#5: 700 Cow, Mattress Freestall, Slatted Floor, Natural Vent. System

**Description:** This 700 cow dairy farm is designed to be environmentally and aesthetically sensitive. Cow housing is provided by three conventional 4-row freestall barns with 14’ eaves for natural ventilation and cow mattresses in the stalls, over slatted floors. Manure drops through the slatted floor into a deep concrete holding area to be agitated, pumped and applied as slurry prior to planting. Cows are milked three times per day in a double 10 rapid exit parallel parlor operated twenty-four hours per day.

**Key Components (see appendix for further description of terms)**

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
<th>Investment/Cow</th>
<th>Yearly Revenue/Cow (5 yr. Avg.)</th>
<th>Yearly Gross Revenue (5 yr. Avg.)</th>
<th>Total Investment</th>
<th>Return on Assets (Yr. 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Base</td>
<td>40 acres</td>
<td>$7,852</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cow Housing</td>
<td>Mattress Freestall Barn</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milking Center</td>
<td>Double 10 Parallel with automation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ventilation</td>
<td>Natural</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manure Handling System</td>
<td>Slatted floor over manure storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Picture Examples**

- Slatted Floor System with Natural Ventilation
- Mattress Freestall System
- Parallel Milking Parlor
- Tractor-Pulled Liquid Manure Spreader
### Operation Description:
700 Cow Confinement

### Milking Parlor Description:
Double 10 Parallel Rapid Exit

### Freestall Description:
Mattress Freestall

### Manure System Description:
Slatted Floor over Manure Storage

### Ventilation Description:
Natural Ventilation

<table>
<thead>
<tr>
<th>Description</th>
<th>#</th>
<th>Units</th>
<th>Dollars</th>
<th>Units</th>
<th>Total Investment</th>
<th>Per Cow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>40</td>
<td>acres</td>
<td>$2,800</td>
<td>$ per acre</td>
<td>$112,000</td>
<td>$160</td>
</tr>
<tr>
<td>Dairy cows</td>
<td>700</td>
<td># of head</td>
<td>$2,000</td>
<td>$ per head</td>
<td>$1,400,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Freestall barn (lights, loops, mats, and cooling)</td>
<td>560</td>
<td># of stalls</td>
<td>$2,250</td>
<td>$ per freestall</td>
<td>$1,260,000</td>
<td>$1,800</td>
</tr>
<tr>
<td>Milking parlor, equipment, tank, holding area and office</td>
<td>20</td>
<td># of stalls</td>
<td>$20,000</td>
<td>per stall</td>
<td>$400,000</td>
<td>$571</td>
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<tr>
<td>Special needs parlor</td>
<td>6</td>
<td># of stalls</td>
<td>$12,000</td>
<td>$ per stall</td>
<td>$72,000</td>
<td>$103</td>
</tr>
<tr>
<td>Dry cow and special needs barn</td>
<td>140</td>
<td>cow sp.</td>
<td>$1,500</td>
<td>$ per cow sp.</td>
<td>$210,000</td>
<td>$300</td>
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<tr>
<td>Liquid manure storage (parlor)</td>
<td>1,080,000</td>
<td>gallons</td>
<td>$0.105</td>
<td>$ per gallon</td>
<td>$113,400</td>
<td>$162</td>
</tr>
<tr>
<td>Liquid manure storage (parlor)</td>
<td>4,442,924</td>
<td>gallons</td>
<td>$1,600</td>
<td>$ per freestall</td>
<td>$896,000</td>
<td>$1,280</td>
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<tr>
<td>Commodity storage</td>
<td>5</td>
<td>bays</td>
<td>$12,000</td>
<td>$ per bay</td>
<td>$60,000</td>
<td>$86</td>
</tr>
<tr>
<td>Hay barn and equipment storage</td>
<td>10,000</td>
<td>ft³</td>
<td>$4</td>
<td>$ per ft³</td>
<td>$40,000</td>
<td>$57</td>
</tr>
<tr>
<td>Site preparation and water supply</td>
<td>10%</td>
<td>% of structure investment</td>
<td>$328,718</td>
<td>$470</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tractor (for mixer)</td>
<td>1</td>
<td>quantity</td>
<td>$79,200</td>
<td>$ per unit</td>
<td>$79,200</td>
<td>$113</td>
</tr>
<tr>
<td>Tractor (for manure spreader)</td>
<td>1</td>
<td>quantity</td>
<td>$131,200</td>
<td>$ per unit</td>
<td>$131,200</td>
<td>$187</td>
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<tr>
<td>Mixer wagon</td>
<td>1</td>
<td>quantity</td>
<td>$60,000</td>
<td>$ per unit</td>
<td>$60,000</td>
<td>$86</td>
</tr>
<tr>
<td>Liquid manure spreader (surface apply)</td>
<td>1</td>
<td>quantity</td>
<td>$54,111</td>
<td>$ per unit</td>
<td>$54,111</td>
<td>$77</td>
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<tr>
<td>Bobcat</td>
<td>2</td>
<td>quantity</td>
<td>$22,000</td>
<td>$ per unit</td>
<td>$44,000</td>
<td>$63</td>
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<tr>
<td><strong>Total Investment</strong></td>
<td></td>
<td></td>
<td><strong>$5,496,413</strong></td>
<td><strong>$7,852</strong></td>
<td></td>
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</tr>
</tbody>
</table>
### Input Summary

