Guidelines for Estimating Dairy Cow Production Costs

2017

in Manitoba
Budget Guidelines for a
Based on 100 Kgs Daily Butterfat (BF) Quota
99 Cow Dairy Enterprise

Date: May, 2017

The primary objective of this publication is to provide a budget format for determining costs to operate a dairy enterprise. The case herd used in this budgeting guide is larger than average and of a freestall/parlour design; however, the budgeting format can be applied to any Manitoba dairy. Adjustments to this guide due to herd size, production level and facility type will be necessary when applying the cost figures to more accurately reflect your enterprise. Note: the cost of Quota is not included in this budget.

All feeds including forages, concentrates and supplements are priced at current market values. By doing this, consistency is maintained in how key inputs (i.e. feeds; replacement heifers) are expensed and included in the dairy budget. The cost figures listed in this budget guideline are estimates based on accepted industry practices and current market conditions.

This tool is available as an Excel worksheet at: www.manitoba.ca/agriculture or at your local Manitoba Agriculture GO office. The Farm Machinery Custom and Rental Rate is also available to help determine machinery costs.

Note: This budget is only a guide and is not intended as an in-depth study of the cost of production of this industry. Interpretation and use of this information is the responsibility of the user. If you need help with a budget, contact your local Manitoba Agriculture GO Office.
<table>
<thead>
<tr>
<th></th>
<th>$/Cow</th>
<th>$/HL</th>
<th>Your Farm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Feed Costs:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.01 Lactating Cows</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.011 TMR Silage</td>
<td>$517.50</td>
<td>$5.28</td>
<td></td>
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<tr>
<td>1.012 TMR Grain Mix</td>
<td>$1,719.48</td>
<td>$17.55</td>
<td></td>
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<tr>
<td>1.013 TMR Salt, Min &amp; Vitamins</td>
<td>$38.01</td>
<td>$0.39</td>
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<tr>
<td><strong>1.02 Dry Cows:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.021 Far Away</td>
<td>$201.04</td>
<td>$2.05</td>
<td></td>
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<tr>
<td>1.022 Close Up</td>
<td>$60.10</td>
<td>$0.61</td>
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<tr>
<td><strong>Total Feed Cost</strong></td>
<td>$2,536.13</td>
<td>$25.88</td>
<td></td>
</tr>
<tr>
<td><strong>2. Other Operating Costs:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.01 Milk Recording &amp; Registrations</td>
<td>$38.39</td>
<td>$0.39</td>
<td></td>
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<tr>
<td>2.02 Bedding</td>
<td>$90.00</td>
<td>$0.92</td>
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<tr>
<td>2.03 Vet. Medicine &amp; Supplies</td>
<td>$175.18</td>
<td>$1.79</td>
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<td>2.04 Breeding Costs</td>
<td>$90.00</td>
<td>$0.92</td>
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<td>2.05 Dairy Supplies</td>
<td>$199.49</td>
<td>$2.04</td>
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<td>2.06 Marketing &amp; Transportation</td>
<td>$551.74</td>
<td>$5.63</td>
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<td>2.07 Operating, Repair &amp; Maintenance</td>
<td>$291.62</td>
<td>$2.98</td>
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<td>2.08 Utilities</td>
<td>$173.10</td>
<td>$1.77</td>
<td></td>
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<td>2.09 Insurance</td>
<td>$167.53</td>
<td>$1.71</td>
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<td>2.10 Manure Removal</td>
<td>$160.60</td>
<td>$1.64</td>
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<tr>
<td>2.11 Herd Replacement</td>
<td>$381.31</td>
<td>$3.89</td>
<td></td>
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<td>2.12 Administrative Costs</td>
<td>$50.51</td>
<td>$0.52</td>
<td></td>
</tr>
<tr>
<td>2.13 Property Taxes</td>
<td>$169.08</td>
<td>$1.73</td>
<td></td>
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<tr>
<td>2.14 Miscellaneous</td>
<td>$26.26</td>
<td>$0.27</td>
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<td><strong>Subtotal Operating Costs</strong></td>
<td>$5,100.94</td>
<td>$52.07</td>
<td></td>
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<td><strong>2.15 Operating Interest</strong></td>
<td>$9.56</td>
<td>$0.10</td>
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<td><strong>Total Operating Costs</strong></td>
<td>$5,110.50</td>
<td>$52.17</td>
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<tr>
<td><strong>B. Fixed Costs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. Depreciation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.01 Buildings &amp; Storage</td>
<td>$815.26</td>
<td>$8.32</td>
<td></td>
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<tr>
<td>3.02 Machinery &amp; Equipment</td>
<td>$182.43</td>
<td>$1.86</td>
<td></td>
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<tr>
<td><strong>4. Investment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.01 Land, Buildings &amp; Storage</td>
<td>$244.54</td>
<td>$2.50</td>
<td></td>
</tr>
<tr>
<td>4.02 Machinery &amp; Equipment</td>
<td>$27.25</td>
<td>$0.28</td>
<td></td>
</tr>
<tr>
<td>4.03 Livestock</td>
<td>$56.25</td>
<td>$0.57</td>
<td></td>
</tr>
<tr>
<td><strong>Total Fixed Costs</strong></td>
<td>$1,325.73</td>
<td>$13.53</td>
<td></td>
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<tr>
<td><strong>TOTAL OPERATING AND FIXED COSTS</strong></td>
<td>$6,436.23</td>
<td>$65.70</td>
<td></td>
</tr>
<tr>
<td><strong>C. Labour Cost</strong></td>
<td>$1,124.75</td>
<td>$11.48</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL COST OF PRODUCTION</strong></td>
<td>$7,560.98</td>
<td>$77.17</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** This budget is only a guide and is not intended as an in-depth study of the cost of production of this industry. Interpretation and utilization of this information is the responsibility of the user. No liability for decisions based on this publication is assumed.
## Dairy Production Costs - Input

