What has changed in the dairy business since 2009

CDCB Industry Meeting

Mark Stephenson
Director of Dairy Policy Analysis
Where is the milk?
Where are the people?
Where is milk needed?

41 billion lbs net deficit.
Change in Milk Intensity.
In 2013, more than 53% of milk was produced on less than 3% of the largest herds. Linear trend extrapolation would suggest that by 2020, it will be about 66%.
Improved efficiency

Annual U.S. Milk Production per Cow

Pounds per Cow

Heat Index—Temp & Humidity

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- Caution
- Extreme Caution
- Danger
- Extreme Danger
Consider trends in top four states

Average Daily Pounds per Cow

- California
- Wisconsin
- Idaho
- New York
History of Global Surface Temperature Since 1880

Degree Celsius

Above Average

Below Average
New Federal Report

Climate change will have dire consequences for US, federal report concludes

*Jen Christensen* and *Michael Nedelman*, CNN

Updated 3:15 PM EST November 23, 2018
The expense

The costs of climate change could reach hundreds of billions of dollars annually, according to the report. The Southeast alone will probably lose over a half a billion labor hours by 2100 due to extreme heat.

Farmers will face extremely tough times. The quality and quantity of their crops will decline across the country due to higher temperatures, drought and flooding. In parts of the Midwest, farms will be able to produce less than 75% of the corn they produce today, and the southern part of the region could lose more than 25% of its soybean yield.

Heat stress could cause average dairy production to fall between 0.60% and 1.35% over the next 12 years — having already cost the industry $1.2 billion from heat stress in 2010.
Temperature Extremes

Excessive Heat Buckles Jetstream (June 24, 2017)

Cooler Than Normal

Excessive Heat
Location & Volume of Dairy Plants
Dumped and Distressed Milk

Million Pounds of Producer Milk Used for Animal Feed or Dumped, Northeast Federal Order, 2013-2018
Who are your customers?

- We can build a plant, but...
  - Plants are expensive!
  - Where do we put it?
  - What products do we produce?
  - Who are your customers?
  - How do you get the products to them?

- Raw milk is expensive to move!

- More discussions in coops and elsewhere about some form of supply management.
Premiums in the Upper Midwest

![Graph showing implied over-order premiums for Wisconsin, Michigan, and New York from January 2010 to July 2017. The graph includes a y-axis ranging from -$1.00 to $3.00 and an x-axis with monthly intervals from January 2010 to July 2017. The lines for Wisconsin, Michigan, and New York are represented by different colors: blue, red, and green, respectively. The graph illustrates the fluctuation in premiums over time.]
Farm milk prices in selected countries

- $US per hundredweight
- 1992 to 2016

- Canada
- EU 27
- US
- Australia
- NZ

Graph showing the trend of farm milk prices over time.
The Importance of Trade
Dairy Trade with Canada

- Canada has a tightly controlled supply management system. Quota is about $30,000 per cow currently.
- This keeps farm milk prices more stable and quite a bit higher than other countries. (in 2016, WI All Milk price averaged $16.74 while Canada’s averaged $23.48)
- A quota system requires tightly controlled trade
  - High tariffs and import quotas negotiated in 1987 WTO
  - Dairy not included in NAFTA agreement with U.S.
- Milk Protein Isolates (MPIs) didn’t exist in 1987 and have become possible with new processing technology. Since they weren’t specified in trade restrictions, they don’t have an import quota or tariff.
- We slipped a puck past the goalie much like MPCs for the U.S. back in the early 1990s.
Dairy Trade with Canada

MPI sales had grown to more than $100 million a year with about half from two plants in New York and half from a plant here in Wisconsin (another small volume from an Idaho plant).

Canadian cheese processors have markets for more product and want milk for additional sales.

Canada has a classified pricing and pooling scheme like the U.S.

They have created a new ingredients class to produce MPIs domestically that will be priced at “world prices” which effectively halted U.S. sales.
Sales of MPI to Canada

Value of U.S. Exports of Milk Protein Isolates to Canada

Rapid Loss of Markets is a Scary Thing!
Location & Volume of Dairy Plants
Did I Mention Trade?
Milk Price Variation

US All Milk Price

The Deep Cut

The Long Scrape
Fluid Sales Decline

U.S. Fluid Milk Sales: Rolling Daily Average

Millions of Pounds

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Note: The graph shows a steady decline in fluid milk sales from 1998 to 2018.
It’s Not All Bad News

Per Capita Cheese Consumption

Pounds of Cheese, all types

Milk Use Has Changed

- Class I Milk: 65%
- Class I: 32%
Not Much Money in FMMOs

- A $3 differential on top of a $5 manufacturing price when Class I utilization is more than 60% was a lot of money (26% of your milk check)
- A $3 differential on top of a $16 manufacturing price when Class I utilization is less than 30% is not so much money (5% of your milk check)
- In regions like the Upper Midwest or California the value is much less (about 1%)
- Processors need relief in the make allowance
- Do farmers have as much reason to fight for FMMOs?
Summary Observations

- Milk is growing in some regions and taxing plant capacity (Western disease)—puts downward pressure on milk prices
- Production growth for many decades has been almost exclusively in larger herds
- Milk is declining in some regions leaving behind excess capacity—might stimulate milk premiums longer term
Summary Observations

What happens when trends collide?
- High-yielding dairy cows like cooler climates
- Climate is changing
  - Warmer—Cooler
  - Dryer—Wetter

Regional milk production patterns change and so must food systems.

Our relentless pursuit of increased yields per cow may be slowing.
Summary Observations

- Trade has been good for the U.S. dairy industry.
  - Exports have supported a level of growth that we couldn’t otherwise have had.
  - The shift toward specialty cheeses has crowded out many imports.

- There are some downsides to our role in world dairy trade
  - Greater susceptibility to price volatility
  - Milk and dairy products can back up into stocks during a downturn.
In Summary...

- Trends in productivity are pushing against trends in climate
- We have seen milk production increases in the Northeastern quadrant of states—declines in the West and Southeast
- Plant capacity *may* be an issue, but a bigger factor is probably who the customer is for the product
- Changes in how much milk is produced and where are expressed as changes in milk prices.
  - Exports move the U.S. price up and down
  - Regional shifts change the “tilt” or pattern of prices
- I believe that some form of supply management, most likely not a national program, will become prevalent
Questions...