

IDFA –Sweetener
Colloquium

Orlando, Florida

February 13,
2018

Dairy Ingredient Outlook



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The backstory – milk on the rise

Cheese – the key to milk checks

More cheese – more whey

Demand for butter rolls along

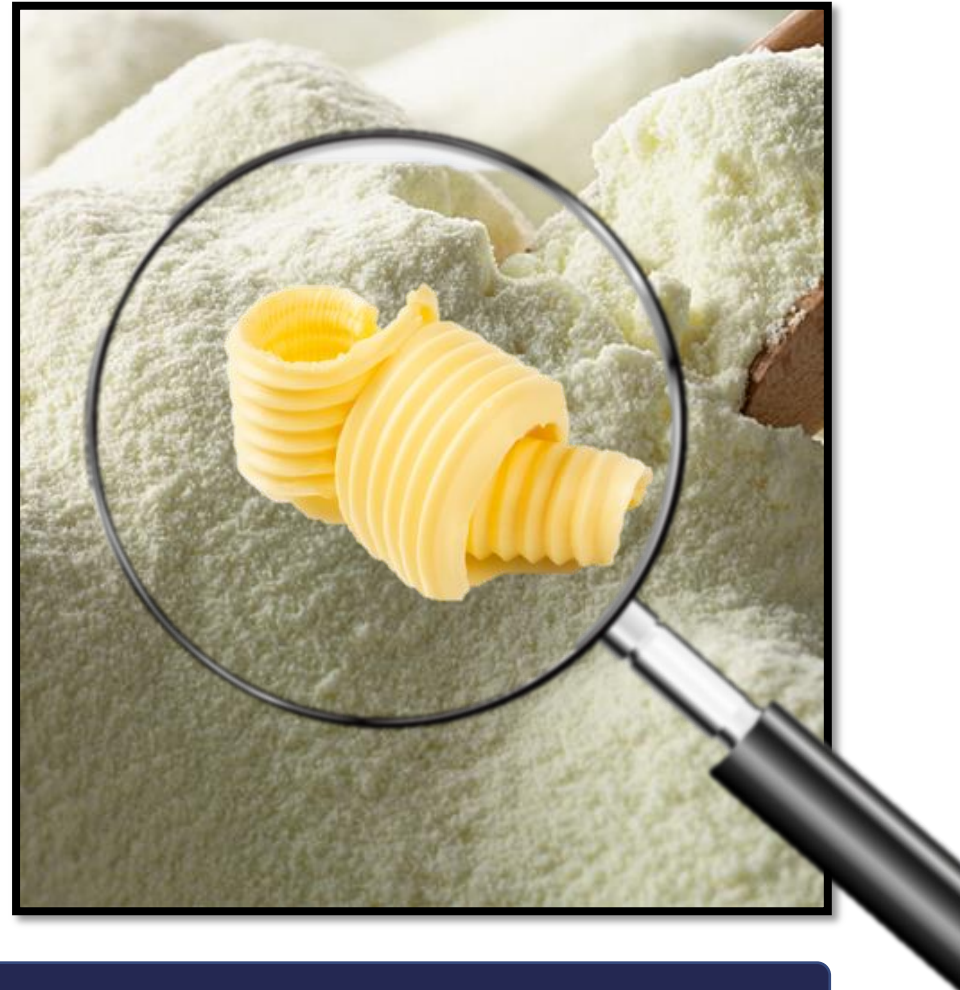
Will milk powder remain low?

Milk & dairy product forecast

Through the looking glass: a market in transition

A shifting world to butterfat deficit & protein surplus

- The dairy industry is transitioning from a protein short world to a butterfat deficit land.
- This is creating unique challenges for buyers and sellers alike.
- It is also creating considerable market volatility that has many stumped as to how to manage.
- The situation leaves everyone wondering if and when protein markets rebalance.



It's simple biology!

Only one-third of milk solids are butterfat.

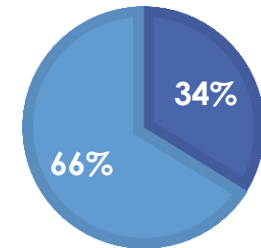
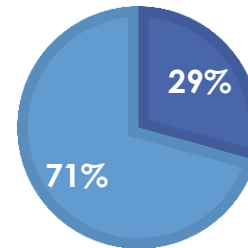


HOLSTEIN

JERSEY

■ Butterfat ■ Solids nonfat

■ Butterfat ■ Solids nonfat



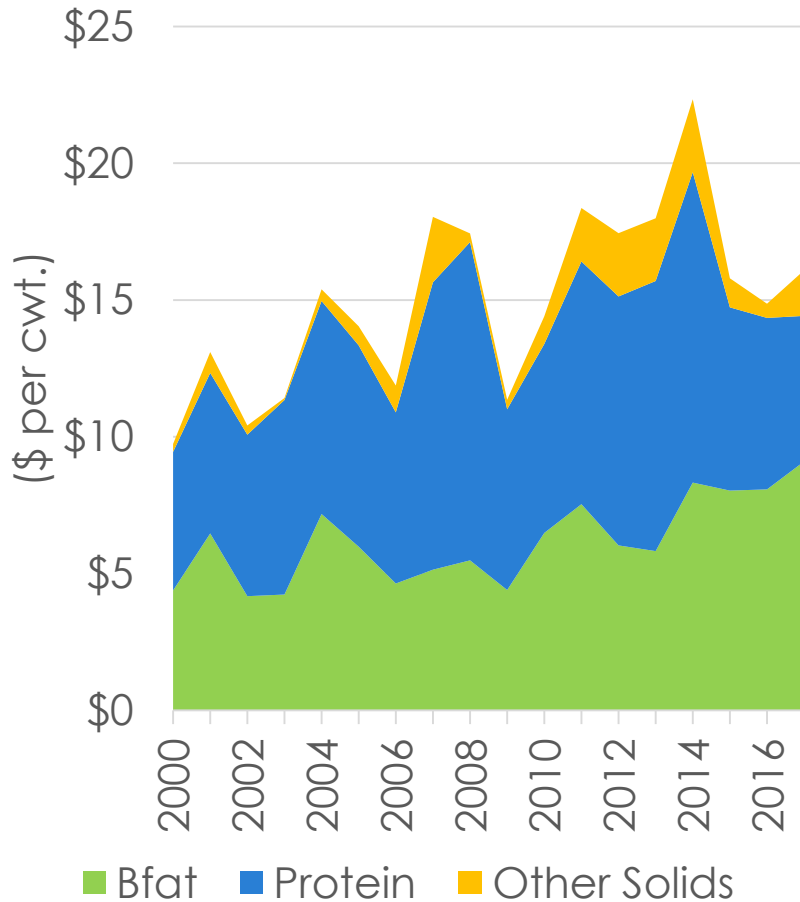
2015 Components	Holstein		Jersey	
Butterfat	3.67%	28.9%	4.81%	34.7%
Protein	3.08%	24.5%	3.65%	25.4%
Other solids	5.76%	46.6%	5.76%	39.9%
Total Solids	12.4%	100%	14.4%	100%

Source: Holstein Association USA, Inc.



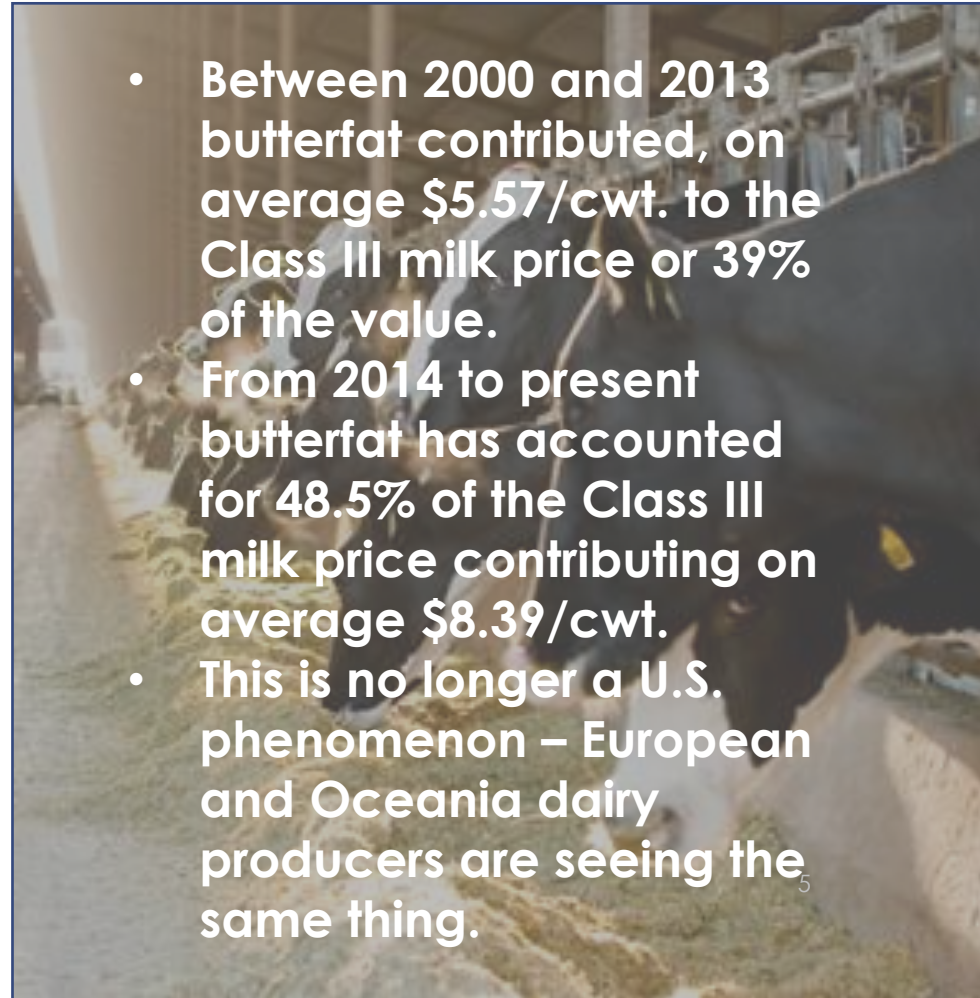
Butter packs a punch in milk checks

Butterfat may provide incentive for more milk in 2018.