**Scenario:** 700 Cow Confinement, Mattress Freestall, Slatted Floor, Natural Vent.

<table>
<thead>
<tr>
<th>Production</th>
<th>Your farm</th>
<th>Cow Flow</th>
<th>Year 1</th>
<th>Year 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herd size</td>
<td>700 head</td>
<td>Beginning herd</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td>Calving interval</td>
<td>13.5 months</td>
<td>Cows entering the herd:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average days dry for the herd</td>
<td>60 days</td>
<td>Purchases</td>
<td>252</td>
<td>252</td>
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<tr>
<td>Percent cows in milk</td>
<td>85% percent</td>
<td>Farm-raised replacements</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Annual cull rate</td>
<td>28% percent</td>
<td>Cows leaving the herd</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual death loss</td>
<td>8% percent</td>
<td>Culls</td>
<td>196</td>
<td>196</td>
</tr>
<tr>
<td>Milk per cow per day (year 1)</td>
<td>68.0 lbs.</td>
<td>Sold</td>
<td>0</td>
<td>0</td>
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<tr>
<td>365 day RHA (year 1)</td>
<td>21,193 RHA</td>
<td>Dead</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>Ending herd size</td>
<td>700</td>
<td></td>
<td>700</td>
<td></td>
</tr>
</tbody>
</table>

#### Expenses

<table>
<thead>
<tr>
<th>Expenses</th>
<th>Your farm</th>
<th>Income</th>
<th>Market value</th>
<th>Cull value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily feed cost (milking group)(avg)</td>
<td>$3.40 cow/day</td>
<td>Milking and dry cows</td>
<td>$2,000</td>
<td>$500</td>
</tr>
<tr>
<td>Daily feed cost(dry cow group)(avg)</td>
<td>$1.73 cow/day</td>
<td>12-24 months</td>
<td>$500</td>
<td>$500</td>
</tr>
<tr>
<td>Youngstock diets</td>
<td></td>
<td>6-12 months</td>
<td>$500</td>
<td>$500</td>
</tr>
<tr>
<td>0-2 months</td>
<td>$0.00 cow/day</td>
<td>2-6 months</td>
<td>$500</td>
<td>$500</td>
</tr>
<tr>
<td>2-6 months</td>
<td>$0.00 cow/day</td>
<td>Milk price</td>
<td>$15.09 cwt</td>
<td></td>
</tr>
<tr>
<td>6-12 months</td>
<td>$0.00 cow/day</td>
<td>Yearly coop dividend</td>
<td>$0.00 cwt</td>
<td></td>
</tr>
<tr>
<td>12-24 months</td>
<td>$0.00 cow/day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor costs (year 1)</td>
<td></td>
<td>Bull calf selling price</td>
<td>$100</td>
<td>$/head</td>
</tr>
<tr>
<td>Hourly labor</td>
<td>$174,720 dollars</td>
<td>Heifer calf selling price</td>
<td>$400</td>
<td>$/head</td>
</tr>
<tr>
<td>Salaried labor</td>
<td>$85,000 dollars</td>
<td>Crop grain sales</td>
<td>$0</td>
<td>dollars</td>
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<tr>
<td>Annual benefits</td>
<td>$19,869 dollars</td>
<td>Government payments</td>
<td>$0</td>
<td>dollars</td>
</tr>
<tr>
<td>Total labor</td>
<td>$279,589 dollars</td>
<td>Other farm income</td>
<td>$0</td>
<td>dollars</td>
</tr>
<tr>
<td>Seed expenses</td>
<td>$0 dollars</td>
<td>Balance Sheet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer and chemicals</td>
<td>$0 dollars</td>
<td>Beginning balance for:</td>
<td>January 1</td>
<td></td>
</tr>
</tbody>
</table>

