The Future of Dairy in the West

2013 June WAEA Symposium

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Dairy & Forage Economist
Livestock Marketing Information Center
29 land Grant Universities:

USDA Members:
- ERS
- APHIS
- GIPSA
- NASS
- WAOB
- AMS

Associate Members:
- AFBF
- ASI
- NCBA
- NPB
- CME-Group
- Canadian Consortium
- Noble Foundation
- CoBank
- TCFA
- CWB
- TCU
Panelists

• Mr. Wilson Gray, Extension Economist at University of Idaho
  – Financial Condition of the Dairy Industry
• Dr. Joleen Hadrich, Assistant Professor at Colorado State University
  – Environmental Challenges
• Dr. David Anderson, Professor at Texas A&M University
  – Dairy Policy
The Future of Dairy in the West

The Financial Condition

C. Wilson Gray, District Extension Economist
University of Idaho
WAEA 2013
Western Dairies
Adapting to Change

• Western dairies were built on the “California Model”
  ➤ Small land base
  ➤ Purchase most inputs including feed
  ➤ Low cost labour
    • Lower milk price offset by low input costs

• Mid-West/New England model
  ➤ Land base to produce most feed
  ➤ More family labour as “hands on”
Western Dairies
Adapting to Change

• Paradigm Shift since mid-2000’s
  ► Feed became increasingly costly
    • Renewable fuels standard, drought, floods, etc.
  ► Environmental regulation changes
  ► Government “safety net” was very low
    • Federal budget deficits
    • Farm bill
    • Lender regulation & scrutiny

• Where is the industry today?
Western Dairies
Adapting to Change

• Debt
• Milk prices
• Feed costs
• Income over feed costs (the margin)
• Challenges for the survivors
Milk Productivity Has Increased

MILK PRODUCTION vs. MILK COW INVENTORY
Average Annual Inventory, U.S.

Livestock Marketing Information Center
Data Source: USDA/NASS

University of Idaho Extension
Operations Have Decreased 45%

US Dairy Operations
Western Prices Are Below Other Areas

All Milk Price

Dollars per CWT.

Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13

CA ID NM NY WI
Feed Cost Is UP 15 Percent

**2008 Cost Breakdown**
- Total feed: 53%
- Total other costs: 30%
- Replacements: 8%
- Labor: 9%

**2012 Cost Breakdown**
- Total feed: 61%
- Total other costs: 24%
- Replacements: 6%
- Labor: 9%
The Double Whammy…

- Feed costs skyrocketed in 2008
- Milk Prices record low in 2009
- Years leading up to 2008 had been good
  - Many operations were expanding
  - Increased debt in an industry that operated on high leverage
  - Attitude that good times were here to stay
Fickle Finger of Fate Strikes

• In 2009 operations were losing from $50 to over $100 per cow per month
  ➢ 1,000 cows = $100,000/month = $1.2 million in a year

• Price volatility has been the norm since
  ➢ Both feed and milk prices affected
  ➢ Margins (income over feed) have remained tight to negative for most
Coping Strategies

• Heavier culling of herds
• Cost cutting – cost saving measures
• Springer replacement prices weakened
  ► Prices down by a third
  ► More use of sexed semen = heifer abundance
• Controversy over rBst less newsworthy
New cows @ lower cost

Herd Turnover

San Joaquin Valley  Arizona  Idaho  New Mexico

Cost of Replacement Springer

Southern California  Arizona  Idaho  New Mexico
Feed Impacts Net Revenues

### Feed Cost per Head

- San Joaquin Valley
- Arizona
- Idaho
- New Mexico

<table>
<thead>
<tr>
<th>Year</th>
<th>San Joaquin Valley</th>
<th>Arizona</th>
<th>Idaho</th>
<th>New Mexico</th>
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<td>346</td>
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<td>141</td>
<td>252</td>
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<td>2009</td>
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<td>694</td>
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<tr>
<td>2006</td>
<td>(308)</td>
<td>(267)</td>
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<td>(143)</td>
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### Net per Head

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A Lenders Dilemma…

• Several Lenders Shared the Financial “Pie”
  ▶ Bank of America – Wells Fargo – Farm Credit Services – Rabobank – various local lenders

• Since 2009
  ▶ A few have left the scene or are looking for the exit
  ▶ Most others are attempting to work out debt as much as possible
The Dilemma

- 2006-2009 rapid industry expansion
- $2,000 + per head for springer’s
  - Result = growth but no equity
- Those that didn’t expand or were not as highly leveraged made the losses of 2009 back in 2010 & 2011.
  - Key factor: Land base for feed production
  - Many operations placed in “Special Assets”
Theme of the day = Caution

• Lenders perspective
  ► Dodd-Frank has meant a more “cautious” approach
  ► Asset purchases now require 35-40% equity
  ► Feed & cows require 40-50% equity
  ► More pay as you go
  ► Debt reduction the focus
Theme of the day = Caution

- Dairyman’s perspective
  - Life as a “Special Asset”
    - Lender takes over account management
    - Lender is first in line for any payments due
    - Cash is the only way to pay feed, other
    - Cancel use of anything that is optional
    - Bankruptcy has been the option for many
  - Unsecured creditors left high and dry
    - Feed suppliers, Veterinary, other consultants
    - Repairs & maintenance deferred
Does Size Matter?