### A. Herd Management Profile

<table>
<thead>
<tr>
<th>Breed of Herd</th>
<th>Holstein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herd Identification</td>
<td>Registered</td>
</tr>
<tr>
<td>On a DHI Milk Recording Program</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Daily Kgs BF Quota Holding:**

<table>
<thead>
<tr>
<th>Kgs BF for the herd</th>
<th>100.0 Kgs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kgs BF/Lactating Cow</td>
<td>1.21 Kgs</td>
</tr>
</tbody>
</table>

**Herd Size:**

<table>
<thead>
<tr>
<th>Lactating Cows</th>
<th>83 Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Cows</td>
<td>17 Cows</td>
</tr>
<tr>
<td>Total Lactating &amp; Dry</td>
<td>99 Cows</td>
</tr>
</tbody>
</table>

**Milking Herd Composition:**

| 1st Lactation Animals (26% of herd) | 26 Cows |
| 2nd Lactation+ Animals (74% of herd) | 73 Cows |

**Performance Statistics for Milking Herd:**

| Litres Milk/Cow/Lactation Period | 9,800 Litres |
| Kgs BF/Cow/Lactation Period     | 377 Kgs     |
| Kgs BF/hl Milk                  | 3.85 Kgs    |
| Kgs Protein/hl Milk             | 3.30 Kgs    |
| Average Calving Interval        | 14.0 Months |
| Average Days Lactation          | 345 Days    |
| Average Days Dry                | 85 Days     |
| Average Milk Bacteria Count (IBC) | <10,000 |
| Average Milk Somatic Cell Count (SCC) | <150,000 |
| Average Dry Cow Bodyweight (lbs) | 1,485 lbs |
| Average Lactating Cow Bodyweight (lbs) | 1,375 lbs |

**Other Herd Management Parameters:**

| Regular Herd Health Program     | Yes |
| Complete Herd Vaccination Program | Yes |
| Average % Culling Rate on Milking Herd | 30.0% |
| Average Death Loss % on Milking Herd | 4.0% |
| Calving %                       | 94.0% |

**Market Value of Animals:**

| Average Value of Milking Herd | $2,500  |
| Average Value of Replacement Stock | $3,000  |
| Average Value of Cull Cows (slaughter & dairy) | $1,400  |
| Average Value of Heifer Calves at 2 weeks | $300    |
| Average Value of Bull Calves at 2 weeks | $50     |
B. Feed Requirements and Costs

Based on a 14-month calving interval (CI) comprised of a 345-day lactation period and a 85-day dry period.

Feed requirements and feed cost of production guideline calculations are based on meeting the nutrient requirements of a herd with an 9800 L/cow milk production average (or 31.5 L/day). A single total mixed ration (TMR) was balanced and fed for a production level 30% higher than the herd average daily production.

Nutrient Description of Forage

<table>
<thead>
<tr>
<th>Nutrient Description of Forage</th>
<th>Lactating Cows</th>
<th>Dry Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Matter</td>
<td>40 %</td>
<td>85 %</td>
</tr>
<tr>
<td>Net Energy of Lactation</td>
<td>1.45 Mcal/kg</td>
<td>1.25 Mcal/kg</td>
</tr>
<tr>
<td>Total Digestible Nutrients</td>
<td>64 TDN</td>
<td>57 TDN</td>
</tr>
<tr>
<td>Crude Protein</td>
<td>20 CP</td>
<td>14 CP</td>
</tr>
<tr>
<td>Acid Detergent Free</td>
<td>30 ADF</td>
<td>40 ADF</td>
</tr>
<tr>
<td>Neutral Detergent Free</td>
<td>40 NDF</td>
<td>55 NDF</td>
</tr>
<tr>
<td>Relative Feed Value</td>
<td>150 RFV</td>
<td>100 RFV</td>
</tr>
</tbody>
</table>

Approximate dry matter (DM) equivalents for hay, legume silage and corn silage

- 1.0 tonne of 87% DM hay @ $120.00 tonne
- = 3.1 tonne of 46% DM alfalfa balage @ $50.00 tonne

Lactating Cows

Assuming a body weight of 1375 lbs producing 9800 L milk/lactation with a composition of 3.85 kgs BF, 3.30 kgs Protein and 9.00 kgs Solids Non-Fat (SNF)/hl of milk.
**Dry Cows**

Average body weight of 1485 lbs with a dry period length of 85 days.