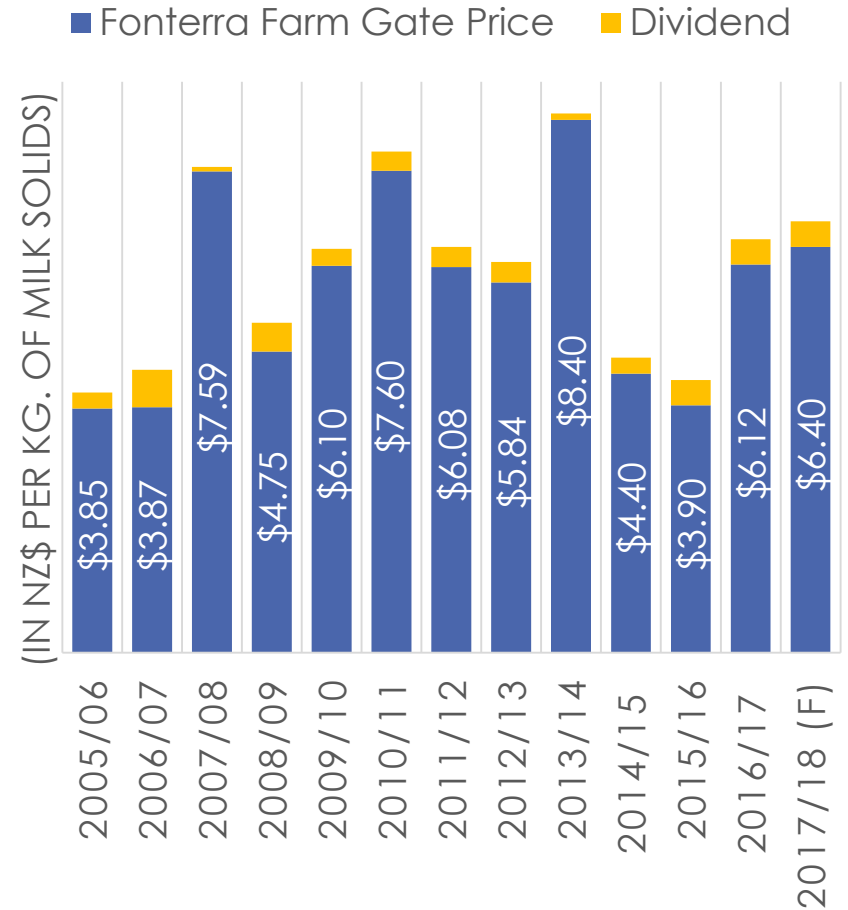
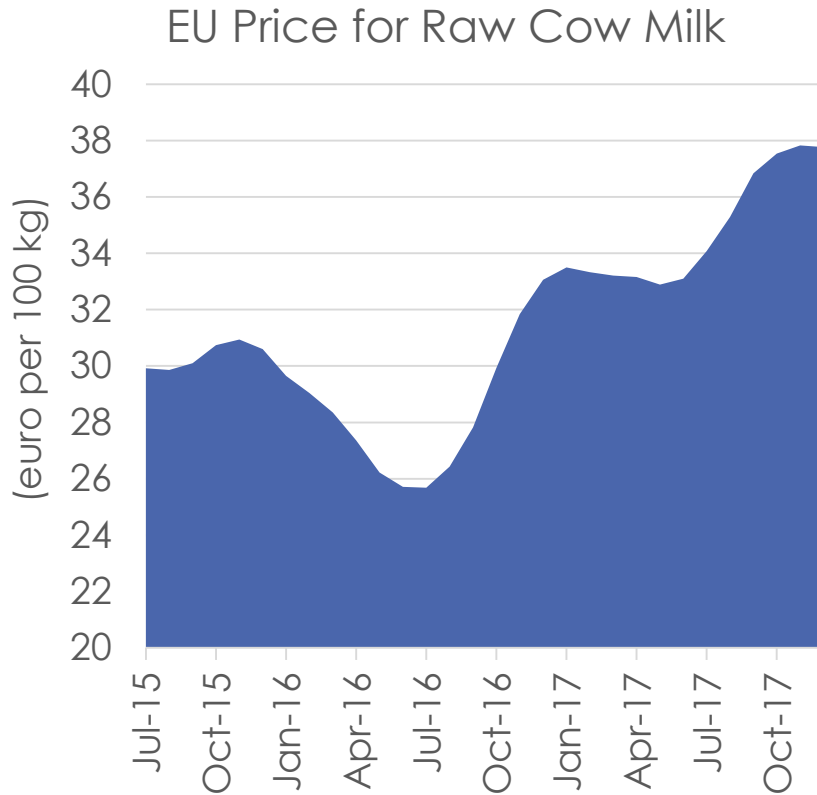
Source: USDA - AMS

- Between 2000 and 2013 butterfat contributed, on average \$5.57/cwt. to the Class III milk price or 39% of the value.
- From 2014 to present butterfat has accounted for 48.5% of the Class III milk price contributing on average \$8.39/cwt.
- This is no longer a U.S. phenomenon – European and Oceania dairy producers are seeing the same thing.



EU & NZ milk price outlook improves

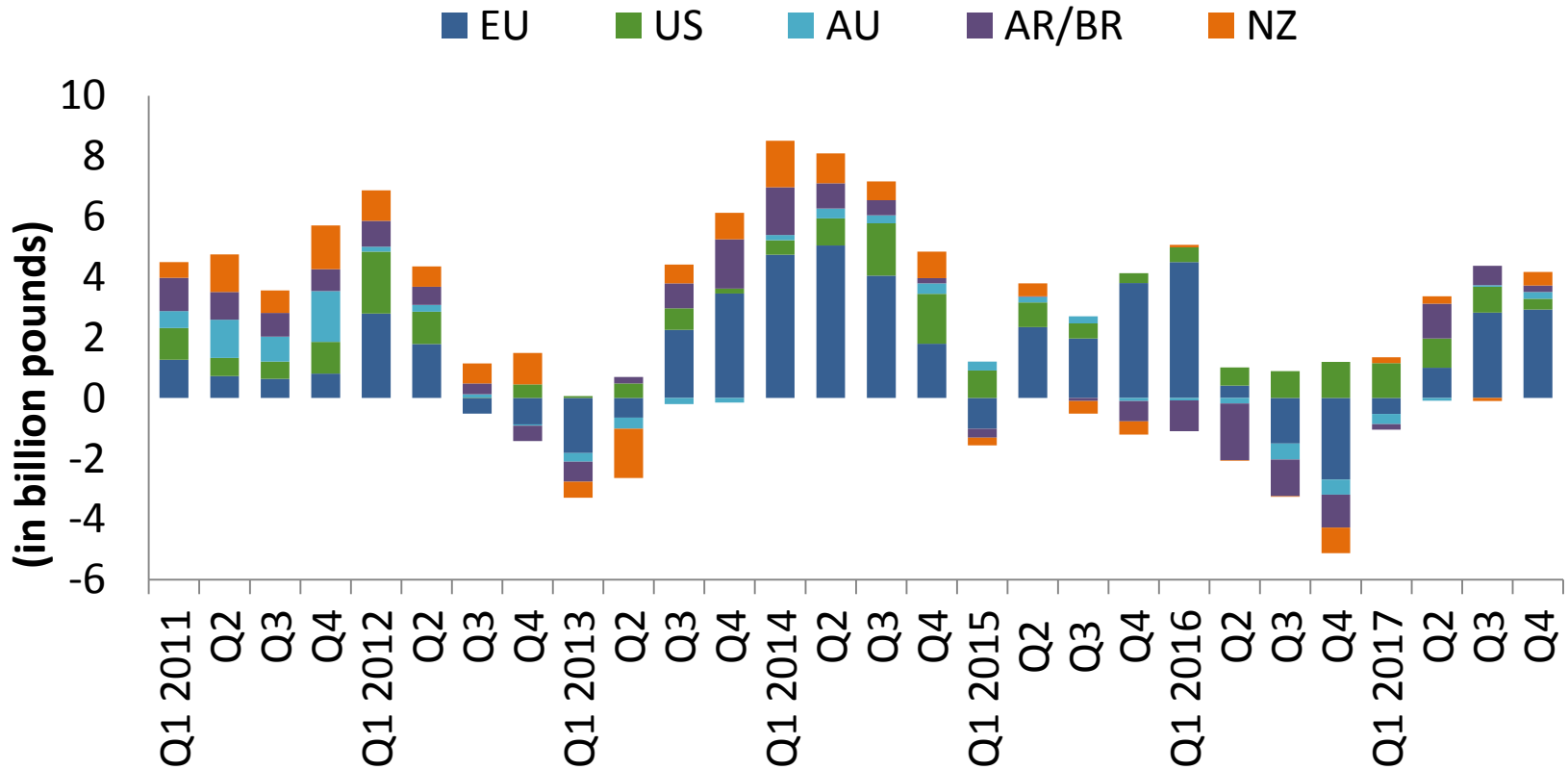
Current prices are unlikely to slow milk production in 2018



Source: Eurostat, Fonterra

Exporters are expanding milk supply

2017 milk moved ahead of 2016 by mid-year.



Source: USDA – AMS, Eurostat, Dairy Australia, NCANZ, Dept. of Ag – AR & BR

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More cheese – more whey

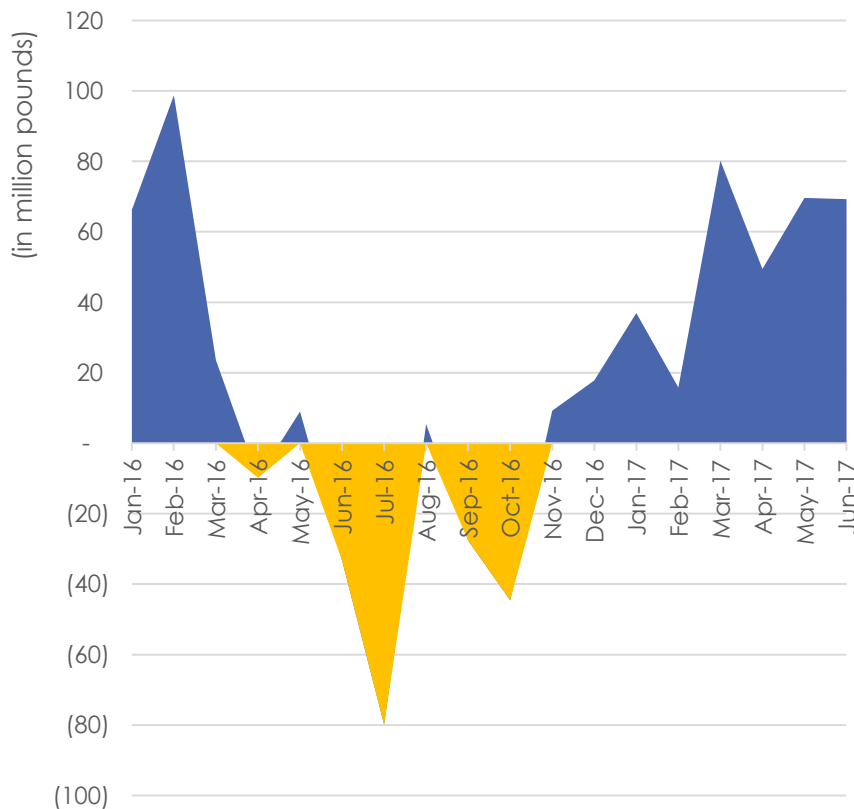
Demand for butter rolls along

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Milk & dairy product forecast

More milk – more cheese!

