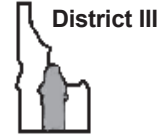


## Feed Barley Custer and Lemhi Counties



Shannon Williams, James N. Hawkins, C. Wilson Gray, and Robert L. Smathers



### Background and Assumptions

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing feed barley in Lemhi and Custer counties. Production practices are based on producer surveys conducted in the two counties. Although production practices may be similar for individual farms, each has a unique set of resources with different levels of productivity, different production problems, and therefore different costs. Farm size, crop rotation, age and type of equipment, and quality of management are all crucial factors that influence costs.

#### The Model Farm

This costs and returns estimate models a 475-acre ranch with 60 acres in spring barley, 355 acres in alfalfa hay, and 60 acres in oat hay. The crop rotation includes 1 year of barley, 6 years of alfalfa hay, and 1 year of oat hay. The farm uses center pivot irrigation and surface water delivered from an irrigation district. The district charges a flat fee per acre for water.

#### Tillage, Fertilization, Pest Control, and Irrigation

Barley acreage is plowed and roller harrowed in the fall, then roller harrowed a second time in the spring. Barley seed is planted shortly after spring tillage. The crop is combined and hauled to on-farm storage in September by the ranch operator. Total barley produced is 36 hundred-weight or 75 bushels per acre. Fertilizer is custom applied in the spring before tillage and planting. The ranch operator performs weed control using tillage and herbicides. A post-emergence herbicide is custom applied in June for broadleaf weed control. No costs are included in this budget for insect control. Barley receives about 15 inches of

water during the growing season from approximately 30 irrigations (pivot rotations): 5 inches in June, and 10 inches in July.

#### Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used for barley, along with their operating and ownership costs. All machinery is valued at 50 percent of new prices. This adjustment reduces the machinery repair operating cost, and the depreciation and interest ownership costs on equipment by 50 percent.

The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) on the irrigation system. A labor charge is made for all labor pertaining to field operations and includes a base rate plus overhead expenses. Custom charges account for those field operations that are contracted out. A management charge, 5 percent of gross returns, is included as an ownership cost.

Labor to operate machinery is valued at \$13.15 per hour, while irrigation and non-machine labor are valued at \$8.75 and \$7.70, respectively. The non-machine rate accounts for extra planting labor. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor.

Interest on operating capital is charged from the time an input is applied until the month of harvest and calculated at a nominal rate of 7.5 percent. Interest on intermediate term capital is calculated using a rate of 7.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated costs such as office expenses, legal and accounting fees, and utilities.