**Total Feed Cost**
- 50 cows
- 200-499 cows
- 1,000 cows
- Average

**Total Operating Cost**
- 50 cows
- 200-499 cows
- 1,000 cows
- Average

*Graphs showing the trend of total feed and operating costs from 2005 to 2012 for different sizes of dairy farms.*
Size Matters...

**Gross Revenue**

- 50 cows
- 200-499 cows
- 1,000 cows
- Average

**Net Over Operating Costs**

- 50 cows
- 200-499 cows
- 1,000 cows
- Average

Dollars per CWT.

2005 2006 2007 2008 2009 2010 2011 2012

Dollars per CWT.

2005 2006 2007 2008 2009 2010 2011 2012
Location Too?

Mid-Western Dairies

- Avg. milk price per cwt.
- Feed cost per cwt of milk
- Total dir& ovhd expense per unit

<table>
<thead>
<tr>
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<th>Feed cost per cwt of milk</th>
<th>Total dir&amp; ovhd expense per unit</th>
</tr>
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<td>20</td>
</tr>
<tr>
<td>2003</td>
<td>10</td>
<td>6</td>
<td>20</td>
</tr>
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</table>
Rising Debt per Cow

• A Financial Hole
  ⧫ Continued tight margins
  ⧫ Financial stress continues
• Leverage = 4 letter word in today’s world
How current are we?

- Current assets divided by current liabilities
- Cash Flow has slowed
- Gradual (very) improvement
- Weather and feed situation important to cost control
**Debt to Equity Ratio**

<table>
<thead>
<tr>
<th></th>
<th>Vulnerable</th>
<th>Strong</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>1.5</td>
<td>0.4</td>
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</table>

- Total debt divided by total equity
  - Higher value = more capital supplied by borrowing
- This was on the increase (more leverage)
- Still high but improving
Return on Total assets

- Net Income divided by asset value at cost
  - The deep hole of debt has not been overcome
- Volatility has kept returns low
Where Now - Next

• Most that have made it this far may survive

• Operators attitudes:
  ► Range from cautious to “scared to death”
  ► Very cautious about leverage
  ► Interested in “Lender Loyalty”
  ► Search for land base to reduce feed costs
    • Farm ground has become expensive
Where Now - Next

• Dairy is not sharing in the current “good times” of agriculture

• Better times are ahead
  ▶ Global demand for dairy is increasing
  ▶ US can fill much of that demand
  ▶ Domestic demand is stable
  ▶ Dairy will be (hopefully) more cautious about expansion & exceeding production needs in the future
Data Sources

Northwest
Farm Credit Services

Frazer, LLP
Certified Public Accountants and Consultants

Rabobank

FINBIN
Farm Financial Database

Understanding Dairy Markets

USDA
United States Department of Agriculture
National Agricultural Statistics Service

LMIC
Livestock Marketing Information Center

ERS
Economic Research Service
U.S. Department of Agriculture

University of Idaho
Extension
Corn Time by Bob Lang

HE WON'T LEAVE ME ALONE EVER SINCE MILK PRICES WENT UP AGAIN...
Dairy Policy and Trade

Future of the Dairy Industry Symposium
Monterrey, CA

June 27, 2013

David P. Anderson
Professor and Extension Economist
Livestock and Food Products Marketing
Overview

- Policy
- Trade
Dairy Policy in the Farm Bill

- Dairy Security Act
  - Eliminates MILC, price supports, DEIP
- Two Major Parts
- Dairy Producer Margin Protection Program (DPMPP)
- Dairy Market Stabilization Program (DMSP)
- Margin Protection and Supply Management
Why The Change?

• Price Supports, MILC
  – Ineffective for years
  – Price based payments

• Response to Changing Economic Environment
  – Milk prices more volatile, feed costs skyrocketing

• Shift in Advantage from Buying to Raising Feed
  – “Western model”
Why The Change?

- Tried Supply Management in the Past
  - Thinking back over 40 years, many supply controls or management policies tried

- Rarely Worked Because the “Stick” for Over Producing Was Never Large Enough to Offset the “Carrot” of Getting Larger
  - Returns to size and scale
Emphasis on Margin

- Not Just Milk Price
- Feed Prices Rising and More Volatile
- Margin, or Income Over Feed Costs, Becomes More Important
  - Time for prices to respond to feed costs
Supply Management

• Try to Limit Margin Wrecks
  – Climb out faster
  – Try to limit govt. costs

• Most Interesting Part of Bill
  – From a political or philosophical point of view
  – Amendments to strike the supply management part played role in failure of farm bill in House
• DPMPP
  – Payments triggered when IOFC falls below trigger level
  – Producers allowed to “buy up” to higher level of margin protection
  – Base margin of $4 per cwt, buy up to $8
  – Covers 80% of highest of last 3 years marketings
  – Supplemental base to allow for dairies to grow
Basics