**Far Away Dry Cows** (from drying off to 16 days before calving)

<table>
<thead>
<tr>
<th></th>
<th>Kgs Consumed</th>
<th>Storage/Feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forage (Hay)</td>
<td>$120</td>
<td>$13.0</td>
</tr>
<tr>
<td>Dry Cow Grain Mix</td>
<td>$500</td>
<td>2.0</td>
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</tbody>
</table>

**Close-Up Dry Cows** (from 15 days prior to calving up to calving)

<table>
<thead>
<tr>
<th></th>
<th>Kgs Consumed</th>
<th>Storage/Feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forage (Hay)</td>
<td>$120</td>
<td>$4.0</td>
</tr>
<tr>
<td>Dry Cow Grain Mix</td>
<td>$500</td>
<td>4.2</td>
</tr>
<tr>
<td>TMR Lactating Ration</td>
<td>$172.77</td>
<td>7.0</td>
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</table>

**C. Replacement Cost**

<table>
<thead>
<tr>
<th></th>
<th>Heifers</th>
<th>Bulls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calves Born</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Transfer % to Heifer Enterprise</td>
<td>100.0%</td>
<td>0.0%</td>
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<tr>
<td>Mortality on Calves</td>
<td>4.0%</td>
<td>4.0%</td>
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<tr>
<td>Available for sale</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td>Calf Value</td>
<td>$300</td>
<td>$50</td>
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<tr>
<td>replacement heifer number/year</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Milk Herd Culling Rate (includes 4% death loss)</td>
<td>30.0%</td>
<td></td>
</tr>
<tr>
<td>Death Loss on Milk Herd</td>
<td>4.0%</td>
<td></td>
</tr>
<tr>
<td>Cull Cows sold (dairy &amp; slaughter)</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Value of Cull Cows sold for dairy &amp; slaughter</td>
<td>$1,400.00</td>
<td></td>
</tr>
</tbody>
</table>

**D. Herd Health and Veterinary Medicine**

The herd is enrolled on a scheduled herd health veterinary program with reproductive and routine health screening done each month.

- Drugs, vaccines, vet supplies: $8,500.00
- **Regular Herd Health Program**
  - Total Hours/Visit: 2.00
  - Number of Yearly Visits: 12
  - Charge per Hour: $141.00
  - Mileage allowance per kilometer: $0.85
- Emergency Calls, Surgeries & Hoof Trimming: $5,000.00
  - Number of Yearly Visits: 6
  - Mileage allowance per kilometer: $0.85
  - Total Kilometers (one way trip): 30
Other Operating Costs

Milk Recording & Registration : see also

http://www.canwestdhi.com/fee%20calculator.htm

<table>
<thead>
<tr>
<th>Service</th>
<th>Payments</th>
<th>Tests</th>
<th>Cost</th>
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<tr>
<td>Herd Fee</td>
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<tr>
<td>$/payment</td>
<td>$125</td>
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<td>$250.00</td>
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<td>Call Fee</td>
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<td>$/test</td>
<td>$57.50</td>
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<td>$287.50</td>
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<td>Milking Cow Fee</td>
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<tr>
<td>$/test</td>
<td>$2.55</td>
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<td>$2,316.93</td>
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<tr>
<td>Hourly Fee</td>
<td>5</td>
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<tr>
<td>hours</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>$/test</td>
<td>$31</td>
<td></td>
<td>$228.75</td>
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<tr>
<td>SCC Fee (Option)</td>
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<tr>
<td>$/cow</td>
<td>$0.32</td>
<td></td>
<td>$316.80</td>
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<tr>
<td>Registration fees/head</td>
<td>$6.10</td>
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<td>$2.83</td>
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<tr>
<td>Breed Association fee total</td>
<td>$120.00</td>
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</tr>
</tbody>
</table>

Bedding

Number of Tonnes/Cow/Year 2.00
Cost per Tonne $45.00

Breeding

Price/Vial of Semen $36.00
Service Charge per Visit $0.00
Number of Services/Conception 2.50