**Table 1. Costs And Returns Per Acre to Produce Barley  
Lemhi and Custer Spring Feed Barley**

**EBB6-FB-05**

|  | Quantity<br>Per Acre | Unit | Price or<br>Cost/Unit | Value or<br>Cost/Acre | Your<br>Cost |
|--|----------------------|------|-----------------------|-----------------------|--------------|
| Gross Returns  |                      |      |                       |                       |              |
| Barley   | 36.00                | cwt  | 4.80                  | 172.80                | _____        |
| Total Gross Returns For Barley                       |                      |      |                       | 172.80                | _____        |
| Operating Costs                                      |                      |      |                       |                       |              |
| Custom:  |                      |      |                       |                       |              |
| Custom Fertilize                                     | 1.00                 | acre | 5.70                  | 5.70                  | _____        |
| Custom Ground Spray                                  | 1.00                 | acre | 5.40                  | 5.40                  | _____        |
| Fertilizer:  |                      |      |                       |                       |              |
| Dry Nitrogen   | 85.00                | lb   | 0.39                  | 33.15                 | _____        |
| Seed:  |                      |      |                       |                       |              |
| Barley Seed  | 100.00               | lb   | 0.13                  | 13.00                 | _____        |
| Irrigation:  |                      |      |                       |                       |              |
| Water Assessment                                     | 1.00                 | acre | 5.00                  | 5.00                  | _____        |
| Irrigation Repairs                                   | 15.00                | acin | 0.55                  | 8.25                  | _____        |
| Irrigation Power                                     | 15.00                | acin | 1.39                  | 20.85                 | _____        |
| Labor (irrigation)                                   | 0.75                 | hr   | 8.75                  | 6.56                  | _____        |
| Pesticide:   |                      |      |                       |                       |              |
| 2,4-D Amine  | 0.50                 | qt   | 3.65                  | 1.83                  | _____        |
| Labor (machine)                                      | 3.27                 | hrs  | 13.15                 | 43.02                 | _____        |
| Labor (non-machine)                                  | 0.29                 | hrs  | 7.70                  | 2.23                  | _____        |
| Fuel - Gas   | 1.44                 | gal  | 2.26                  | 3.25                  | _____        |
| Fuel - Diesel  | 14.99                | gal  | 2.07                  | 31.03                 | _____        |
| Lube   |                      |      |                       | 5.14                  | _____        |
| Machinery Repair                                     |                      |      |                       | 6.08                  | _____        |
| Interest on Operating Capital @ 7.50%                |                      |      |                       | 6.10                  | _____        |
| Total Operating Costs per Acre                       |                      |      |                       | 196.59                | _____        |
| Net Returns Above Operating Costs                    |                      |      |                       | -23.79                | _____        |
| Cash Ownership Costs                                 |                      |      |                       |                       |              |
| General Overhead                                     |                      |      |                       | 5.00                  | _____        |
| Land Rent  |                      |      |                       | 60.00                 | _____        |
| Management Fee                                       |                      |      |                       | 9.00                  | _____        |
| Property Taxes (machinery)                           |                      |      |                       | 0.00                  | _____        |
| Property Insurance                                   |                      |      |                       | 2.18                  | _____        |
| Total Cash Ownership Costs per Acre                  |                      |      |                       | 76.18                 | _____        |
| Non-Cash Ownership Costs (depreciation and interest) |                      |      |                       |                       |              |
| Equipment  |                      |      |                       | 90.71                 | _____        |
| Total Non-Cash Ownership Costs per Acre              |                      |      |                       | 90.71                 | _____        |
| Total Costs per Acre                                 |                      |      |                       | 363.48                | _____        |
| Returns to Risk                                      |                      |      |                       | -190.68               | _____        |