YOY Change in Cheese Production
(EU, US, AU)



Source: USDA – AMS, Eurostat, Dairy Australia

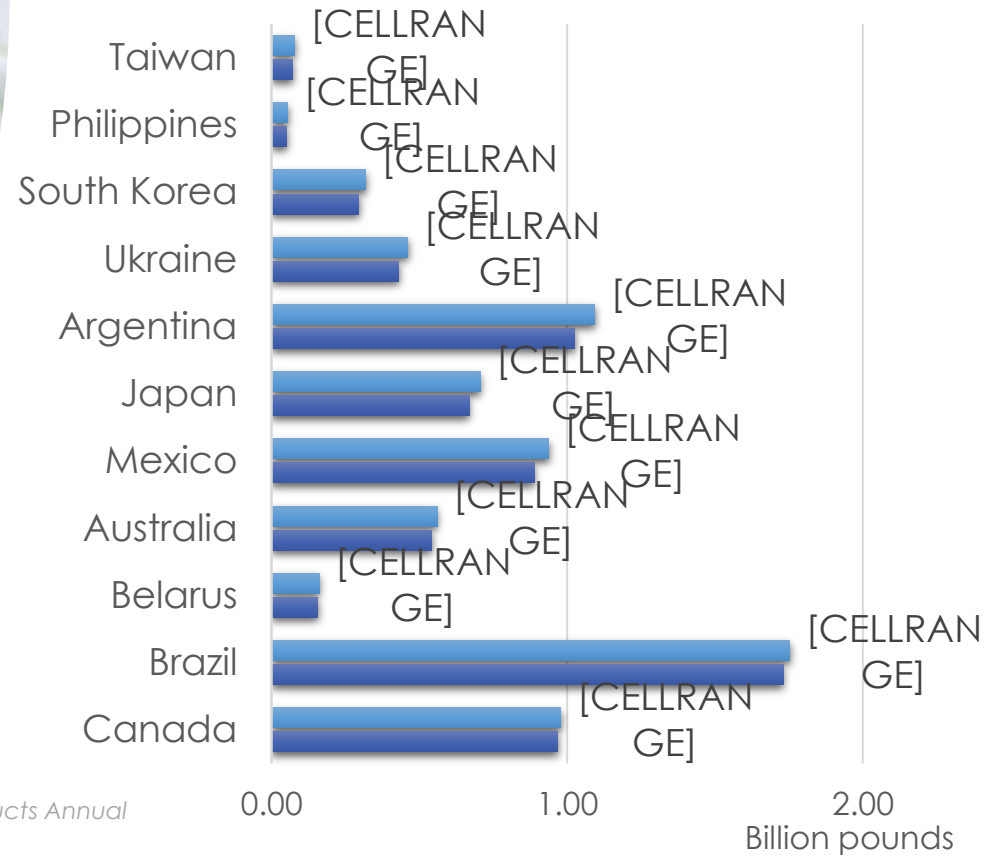
- **Europe has increase cheese production 376 million pounds during the first 11 months of 2017 compared to the same period in 2016.**
- **The United States has expanded cheese output by 290 million over a comparable period.**
- **Australian cheese production is nearly unchanged.**
- **Considerable amounts of butterfat continue to move to cheese production in 2017.**

...but, there is more cheese demand



Cheese Consumption

■ 2017 (F) ■ 2016

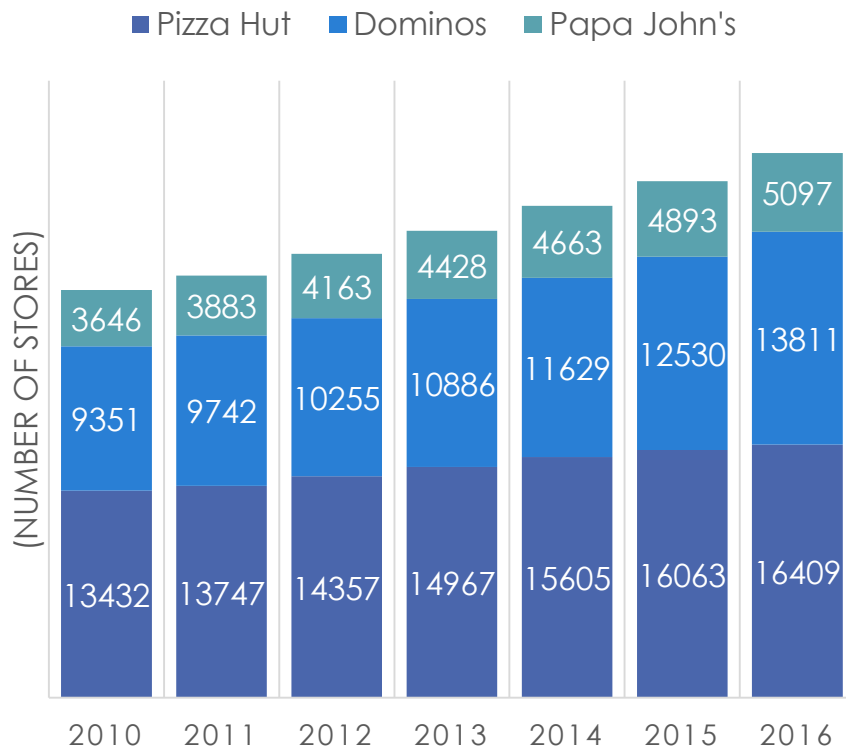


Source: USDA – FAS Dairy Products Annual

More pizza please!

Globally pizza is increasing cheese consumption

WORLDWIDE PIZZA STORES



Source: Statista



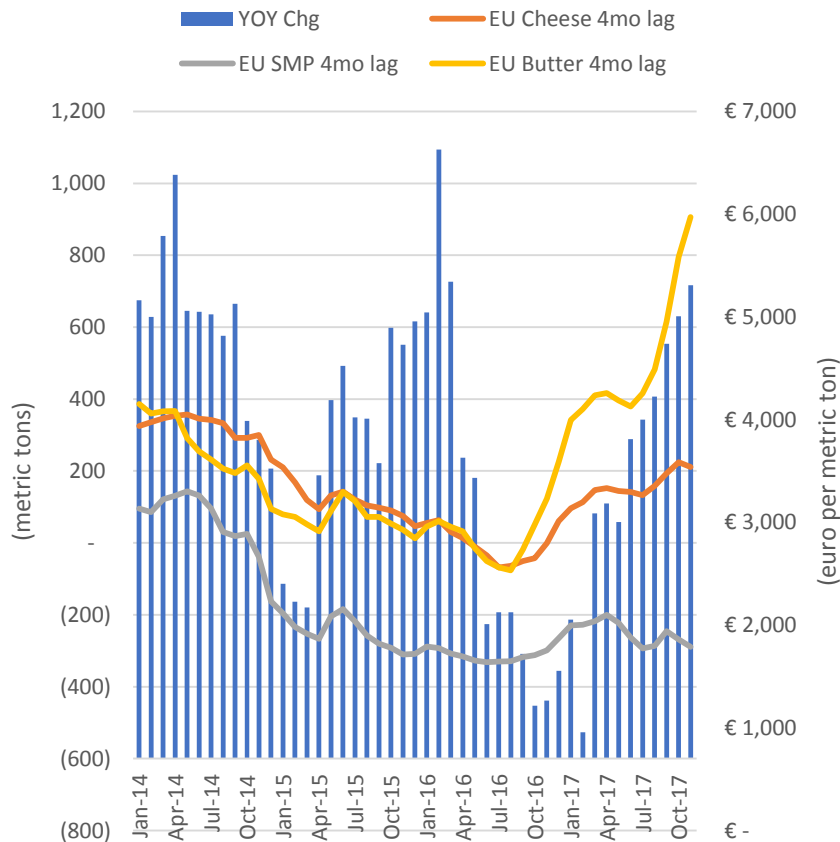
- China's 2017 cheese imports were 11% higher than 2016.
- India's cheese demand is reportedly expanding at 15-20% per year.
- Pizza consumption continues to be a driver of higher cheese consumption in non-traditional markets.
- Over 5 billion pizzas are sold each year according to Statistic Brain.com
- Dairy Management Inc. continues to support efforts to increase cheese on pizza.

Shanghai, China (2016)

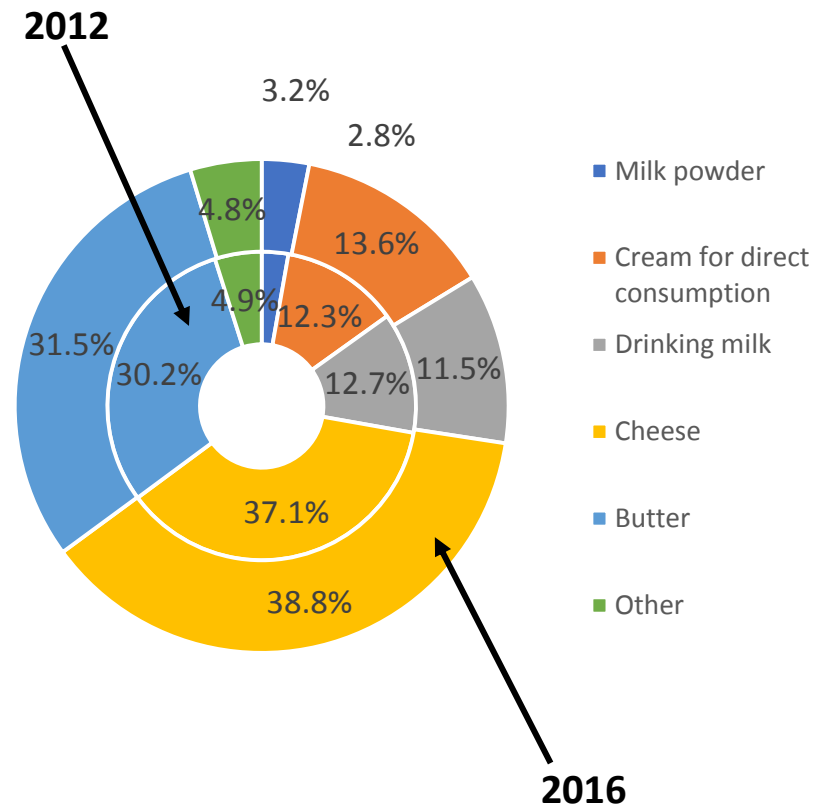
Butter & cheese drive EU milk production

Changes in cheese & butter prices explain one-third of milk.