Dairy Supplies

Chlorine, Filters, Soap, Acid, Udder Wash, Teat Dip, etc. ($/year) $19,750.00

Transportation, Administration

Transportation ($/hl) $2.78
DFM Administration ($/hl) $1.280
Product promotion fee ($/hl) $1.540
DHI Fee ($/hl) $0.030
Volume Charge ($/hl) $0.00
Stop Charge every 2nd day $0.00

Operating, Maintenance & Repairs

Diesel Fuel Cost $0.85 /litre
Machinery Fuel Costs - Feeding
Tractor with Loader PTO hp 120
Tractor Hours Per Day (average) 2.25 hours
Annual Repairs & Maintenance
<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Rate on building investment</td>
<td>1.00% $18,930</td>
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<tr>
<td>Rate on machinery investment</td>
<td>2.00% $4,360</td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td></td>
</tr>
<tr>
<td>Hydro: 2,030 kWh per dairy cow @ $0.0793/kWh</td>
<td></td>
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<tr>
<td>Telephone Costs</td>
<td>$1,200.00</td>
</tr>
<tr>
<td><strong>Insurance</strong></td>
<td></td>
</tr>
<tr>
<td>Cost per $100 Capital Invested in</td>
<td></td>
</tr>
<tr>
<td>a). Livestock</td>
<td>$0.70</td>
</tr>
<tr>
<td>b). Building &amp; Equipment</td>
<td>$0.70</td>
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<tr>
<td>b). Business Interruption</td>
<td>$0.45</td>
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<tr>
<td>Milk Price/hl</td>
<td>$0.79</td>
</tr>
<tr>
<td>Estimated operating costs per hl</td>
<td>$40.00</td>
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<tr>
<td>Additional Coverage for liability ($/yr)</td>
<td>$50.00</td>
</tr>
<tr>
<td><strong>Manure Removal</strong></td>
<td></td>
</tr>
<tr>
<td>Daily manure produced (gallons/cow)</td>
<td>22</td>
</tr>
<tr>
<td>Removal cost $/gallon</td>
<td>$0.020</td>
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<tr>
<td>Annual Cost for Removal</td>
<td>$15,899.40</td>
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<tr>
<td><strong>Administrative Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Total yearly expense including expenses relating to farm records &amp; admin.</td>
<td>$5,000.00</td>
</tr>
<tr>
<td><strong>Property Taxes</strong></td>
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</tr>
<tr>
<td>Dairy Barn</td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>$1,600,000</td>
</tr>
<tr>
<td>Percentage taxed</td>
<td>30.0%</td>
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<tr>
<td>Mill rate</td>
<td>0.031201</td>
</tr>
<tr>
<td>House</td>
<td></td>
</tr>
<tr>
<td>Value</td>
<td>$100,000</td>
</tr>
<tr>
<td>Percentage taxed</td>
<td>45.0%</td>
</tr>
<tr>
<td>Mill rate</td>
<td>0.039151</td>
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<tr>
<td><strong>Miscellaneous</strong></td>
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<tr>
<td>Small tools, hardware etc.</td>
<td>$2,600</td>
</tr>
<tr>
<td><strong>Operating Interest Rate</strong></td>
<td></td>
</tr>
<tr>
<td>Investment Rate</td>
<td></td>
</tr>
<tr>
<td>$4.50%</td>
<td></td>
</tr>
<tr>
<td>$2.25%</td>
<td></td>
</tr>
<tr>
<td><strong>LABOR COSTS</strong></td>
<td></td>
</tr>
<tr>
<td>Hours/Cow/Year</td>
<td>50</td>
</tr>
<tr>
<td>Hourly Rate</td>
<td>$22.00</td>
</tr>
<tr>
<td>Dairy Relief Milker Cost</td>
<td>$2,450</td>
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</table>
# CAPITAL INVESTMENT

**Buildings, Equipment, Machinery & Cows**

Buildings & equipment assumed new for a 99 cow herd

<table>
<thead>
<tr>
<th>Land, Buildings &amp; Storage</th>
<th>Total</th>
<th>Salvage Value (%)</th>
<th>Useful Life (YRS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>$100,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barn</td>
<td>$725,000</td>
<td>10%</td>
<td>20</td>
</tr>
<tr>
<td>Milking Parlour</td>
<td>$725,000</td>
<td>10%</td>
<td>20</td>
</tr>
<tr>
<td>Dry Cow/Heifer Facility</td>
<td>$50,000</td>
<td>10%</td>
<td>20</td>
</tr>
<tr>
<td>Earthen Manure Storage</td>
<td>$175,000</td>
<td>0%</td>
<td>25</td>
</tr>
<tr>
<td>Bulk Tank</td>
<td>$50,000</td>
<td>10%</td>
<td>15</td>
</tr>
<tr>
<td>Silage storage</td>
<td>$30,000</td>
<td>0%</td>
<td>20</td>
</tr>
<tr>
<td>Hay Shed</td>
<td>$18,000</td>
<td>10%</td>
<td>20</td>
</tr>
<tr>
<td>Steel Grain Bin</td>
<td>$20,000</td>
<td>10%</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total Buildings</strong></td>
<td>$1,893,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Barn Equipment            |       |                  |                  |
| Portable Mixer Wagon      | $42,000 | 10%               | 15               |
| Miscellaneous Machinery   | $10,000 | 0%                | 15               |
| **Total**                 | $52,000 | 10%               | 15               |

