Enterprise Budget
Camelina (Spring) 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 spring camelina 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. Enterprises Budget, Wheat (Winter) Following Non-Cereal Crop, Conventional Tillage, Annual Cropping System, 18-24 Inch Precipitation Zone, North Central Region. AEB 0042, revised October 2012. 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 spring camelina production each year following 1,000 acres of winter wheat. The average annual precipitation is 18 to 24-inches. Typical yield in this budget is 1,600 pounds per acre, the approximate average yield in the region.

Land
A land lease charge of $64 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 camelina in this area.

Labor
Typically tractor drivers and harvest labor cost approximately $12 per hour, all of which include social security, workers’ 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 are sufficient for a 2,000-acre farm in an over 18-inch precipitation zone. The machinery and equipment hours reflect producing both camelina and winter wheat. 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. They increase machine efficiencies, lower labor, 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 $3.80, on-road diesel $4.00 and off-road diesel $3.46 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, rotary harrow, field cultivator, sprayer and drill. A combine is used to harvest both winter wheat and camelina. The grain is hauled to Pendleton. There is a limited selection of farm chemicals available for in-crop use with camelina. A miscellaneous charge of $10 per acre is added, which includes additional labor, repairs and maintenance, and materials not included in field operations.

Results
The price received for camelina is $0.20 per pound, the average received for production delivered to Pendleton. Variable cash production costs are $139 per acre, resulting in a net return above variable cash costs of $181 per acre. Total costs are $254 per acre when all costs are considered. A break-even price of $0.09 per pound would be required to cover variable cash costs, and $0.16 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.

This project is supported by Formula Grant no. 2012-67009-19917 from the USDA National Institute of Food and Agriculture and Oregon State University.
<table>
<thead>
<tr>
<th>GROSS INCOME</th>
<th>Quantity</th>
<th>Unit</th>
<th>$/Unit</th>
<th>Total</th>
<th>Price/Lb</th>
<th>Your Income</th>
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<td>Camelina</td>
<td>1,600</td>
<td>pounds</td>
<td>0.20</td>
<td>$320.00</td>
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<table>
<thead>
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<th>VARIABLE CASH COSTS</th>
<th>Description</th>
<th>Labor</th>
<th>Machinery</th>
<th>Materials</th>
<th>Total</th>
<th>Cost/Lb</th>
<th>Your Cost</th>
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<tr>
<td>Land Preparation</td>
<td>Chisel plow</td>
<td>1.00 appl.</td>
<td>$0.69</td>
<td>$4.79</td>
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<td></td>
<td>Rotary harrow</td>
<td>4.00 appl.</td>
<td>2.08</td>
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<td>0.00</td>
<td>13.53</td>
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<td>Cultivate</td>
<td>1.00 appl.</td>
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<td>4.57</td>
<td>$0.003</td>
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<td>Drill</td>
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<td>67.00</td>
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<td></td>
<td>Seed</td>
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<td>$2.00/lb</td>
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<td></td>
<td>Nitrogen</td>
<td>80.0 lbs</td>
<td>$0.60/lb</td>
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<td></td>
<td>Sulfur</td>
<td>10.0 lbs</td>
<td>$0.70/lb</td>
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<td>Harvesting Operations</td>
<td>Combine</td>
<td>1.37</td>
<td>5.93</td>
<td>0.00</td>
<td>7.31</td>
<td>$0.005</td>
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<td></td>
<td>Transportation to Pendleton</td>
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<td>0.00</td>
<td>3.45</td>
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<td>Other Charges</td>
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<td>0.00</td>
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<td>Precision technologies</td>
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<td>0.54</td>
<td>$0.000</td>
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<td>Other machinery</td>
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<td>0.00</td>
<td>0.40</td>
<td>$0.000</td>
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<td></td>
<td>Miscellaneous</td>
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<td>1.00</td>
<td>5.00</td>
<td>10.47</td>
<td>$0.007</td>
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<tr>
<td></td>
<td>Interest: operating capital</td>
<td>12.00 mons</td>
<td>0.00</td>
<td>0.00</td>
<td>2.25</td>
<td>2.25</td>
<td>$0.001</td>
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<td>Total variable cash costs</td>
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<td></td>
<td>$10.09</td>
<td>$50.83</td>
<td>$77.70</td>
<td>$138.62</td>
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<td>Total gross income minus variable cash costs</td>
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<td></td>
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<td></td>
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<td>$181.38</td>
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<th>FIXED NON-CASH COSTS</th>
<th>Unit</th>
<th>Total</th>
<th>Cost/Lb</th>
<th>Your Cost</th>
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<td>Machinery and equipment - depreciation &amp; interest</td>
<td>acre</td>
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<td>$0.025</td>
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<tr>
<td>Pickup, truck &amp; ATV - depreciation &amp; interest</td>
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<td>11.74</td>
<td>$0.007</td>
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<td>Land interest charge</td>
<td>acre</td>
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<td>$0.040</td>
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<td>Total fixed costs</td>
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<td>$115.17</td>
<td>$0.072</td>
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<td>Total of all costs per acre</td>
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<td>$253.78</td>
<td>$0.159</td>
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<tr>
<td>Net projected returns</td>
<td></td>
<td>$66.22</td>
<td>$0.041</td>
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### Table 2. Machinery Cost Assumptions