EU Chg. in milk based on Dairy Product Prices



EU-28 Milk Utilization



Source: Eurostat, European Commission

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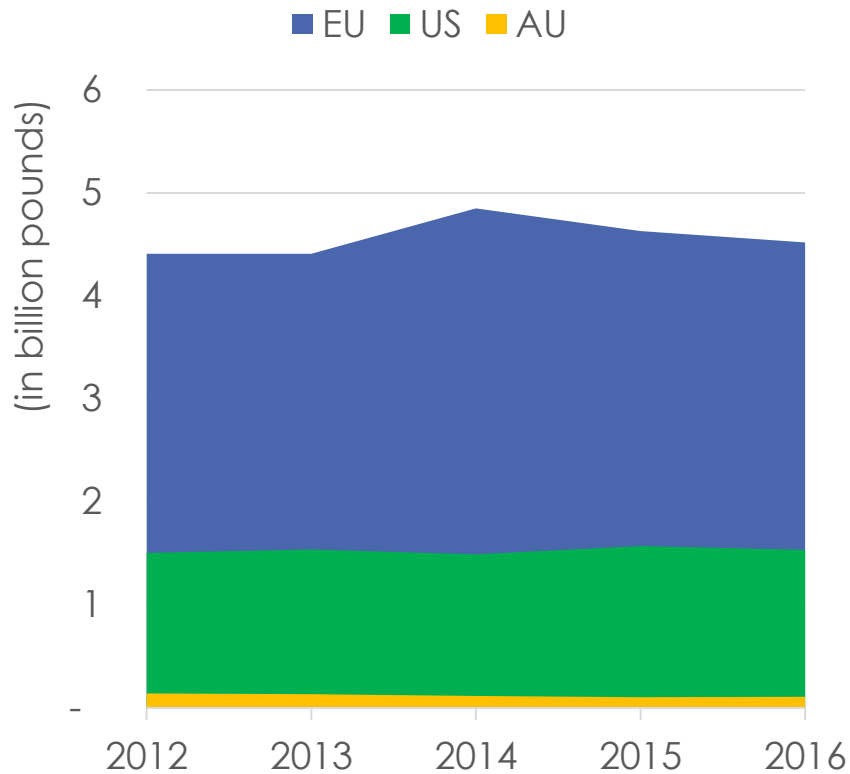
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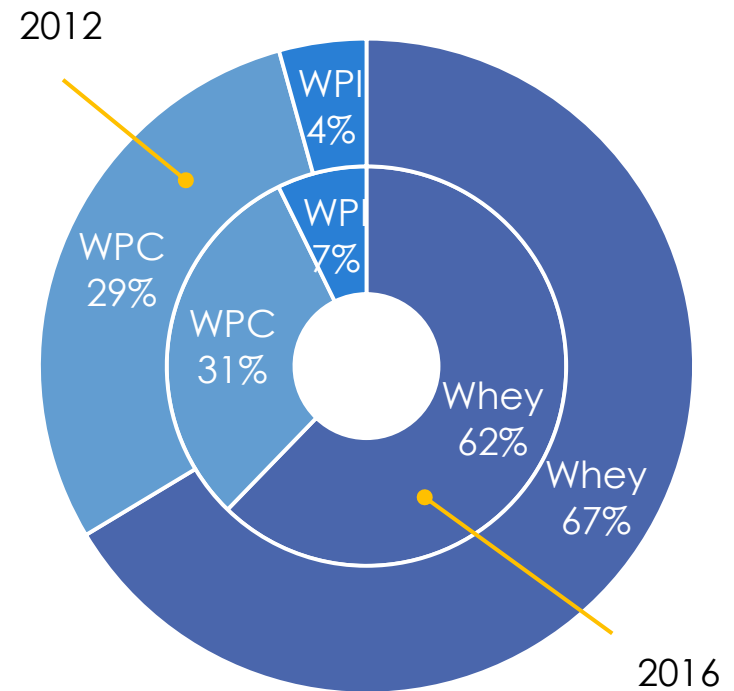
More cheese – more whey

Higher cheese output is upping whey production

EU, US & AU Whey & Derivatives Production



2012 & 2016 U.S. Whey Production



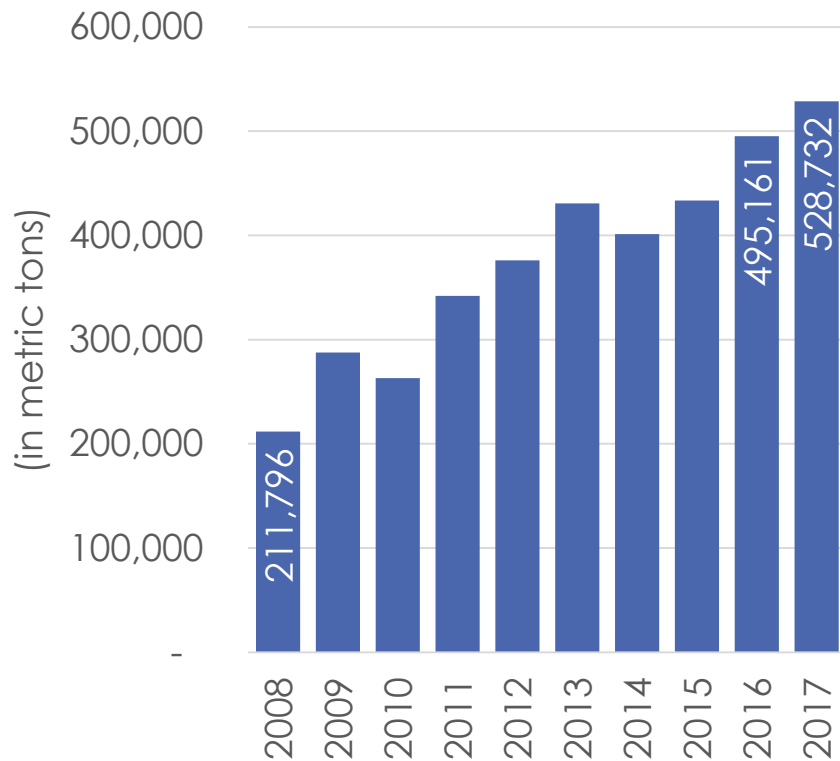
Source: USDA, Eurostat, Dairy Australia

China's demand for whey is robust

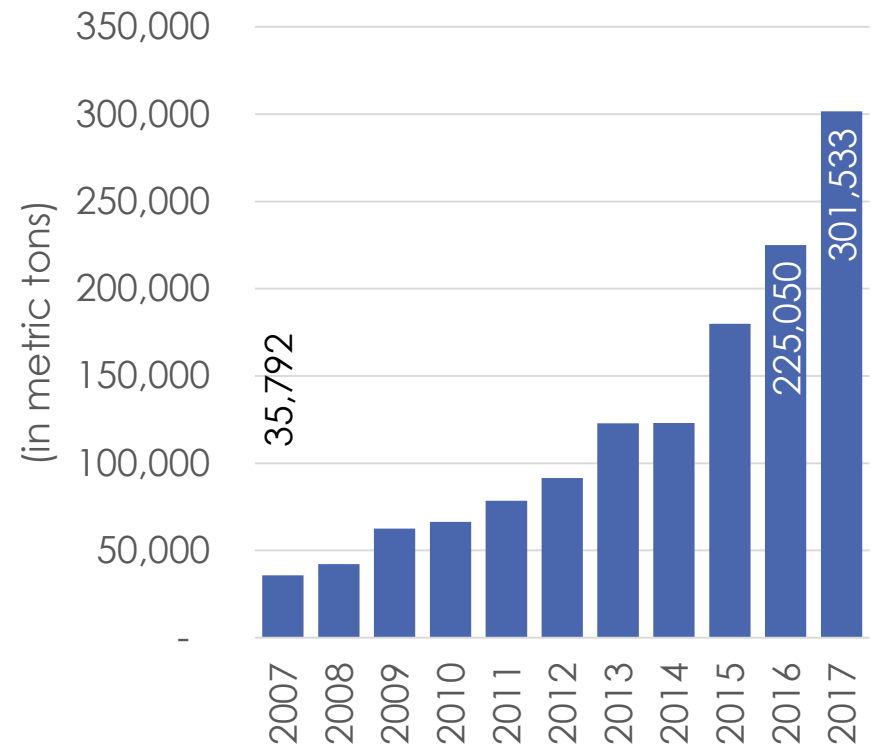
China's whey imports drive market price.



China's Whey Imports



China's Infant Formula Imports



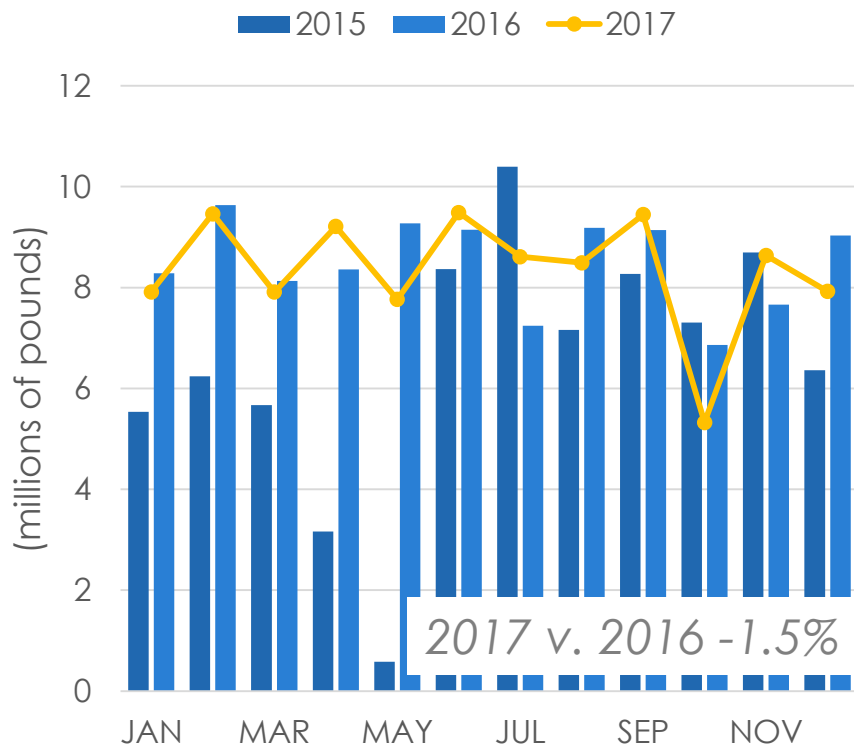
Source: GTIS

U.S. Production is Outpacing Demand

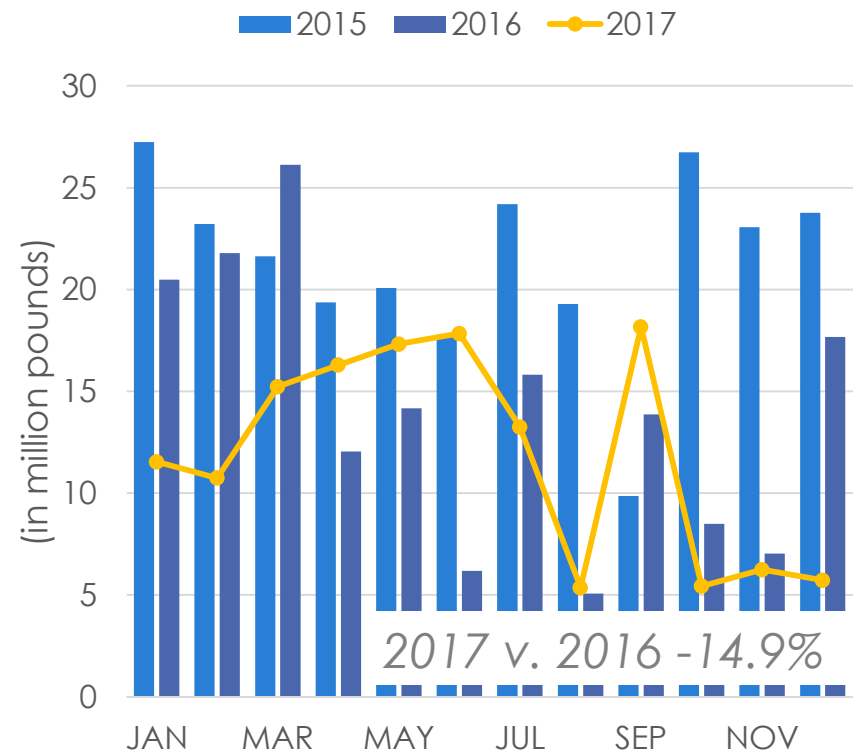
Near-term, new capacity can weigh on price