| Machinery                 |       |                  |                  |
| Other equipment (shredder)| $22,000 | 10%               | 10               |
| Truck (dairy portion $60,000 @80%)| $48,000 | 10%               | 10               |
| Tractor & Loader (dairy portion $120,000 @80%) | $96,000 | 10%               | 10               |
| **Total**                 | $166,000 | 10%               | 10               |

**Total Building, Equipment, Machinery**

| per cow | $21,323 |

**Dairy Cow Investment**

| per cow | $2,500 |

**Total Capital Investment**

| per cow | $23,823 |
### Dairy Production Cost Worksheet

#### A. OPERATING COSTS

1. Feed Costs:  
   1.01 Lactating Cows  
      1.011 TMR Silage  
      \[ \text{26.1 kgs silage consumed/cow/day} \times 345 \text{ days on silage} \times \frac{1}{1000} \text{ tonnes/tonne} \times \$50.00/\text{tonne} = \$517.50 \text{/cow/year} \]

      1.012 TMR Grain Mix  
      \[ \text{11.0 kgs grain mix/cow/day} \times 345 \text{ days on grain mix} \times \frac{1}{1000} \text{ tonnes/tonne} \times \$445.00/\text{tonne} = \$1,719.48 \text{/cow/year} \]

      1.013 Salt, Min & Vitamins  
      \[ \text{0.27 kgs salt, min, vit/cow/day} \times 345 \text{ days on salt, min, vit} \times \$0.40/\text{kg} = \$38.01 \text{/cow/year} \]

1.02 Dry Cows  
   1.021 Far Away Dry Cow  
   Forage  
   \[ \text{13.0 kgs forage consumed/cow/day} + \text{2.6 kg storage/wastage loss} \times 70 \text{ days on forage} \times \frac{1}{1000} \text{ tonnes/tonne} \times \$120.00/\text{tonne} = \$131.04 \text{/cow/year} \]

   Dry Cow Grain Mix  
   \[ \text{2.0 kgs dry cow grain mix/cow/day} + \text{0.00 kg storage/wastage loss} \times 70 \text{ days on grain mix} \times \frac{1}{1000} \text{ tonnes/tonne} \times \$500.00/\text{tonne} = \$70.00 \text{/cow/year} \]

   Total  
   \[ = \$201.04 \text{/cow/year} \]

1.022 Close Up Dry Cow  
   Forage  
   \[ \text{4.0 kgs forage consumed/cow/day} + \text{0.80 kg storage/wastage loss} \times 15 \text{ days on forage} \]

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\[
\begin{align*}
&\text{Dry Cow Grain Mix } 4.2 \text{ kgs dry cow grain mix/cow/day} \\
&\quad + 0.00 \text{ kg storage/wastage loss} \\
&\quad \times 15 \text{ days on grain mix} \\
&\quad + 1,000 \text{ kgs/tonne} \\
&\quad \times \$500.00 \text{ /tonne} \\
&\quad = \$31.50 \text{ /cow/year}
\end{align*}
\]

\[
\begin{align*}
&\text{TMR Lactating Ration } 7.0 \text{ kgs TMR mix/cow/day} \\
&\quad + 0.70 \text{ kg storage/wastage loss} \\
&\quad \times 15 \text{ days on grain mix} \\
&\quad + 1,000 \text{ kgs/tonne} \\
&\quad \times \$172.77 \text{ /tonne} \\
&\quad = \$19.96 \text{ /cow/year}
\end{align*}
\]

Total = $60.10 /cow/year

2. Other Operating Costs:

2.01 Milk Recording & Registration (Publishable (P) 10 AP; 2 hours/milking)

With each cow having a dry period of 6 to 8 weeks, this budget assumes that all cows will receive 9 of the 10 DHI tests conducted per year.

