

# Research Report

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**Hold  
Hold on  
Hold on to me  
'Cause I'm a little unsteady  
A little unsteady  
-X Ambassadors  
"Unsteady"**

In a month featuring some disconcerting headlines, the one that got our palms sweating probably didn't garner much attention outside certain circles... "Americans Are Drinking Less Milk, But They Can't Get Enough Cheese" was the headline to a Bloomberg story posted on January 11. A story numerous other media outlets picked up.

Ruh-roh!

That was our instant reaction.

After all, the cheese market has been in do-the-opposite-of-the-headlines mode for nearly a year. Remember the front-page story in The Wall Street Journal on May 17? The one with "A Cheese Glut is Overtaking America" as the headline? Improbably, CME spot block cheddar prices gained more than 40% over the next 90 days. How about the "American Dairy Farmers Dump 43 Million Gallons of Excess Milk" story that ran in the same paper on October 12? The market rallied after that one, too. With that history in mind, our first thought after seeing the prominent "demand is great!" story was..."demand must have peaked!" And, sure enough, spot cheddar prices moved lower. Blocks lost nine cents in the ten sessions following the story, barrels gave up nearly 20 cents.

More importantly, the USDA/NASS *Cold Storage* report published on January 24 showed cheese stocks increasing by nearly double the normal rate between November and December. What was a 3% and shrinking year-over-year surplus in November expanded to a way-more-

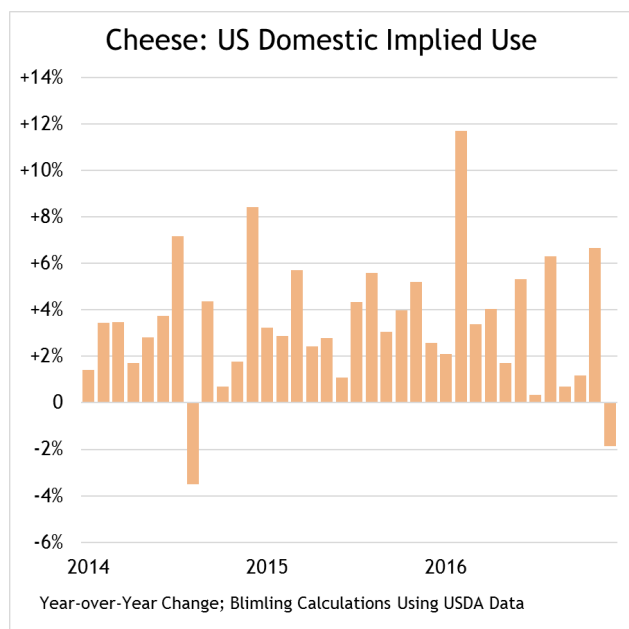
comfy 5% cushion in December.

Yes, the USDA/NASS *Milk Production* report released the same day showed growing on-farm output. That presumably translated into good cheese production (it did, we later learned)... and that presumably explained at least some of the inventory strength. But probably not all of it. Burgeoning inventories and sinking prices seemed to say that demand faltered.

With December trade data now in hand, we know that commercial disappearance did turn negative in December — down 1.9% year-over-year — the first setback in more than two years. While full-year performance still gleamed (+3.3%), the rollback creates important questions for price expectations over the first half of 2017 and beyond. Was the downturn just a blip tied to strong November promotion and customer buy-in? (In other words, did consumers get long in their own coolers in November? After all, implied use was up by more than 6.7%) Is something else suddenly eating at what had been a pronounced trend?

In short, with domestic supply strong today and likely strong tomorrow, domestic demand will dictate price buoyancy. Over the course of six months, even just a half-a-percent slowdown in domestic demand translates to 30 million pounds. That's equal to about an extra day's worth of supply. That's a potential problem for a market seeing milk production up by more than 2% and watching export interest idle.

The butter situation did not feature a splashy Bloomberg story. But the December *Cold Storage* raised just as many questions about demand. With commercial disappearance running hot though November, imports presumably slow and with cream still flowing to Canada, many market participants expected butter stocks to decline from November to December, something that had happened four times in the previous 10 years. But... stocks not only increased, the gain outpaced the five-year average (+14 million pounds compared to +10 million pounds). Subsequent data releases around production and trade showed demand slowing in December. Commercial disappearance moved from +5.6% through November to +4.7% for the full year.



Hardly a disaster. But definitely a plot twist in a narrative that previously turned on tightening balance sheets and twitchy nerves.

Our strong-early-weak-late forecast pattern for cheese and butter presumed continued domestic demand strength. The *Cold Storage* report gave us pause.

Since then, the cheese market has had a tough time deciding what to do. The CME spot block cheddar market even featured a one-day run above \$1.80 per pound that, though temporary, offered a valuable reminder about what happens when elusive sell-side liquidity disappears. A suddenly inverted block/barrel spread only reinforces that message.

Setting aside the gyrations, some contacts think day-to-day cheese demand is a little better with January de-stocking over and order patterns picking up for February. Butter prices are lower, but we neither see nor hear much about bulk supplies turning burdensome or the market being widely offered. Futures buyers continue to stay in the mix in a way that seems to support \$2.10 per pound or better spot pricing over the near-term.