U.S. Domestic WPI Commercial Disappearance



U.S. Domestic WPC Commercial Disappearance



Source: USDA

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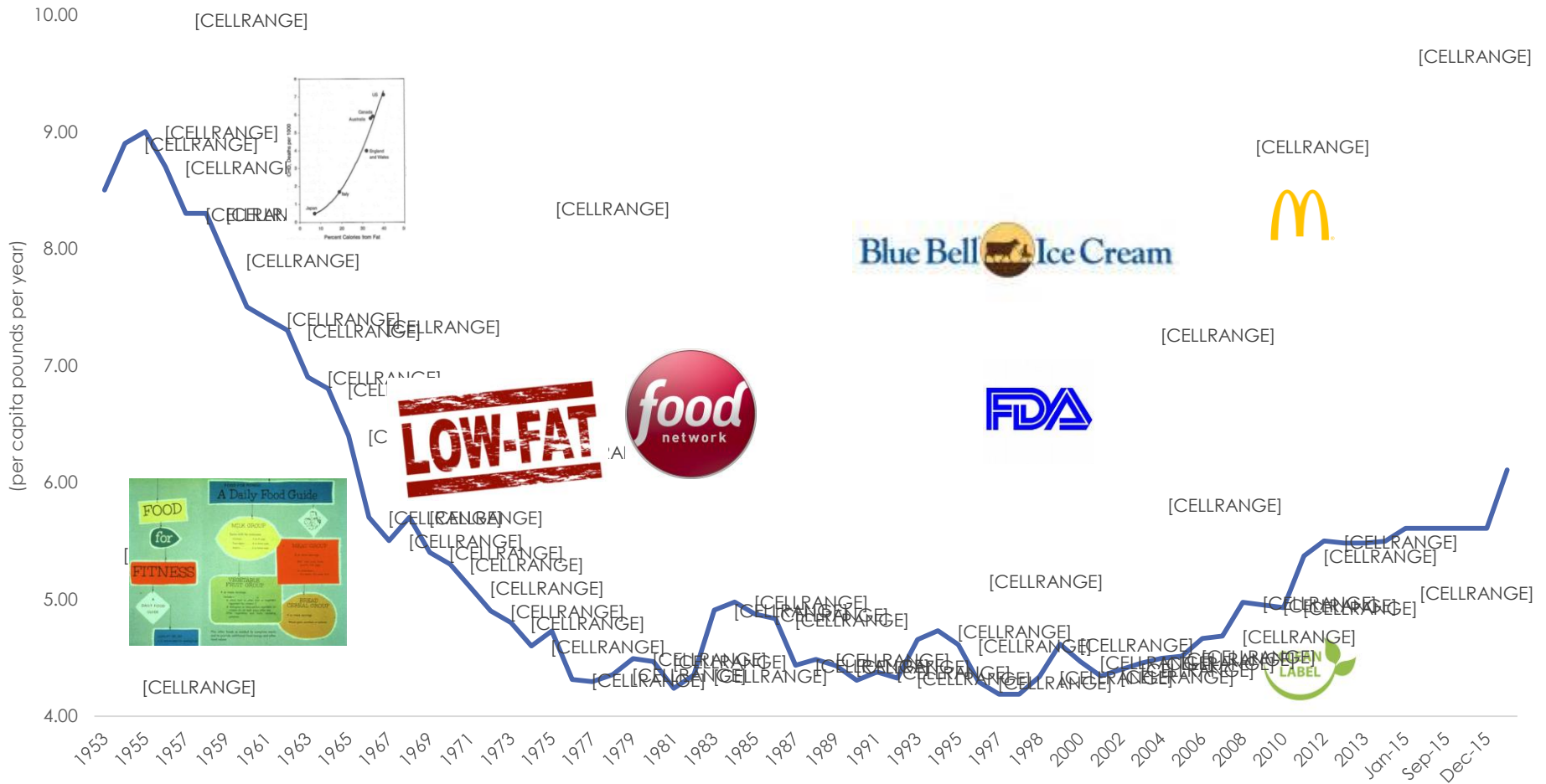
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Milk & dairy product forecast

What caused butter demand to soar?

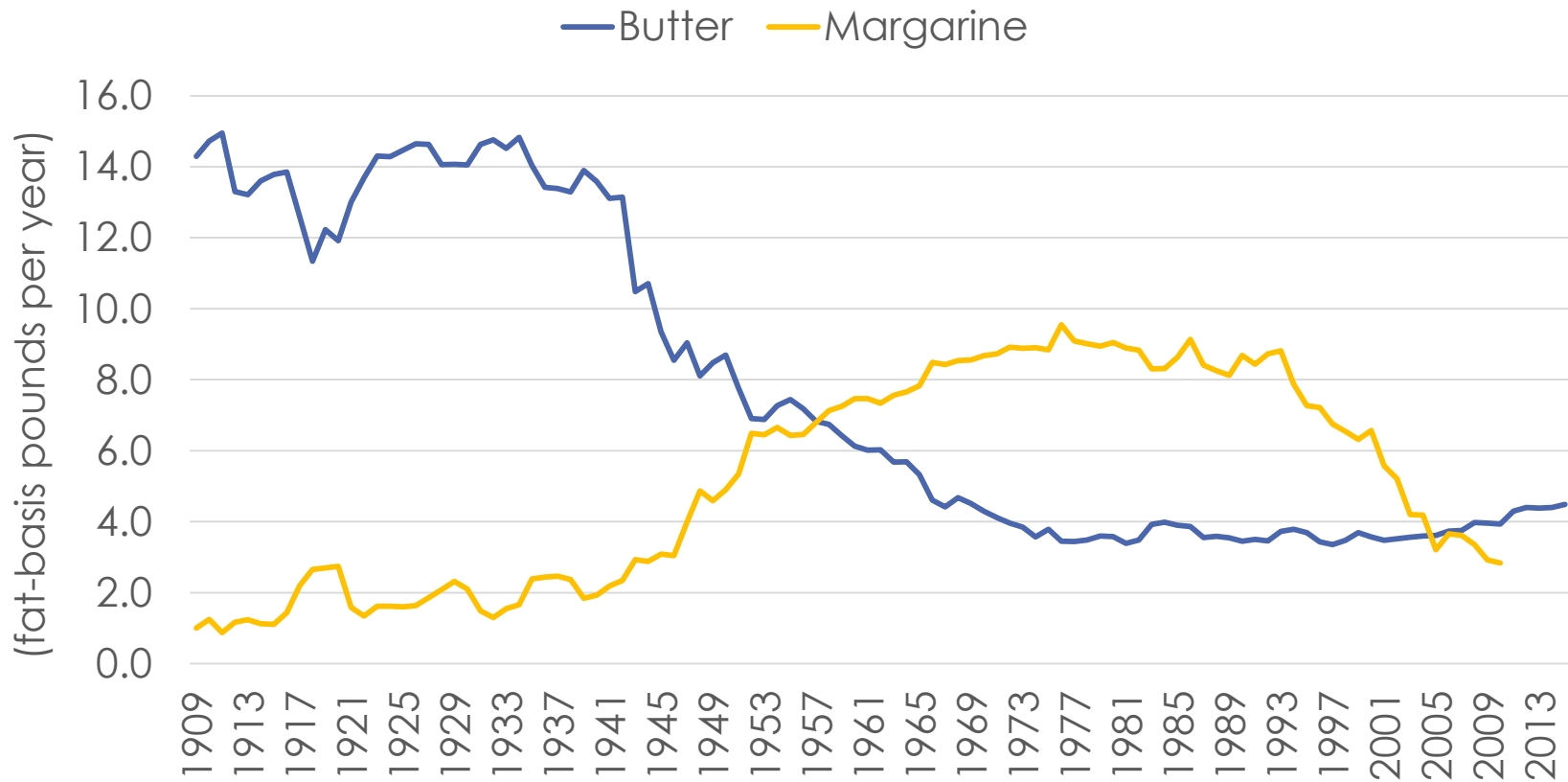


Butter consumption rising

As margarine consumption is falling.



U.S. Butter vs. Margarine Per Capita Consumption



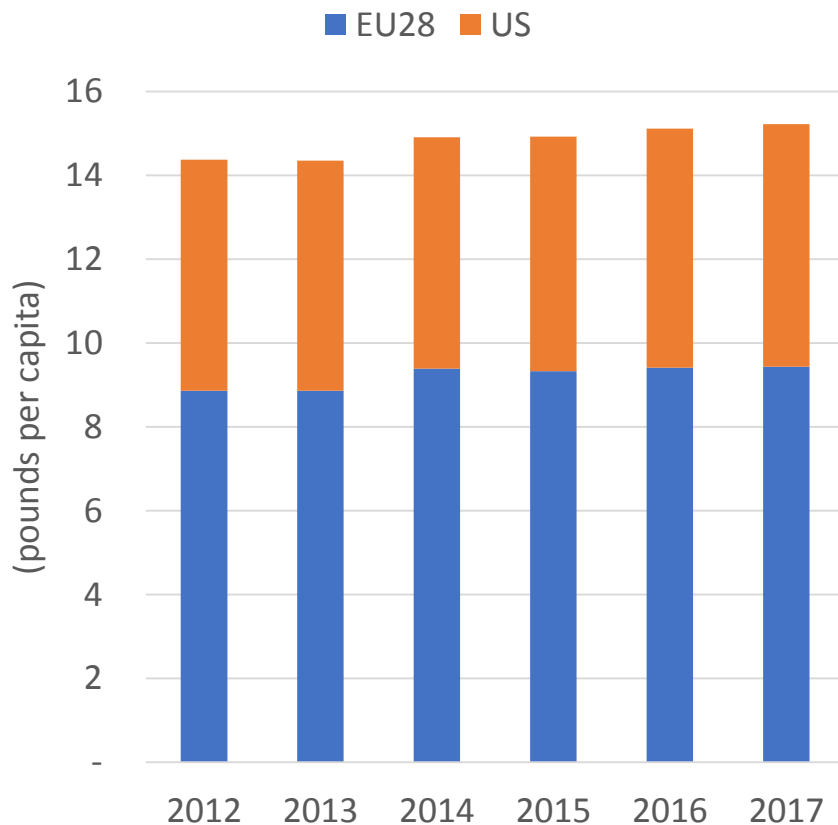
Source: USDA ERS

Small consumption gains add up

Modest increases are adding to up a lot of butter.