- herd fee + $250.00 semi annual fee $125 x 2
- call fee + $287.50 call fee $57.5 x 5 tests
- milking cow fee + $2,316.93 11 tests x 99 cows x $2.55/cow
- hourly fee + $228.75 5 tests x 1.5 hours x $30.5/hour
- SCC fee + $316.80 10 tests x 99 cows x $0.320/cow
- registration fee + $280.17 $2.83/head x 46 heifers
- association fee + $120.00 breed association fee

\[
\begin{align*}
\frac{\text{Total}}{99 \text{ milking cows}} &= \frac{\$38.39}{\text{/cow/year}}
\end{align*}
\]

2.02 Bedding

\[
\begin{align*}
&2.00 \text{ tonnes/cow/year} \\
&\times \$45.00 \text{ /tonne} \\
&\quad = \$90.00 \text{ /cow/year}
\end{align*}
\]

2.03 Veterinary Medicine & Supplies

Drugs/Vaccines/

\[
\begin{align*}
\text{Vet Supplies} &= \$8,500.00 \text{ total for herd} \\
\text{Herd Health} &= \$141.00 \text{ /hour charge} \\
&\times 24 \text{ hours (12 visits x 2 hrs/visit)} \\
&\quad = \$3,384.00 \text{ total for herd}
\end{align*}
\]

\[
\begin{align*}
\text{Mileage (Herd Health)} &= \$0.85 \text{ rate/km} \\
&\times 30 \text{ kilometers (one way)} \\
&\quad \times 12 \text{ visits} \\
&\quad = \$306.00 \text{ total for herd}
\end{align*}
\]
Emergency Calls = $5,000.00 total for herd

Mileage (Emergency) $0.85 rate/km
x 30 kilometers (one way)
x 6 visits
= $153.00 total for herd

Total = $17,343.00 sum of sub-totals
÷ 99 milking cows
= $175.18 /cow/year

2.04 Breeding Costs
Semen $36.00 /vial of semen
x 2.5 services/conception
= $90.00 /cow/year

Services $0.00 /visit service charge
x 2.5 services/conception
= $0.00 /cow/year

Total = $90.00 /cow/year

2.05 Dairy Supplies
$19,750.00 total yearly cost
÷ 99 milking cows
= $199.49 /cow/year

2.06 Marketing & Transportation
$2.78 transportation ($/hl)
+ $1.280 MMP admin ($/hl)
+ $1.540 product promo ($/hl)
+ $0.030 DHI fee ($/hl)
= $5.630 /hl
x 98.0 hl/cow
= $551.74 /cow/year

2.07 Operating, Maintenance & Repairs
Machinery fuel cost - Tractor with Loader
120 PTO hp
+ 2.5 avg HP required
x 0.1665576 litres fuel/hour/hp
x 2.25 hours per day
x $0.85 diesel / litre
x 365 days on feed
= $5,580.85 annual fuel cost
+ $18,930.00 building repairs,mtnce 1%
+ $4,360.00 machinery repairs,mtnce 2%
÷ 99 milking cows
= $291.62 /cow/year

2.08 Utilities
$15,936.92 hydro
+ $1,200.00 telephone
\[
\begin{align*}
\text{2.09 Insurance} & \\
\text{Building & Equipment} & \\
\frac{\$2,111,000}{\$100.00} \times \frac{\$0.70}{99 \text{ milking cows}} & = \frac{\$149.26}{\text{cow/year}} \\
\text{Herd} & \\
\frac{\$2,500}{\$100.00} \times \frac{\$0.70}{99 \text{ milking cows}} & = \frac{\$17.50}{\text{cow/year}} \\
\text{Business Interruption} & \\
\frac{\$0.60}{\$100} \times 98 \text{ hl/cow} \times \frac{\$0.45}{100 \text{ units of } \$100} & = \frac{\$0.26}{\text{cow/year}} \\
\text{Liability} & \\
\frac{\$50.00}{99 \text{ milking cows}} & = \frac{\$0.51}{\text{cow/year}} \\
\text{Total} & = \frac{\$167.53}{\text{cow/year}}
\end{align*}
\]

\[
\begin{align*}
\text{2.10 Manure Removal} & \\
\frac{\$15,899.40}{99 \text{ milking cows}} & = \frac{\$160.60}{\text{cow/year}}
\end{align*}
\]

\[
\begin{align*}
\text{2.11 Herd Replacement} & \\
\text{Purchases} & \\
\frac{\$3,000.00}{30 \text{ # of heifers purchased}} & = \frac{\$90,000.00}{\text{total heifer cost}} \\
\text{Cull revenues} & \\
\frac{\$1,400.00}{26 \text{ # of cows culled}} & = \frac{\$36,400.00}{\text{total}} \\
\text{Bull Sales} & \\
\frac{\$50.00}{47 \text{ # of bull calves sold}} & = \frac{\$2,350.00}{\text{total}} \\
\text{Heifer sales} & \\
\frac{\$300.00}{45 \text{ transferred to heifer enterprise}} & = \frac{\$13,500.00}{\text{total}} \\
\text{total purchase cost} & = \frac{\$90,000.00}{\text{total sales}} & = \frac{\$52,250.00}{\text{total sales}}
\end{align*}
\]
### 2.12 Administrative Costs

\[ \frac{\$5,000.00}{99 \text{ milking cows}} = \$50.51 /\text{cow/year} \]

