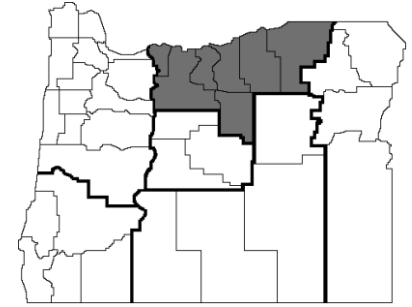


# Enterprise Budget

## Peas (Dry) Following Winter Wheat, Conservation Tillage, Annual Cropping System, 18-24 Inch Precipitation Zone, North Central Region

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This enterprise budget estimates the typical costs and returns of producing dry peas followed by winter wheat rotation in an 18-24 inch precipitation zone. 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 2,000-acre farm with 1,000 acres in dry pea production each year following 1,000 acres of winter wheat. The average annual rainfall is 18 to 24-inches. Typical dry pea yield in this budget is 2,000 pounds per acre, the approximate average yield in the region.

### Land

A land lease charge of \$60 per acre is included to represent the cost of leasing or owning land. This correlates to the payment a landowner would receive under a 20 percent crop-share lease, the most common arrangement for dry peas in this area, under our assumed prices and yields.

### Labor

Typically tractor drivers and harvest labor cost approximately \$12 per hour, all of which include social security, worker's compensation, unemployment insurance, and other labor overhead expenses. For this study, owner labor is valued at the same rate as tractor driver rates, and all labor is assumed to be a cash costs. Labor hours are calculated based on machinery hours.

### Capital

Interest on operating capital (5 percent) is treated as a cash expense. One-third of the cash expenses are borrowed for 12-months. Interest on intermediate (6 percent) and long-term capital (4 percent) is treated as a non-cash opportunity cost to the owner.

### Machinery and Equipment

The machinery and equipment used in this budget is sufficient for a 2,000-acre farm in an 18-24 inch

precipitation zone. The machinery and equipment hours reflect producing both dry peas and winter wheat, therefore hours may be higher for dry peas than wheat reflecting the additional operations required after a winter wheat crop before planting dry peas. A detailed breakdown of machinery values is shown in Table 2. Note: Precision technologies, such as GPS auto-steer and spray boom controller, are included in this budget, which increase machine efficiencies and lowers labor and machinery and equipment hours. Estimated machinery costs are shown in Table 3. The machinery costs are estimated based on the total farm use of the machinery. Gasoline costs \$4.02, on-road diesel \$4.10 and off-road diesel \$3.55 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 485-hp crawler tractor is used for pulling the bank out wagon, chisel, field sprayer, and drill. A combine is used to harvest both winter wheat and peas. The crop is hauled to Pendleton. A miscellaneous charge of \$10 per acre, which includes additional labor, repairs and maintenance, and materials not included in field operations.

### Results

The price received for dry peas, \$0.15 per pound, is an average delivered in the Pendleton area. Variable cash production costs were \$116 per acre, giving a net return above variable cash costs of \$184 per acre. Total costs were \$204 per acre when all costs are considered. A break-even price of \$0.06 per pound would be required to cover variable cash costs, and \$0.10 per pound to cover total costs. Tables 5 and 6 show the returns per acre for cash and total costs at various yields and prices.

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**Table 1. Dry Peas Following Winter Wheat, Conservation Tillage, Annual Cropping, Over 18-inches of Precipitation, \$/acre economic costs and returns.**