#### Marketing costs

<table>
<thead>
<tr>
<th>Current assets:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal assessment</td>
</tr>
<tr>
<td>Advertising</td>
</tr>
<tr>
<td>Coop Fee</td>
</tr>
<tr>
<td>Hauling</td>
</tr>
<tr>
<td>Annual per cow costs</td>
</tr>
<tr>
<td>DHI testing</td>
</tr>
<tr>
<td>Artificial insemination</td>
</tr>
<tr>
<td>Veterinarian, hoof trimming &amp; BST</td>
</tr>
<tr>
<td>Medicine</td>
</tr>
<tr>
<td>Farm supplies and bedding</td>
</tr>
<tr>
<td>Fuel &amp; oil</td>
</tr>
<tr>
<td>Utilities</td>
</tr>
<tr>
<td>Annual costs</td>
</tr>
<tr>
<td>Non-dairy farm supplies</td>
</tr>
<tr>
<td>Non-dairy fuel and oil</td>
</tr>
<tr>
<td>Non-dairy utilities</td>
</tr>
<tr>
<td>Building repairs</td>
</tr>
<tr>
<td>Machinery and equipment repairs</td>
</tr>
<tr>
<td>Rent</td>
</tr>
<tr>
<td>Taxes (real estate and P.P.)</td>
</tr>
<tr>
<td>Farm insurance</td>
</tr>
<tr>
<td>Legal &amp; professional fees</td>
</tr>
<tr>
<td>Custom hire</td>
</tr>
<tr>
<td>Car and truck costs</td>
</tr>
<tr>
<td>Contract heifer rearing</td>
</tr>
<tr>
<td>Other expense</td>
</tr>
<tr>
<td>Rent</td>
</tr>
</tbody>
</table>

#### Long-term Debt:

- Bank note | $0 dollars |
- Real estate note | $0 dollars |
- Other long-term debt | $0 dollars |