Per Capita Butter Consumption



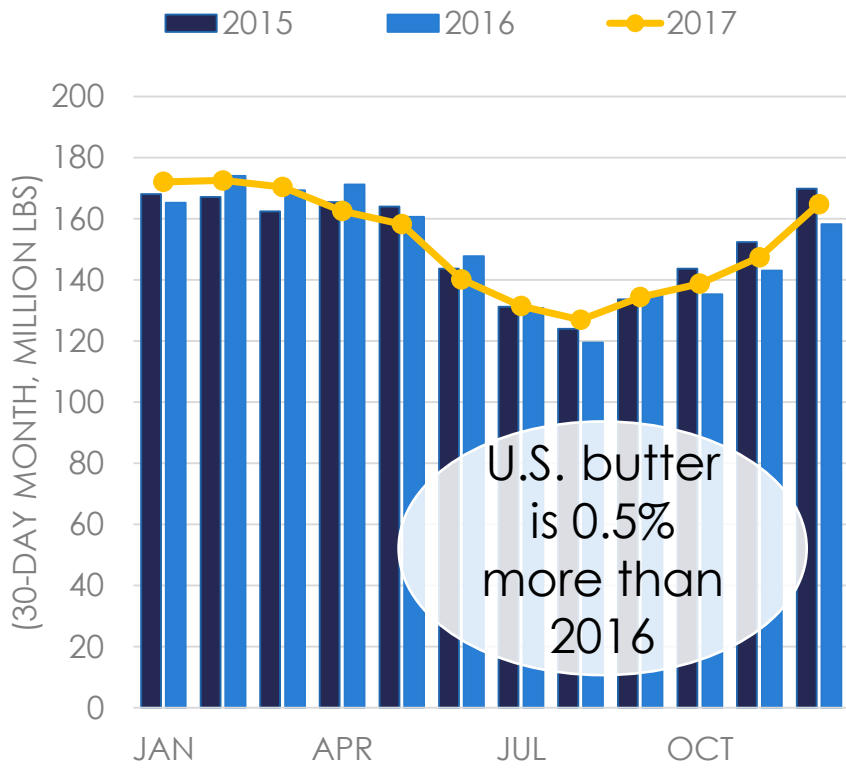
- The United States per capita consumption of butter accounted for an additional 87.9 million pounds of butter from 2012 to 2016.
 - Over that same time, U.S. butter production fell 20 million pounds.
 - That suggests that trade can have an impact on U.S. butter prices.
- Europe's per capita consumption accounted for 293.4 million pounds more butter over the same time horizon. Europe's butter output gained at similar levels over the same time frame.

Source: USDA (ERS), European Commission

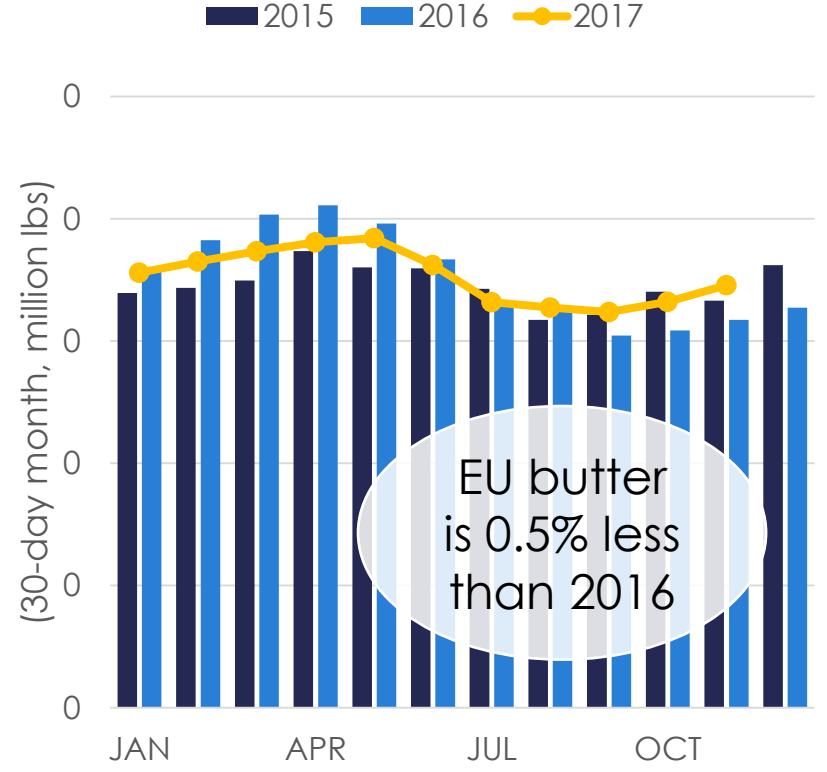
Butter production is unchanged

Despite high prices, butter production remains flat in US and EU.

U.S. Butter Production



EU Butter Production



Source: USDA, Eurostat

Topics



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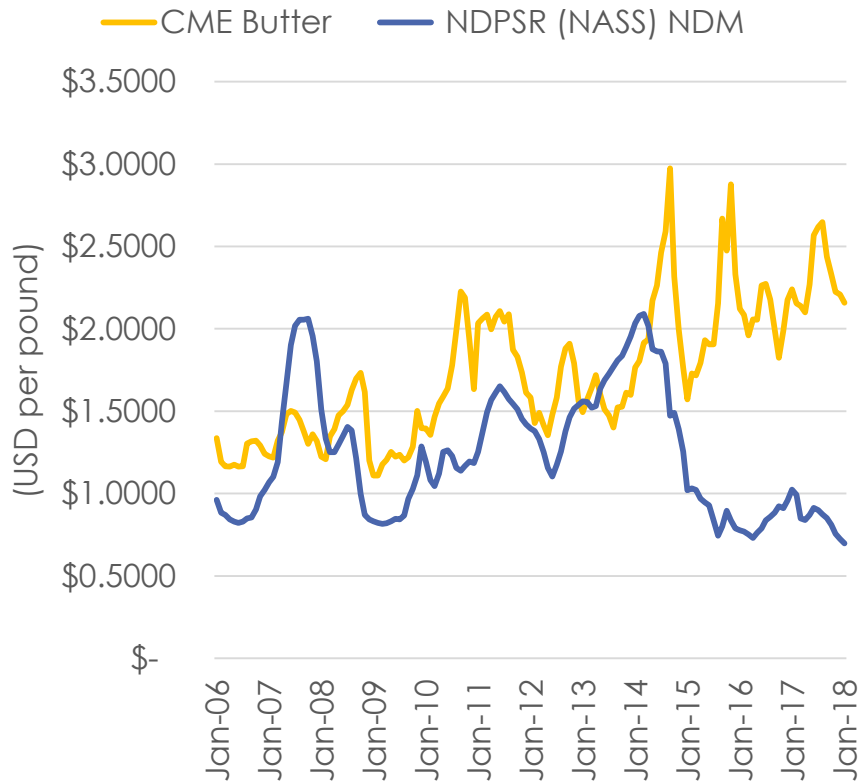
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Milk & dairy product forecast

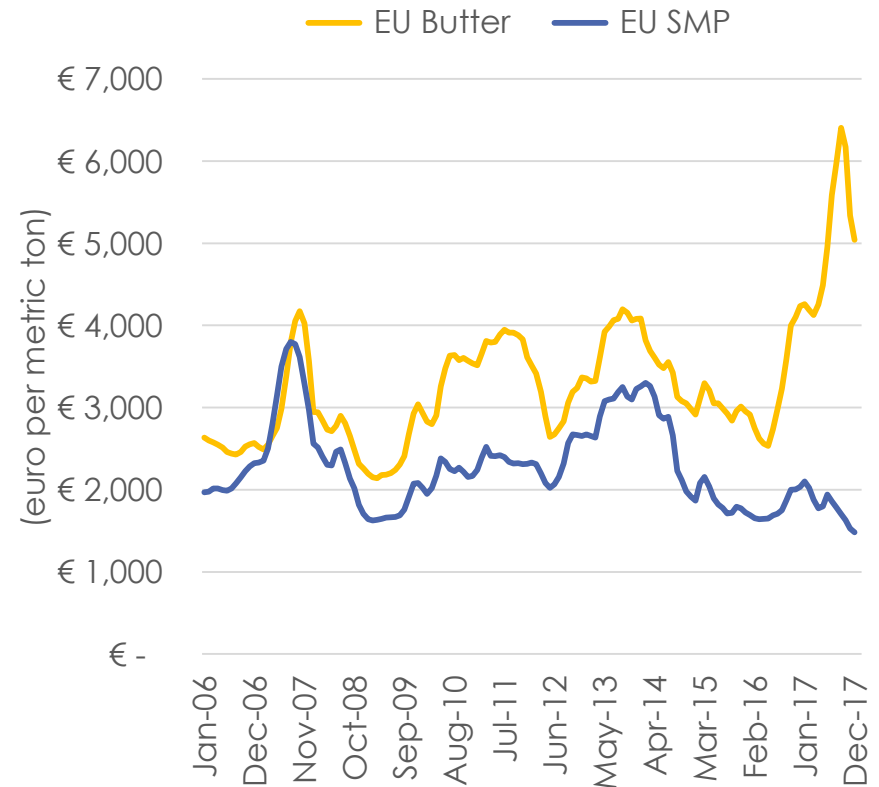
High butter, lower NDM/SMP prices

Historically high butter prices could put a lid on NDM/SMP.

U.S. Butter and NDM Prices



EU Butter and SMP Prices



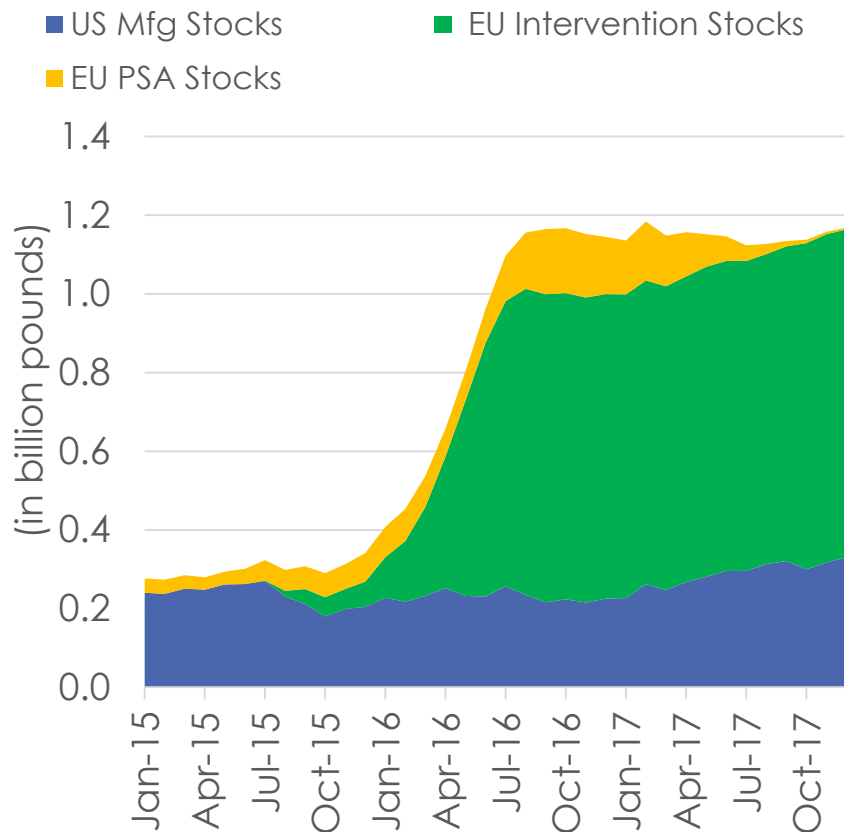
Source: USDA – AMS (Dairy Market News)