<b>GROSS INCOME</b>		<b>Quantity</b>	<b>Unit</b>	<b>\$/Unit</b>	<b>Total</b>	<b>Price/Lb</b>	<b>Your Income</b>	
Dry Peas		2,000	pounds	0.15	<u>\$300.00</u>	<u>\$0.150</u>	_____	
Total <b>gross income</b>					\$300.00	\$0.150	_____	
<b>VARIABLE CASH COSTS</b>		<b>Description</b>	<b>Labor</b>	<b>Machinery</b>	<b>Materials</b>	<b>Total</b>	<b>Cost/Lb</b>	<b>Your Cost</b>
Land Preparation								
	Chisel plow	1.00 appl.	0.69	4.85	0.00	5.53	0.003	_____
	Rotary harrow	4.00 appl.	2.08	11.63	0.00	13.71	0.007	_____
	Cultivate	1.00 appl.	0.61	4.01	0.00	4.62	0.002	_____
Crop Production								
	Drill seed	1.00 appl.	0.86	5.56	30.00	36.42	0.018	_____
	Pea seed	50.00 lbs						
	Provided by processor	\$ - /lb						
	Nitrogen	50.0 lbs						
		\$ 0.60 /lb						
	Herbicides	1.00 appl.	0.29	2.34	12.00	14.63	0.007	_____
	Chemicals	\$ 11.00 /acre						
Harvesting Operations								
	Combine peas		0.69	3.01	0.00	3.70	0.002	_____
	Hauling peas		2.27	4.12	0.00	6.39	0.003	_____
Other Charges								
	Pickup & truck repairs, fuel & lube		0.00	17.29	0.00	17.29	0.009	_____
	Precision technologies		0.00	0.54	0.00	0.54	0.000	_____
	Other machinery		0.00	0.40	0.00	0.40	0.000	_____
	Miscellaneous		4.47	1.00	5.00	10.47	0.005	_____
	Interest: operating capital	12.00 mons	<u>0.00</u>	<u>0.00</u>	<u>1.88</u>	<u>1.88</u>	<u>0.001</u>	_____
Total <b>variable</b> cash costs			<b>\$11.96</b>	<b>\$54.74</b>	<b>\$48.88</b>	<b>\$115.57</b>	<b>0.058</b>	
Total <b>gross income</b> minus <b>variable</b> cash costs						<b>\$184.43</b>	<b>0.092</b>	
<b>FIXED NON-CASH COSTS</b>				<b>Unit</b>	<b>Total</b>	<b>Cost/Lb</b>	<b>Your Cost</b>	
	Machinery and equipment - depreciation & interest			acre	\$ 21.16	0.011	_____	
	Pickup, truck & ATV - depreciation & interest			acre	6.95	0.003	_____	
	Land interest charge			acre	<u>60.00</u>	<u>0.030</u>	_____	
Total <b>fixed</b> costs					<b>\$88.12</b>	<b>\$0.04</b>	_____	
<b>Total of all costs per acre</b>					<b>\$203.69</b>	<b>\$0.10</b>	_____	
<b>Net projected returns</b>					<b>\$96.31</b>	<b>\$0.05</b>	_____	

Table 2. Machinery Cost Assumptions

Machine	Size	Current Market Value	Hours or Miles of Annual	Expected Life (Years)
Tractor, rubber tracked	485 hp	\$200,000	705	15
Combine, used	30' Hillside	125,000	115	10
Swather	16'	50,000	74	10
Chisel plow	40'	54,500	115	15
Cultivator	45'	44,000	51	15
Rotary mower	50'	53,000	174	15
Field sprayer	90'	55,000	96	15
Grain drills	36'	35,100	143	15
Bank out wagon	850 bushel capacity	49,000	126	20
Pickup, two	3/4 ton 4X4, new	80,000	30,000	10
Truck & trailer	Semi, used	52,000	3,000	10
Truck	2 1/2 ton, older	18,000	2,400	10
ATV	4-wheeler new	9,500	3,000	5
Precision technologies	GPS auto-steer, etc.	21,550	N/A	7
Other machinery		16,000	N/A	10

Table 3. Machinery Cost Calculations

Machine	Size	---- Variable Costs ----		---- Fixed Costs ----		Total Cost
		Fuel & Lube	Repairs & Maint.	Depreciation	Interest	
----- Costs per Hour -----						
Tractor, rubber tracked	485 hp	\$40.83	\$13.40	\$15.23	\$17.02	\$86.48
Combine, used	30' Hillside	29.80	22.75	88.48	65.46	206.50
Swather	16'	16.33	20.05	55.06	40.73	132.17
Chisel plow	40'	0.00	30.36	28.67	28.54	87.57
Cultivator	45'	0.00	24.51	52.08	51.85	128.43
Rotary mower	50'	0.00	12.72	18.39	18.31	49.42
Field sprayer	90'	0.00	42.68	34.36	34.20	111.24
Grain drills	36'	0.00	23.48	14.77	14.71	52.96
Bank out wagon	850 bushel capacity	0.00	11.76	17.57	1.47	30.80
----- Costs per Mile -----						
Pickup, costs per vehicle	3/4 ton 4X4, new	\$0.46	\$0.42	\$0.22	\$0.16	\$1.26
Truck & trailer	Semi, used	0.94	0.83	1.43	1.04	4.24
Truck	2 1/2 ton, older	0.92	0.29	0.62	0.45	2.28
ATV	4-wheeler new	3.85	0.02	0.52	0.19	4.58
----- Costs per Acre -----						
Precision technologies	GPS auto-steer, etc.	\$0.00	\$0.54	\$1.54	\$0.65	\$2.72
Other machinery		0.00	0.40	0.80	0.48	1.68

