20.50 per hour, all of which include social security, worker's compensation, unemployment insurance, and other labor overhead expenses. Truck driver labor costs are \$16.50 per hour. For this study, owner labor is valued at the same rate as combine operator rates, and all labor is assumed to be a cash cost. Machine labor hours are calculated based on machinery hours plus 10% to account for travel between fields, conducting repairs, daily tractor maintenance, etc.

### Capital

Interest on operating capital (five percent) is treated as a cash expense. One-third of the cash expenses are borrowed for 12-months. An interest rate of six percent is charged as an opportunity to the owner for machinery ownership.

### Machinery and Equipment

The machinery and equipment used in this budget is sufficient for a 3,450-acre farm in a 10 to 14-inch precipitation zone. A detailed breakdown of machinery values is shown in Table 2. Estimated machinery costs are shown in Table 3. The machinery costs are estimated based on the total farm use of the machinery. On-road diesel costs \$2.09 and off-road diesel \$1.50 per gallon. Table 4 shows the labor, variable, and fixed costs for certain machinery operations.

### Operations

The cultural operations are listed approximately in the order in which they are performed. A 450-hp rubber track tractor is commonly used on steep terrain for pulling the bank out wagon, rotary mower, field sprayer, and drill. On flatter ground a 400-hp wheel tractor is often used. Fungicides are aerially applied if needed for stripe rust, which was widespread in 2020. Grain is harvested using a 450-hp sidehill combine with rear wheel assist. Grain is taken out of the field using a bank out wagon, semi-truck and trailer, and an older farm truck. A miscellaneous charge of \$5 per acre is a catch-all cost for any additional labor, repairs and maintenance, and materials (not included in field operations), accounting and legal fees, association dues, and attending industry meetings.

### Results

The price for wheat is \$5.60 per bushel, the average price at Portland in 2020. The total gross income in this budget does not include government program payments. The grain is delivered to a local grain storage facility 12 miles from the farm. Three months of storage is assumed before final delivery to the Portland market. The total cost to store and transport wheat to Portland is \$0.55 per bushel. An additional \$0.05 per bushel is included for assessments paid to the Wheat Commission. Variable cash production costs were \$193 per acre, giving a net return above variable cash costs of \$87 per acre. Total costs were \$336 per acre when all costs are considered. A break-even price of \$3.86 per bushel would be required to cover variable cash costs, and \$6.72 per bushel to cover total costs. Tables 5 and 6 show the returns per acre for cash and total costs at various yields and prices.

**Table 1. Winter Wheat After Fallow Rotation, Direct Seed, 10 to 14-inch Precipitation Zone, \$/acre economic costs and returns.**

<b>GROSS INCOME</b>		<b>Quantity</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>Total</b>	<b>Price/Bu</b>	<b>Your Income</b>	
Winter Wheat		50	bushels	5.60	\$280.00	\$5.60	_____	
<b>Total gross income</b>					\$280.00	\$5.60	_____	
<b>VARIABLE CASH COSTS</b>		<b>Description</b>	<b>Labor</b>	<b>Machinery</b>	<b>Materials</b>	<b>Total</b>	<b>Cost/Bu</b>	<b>Your Cost</b>
Fallow establishment & maintenance								
	Rotary mower	1.00 appl.	1.57	3.03	0.00	4.60	0.09	_____
	Herbicides	2.00 appl.	0.66	1.68	22.49	24.83	0.50	_____
	Chemicals	\$ 22.49 /acre/appl.						_____
Crop Production								
	Drill seed		1.51	5.25	50.07	56.83	1.14	_____
	Seed, standard seed treatment included	\$ 22.24 /acre						_____
	Nutrient Program	\$ 27.83 /acre						_____
	Herbicides	1.00 appl.	0.33	0.84	33.22	34.39	0.69	_____
	Chemicals	\$ 23.40 /acre/appl.						_____
	Fungicides, custom applicator	\$ 9.82 /acre						_____
Harvesting Operations								
	Combine		2.51	8.49	0.00	11.00	0.22	_____
	Hauling grain		1.70	10.21	0.00	11.91	0.24	_____
	Marketing		0.00	0.00	30.00	30.00	0.60	_____
	Storage	\$ 0.055 /bu						_____
	Transportation	\$ 0.495 /bu						_____
	Wheat commission	\$ 0.050 /bu						_____
Other Charges								
	Pickup, truck & ATV repairs, fuel & lube		0.00	11.13	0.00	11.13	0.22	_____
	Miscellaneous		0.00	0.00	5.00	5.00	0.10	_____
	Interest: operating capital	12.00 mons	<u>0.00</u>	<u>0.00</u>	<u>3.13</u>	<u>3.13</u>	<u>0.06</u>	_____
<b>Total variable costs</b>			<b>\$8.26</b>	<b>\$40.64</b>	<b>\$143.91</b>	<b>\$192.81</b>	<b>\$3.86</b>	_____
<b>Total gross income minus variable costs</b>						<b>\$87.19</b>	<b>\$1.74</b>	_____
<b>FIXED CASH COSTS</b>					<b>Unit</b>	<b>Total</b>	<b>Cost/Bu</b>	<b>Your Cost</b>
Insurance - Hail, Wind, Fire, and Crop Revenue Coverage <sup>1</sup>					acre	<u>9.53</u>	<u>0.19</u>	_____
<b>Total fixed cash costs</b>						<b>9.53</b>	<b>\$0.19</b>	_____
<b>Total gross income minus variable plus fixed cash costs</b>						<b>\$77.66</b>	<b>\$1.55</b>	_____
<b>FIXED NON-CASH COSTS</b>					<b>Unit</b>	<b>Total</b>	<b>Cost/Bu</b>	<b>Your Cost</b>
Machinery and equipment - depreciation & interest					acre	\$ 53.83	1.08	_____
Pickup, truck & ATV - depreciation & interest					acre	13.02	0.26	_____
Land interest charge					acre	<u>66.80</u>	<u>1.34</u>	_____
<b>Total non-cash costs</b>						<b>\$133.65</b>	<b>\$2.67</b>	_____
<b>Total fixed costs</b>						<b>\$143.18</b>	<b>\$2.86</b>	_____
<b>Total of all costs per acre</b>						<b>\$335.99</b>	<b>\$6.72</b>	_____
<b>Net projected returns</b>						<b>(55.99)</b>	<b>(\$1.12)</b>	_____