**Table 2. Monthly Summary of Cash Expenses per Acre**

**EBB6-FB-05**

|                                  | Oct<br>04    | Nov<br>04   | Dec<br>04   | Jan<br>05   | Feb<br>05   | Mar<br>05    | Apr<br>05    | May<br>05   | Jun<br>05    | Jul<br>05    | Aug<br>05    | Sep<br>05   | Total         |
|----------------------------------|--------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|--------------|--------------|--------------|-------------|---------------|
| <b>Preharvest:</b>               |              |             |             |             |             |              |              |             |              |              |              |             |               |
| Plow                             | 19.57        |             |             |             |             |              |              |             |              |              |              |             | 19.57         |
| Harrow                           | 7.75         |             |             |             |             |              | 7.75         |             |              |              |              |             | 15.50         |
| Fertilize                        |              |             |             |             |             |              | 38.85        |             |              |              |              |             | 38.85         |
| Seed Hauling                     |              |             |             |             |             |              | 4.35         |             |              |              |              |             | 4.35          |
| Plant                            |              |             |             |             |             |              | 23.94        |             |              |              |              |             | 23.94         |
| Assessments                      |              |             |             |             |             |              | 5.00         |             |              |              |              |             | 5.00          |
| Repairs                          |              |             |             |             |             |              | 8.25         |             |              |              |              |             | 8.25          |
| Irrigate                         |              |             |             |             |             |              |              |             | 9.14         | 18.27        |              |             | 27.41         |
| Ground Spray                     |              |             |             |             |             |              |              |             | 7.23         |              |              |             | 7.23          |
| General Pickup Use               | 2.05         | 2.05        | 2.05        | 2.05        | 2.05        | 2.05         | 2.05         | 2.05        | 2.05         | 2.05         | 2.05         | 2.05        | 24.60         |
| <b>Total Preharvest Costs</b>    | <b>29.37</b> | <b>2.05</b> | <b>2.05</b> | <b>2.05</b> | <b>2.05</b> | <b>2.05</b>  | <b>90.18</b> | <b>2.05</b> | <b>18.41</b> | <b>20.33</b> | <b>2.05</b>  | <b>2.05</b> | <b>174.69</b> |
| <b>Harvest:</b>                  |              |             |             |             |             |              |              |             |              |              |              |             |               |
| Combine                          |              |             |             |             |             |              |              |             |              |              | 10.37        |             | 10.37         |
| Crop Hauling                     |              |             |             |             |             |              |              |             |              |              | 5.43         |             | 5.43          |
| <b>Total Harvest Costs</b>       |              |             |             |             |             |              |              |             |              |              | <b>15.80</b> |             | <b>15.80</b>  |
| Interest on Operating Capital    | 0.18         | 0.20        | 0.21        | 0.22        | 0.23        | 0.25         | 0.81         | 0.82        | 0.94         | 1.07         | 1.18         | -0.01       | 6.10          |
| <b>Operating Costs per Acre</b>  | <b>29.56</b> | <b>2.25</b> | <b>2.26</b> | <b>2.27</b> | <b>2.28</b> | <b>2.30</b>  | <b>90.99</b> | <b>2.87</b> | <b>19.35</b> | <b>21.39</b> | <b>19.03</b> | <b>2.04</b> | <b>196.59</b> |
| <b>Cash Ownership</b>            |              |             |             |             |             |              |              |             |              |              |              |             |               |
| General Overhead                 | 0.42         | 0.42        | 0.42        | 0.42        | 0.42        | 0.42         | 0.42         | 0.42        | 0.42         | 0.42         | 0.42         | 0.42        | 5.00          |
| Land Rent                        |              |             |             |             |             | 60.00        |              |             |              |              |              |             | 60.00         |
| Management Fee                   | 0.75         | 0.75        | 0.75        | 0.75        | 0.75        | 0.75         | 0.75         | 0.75        | 0.75         | 0.75         | 0.75         | 0.75        | 9.00          |
| Property Insurance               |              |             |             |             |             |              | 2.18         |             |              |              |              |             | 2.18          |
| <b>Cash Ownership Costs</b>      | <b>1.17</b>  | <b>1.17</b> | <b>1.17</b> | <b>1.17</b> | <b>1.17</b> | <b>61.17</b> | <b>3.35</b>  | <b>1.17</b> | <b>1.17</b>  | <b>1.17</b>  | <b>1.17</b>  | <b>1.17</b> | <b>76.18</b>  |
| <b>Total Cash Costs per Acre</b> | <b>30.72</b> | <b>3.41</b> | <b>3.43</b> | <b>3.44</b> | <b>3.45</b> | <b>63.46</b> | <b>94.34</b> | <b>4.04</b> | <b>20.52</b> | <b>22.56</b> | <b>20.19</b> | <b>3.20</b> | <b>272.77</b> |

**Table 3. Machinery and Equipment Costs per Hour**

| Description        | Purchase Price | Years to Trade | Salvage Value | Hours Used | <-Non-Cash->        | <-----Cash-----> |       | <-----Operating-----> |             |             | Total Costs/Hr. |
|--------------------|----------------|----------------|---------------|------------|---------------------|------------------|-------|-----------------------|-------------|-------------|-----------------|
|                    |                |                |               |            | Ownership Cap. Rec. | Insur.           | Taxes | Repairs               | Fuel & Lube | Total Oper. |                 |
| 4-Wheeler - 1      | 6500           | 10             | 1920          | 175        | 2.35                | 0.06             | 0.00  | 0.04                  | 3.40        | 3.44        | 5.85            |
| 4-Wheeler - 2      | 6500           | 10             | 1920          | 175        | 2.35                | 0.06             | 0.00  | 0.04                  | 3.40        | 3.44        | 5.85            |
| Combine - 18'      | 155000         | 10             | 29238         | 50         | 206.37              | 4.57             | 0.00  | 1.26                  | 27.63       | 28.89       | 239.83          |
| Grain Drill - 12'  | 9700           | 12             | 1344          | 30         | 19.92               | 0.46             | 0.00  | 0.43                  | 0.00        | 0.43        | 20.81           |
| Moldboard Plow 4b  | 7600           | 15             | 730           | 60         | 7.05                | 0.17             | 0.00  | 0.86                  | 0.00        | 0.86        | 8.07            |
| Pickup 1 - 3/4 ton | 37000          | 8              | 12913         | 300        | 8.58                | 0.21             | 0.00  | 2.40                  | 7.80        | 10.20       | 18.98           |
| Pickup 2 - 1 ton   | 44000          | 8              | 15356         | 300        | 10.21               | 0.25             | 0.00  | 2.85                  | 11.90       | 14.75       | 25.20           |
| Roller-harrow -12' | 17000          | 15             | 1632          | 50         | 18.98               | 0.47             | 0.00  | 1.07                  | 0.00        | 1.07        | 20.51           |
| Tractor - 145hp    | 102000         | 15             | 19858         | 350        | 15.72               | 0.44             | 0.00  | 1.53                  | 20.03       | 21.57       | 37.72           |
| Truck - 5 ton      | 44000          | 15             | 8566          | 200        | 11.85               | 0.33             | 0.00  | 2.97                  | 2.98        | 5.95        | 18.13           |

