Dairy Situation and Prospects for Upper Midwest Dairy Industry

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Outline

- Review current situation: causes, consequences and reactions
- COP, Regionalism and structure
- SWOT analysis of Upper Midwest Dairy Industry
Sources

- USDA-NASS
- Ed Jesse, University of Wisconsin
- future.aae.wisc.edu
- Wisconsin Milk Marketing Board
- USDA-ERS cost of production
- Michigan dairy farm business analysis summary
All milk: nominal monthly price, January 2006-October 2009
All milk: monthly real prices, Jan 1971 - Aug 2009
All milk: monthly real prices, Jan 1971 - Aug 2009

$30/cwt in 2009 dollars

$ per cwt

Jan-71
Jan-72
Jan-73
Jan-74
Jan-75
Jan-76
Jan-77
Jan-78
Jan-79
Jan-80
Jan-81
Jan-82
Jan-83
Jan-84
Jan-85
Jan-86
Jan-87
Jan-88
Jan-89
Jan-90
Jan-91
Jan-92
Jan-93
Jan-94
Jan-95
Jan-96
Jan-97
Jan-98
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
All milk: monthly real prices, Jan 1971 - Aug 2009

Declining Real Farm Price
All milk: monthly real prices, Jan 1971 - Aug 2009

Increasing Volatility
# Michigan 2001-2008

<table>
<thead>
<tr>
<th>Year</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA (percent)</td>
<td>7.6</td>
<td>3.2</td>
<td>4.3</td>
<td>7.7</td>
<td>6.3</td>
<td>5.5</td>
<td>11.3</td>
<td>7.0</td>
</tr>
<tr>
<td>Milk Price ($/cwt)</td>
<td>15.23</td>
<td>12.47</td>
<td>12.59</td>
<td>16.42</td>
<td>15.70</td>
<td>13.44</td>
<td>20.21</td>
<td>19.41</td>
</tr>
<tr>
<td>Purchased Feed ($/cwt)</td>
<td>3.95</td>
<td>3.45</td>
<td>3.56</td>
<td>4.36</td>
<td>4.06</td>
<td>3.74</td>
<td>5.32</td>
<td>5.56</td>
</tr>
<tr>
<td>Total Feed Cost ($/cwt)</td>
<td>6.75</td>
<td>7.01</td>
<td>7.18</td>
<td>7.47</td>
<td>8.14</td>
<td>8.29</td>
<td>9.55</td>
<td>12.74</td>
</tr>
<tr>
<td>IOFC ($/cwt)</td>
<td>8.48</td>
<td>5.46</td>
<td>5.41</td>
<td>8.95</td>
<td>7.56</td>
<td>5.15</td>
<td>10.66</td>
<td>6.67</td>
</tr>
</tbody>
</table>
Price ratio of milk to feed, Jan 2006 – Oct 2009 (feed pounds that can be purchased per pound of milk)
Monthly average number of U.S. milk cows
(low to high is about 2%)
Primary reason for price collapse: Lost Export Markets

- Prior to 2004 less than 5% of production (total solids basis)
- 2004 US exported 7.5% of milk production
- Peaked at 11% in 2008
Exports

- Global economic crisis
  - shrank demand for dairy products world-wide
  - dried up credit to finance imports

- World prices for dairy products crashed—butter, nonfat dry milk, and cheese prices dropped by 50% or more between late summer and the end of 2008

- U.S exports (with the exception of dry whey) fell off sharply
Responses to Producer Losses

- Market response

- Government response

- Private response
How many cows to get to break-even?

- Beginning of 2009 consensus was 250,000-400,000 cows
- US herd down 226,000 cows through October
How many herds on the edge?

- Many herds losing $4-6/cwt in 2009

- Small herds helped more by MILC

- Herds purchasing feed very stressed

- A great deal of financial stress in West
## Average 2008 Michigan Dairy Farm Characteristics by Herd Size Category

<table>
<thead>
<tr>
<th>Category</th>
<th>20-99 cows</th>
<th>100-249 cows</th>
<th>250+ cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average number of cows</td>
<td>65</td>
<td>166</td>
<td>461</td>
</tr>
<tr>
<td>Milk sold per cow (pounds)</td>
<td>18,699</td>
<td>20,703</td>
<td>22,892</td>
</tr>
<tr>
<td>Average price of milk sold ($/cwt)</td>
<td>19.50</td>
<td>19.26</td>
<td>19.58</td>
</tr>
<tr>
<td>Total acres owned</td>
<td>268</td>
<td>455</td>
<td>675</td>
</tr>
<tr>
<td>Total crop acres</td>
<td>379</td>
<td>753</td>
<td>1,318</td>
</tr>
<tr>
<td>Number of farms</td>
<td>27</td>
<td>55</td>
<td>34</td>
</tr>
</tbody>
</table>
# 2008 Michigan Dairy Farm Profitability Indicators by Herd Size

<table>
<thead>
<tr>
<th></th>
<th>20-99 cows</th>
<th>100-249 cows</th>
<th>250+ Cows (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of return on assets*</td>
<td>3.7</td>
<td>4.2</td>
<td>9.4</td>
</tr>
<tr>
<td>Rate of return on equity</td>
<td>3.2</td>
<td>3.7</td>
<td>11.0</td>
</tr>
<tr>
<td>Operating profit margin</td>
<td>18.3</td>
<td>15.2</td>
<td>27.5</td>
</tr>
<tr>
<td>Asset turnover rate*</td>
<td>20.2</td>
<td>27.6</td>
<td>34.1</td>
</tr>
</tbody>
</table>
October 2009 situation

- California
  - Production down 5.3%
  - Milk cow numbers down 78,000 head

- AZ -10.6%, ID -2.7%
- WI +3.5%, MN +2.5

- US -1.1% production; -226,000 cows
Recent production reports

- Cheddar production +8.0% in September
- Total cheese production +4.4%
- Butter production -21.9%
- NDM milk production -19.9%
Natural Cheddar Cheese Retail Price

Area: US

Source: www.future.aae.wisc.edu
Government policy responses

- Payments to producers (MILC) triggered by low prices will account for about 4% of dairy revenue in 2009

- Additional purchases under school lunch and international food aid programs

- A small export subsidy program was reactivated
Government policy responses

- Temporarily raised the price support purchase prices by around 15% for skim milk powder, and cheese.