### 2.13 Property Taxes

\[ \frac{\$1,600,000 \times 30.0\% \times 0.031201}{99 \text{ milking cows}} = \$151.28 /\text{cow/year} \]
\[ \frac{\$100,000.00 \times 45.0\% \times 0.039151}{99 \text{ milking cows}} = \$17.80 /\text{cow/year} \]

Total property taxes: $169.08 /\text{cow/year}

### 2.14 Miscellaneous (small tools, hardware, etc.)

\[ \frac{\$2,600.00}{99 \text{ milking cows}} = \$26.26 /\text{cow/year} \]

### 2.15 Operating Interest

(Operating Interest is paid monthly on one-half of the subtotal operating cost.)

\[ \frac{\$5,100.94}{12 \text{ months}} = \frac{\$5,100.94}{2 \text{ average}} = \times 4.5\% = \$9.56 /\text{cow/year} \]

### Capital Costs Buildings & Equipment Assumed New for a 99 Cow Herd

**Buildings & Storage**
Land - Assumed 10 acres @ $10000/acre. $100,000

**Barn** - 120 Stall Freestall Barn (86 ft x 139 ft) fully equipped (including site excavation, concrete, shell, electrical, ventilation, automatic scrapers, manure pump, water). 120 stalls @ $2,917/stall $725,000

**Milking Parlour** - Double 8 Parallel Parlour (56 ft x 76 ft) & milkhouse fully equipped (site excavation, concrete, shell, electrical, water, milkers, vacuum pump, automatic crowd gates, automatic take-offs, milk meters, complete fencing for holding area) $725,000
Dry Cow/Heifer Facility - includes open front loafing shed $50,000
(32x48x12), sloping concrete apron, 16 ft gates, 2 water drinkers, hydro, manure storage, fenceline concrete bunker, loading chute.

Earthen Manure Storage - 12 month capacity $175,000
Bulk Tank - (3,000 U.S. gallon) and compressor completely installed. $50,000
Bunker Silo - (130' x 75' x10') $30,000
Hay Shed - (50' x 64') $18,000
Steel Grain Bin $20,000
Total Land & Buildings $1,893,000

Barn Equipment
Portable Mixer Wagon $42,000
Other Equipment $10,000
Total Equipment $52,000

Machinery
Other equipment (shredder) $22,000
Truck (dairy portion $60,000 @80%) $48,000
Tractor & Loader (dairy portion $120,000 @80%) $96,000
Total Machinery $144,000

Total Building, Equipment, Machinery $2,089,000

Dairy Cow Herd Investment $247,500

Total Capital Investment $2,336,500

B. FIXED COSTS

3. Depreciation:

\[
\text{Original Cost} - \text{Salvage Value} \quad \frac{\text{Useful Life}}{} \\

3.01 Buildings:

Barn $725,000 original value
- $72,500 salvage value
\div 20 \text{ years useful life}
\div 99 \text{ cows}
\equiv \frac{329.55}{\text{cows/year}}

Milking Parlour $725,000 original value
- $72,500 salvage value
\div 20 \text{ years useful life}
\div 99 \text{ cows}
\equiv \frac{329.55}{\text{cows/year}}

Dry Cow/Close Up Heifer Facility $50,000 original value
- $5,000 salvage value
\div 20 \text{ years useful life}
\div 99 \text{ cows}
\equiv \frac{22.73}{\text{cows/year}}
### Dairy Production Costs

#### Manure Storage
- Original Value: $175,000
- Salvage Value: $0.00
- Useful Life: 25 years
- Cows: 99
- Yearly Cost: $70.71 /cow/year

#### Bulk Tank
- Original Value: $50,000
- Salvage Value: $5,000
- Useful Life: 15 years
- Cows: 99
- Yearly Cost: $30.30 /cow/year

#### Bunker Silo
- Original Value: $30,000
- Salvage Value: $0.00
- Useful Life: 20 years
- Cows: 99
- Yearly Cost: $15.15 /cow/year

#### Hay Shed
- Original Value: $18,000
- Salvage Value: $1,800
- Useful Life: 20 years
- Cows: 99
- Yearly Cost: $8.18 /cow/year

#### Steel Bins
- Original Value: $20,000
- Salvage Value: $2,000
- Useful Life: 20 years
- Cows: 99
- Yearly Cost: $9.09 /cow/year

#### Total Cost
- Total Cost per Cow per Year: $815.26 /cow/year

### Other Equipment & Machinery

#### Barn Equipment
- Original Value: $52,000
- Salvage Value: $5,200
- Useful Life: 15 years
- Cows: 99
- Yearly Cost: $31.52 /cow/year

