Changing Patterns and an Economic Fragility of Milk Production

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Overview

- Start big, then drill down
  - What is happening in world milk production
  - What is happening in U.S. milk production from states down to county level changes
  - What are implications for production in regions of the U.S.
As We Look at World Maps, Keep This in Mind.

Where does the World Live?

The World’s Population in 2000, by Latitude

(horizontal axis shows the sum of all population at each degree of latitude)
Where does the World Live?

The World’s Population in 2000, by Longitude

Vertical axis shows the sum of all population at each degree of longitude.

Where are the farms located?

Number of dairy farms 2014, incl. estimates

Total number of dairy farms in 2014: 121.5 million
+ 1% increase vs 2013
Change in farms numbers

Change in farm numbers 2009 - 2014

2009 – 117 mill dairy farms
2014 – 121 mill dairy farms
2009 - 2014 = 3.8% increase

Major Country Milk Production

CAGR

USA—1.34% to 1.92%
India—6.63%
China—26.38% to 0.93%
Brazil—3.92%
Russia—(0.36%)
France—0.10%
New Zealand—4.36%
Turkey—5.81%
Australia—(0.98%)
Canada—0.22%
Shares of cows per size classes

Distribution in IFCN standard classes 1996-2014

**India**
- Herd size change 1996-2014: 2.0 — 1.7
- Annual % change in farm number: 2.8%

**Brazil**
- Herd size change 1996-2014: 9.0 — 22
- Annual % change in farm number: -2.3%

**USA**
- Herd size change 1996-2014: 72 — 182
- Annual % change in farm number: -3.4%

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IFCN Projected World milk production growth through 2025

Absolute and % change in milk volumes 2025 vs 2014 mill t ECM

Africa 43%

Milk volumes 2025 vs 2014 (cows' and buffalos')
- Milk production increase in mill t ECM
- Milk production decrease in mill t ECM

ECM - Energy Corrected Milk; 4% fat, 3.3% protein
U.S. Per Capita Consumption

We add almost 2 pounds per capita per year.

High Impact Trend!

We add almost 3 million people per year.
High Impact Trend!

**Pounds of Milk per Cow per Year**

- Very linear—about 284 pounds per cow per year

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**Number of Cows**

**U.S. Number of Cows**

- 1998: 9000
- 2017: 10000
Sustained Growth Needs Exports!

The Importance of Trade
Northern States Making More Milk?
Change in Milk Production—2016 compared to 2015

Very Different Trends
Change in Milk Intensity.

2016 Surplus / Deficit Milk Production
Regional Surplus/Deficit

California Net Production
Baseline Shipments Associated with Fluid: March 2014

Baseline Shipments Associated with American Cheese: March 2014
Class I Price Surface

Class III Price Surface
What Is Happening Over Time?

Western Observations

- Western milk supplies have grown substantially over the past 30 years. They are now very surplus.
- Products from that region need to be nutrient dense and storable to be competitive for exports (out of the region).
  - Cheese, butter and yogurt can come east, but they must be cost competitive with the Upper Midwest.
  - Nonfat dry milk, cheese and butter can go west, but they must be cost competitive with Oceania and the EU.
- Can yield growth be sustained going forward?

What Is Happening Over Time?

Midwest Observations

- Californication of business models
  - Large scale economies
  - But with differences—i.e., a more significant land base.
- Better cow comfort and large land tracts are still available in many regions.
- Who is your customer?
  - Domestic sales to east and southeast, but exports can be harder.
  - Must pay more attention to water and environmental issues.
What Is Happening Over Time?

Southeast Observations

- Hugely net deficit in milk production.
  - Implication is for perishable product production
  - Balancing becomes a very big issue and cost
- It has felt like a long, slow bleed until you impact infrastructure.
- Will animal genetics play a part to retain and/or increase milk production?
- Will processing technology and transportation play a bigger role in servicing demand in the region?

What Is Happening Over Time?

Northeast Observations

- Modestly net deficit in milk production, but raw milk still moves long distances
- Too costly to process in the major metropolitan areas?
- Milk production growth will be “between the cracks”
  - Few large tracts of land available
  - Implies slower, but steady growth
In Summary...

- It doesn’t feel like a steady state anywhere
- The “Field of Dreams” is not reality—
  - If you produce it, they may not come
- Comparative advantage probably has to peel back the layers to our more basic agronomic resources
  - Land, climate and water
- Processing technologies and transportation could be transformational

Questions?