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	
Combine, used	N/A	6.0	17.46	\$0.69	\$3.01	\$8.82	\$12.52
Swather	N/A	10.0	13.58	0.88	2.68	7.06	10.62
Chisel plow	Tractor, rubber tracked	4.0	17.46	0.69	4.85	5.12	10.66
Cultivator	Tractor, rubber tracked	4.0	19.64	0.61	4.01	6.93	11.55
Rotary mower	Tractor, rubber tracked	4.0	23.03	0.52	2.91	2.99	6.42
Field sprayer	Tractor, rubber tracked	4.0	41.46	0.29	2.34	2.43	5.06
Grain drills	Tractor, rubber tracked	4.0	13.97	0.86	5.56	4.42	10.84

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

Price/Pound	Pounds per Acre						
	1,700	1,800	1,900	2,000	2,100	2,200	2,300
\$ 0.07	\$ 3.43	\$ 10.43	\$ 17.43	\$ 24.43	\$ 31.43	\$ 38.43	\$ 45.43
\$ 0.10	\$ 54.43	\$ 64.43	\$ 74.43	\$ 84.43	\$ 94.43	\$ 104.43	\$ 114.43
\$ 0.12	\$ 88.43	\$ 100.43	\$ 112.43	\$ 124.43	\$ 136.43	\$ 148.43	\$ 160.43
\$ 0.15	\$ 139.43	\$ 154.43	\$ 169.43	\$ 184.43	\$ 199.43	\$ 214.43	\$ 229.43
\$ 0.18	\$ 190.43	\$ 208.43	\$ 226.43	\$ 244.43	\$ 262.43	\$ 280.43	\$ 298.43
\$ 0.20	\$ 224.43	\$ 244.43	\$ 264.43	\$ 284.43	\$ 304.43	\$ 324.43	\$ 344.43
\$ 0.23	\$ 275.43	\$ 298.43	\$ 321.43	\$ 344.43	\$ 367.43	\$ 390.43	\$ 413.43
\$ 0.25	\$ 309.43	\$ 334.43	\$ 359.43	\$ 384.43	\$ 409.43	\$ 434.43	\$ 459.43

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

Price/Pound	Pounds per Acre						
	1,700	1,800	1,900	2,000	2,100	2,200	2,300
\$ 0.07	\$ (84.69)	\$ (77.69)	\$ (70.69)	\$ (63.69)	\$ (56.69)	\$ (49.69)	\$ (42.69)
\$ 0.10	\$ (33.69)	\$ (23.69)	\$ (13.69)	\$ (3.69)	\$ 6.31	\$ 16.31	\$ 26.31
\$ 0.12	\$ 0.31	\$ 12.31	\$ 24.31	\$ 36.31	\$ 48.31	\$ 60.31	\$ 72.31
\$ 0.15	\$ 51.31	\$ 66.31	\$ 81.31	\$ 96.31	\$ 111.31	\$ 126.31	\$ 141.31
\$ 0.18	\$ 102.31	\$ 120.31	\$ 138.31	\$ 156.31	\$ 174.31	\$ 192.31	\$ 210.31
\$ 0.20	\$ 136.31	\$ 156.31	\$ 176.31	\$ 196.31	\$ 216.31	\$ 236.31	\$ 256.31
\$ 0.23	\$ 187.31	\$ 210.31	\$ 233.31	\$ 256.31	\$ 279.31	\$ 302.31	\$ 325.31
\$ 0.25	\$ 221.31	\$ 246.31	\$ 271.31	\$ 296.31	\$ 321.31	\$ 346.31	\$ 371.31