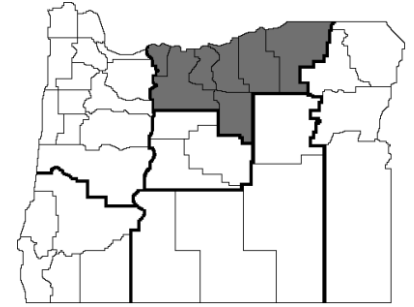


# Enterprise Budget

## Wheat (Winter) Following a Non-cereal Crop, 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 winter wheat followed by dry pea 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 winter wheat production each year following 1,000 acres of non-cereal crops. The average annual precipitation is 18 to 24-inches. Wheat yields in this cropping system range from 80 to 130 bushels per acre. A typical yield in this budget is 110 bushels per acre.

### Land

A land lease charge of \$318 per acre is included to represent the cost of leasing or owning land. This correlates to the payment a landowner would receive under a 35 percent crop-share lease, the most common arrangement for annual or continuous cropping of winter wheat 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 cost. 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 winter wheat and non-cereal crops, therefore hours may be higher for the non-cereal crops than wheat reflecting the additional operations required after a winter wheat crop. 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 grain is hauled to Pendleton. A \$0.05 per bushel assessment is paid to the Wheat Commission. A miscellaneous charge of \$10 per acre, which includes additional labor, repairs and maintenance, and materials not included in field operations.

### Results

The price for wheat is \$8.50 per bushel, the average price at Portland in 2012. The total gross income in this budget does not include any government program payments. Variable cash production costs were \$199 per acre, giving a net return above variable cash costs of \$736 per acre. Total costs were \$598 per acre when all costs are considered. A break-even price of \$1.81 per bushel would be required to cover variable cash costs, and \$5.43 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.