Global stockpiles remain high

Large stockpiles could keep pressure on prices



Global NDM/SMP Stockpiles



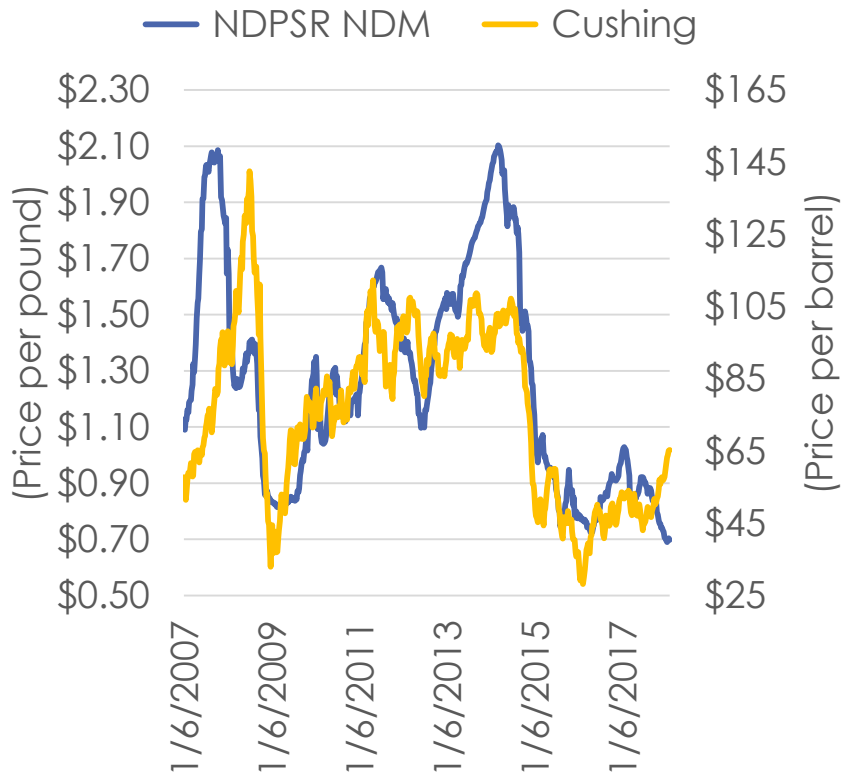
Source: USDA, European Commission

- At the start of the year, the European Commission modified the intervention program to migrate from a guaranteed price to a tender-based system. The objective – to buy less powder, if any, in 2018.
- U.S. manufacturers' stocks are rising also.
- The question is whether the selling of intervention stocks affects whey or nonfat dry milk/skim milk powder prices.

Could oil prices rise in 2018?

Higher oil prices are increasing purchasing power.

NDPSR NDM vs. Cushing Oil Prices



Source: USDA, EIA

Top NDM Importers in 2016

Rank	Country	Oil	Nat. Gas
1	Mexico	12	16
2	Philippines		
3	China	6	7
4	Indonesia	22	11
5	Russia	1	2
6	Malaysia	25	14
7	Algeria	18	9
9	Egypt	28	15
10	Thailand	33	25
11	Singapore		
12	Brazil	10	34

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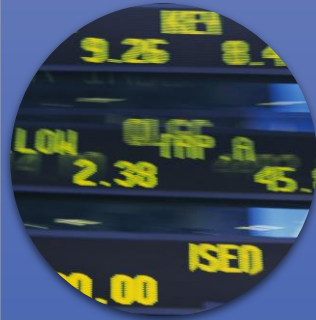
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Milk & dairy product forecast

Macro economic impacts on dairy



NAFTA
Negotiations



Volatile
Equity
Markets



China's
Demand



New Zealand
Weather



U.S.
Immigration
Policy

Each of these could impact 2018 dairy markets

Wrap-up – pulling it all together

Market volatility is unlikely to go away in 2018.

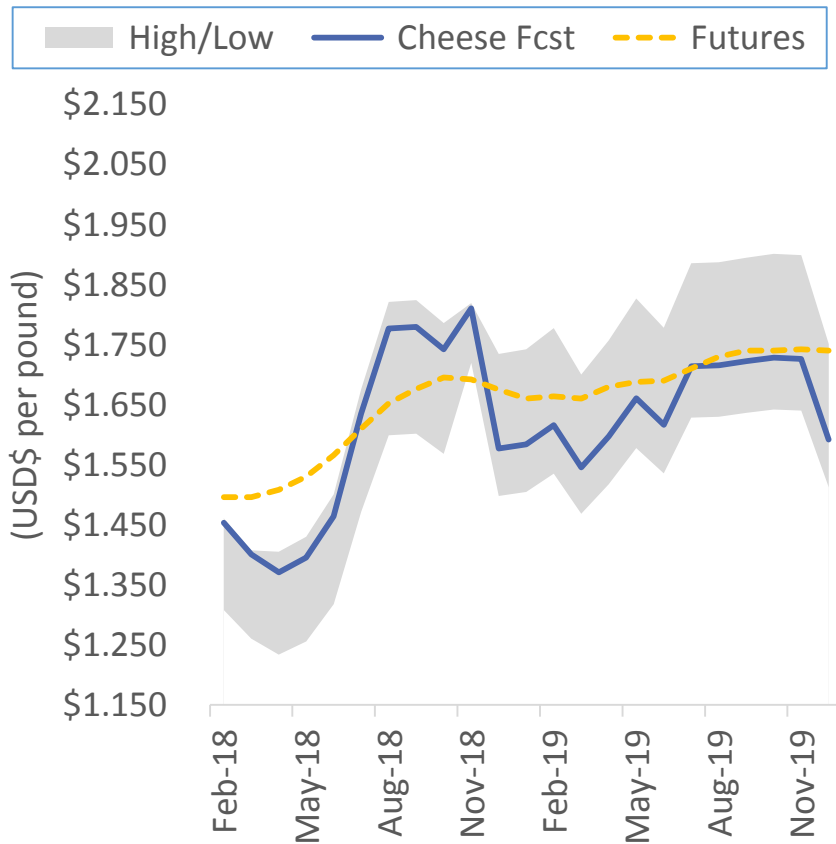
- Demand remains positive and is likely to continue to expand into 2018.
- But, given current milk prices there is a good chance milk could outpace demand at the start of 2018 and that could depress prices.
- With a tight butterfat situation globally, the market could struggle to find balance causing the latest bouts of volatility to persist through 2018.
- The United States is actively adding cheese capacity that has started and will continue to come on line through early 2018 with larger growth planned in the near future. Cheese price will rely on exports and higher domestic consumption. Additionally, more cheese will create more whey products.
- U.S. farm margins are not as strong as indicated by milk-over-feed ratios – that could have an impact late 2018.