Net Returns Per Acre Above Operating Costs For Barley  
Yield (cwt/acre)

|      | 25.20 | 28.80 | 32.40 | 36.00 | 39.60 | 43.20 | 46.80 |
|------|-------|-------|-------|-------|-------|-------|-------|
| 3.36 | -107  | -97   | -86   | -76   | -65   | -55   | -44   |
| 3.84 | -95   | -83   | -71   | -58   | -46   | -34   | -22   |
| 4.32 | -83   | -69   | -55   | -41   | -27   | -13   | 1     |
| 4.80 | -71   | -55   | -39   | -24   | -8    | 8     | 23    |
| 5.28 | -59   | -41   | -24   | -7    | 11    | 28    | 46    |
| 5.76 | -47   | -28   | -8    | 11    | 30    | 49    | 68    |
| 6.24 | -35   | -14   | 7     | 28    | 49    | 70    | 91    |

Net Returns Per Acre Above Cash Costs For Barley  
Yield (cwt/acre)

|      | 25.20 | 28.80 | 32.40 | 36.00 | 39.60 | 43.20 | 46.80 |
|------|-------|-------|-------|-------|-------|-------|-------|
| 3.36 | -183  | -173  | -162  | -152  | -141  | -131  | -121  |
| 3.84 | -171  | -159  | -147  | -135  | -122  | -110  | -98   |
| 4.32 | -159  | -145  | -131  | -117  | -103  | -89   | -76   |
| 4.80 | -147  | -131  | -116  | -100  | -84   | -69   | -53   |
| 5.28 | -135  | -117  | -100  | -83   | -65   | -48   | -31   |
| 5.76 | -123  | -104  | -84   | -65   | -46   | -27   | -8    |
| 6.24 | -110  | -90   | -69   | -48   | -27   | -7    | 14    |

Net Returns Per Acre Above Total Costs For Barley  
Yield (cwt/acre)

|      | 25.20 | 28.80 | 32.40 | 36.00 | 39.60 | 43.20 | 46.80 |
|------|-------|-------|-------|-------|-------|-------|-------|
| 3.36 | -262  | -256  | -249  | -243  | -236  | -229  | -221  |
| 3.84 | -250  | -242  | -234  | -225  | -217  | -208  | -199  |
| 4.32 | -238  | -228  | -218  | -208  | -198  | -187  | -176  |
| 4.80 | -226  | -214  | -203  | -191  | -179  | -166  | -154  |
| 5.28 | -214  | -200  | -187  | -173  | -160  | -146  | -132  |
| 5.76 | -201  | -187  | -171  | -156  | -141  | -125  | -109  |
| 6.24 | -189  | -173  | -156  | -139  | -122  | -104  | -87   |

The practices and chemicals specified here are based on survey information representative of typical operations. They are not recommendations. Because of constantly changing labels, laws, and regulations, the University of Idaho can assume no liability for the consequences of use of chemicals specified here. In all cases, read and follow the directions and precautionary statements on the specific pesticide product label. To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

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