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**Table 1. Winter Wheat, Following a Non-Cereal Crop, Conservation Tillage, Annual Cropping, 18-24 inches 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   |  |  |                    |               |                  |                  | 110             | bushels         | 8.50             | <u>\$935.00</u>  | <u>\$8.50</u>   | _____              |
| <b>Total gross income</b>                                      |  |  |                    |               |                  |                  |                 |                 |                  | <b>\$935.00</b>  | <b>\$8.50</b>   | _____              |
| <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> |                  |                 |                    |
| Land Preparation   |  |  |                    |               |                  |                  |                 |                 |                  |                  |                 |                    |
| Chisel plow  |  |  | 1.00 appl.         | 0.69          | 4.85             | 0.00             | 5.53            | 0.05            | _____            |                  |                 |                    |
| Crop Production  |  |  |                    |               |                  |                  |                 |                 |                  |                  |                 |                    |
| Drill seed   |  |  | 1.00 appl.         | 0.86          | 5.56             | 107.75           | 114.17          | 1.04            | _____            |                  |                 |                    |
| Wheat seed   |  |  | 75.00 lbs          |               |                  |                  |                 |                 |                  |                  |                 |                    |
|  |  |  | \$ 0.19 /lb        |               |                  |                  |                 |                 |                  |                  |                 |                    |
| Nitrogen   |  |  | 150.0 lbs          |               |                  |                  |                 |                 |                  |                  |                 |                    |
|  |  |  | \$ 0.60 /lb        |               |                  |                  |                 |                 |                  |                  |                 |                    |
| Sulfur   |  |  | 0.70 lbs           |               |                  |                  |                 |                 |                  |                  |                 |                    |
|  |  |  | \$ 0.70 /lb        |               |                  |                  |                 |                 |                  |                  |                 |                    |
| Herbicides   |  |  | 2.00 appl.         | 0.58          | 4.67             | 22.00            | 27.25           | 0.25            | _____            |                  |                 |                    |
| Chemicals  |  |  | \$ 11.00 /acre     |               |                  |                  |                 |                 |                  |                  |                 |                    |
| Harvesting Operations  |  |  |                    |               |                  |                  |                 |                 |                  |                  |                 |                    |
| Combine grain  |  |  |                    | 0.69          | 3.01             | 0.00             | 3.70            | 0.03            | _____            |                  |                 |                    |
| Hauling grain  |  |  |                    | 2.27          | 8.28             | 0.00             | 10.54           | 0.10            | _____            |                  |                 |                    |
| Wheat commission   |  |  | \$ 0.05 /bu        | 0.00          | 0.00             | 5.50             | 5.50            | 0.05            | _____            |                  |                 |                    |
| Other Charges  |  |  |                    |               |                  |                  |                 |                 |                  |                  |                 |                    |
| Pickup & truck repairs, fuel & lube                            |  |  |                    | 0.00          | 17.29            | 0.00             | 17.29           | 0.16            | _____            |                  |                 |                    |
| Precision technologies   |  |  |                    | 0.00          | 0.54             | 0.00             | 0.54            | 0.00            | _____            |                  |                 |                    |
| Other machinery  |  |  |                    | 0.00          | 0.40             | 0.00             | 0.40            | 0.00            | _____            |                  |                 |                    |
| Miscellaneous  |  |  |                    | 4.47          | 1.00             | 5.00             | 10.47           | 0.10            | _____            |                  |                 |                    |
| Interest: operating capital                                    |  |  | 12.00 mons         | <u>0.00</u>   | <u>0.00</u>      | <u>3.22</u>      | <u>3.22</u>     | <u>0.03</u>     | _____            |                  |                 |                    |
| <b>Total variable cash costs</b>                               |  |  |                    | <b>\$9.55</b> | <b>\$45.60</b>   | <b>\$143.47</b>  | <b>\$198.63</b> | <b>\$1.81</b>   |                  |                  |                 |                    |
| <b>Total gross income minus variable cash costs</b>            |  |  |                    |               |                  |                  | <b>\$736.37</b> | <b>\$6.69</b>   |                  |                  |                 |                    |
| <b>FIXED CASH COSTS</b>  |  |  |                    |               |                  |                  | <b>Unit</b>     | <b>Total</b>    | <b>Cost/Bu</b>   | <b>Your Cost</b> |                 |                    |
| Insurance - Hail, Fire & Crop Revenue Coverage <sup>1</sup>    |  |  |                    |               |                  |                  | acre            | 30.50           | 0.28             | _____            |                 |                    |
| Conservation Practices   |  |  |                    |               |                  |                  | acre            | <u>0.30</u>     | <u>0.00</u>      | _____            |                 |                    |
| <b>Total fixed cash costs</b>                                  |  |  |                    |               |                  |                  |                 | <b>\$30.80</b>  | <b>\$0.28</b>    | _____            |                 |                    |
| <b>Total gross income minus variable plus fixed cash costs</b> |  |  |                    |               |                  |                  |                 | <b>\$705.57</b> | <b>\$6.41</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            | 38.73           | 0.35             | _____            |                 |                    |
| Pickup, truck & ATV - depreciation & interest                  |  |  |                    |               |                  |                  | acre            | 11.74           | 0.11             | _____            |                 |                    |
| Land interest charge   |  |  |                    |               |                  |                  | acre            | <u>317.90</u>   | <u>2.89</u>      | _____            |                 |                    |
| <b>Total non-cash costs</b>                                    |  |  |                    |               |                  |                  |                 | <b>\$368.37</b> | <b>\$3.35</b>    | _____            |                 |                    |
| <b>Total fixed costs</b>                                       |  |  |                    |               |                  |                  |                 | <b>\$399.17</b> | <b>\$3.63</b>    | _____            |                 |                    |
| <b>Total of all costs per acre</b>                             |  |  |                    |               |                  |                  |                 | <b>\$597.80</b> | <b>\$5.43</b>    | _____            |                 |                    |
| <b>Net projected returns</b>                                   |  |  |                    |               |                  |                  |                 | <b>\$337.20</b> | <b>\$3.07</b>    | _____            |                 |                    |

<sup>1</sup>Hail & Fire (\$4.50/acre) & 85% Crop Revenue Coverage at (\$28/acre).