<table>
<thead>
<tr>
<th>Machine</th>
<th>Size</th>
<th>Current Market Value</th>
<th>Hours or Miles of Annual</th>
<th>Expected Life (Years)</th>
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</thead>
<tbody>
<tr>
<td>Tractor, rubber tracked</td>
<td>485 hp</td>
<td>$200,000</td>
<td>720</td>
<td>15</td>
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<tr>
<td>Combine, used</td>
<td>30' Hillside</td>
<td>125,000</td>
<td>172</td>
<td>10</td>
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<tr>
<td>Rotary mower</td>
<td>26'</td>
<td>53,000</td>
<td>176</td>
<td>15</td>
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<tr>
<td>Chisel plow</td>
<td>40'</td>
<td>54,500</td>
<td>115</td>
<td>15</td>
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<tr>
<td>Cultivator</td>
<td>45'</td>
<td>44,000</td>
<td>51</td>
<td>15</td>
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<tr>
<td>Culti-weeder</td>
<td>60'</td>
<td>47,000</td>
<td>72</td>
<td>15</td>
</tr>
<tr>
<td>Rotary harrow</td>
<td>50'</td>
<td>53,000</td>
<td>174</td>
<td>15</td>
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<tr>
<td>Field sprayer</td>
<td>90'</td>
<td>55,000</td>
<td>48</td>
<td>15</td>
</tr>
<tr>
<td>Rotary harrow</td>
<td>36'</td>
<td>35,100</td>
<td>143</td>
<td>15</td>
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<tr>
<td>Bank out wagon</td>
<td>850 bushel capacity</td>
<td>49,000</td>
<td>189</td>
<td>20</td>
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<tr>
<td>Pickup, two</td>
<td>3/4 ton 4X4, new</td>
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<tr>
<td>Truck &amp; trailer</td>
<td>Semi, used</td>
<td>52,000</td>
<td>3,000</td>
<td>10</td>
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<tr>
<td>Truck</td>
<td>2 1/2 ton, older</td>
<td>18,000</td>
<td>2,400</td>
<td>10</td>
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<tr>
<td>ATV</td>
<td>4-wheeler new</td>
<td>9,500</td>
<td>3,000</td>
<td>5</td>
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<tr>
<td>Precision technologies</td>
<td>GPS auto-steer, etc.</td>
<td>21,550</td>
<td>N/A</td>
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<tr>
<td>Other machinery</td>
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<td>16,000</td>
<td>N/A</td>
<td>10</td>
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</table>