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### SE Missouri Dairy

**Dairy Enterprise Budget (5-year Avg.)**

**700 Cow Confinement, Mattress Freestall, Slatted Floor, Natural Vent.**

<table>
<thead>
<tr>
<th></th>
<th>Herd</th>
<th>Per Cow</th>
<th>Per CWT</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INCOME FROM OPERATIONS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Milk sales</td>
<td>$2,251,820</td>
<td>$3,217</td>
<td>$15.09</td>
<td>93.7%</td>
</tr>
<tr>
<td>Sales of youngstock &amp; calves</td>
<td>$152,444</td>
<td>$218</td>
<td>$1.02</td>
<td>6.3%</td>
</tr>
<tr>
<td>Other farm income</td>
<td>$0</td>
<td>$0</td>
<td>$0.00</td>
<td>0.0%</td>
</tr>
<tr>
<td>Patronage dividend</td>
<td>$0</td>
<td>$0</td>
<td>$0.00</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total Gross Receipts</td>
<td>$2,404,265</td>
<td>$3,435</td>
<td>$16.11</td>
<td>100.0%</td>
</tr>
<tr>
<td><strong>OPERATING EXPENSES:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feed:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedstuffs</td>
<td>$858,384</td>
<td>$1,226</td>
<td>$5.75</td>
<td>37.1%</td>
</tr>
<tr>
<td>Less for heifers</td>
<td>$0</td>
<td>$0</td>
<td>$0.00</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total feed</td>
<td>$858,384</td>
<td>$1,226</td>
<td>$5.75</td>
<td>37.1%</td>
</tr>
<tr>
<td>Herd replacement costs:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation--dairy cows</td>
<td>$227,912</td>
<td>$326</td>
<td>$1.53</td>
<td>9.8%</td>
</tr>
<tr>
<td>Loss on sale of cows</td>
<td>$128,059</td>
<td>$183</td>
<td>$0.86</td>
<td>5.5%</td>
</tr>
<tr>
<td>Total herd replacement costs</td>
<td>$355,971</td>
<td>$509</td>
<td>$2.39</td>
<td>15.4%</td>
</tr>
<tr>
<td>Other operating expenses:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor (includes benefits &amp; SS)</td>
<td>$293,922</td>
<td>$420</td>
<td>$1.97</td>
<td>12.7%</td>
</tr>
<tr>
<td>Marketing 1/</td>
<td>$126,842</td>
<td>$181</td>
<td>$0.85</td>
<td>5.5%</td>
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<tr>
<td>DHI testing</td>
<td>$11,200</td>
<td>$16</td>
<td>$0.08</td>
<td>0.5%</td>
</tr>
<tr>
<td>Artificial insemination</td>
<td>$31,500</td>
<td>$45</td>
<td>$0.21</td>
<td>1.4%</td>
</tr>
<tr>
<td>Veterinary, hoof trimming &amp; BST</td>
<td>$93,100</td>
<td>$133</td>
<td>$0.62</td>
<td>4.0%</td>
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<tr>
<td>Medicine</td>
<td>$44,100</td>
<td>$63</td>
<td>$0.30</td>
<td>1.9%</td>
</tr>
<tr>
<td>Supplies and bedding</td>
<td>$50,040</td>
<td>$71</td>
<td>$0.34</td>
<td>2.2%</td>
</tr>
<tr>
<td>Fuel &amp; oil</td>
<td>$14,000</td>
<td>$20</td>
<td>$0.09</td>
<td>0.6%</td>
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<tr>
<td>Utilities</td>
<td>$44,153</td>
<td>$63</td>
<td>$0.30</td>
<td>1.9%</td>
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<tr>
<td>Repairs--Buildings</td>
<td>$10,000</td>
<td>$14</td>
<td>$0.07</td>
<td>0.4%</td>
</tr>
<tr>
<td>Repairs--Machinery &amp; equipment</td>
<td>$10,000</td>
<td>$14</td>
<td>$0.07</td>
<td>0.4%</td>
</tr>
<tr>
<td>Rent</td>
<td>$0</td>
<td>$0</td>
<td>$0.00</td>
<td>0.0%</td>
</tr>
<tr>
<td>Farm taxes (R.E. &amp; personal prop)</td>
<td>$10,513</td>
<td>$15</td>
<td>$0.07</td>
<td>0.5%</td>
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<tr>
<td>Farm insurance</td>
<td>$10,513</td>
<td>$15</td>
<td>$0.07</td>
<td>0.5%</td>
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<tr>
<td>Legal &amp; professional fees</td>
<td>$2,628</td>
<td>$4</td>
<td>$0.02</td>
<td>0.1%</td>
</tr>
<tr>
<td>Custom hire</td>
<td>$73,589</td>
<td>$105</td>
<td>$0.49</td>
<td>3.2%</td>
</tr>
<tr>
<td>Car and truck costs</td>
<td>$2,400</td>
<td>$3</td>
<td>$0.02</td>
<td>0.1%</td>
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<tr>
<td>Other</td>
<td>$0</td>
<td>$0</td>
<td>$0.00</td>
<td>0.0%</td>
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<tr>
<td>Interest</td>
<td>$0</td>
<td>$0</td>
<td>$0.00</td>
<td>0.0%</td>
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<tr>
<td>Depreciation</td>
<td>$271,790</td>
<td>$388</td>
<td>$1.82</td>
<td>11.7%</td>
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<tr>
<td>Less other expenses for raising heifers</td>
<td>$0</td>
<td>$0</td>
<td>$0.00</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total other operating expenses</td>
<td>$1,100,289</td>
<td>$1,572</td>
<td>$7.37</td>
<td>47.5%</td>
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<tr>
<td><strong>TOTAL OPERATING EXPENSES</strong></td>
<td>$2,314,645</td>
<td>$3,307</td>
<td>$15.51</td>
<td>100.0%</td>
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<tr>
<td><strong>NET INCOME FROM OPERATIONS</strong></td>
<td>$89,620</td>
<td>$128</td>
<td>$0.60</td>
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</tbody>
</table>

1/ Includes milk hauling, state and federal promotion, coop/marketing fees, and the cost of marketing beef.

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