- Cheddar blocks: $1.13/lb to $1.31/lb
- Cheddar barrels: $1.10/lb to $1.28/lb
- Nonfat dry milk: $0.80/lb to $0.92/lb
Government policy responses: 
Dairy "Bailout"

- $350 million in total aid
  - $60 million to purchase cheese
  - $290 million in direct payments

- Senator Boxer (CA) held bill to discuss distribution

- If per farm, about $4,800 each

- If per annual cwt, about $0.15/cwt
  - 100 average cows means $3,000
Industry Response: CWT

- 3 CWT Retirements in 2009
  - Retirement 1: 101,000 cows 1.96 bil. lbs
  - Retirement 2: 74,113 cows 1.523 bil. lbs
  - Retirement 3: 26,412 cows 517 mil. lbs

- Subsidized exports
Herd Size and CWT Herd Buyouts
Long Term Prospects for Milk Production by Region

- Trend toward West for decades
- Traditional dairy areas hurt less by recent events
- Is West production model sustainable?
- Can Upper Midwest recover market share?
CA and WI Milk Production, 1980-2008

- California
- Wisconsin

Million lbs

Milk Production Change 1995-2004

Source: USDA

- > +10% (11 states)
- 0% + 10% (5 states)
- -10% 0% (11 states)
- < -10% (23 states)

Alaska
Hawaii
## Average Herd Size

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S.</th>
<th>CA</th>
<th>WI</th>
<th>MI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1959</td>
<td>9</td>
<td>39</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>1964</td>
<td>13</td>
<td>63</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td>1969</td>
<td>20</td>
<td>98</td>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>1974</td>
<td>26</td>
<td>134</td>
<td>33</td>
<td>31</td>
</tr>
<tr>
<td>1978</td>
<td>33</td>
<td>173</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>1982</td>
<td>39</td>
<td>204</td>
<td>42</td>
<td>44</td>
</tr>
<tr>
<td>1987</td>
<td>50</td>
<td>295</td>
<td>47</td>
<td>53</td>
</tr>
<tr>
<td>1992</td>
<td>61</td>
<td>400</td>
<td>50</td>
<td>61</td>
</tr>
<tr>
<td>1997</td>
<td>78</td>
<td>530</td>
<td>59</td>
<td>80</td>
</tr>
<tr>
<td>2002</td>
<td>108</td>
<td>601</td>
<td>75</td>
<td>101</td>
</tr>
<tr>
<td>2007</td>
<td>133</td>
<td>850</td>
<td>88</td>
<td>130</td>
</tr>
</tbody>
</table>
Drivers of Structural Changes

- Milk production follows population
  - Demand for fluid milk in west

- Base milk price change to market orientation

- Reactions:
  - West moved toward cheese
  - Upper Midwest slow to adopt production technology
Drivers of Structural Change

- Management opportunity cost
- Labor efficiency
- Asset fixity—no major wealth effect from urban encroachment
  - Production technology jointly determined with herd size
Upper Midwest Dairy Industry: Strengths

- Favorable climate, ample water
- Ability to produce high quality forages
- Extensive dairy infrastructure
- Supportive dairy organizations
- Location relative to major markets
- Strong quality reputation
- High milk price
- Dairy Tradition
Upper Midwest Dairy Industry: Weaknesses

- Higher average cost of production
- Lower average per-cow milk yields
- Aging dairy production facilities
- Aging dairy processing facilities
- High milk price
- Dairy tradition
The graph shows the cost per cwt ($/cwt) over time from January 2006 to October 2009 for different categories:

- WI operating + hired labor (blue line)
- CA operating + hired labor (orange line)
- WI Total cost (magenta line)
- CA Total cost (cyan line)

The costs vary over the years, with some periods showing increases and others showing decreases. The WI Total cost generally remains higher compared to the WI operating + hired labor cost, while the CA Total cost shows a trend similar to the CA operating + hired labor cost but with slight variations.
Upper Midwest Dairy Industry: Opportunities

- Growing cheese market, small and mid-sized specialty cheeses
- Higher-value uses of whey
- Modernization of farm and processing facilities can overcome many weaknesses
Wisconsin Dairy Modernization

- Low interest loans for modernizing farms and processing plants
- Room for a large increase in milk per cow
- “Medium” sized specialty cheese plants an opportunity
Upper Midwest Dairy Industry: Threats

- Escalating land prices
- Restrictive environmental regulations
- Outbidding for dairy plant location
- Overzealous animal rights activists
California Water Use

Percent of Dedicated Supply

- Urban uses
- Ag uses
- Environmental

1998
2000
2001

0 10 20 30 40 50 60 70
Conclusions

- Dairy cycle currently bust
  - Many herds on edge of solvency

- West hurt by disproportionately by purchased feed costs and lack of water

- Upper Midwest has many comparative advantages and opportunities