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<br>per Hour | Acres<br>per Hour | --- Machine Costs ---     |                              |                           | Total Cost<br>per Acre |
|---------------|-------------------------|-------------------|-------------------|---------------------------|------------------------------|---------------------------|------------------------|
|               |                         |                   |                   | Labor<br>Cost per<br>Acre | Variable<br>Cost<br>per Acre | Fixed<br>Cost<br>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/Bushel | ----- Bushels per Acre ----- |           |           |           |           |             |             |
|--------------|------------------------------|-----------|-----------|-----------|-----------|-------------|-------------|
|              | 95                           | 100       | 105       | 110       | 115       | 120         | 125         |
| \$ 7.00      | \$ 435.57                    | \$ 470.57 | \$ 505.57 | \$ 540.57 | \$ 575.57 | \$ 610.57   | \$ 645.57   |
| \$ 7.50      | \$ 483.07                    | \$ 520.57 | \$ 558.07 | \$ 595.57 | \$ 633.07 | \$ 670.57   | \$ 708.07   |
| \$ 8.00      | \$ 530.57                    | \$ 570.57 | \$ 610.57 | \$ 650.57 | \$ 690.57 | \$ 730.57   | \$ 770.57   |
| \$ 8.50      | \$ 578.07                    | \$ 620.57 | \$ 663.07 | \$ 705.57 | \$ 748.07 | \$ 790.57   | \$ 833.07   |
| \$ 9.00      | \$ 625.57                    | \$ 670.57 | \$ 715.57 | \$ 760.57 | \$ 805.57 | \$ 850.57   | \$ 895.57   |
| \$ 9.50      | \$ 673.07                    | \$ 720.57 | \$ 768.07 | \$ 815.57 | \$ 863.07 | \$ 910.57   | \$ 958.07   |
| \$ 10.00     | \$ 720.57                    | \$ 770.57 | \$ 820.57 | \$ 870.57 | \$ 920.57 | \$ 970.57   | \$ 1,020.57 |
| \$ 10.50     | \$ 768.07                    | \$ 820.57 | \$ 873.07 | \$ 925.57 | \$ 978.07 | \$ 1,030.57 | \$ 1,083.07 |

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

| Price/Bushel | ----- Bushels per Acre ----- |           |           |           |           |           |           |
|--------------|------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|              | 95                           | 100       | 105       | 110       | 115       | 120       | 125       |
| \$ 7.00      | \$ 67.20                     | \$ 102.20 | \$ 137.20 | \$ 172.20 | \$ 207.20 | \$ 242.20 | \$ 277.20 |
| \$ 7.50      | \$ 114.70                    | \$ 152.20 | \$ 189.70 | \$ 227.20 | \$ 264.70 | \$ 302.20 | \$ 339.70 |
| \$ 8.00      | \$ 162.20                    | \$ 202.20 | \$ 242.20 | \$ 282.20 | \$ 322.20 | \$ 362.20 | \$ 402.20 |
| \$ 8.50      | \$ 209.70                    | \$ 252.20 | \$ 294.70 | \$ 337.20 | \$ 379.70 | \$ 422.20 | \$ 464.70 |
| \$ 9.00      | \$ 257.20                    | \$ 302.20 | \$ 347.20 | \$ 392.20 | \$ 437.20 | \$ 482.20 | \$ 527.20 |
| \$ 9.50      | \$ 304.70                    | \$ 352.20 | \$ 399.70 | \$ 447.20 | \$ 494.70 | \$ 542.20 | \$ 589.70 |
| \$ 10.00     | \$ 352.20                    | \$ 402.20 | \$ 452.20 | \$ 502.20 | \$ 552.20 | \$ 602.20 | \$ 652.20 |
| \$ 10.50     | \$ 399.70                    | \$ 452.20 | \$ 504.70 | \$ 557.20 | \$ 609.70 | \$ 662.20 | \$ 714.70 |