#### Machinery
- Original Value: $166,000
- Salvage Value: $16,600
- Useful Life: 10 years
- Cows: 99
- Yearly Cost: $150.91 /cow/year

#### Total Cost
- Total Machinery per Cow per Year: $182.43 /cow/year

### Investment Calculation

\[ \text{Original Cost} + \text{Salvage Value} \times \text{Investment Rate} \]

#### Buildings:

---

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<table>
<thead>
<tr>
<th>Facility</th>
<th>Original Value</th>
<th>Salvage Value</th>
<th>Average</th>
<th>Investment Rate</th>
<th>Cows</th>
<th>Total Value per Cow/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>$100,000</td>
<td></td>
<td></td>
<td>2.3%</td>
<td>99</td>
<td>$22.73</td>
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<tr>
<td>Barn</td>
<td>$725,000</td>
<td>$72,500</td>
<td>2</td>
<td>2.3%</td>
<td>99</td>
<td>$90.63</td>
</tr>
<tr>
<td>Milking Parlour</td>
<td>$725,000</td>
<td>$72,500</td>
<td>2</td>
<td>2.3%</td>
<td>99</td>
<td>$90.63</td>
</tr>
<tr>
<td>Dry Cow/Close Up Heifer Facility</td>
<td>$50,000</td>
<td>$5,000</td>
<td>2</td>
<td>2.3%</td>
<td>99</td>
<td>$6.25</td>
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<tr>
<td>Manure Storage</td>
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<td>2</td>
<td>2.3%</td>
<td>99</td>
<td>$19.89</td>
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<tr>
<td>Bulk Tank</td>
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<td>$5,000</td>
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<td>2.3%</td>
<td>99</td>
<td>$6.25</td>
</tr>
<tr>
<td>Bunker Silo</td>
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<td>2</td>
<td>2.3%</td>
<td>99</td>
<td>$3.41</td>
</tr>
<tr>
<td>Hay Shed</td>
<td>$18,000</td>
<td>$1,800</td>
<td>2</td>
<td>2.3%</td>
<td>99</td>
<td></td>
</tr>
</tbody>
</table>
Steel Bins

\[
\begin{align*}
\text{Steel Bins} & \quad \text{original value} \\
& + \quad \text{salvage value} \\
& \div \quad 2 \quad \text{average} \\
& \times \quad 2.3\% \quad \text{investment rate} \\
& \div \quad 99 \quad \text{cows} \\
& = \quad 2.50 \quad \text{/cow/year}
\end{align*}
\]

Total

\[
\begin{align*}
\text{Total} & \quad = \quad 244.54 \quad \text{/cow/year}
\end{align*}
\]

4.02 Equipment & Machinery:

Barn Equipment

\[
\begin{align*}
\text{Barn Equipment} & \quad \text{original value} \\
& + \quad \text{salvage value} \\
& \div \quad 2 \quad \text{average} \\
& \times \quad 2.3\% \quad \text{investment rate} \\
& \div \quad 99 \quad \text{cows} \\
& = \quad 6.50 \quad \text{/cow/year}
\end{align*}
\]

Machinery

\[
\begin{align*}
\text{Machinery} & \quad \text{original value} \\
& + \quad \text{salvage value} \\
& \div \quad 2 \quad \text{average} \\
& \times \quad 2.3\% \quad \text{investment rate} \\
& \div \quad 99 \quad \text{cows} \\
& = \quad 20.75 \quad \text{/cow/year}
\end{align*}
\]

Total

\[
\begin{align*}
\text{Total} & \quad = \quad 27.25 \quad \text{/cow/year}
\end{align*}
\]

4.03 Livestock:

\[
\begin{align*}
\text{Livestock} & \quad \text{average value/cow} \\
& \times \quad 2.3\% \quad \text{investment rate} \\
& = \quad 56.25 \quad \text{/cow/year}
\end{align*}
\]

C. Labour:

\[
\begin{align*}
\text{Labour} & \quad \text{hours/cow/year} \\
& \times \quad \text{/hour} \\
& = \quad 1,100.00 \quad \text{/cow/year}
\end{align*}
\]

\[
\begin{align*}
\text{Relief Milker} & \quad \text{Relief Milker} \\
& \div \quad 99 \quad \text{cows} \\
& = \quad 24.75 \quad \text{/cow/year}
\end{align*}
\]

\[
\begin{align*}
\text{Total Labour} & \quad = \quad 1,124.75
\end{align*}
\]

Created and maintained by Manitoba Agriculture Farm Management May, 2017

For more information, contact your local Manitoba Agriculture GO Office or:

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Farm Management Specialist

Benjamin Hamm
Farm Management Specialist
For more information

- Contact your local Manitoba Agriculture, Growing Opportunities (GO) Office.

- Visit us at manitoba.ca/agriculture.