### Table 3. Machinery Cost Calculations

<table>
<thead>
<tr>
<th>Machine</th>
<th>Size</th>
<th>Fuel &amp; Lube</th>
<th>Repairs &amp; Maint.</th>
<th>Depreciation</th>
<th>Interest</th>
<th>Total Cost</th>
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</thead>
<tbody>
<tr>
<td>Tractor, rubber tracked</td>
<td>485 hp</td>
<td>$39.79</td>
<td>$13.40</td>
<td>$14.91</td>
<td>$16.67</td>
<td>$84.78</td>
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<tr>
<td>Combine, used</td>
<td>30' Hillside</td>
<td>29.05</td>
<td>22.75</td>
<td>58.99</td>
<td>43.64</td>
<td>154.43</td>
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<td>Rotary mower</td>
<td>26'</td>
<td>0.00</td>
<td>12.72</td>
<td>18.12</td>
<td>18.04</td>
<td>48.88</td>
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<td>Chisel plow</td>
<td>40'</td>
<td>0.00</td>
<td>30.36</td>
<td>28.67</td>
<td>28.54</td>
<td>87.57</td>
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<tr>
<td>Cultivator</td>
<td>45'</td>
<td>0.00</td>
<td>24.51</td>
<td>52.08</td>
<td>51.85</td>
<td>128.43</td>
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<td>Culti-weeder</td>
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<td>0.00</td>
<td>24.51</td>
<td>39.15</td>
<td>38.97</td>
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<td>0.00</td>
<td>12.72</td>
<td>18.39</td>
<td>18.31</td>
<td>49.42</td>
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<tr>
<td>Field sprayer</td>
<td>90'</td>
<td>0.00</td>
<td>42.68</td>
<td>68.71</td>
<td>68.41</td>
<td>179.80</td>
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<td>Grain drills</td>
<td>36'</td>
<td>0.00</td>
<td>23.48</td>
<td>14.77</td>
<td>14.71</td>
<td>52.96</td>
</tr>
<tr>
<td>Bank out wagon</td>
<td>850 bushel capacity</td>
<td>0.00</td>
<td>11.76</td>
<td>11.72</td>
<td>1.47</td>
<td>24.95</td>
</tr>
<tr>
<td>Pickup, costs per vehicle</td>
<td>3/4 ton 4X4, new</td>
<td>$0.44</td>
<td>$0.42</td>
<td>$0.22</td>
<td>$0.16</td>
<td>$1.23</td>
</tr>
<tr>
<td>Truck &amp; trailer</td>
<td>Semi, used</td>
<td>0.92</td>
<td>0.83</td>
<td>1.43</td>
<td>1.04</td>
<td>4.22</td>
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<tr>
<td>Truck</td>
<td>2 1/2 ton, older</td>
<td>0.87</td>
<td>0.29</td>
<td>0.62</td>
<td>0.45</td>
<td>2.23</td>
</tr>
<tr>
<td>ATV</td>
<td>4-wheeler new</td>
<td>0.29</td>
<td>0.02</td>
<td>0.52</td>
<td>0.19</td>
<td>1.02</td>
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<td>Precision technologies</td>
<td>GPS auto-steer, etc.</td>
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<td>$0.54</td>
<td>$1.54</td>
<td>$0.65</td>
<td>$2.72</td>
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<tr>
<td>Other machinery</td>
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<td>0.40</td>
<td>0.80</td>
<td>0.48</td>
<td>1.68</td>
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### Table 4. Estimated Cost of Each Operation with Power-Unit.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Tractor</th>
<th>Miles per Hour</th>
<th>Acres per Hour</th>
<th>Labor Cost per Acre</th>
<th>Variable Cost per Acre</th>
<th>Fixed Cost per Acre</th>
<th>Total Cost per Acre</th>
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</thead>
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<tr>
<td>Combine, used</td>
<td>N/A</td>
<td>3.0</td>
<td>8.7</td>
<td>$1.37</td>
<td>$5.93</td>
<td>$11.76</td>
<td>$19.07</td>
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<td>Tractor, rubber tracked</td>
<td>4.0</td>
<td>17.5</td>
<td>0.69</td>
<td>4.79</td>
<td>5.09</td>
<td>10.56</td>
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<td>Tractor, rubber tracked</td>
<td>4.0</td>
<td>19.6</td>
<td>0.61</td>
<td>3.96</td>
<td>6.90</td>
<td>11.47</td>
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<td>Tractor, rubber tracked</td>
<td>4.0</td>
<td>23.0</td>
<td>0.52</td>
<td>2.86</td>
<td>2.97</td>
<td>6.35</td>
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<td>Field sprayer</td>
<td>Tractor, rubber tracked</td>
<td>4.0</td>
<td>41.5</td>
<td>0.29</td>
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<td>4.07</td>
<td>6.67</td>
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<td>Grain drills</td>
<td>Tractor, rubber tracked</td>
<td>4.0</td>
<td>14.0</td>
<td>0.86</td>
<td>5.49</td>
<td>4.37</td>
<td>10.72</td>
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### Table 5. Estimated Per Acre Returns Over Cash Costs at Varying Yields and Prices.

<table>
<thead>
<tr>
<th>Price/Pound</th>
<th>1,000</th>
<th>1,200</th>
<th>1,400</th>
<th>1,600</th>
<th>1,800</th>
<th>2,000</th>
<th>2,200</th>
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<td>$0.06</td>
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<td>$66.62</td>
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<td>$42.62</td>
<td>$30.62</td>
<td>$18.62</td>
<td>$6.62</td>
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<tr>
<td>$0.09</td>
<td>$48.62</td>
<td>$30.62</td>
<td>$12.62</td>
<td>$5.38</td>
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<td>$41.38</td>
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<td>$0.17</td>
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### Table 6. Estimated Per Acre Returns Over Total Costs at Varying Yields and Prices.

<table>
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<th>Price/Pound</th>
<th>1,000</th>
<th>1,200</th>
<th>1,400</th>
<th>1,600</th>
<th>1,800</th>
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<th>2,200</th>
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<tr>
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<td>$181.78</td>
<td>$169.78</td>
<td>$157.78</td>
<td>$145.78</td>
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<td>$0.09</td>
<td>$163.78</td>
<td>$145.78</td>
<td>$127.78</td>
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<td>$13.78</td>
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