- DMSP
  - Margin falls below $6 per cwt for 2 months then supply management triggered, or $4 for one month
  - Producers not paid on a percent of milk base production (paid on 98% of milk base)
  - Ends when margin increases to over $6
Research Summary

- Producer Income Increases
- Almost No Change in Milk Production, on Average
- Can Effect Exports Slightly
- Adoption is Key, As is Buy Up
- Alternatives – DFA (amendment)
  - DSA margin protection aids producers more when margins are low
  - Supply management reduces govt. costs
Trade

• Much More Important in Dairy
  – Larger share of milk production
  – >10% of production equivalent

• U.S. Has Become More Competitive in World Markets
  – Price competitive
  – Advantage in year around supply
  – Increasing production
• Increasing World Incomes
• Increasing U.S. Production
• Might Argue That Trade Contributed to DSA
  – Recession hit
  – Exports declined
  – Milk prices declined
  – EU export subsidies didn’t help
  – Increasing feed costs
  – Margin crunch
Livestock Marketing Information Center

Data Source: USDA-FAS, Compiled & Analysis by LMIC

02/08/13
Trade and Policy

- Significant Opposition to Supply Management is Driven By Processors and Exporters
- Increased Reliance on Trade Does Have Some Implications for Price and Margins
Future

- Increasing Milk Production
- Advantage Remains Shifted to Those Who Grow Feed (for now)
The Future of Dairy in the West: Environmental Challenges

Joleen C. Hadrich
WAEA Symposium
Thursday, June 27, 2013
Where are the cows?
Top Milk producing states

1. California
2. Wisconsin
3. Idaho
4. New York
5. Pennsylvania
6. Texas
7. Minnesota
8. Michigan
9. New Mexico
10. Washington
Figure 1
The number of dairy farms is declining, while average size is growing
Number of farms (1,000) vs. Cows per farm

Source: USDA, NASS.
Dairy Characteristics

- Above average milk per cow (U.S. = 21,691)
  - CA = 23,457
  - NM = 24,694
  - ID = 23,376
  - WA = 23,794
  - CO 23,978
  - WI = 21,436
  - NY = 21,633

Source: Milk cows & production by state and region, 2008-2012:
Dairy farms are spatially concentrated

Large number of cows on small amount of land
- Causes concern for nitrogen and phosphorus loading via manure management → water quality concerns
- Urban pressure
Federal Regulations

- Clean Water Act – 1972
  - EPA – 1998 – AFOs are a significant source of water pollution in the U.S.
  - NPDES permits

- Clean Air Act – 1970 (Ammendments-1990)
  - Air Compliance Agreement – 2005
  - Greenhouse Gas Reporting Rule – 2009
Dairy farms have various sources of potential water pollution:
- Run-off from manure lagoons
- Milk waste water
- Silage/haylage bunker run-off
- Manure application run-off
- Etc.
Water Quality

- NPDES permits (Federal)
  - Required for CAFOs (> 1,000 AU or 700 dairy cows)

- CNMP (comprehensive nutrient management plans)

- BMPs
  - Agronomic manure application rates
  - Feeding livestock to minimize nutrient excretion
2005 Air Compliance Agreement (Federal)
- Dairy, swine, & poultry
- Results available in 2011
- Evaluating appropriate and consistent methods to measure emissions for possible future regulation

2009 Greenhouse Gas Reporting Rule (Federal)
- Any dairy farm that emits 25,000 or more metric tons of GHGs (CO$_2$e) must report
- No fees or fines, just need to report it (due March 31)
- $900 for equipment
- Applies to 40-50 of the largest dairy farms
Specific Air Quality Regulations in ID, CA, & AZ

Other states have air quality recommendations
- CO Air Pollution Prevention & Control Act
- NM Dairy Quality Assurance Program
- WA Air Quality Management Policy & BMP for Dairy Operations
  - Regional policies
Anaerobic digesters
- Extensive manure waste handling facility that generates electricity
  - Electricity can be used on the farm or sold to the grid for additional revenue

Size a good thing in the west for green energy
- Becomes more economically feasible with more than 500 dairy cows, but can be used on smaller dairy farms
Colorado and our town of Greeley are changing. We are in an area of rapid urban growth that has brought more visibility to us as dairy farmers. The challenge we face is being able to operate a dairy farm efficiently in an environment of growth and change.

--Les Hardesty, CO (dairyfarmingtoday.org)
Distance between urban and rural populations is shrinking

Dairy farmers must have good relationship with their urban neighbors
  - Pedal the Plains (CO)
Right to Farm Act

- Each state has a Right to Farm Act which provides farmers with protection against nuisance lawsuits
  - Protection level varies by state
  - Can be housed within state government agencies
    - DEQ, Dept. of Ag, Dept. Public Health, etc.
Questions?