<sup>1</sup>Hail, Wind, and Fire (\$2.80/acre) & 80% Crop Revenue Coverage at (\$6.73/acre).

Table 2. Machinery Cost Assumptions

Machine	Size	Current Market Value	Hours or Miles of Annual Use	Expected Life (Years)
Tractor, track	450 hp	\$263,000	574	15
Sidehill Combine	30'	312,600	211	10
Rotary mower	20'	20,000	132	15
Pull Sprayer	90'	22,500	83	15
No-Till Drill w/ NH3	40' w/340 bu. Air-Cart	95,000	127	15
Grain Cart	1,000 bu.	35,000	232	20
Pickup	3/4 ton 4X4, new	53,000	15,000	10
Truck & Trailer	Semi, used	65,000	3,000	10
Truck	2 1/2 ton, older	24,000	2,400	10
ATV	4-wheeler new	10,000	3,000	5

Table 3. Machinery Cost Calculations

Machine	Size	--- Variable Costs ---		--- Fixed Costs ---		Total Cost
		Fuel & Lube	Repairs & Maint.	Depreciation	Interest	
----- Costs per Hour -----						
Tractor, track	450 hp	\$17.25	\$17.62	\$24.60	\$27.51	\$86.98
Sidehill Combine	30'	12.59	56.89	120.26	88.97	278.72
Rotary mower	20'	0.00	4.80	9.15	9.11	23.06
Pull Sprayer	90'	0.00	17.46	16.30	16.22	49.98
No-Till Drill w/ NH3	40' w/340 bu. Air-Cart	0.00	36.58	45.14	44.94	126.66
Grain Cart	1,000 bu.	0.00	8.40	6.82	9.06	24.28
----- Costs per Mile -----						
Pickup	3/4 ton 4X4, new	\$0.44	\$0.28	\$0.29	\$0.21	\$1.22
Truck & Trailer	Semi, used	0.48	1.04	1.78	1.30	4.60
Truck	2 1/2 ton, older	0.87	0.38	0.82	0.60	2.68
ATV	4-wheeler new	0.29	0.02	0.55	0.20	1.06

Table 4. Estimated Cost of Each Operation with Power-Unit.

Operation	Tractor	Miles per Hour	Acres per Hour	--- Machine Costs ---			Total Cost per Acre
				Labor Cost per Acre	Variable Cost per Acre	Fixed Cost per Acre	
Sidehill Combine	N/A	3.0	8.2	\$2.51	\$8.49	\$25.57	\$36.57
Rotary mower	Tractor, track	6.0	13.1	1.57	3.03	5.37	9.97
Pull Sprayer	Tractor, track	6.0	62.2	0.33	0.84	1.36	2.53
No-Till Drill w/ NH3	Tractor, track	4.0	13.6	1.51	5.25	10.45	17.21

**Table 5. Estimated Per Acre Returns Over Cash Costs at Varying Yields and Prices.**

Price/Bushel	Bushels per Acre						
	40	45	50	55	60	65	70
\$4.10	(\$38)	(\$18)	\$3	\$23	\$44	\$64	\$85
\$4.60	(18)	5	28	51	74	97	120
\$5.10	2	27	53	78	104	129	155
\$5.60	22	50	78	106	134	162	190
\$6.10	42	72	103	133	164	194	225
\$6.60	62	95	128	161	194	227	260
\$7.10	82	117	153	188	224	259	295
\$7.60	102	140	178	216	254	292	330

**Table 6. Estimated Per Acre Returns Over Total Costs at Varying Yields and Prices.**

Price/Bushel	Bushels per Acre						
	40	45	50	55	60	65	70
\$4.10	(\$172)	(\$151)	(\$131)	(\$110)	(\$90)	(\$69)	(\$49)
\$4.60	(152)	(129)	(106)	(83)	(60)	(37)	(14)
\$5.10	(132)	(106)	(81)	(55)	(30)	(4)	21
\$5.60	(112)	(84)	(56)	(28)	0	28	56
\$6.10	(92)	(61)	(31)	(0)	30	61	91
\$6.60	(72)	(39)	(6)	27	60	93	126
\$7.10	(52)	(16)	19	55	90	126	161
\$7.60	(32)	6	44	82	120	158	196

**Reference of previous enterprise budgets for related production practices:**

AEB 0035, Wheat (Winter) Following Fallow, Conservation Tillage 12-18 Inch Precipitation Zone - 3800 acres; published October 1, 2012

AEB 0036, Wheat (Winter) Following Fallow, Direct Seed 12-18 Inch Precipitation Zone - 3800 acres; published October 1, 2012