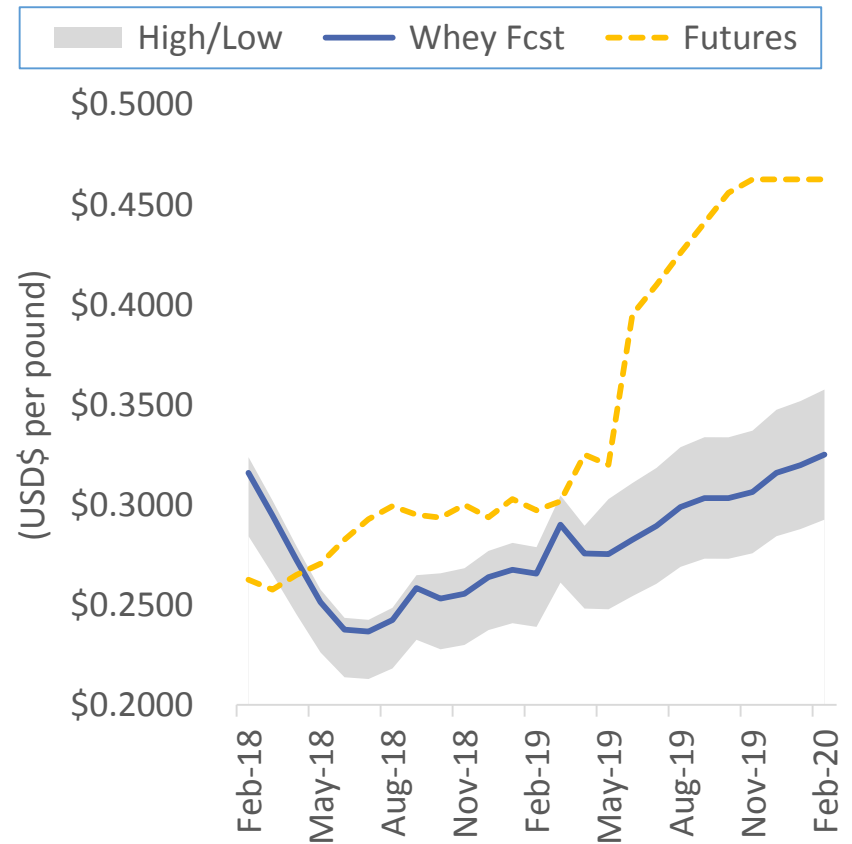
Cheese & whey outlook



Cheddar Blocks Forecast



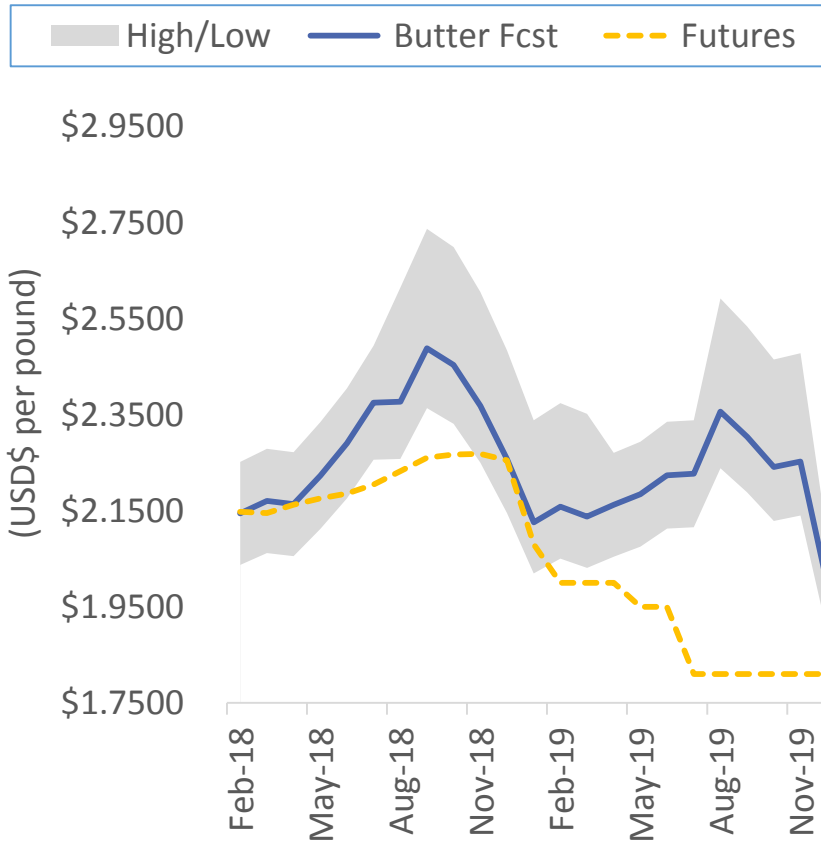
NDPSR Whey Forecast



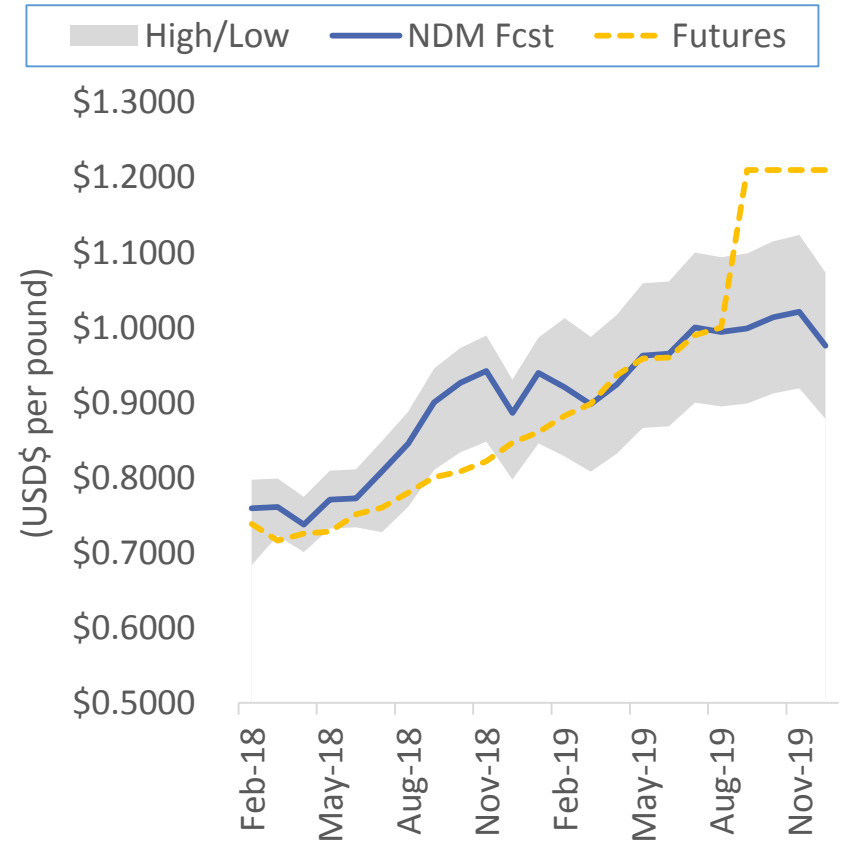
Butter & NDM outlook



Butter Forecast



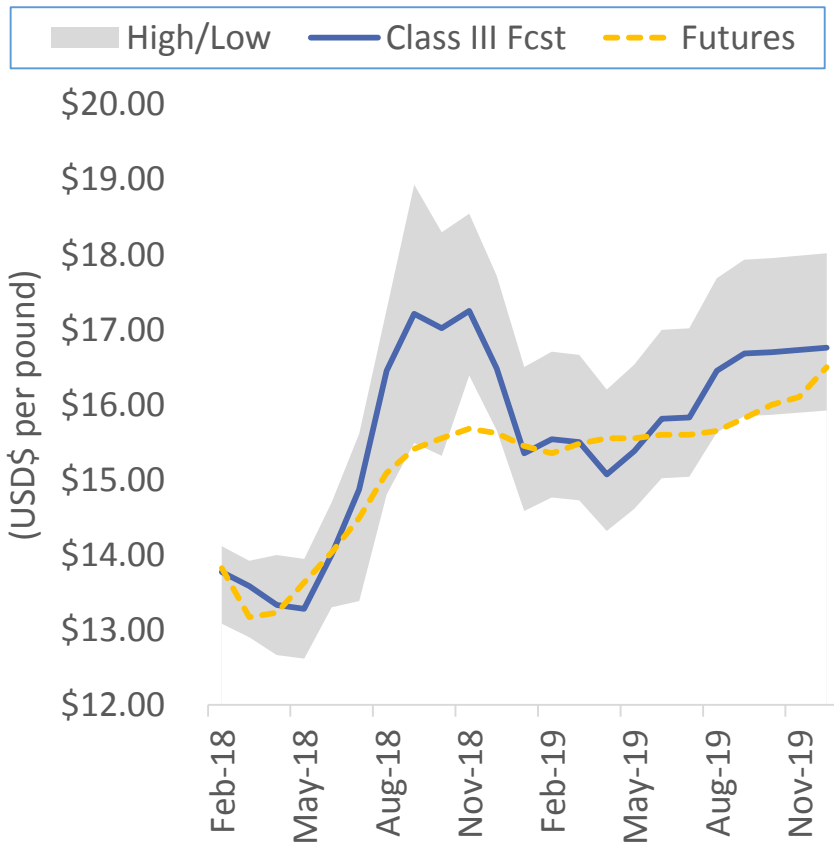
Non-fat Dry Milk Forecast



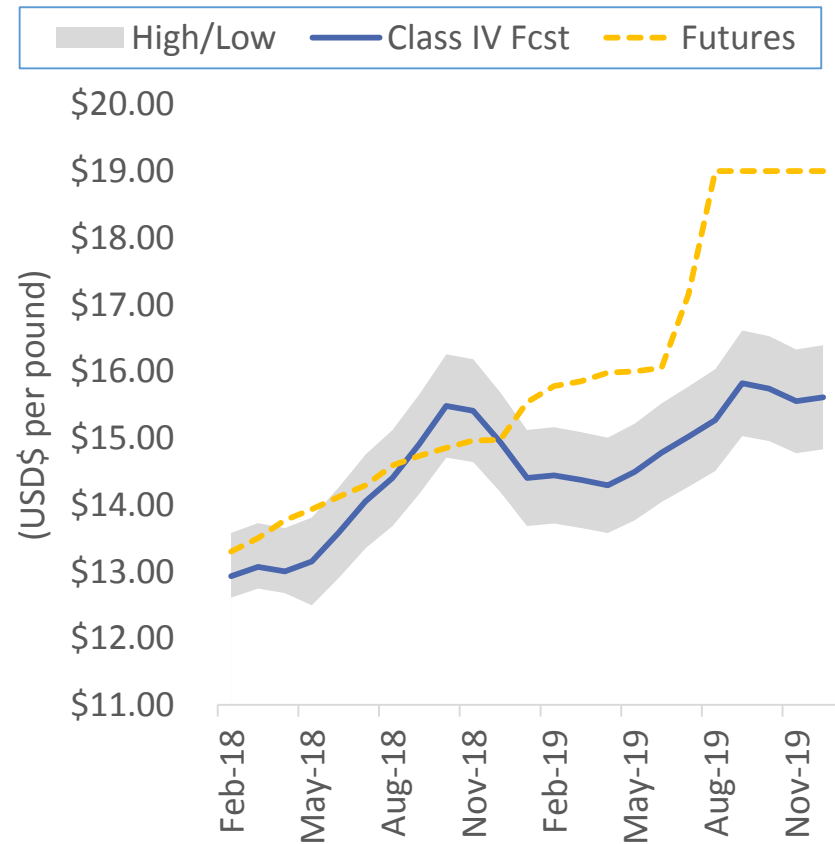
Class III & IV milk outlook



Class III Milk Forecast

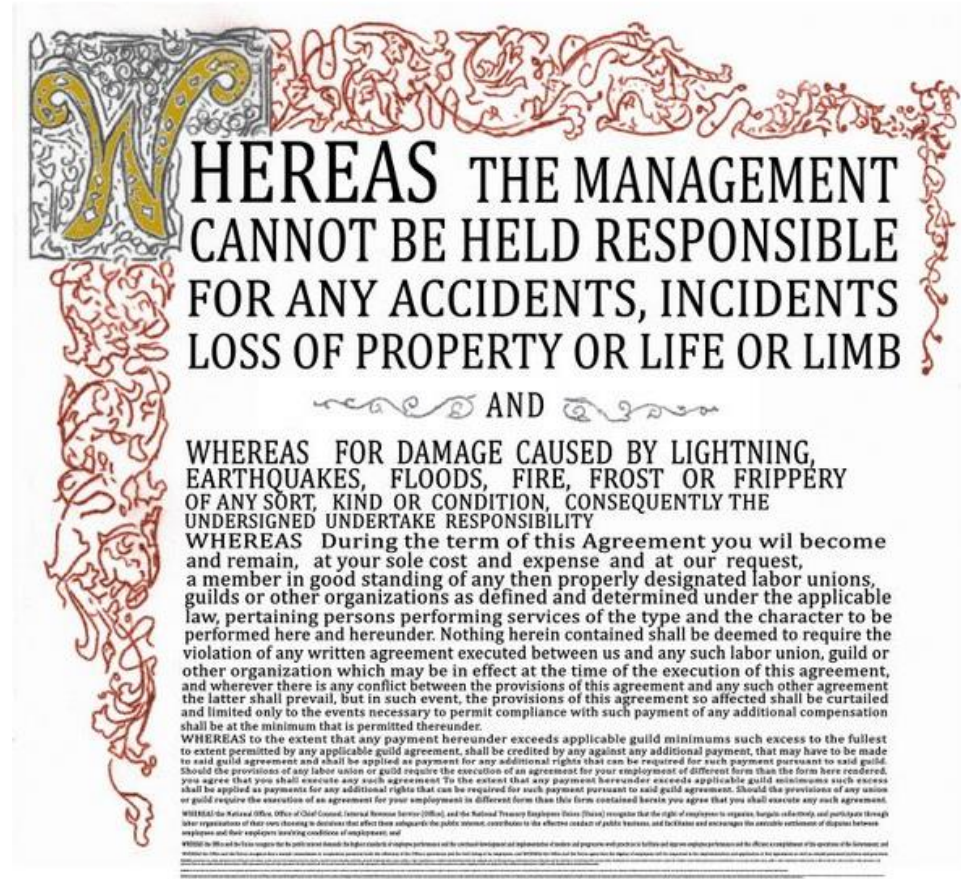


Class IV Milk Forecast



...and all of the things that make forecasting an exercise in futility

- Weather or natural disaster
- Geopolitical issues
- Supply outages
- Free trade agreements
- Significant changes in domestic demand
- Rising stockpiles of dairy products
- Substantial currency fluctuations
- Deteriorating farm level returns
- Herd health issue
- Significant slowdown/improvement in the global economy



Thank you