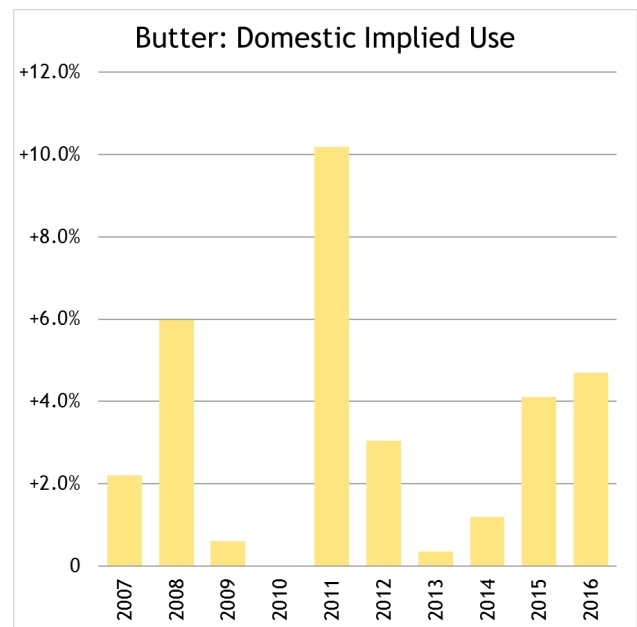
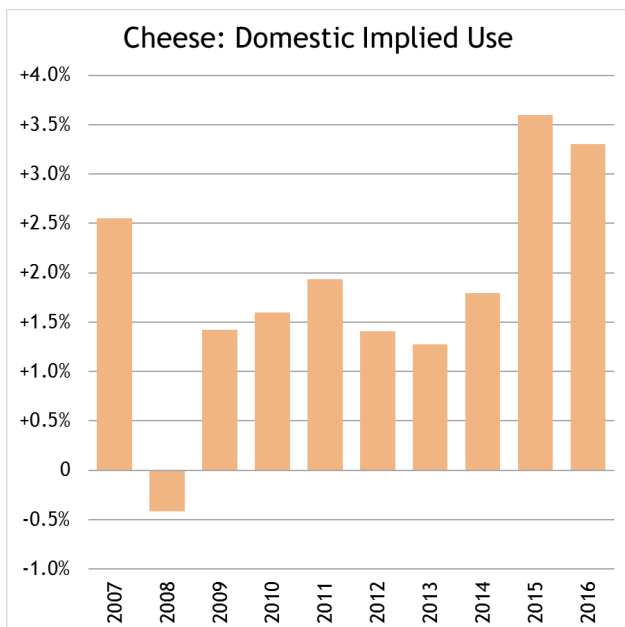
Beyond our shores, global milk production remains depressed, generally supporting expectations for lighter imports to, and potentially more exports from, the US.

Looking further down the road, toward the second half of the year, we continue to imagine scenarios with stronger-than-expected EU milk output and better performance in Oceania. Throw

in an uncertain US trade environment, higher-than-year-prior wholesale dairy commodity prices and rising gasoline costs and the prospects for second-half weakness still seem real.

With all of that in mind, here is where we see things now:

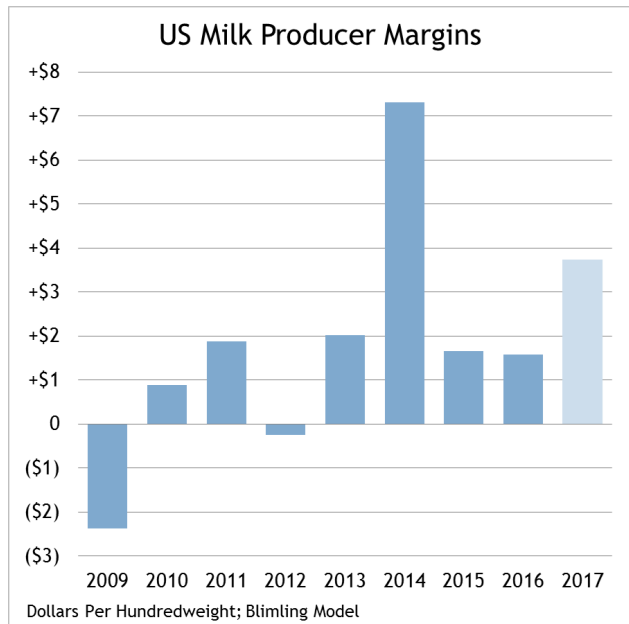
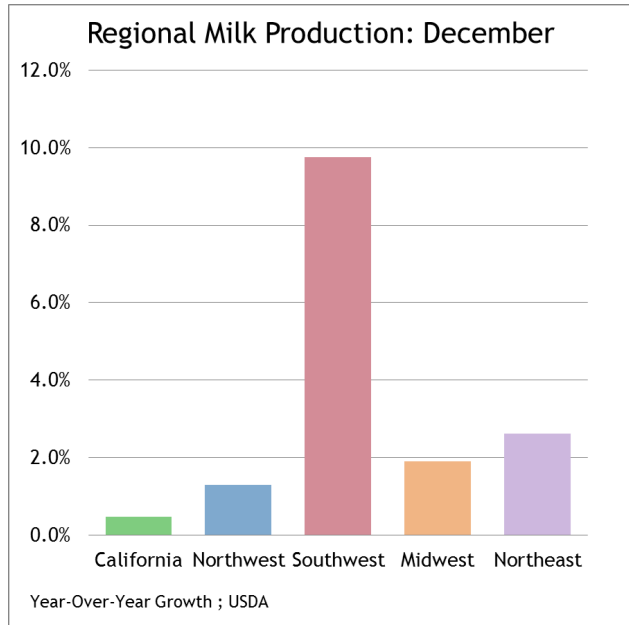
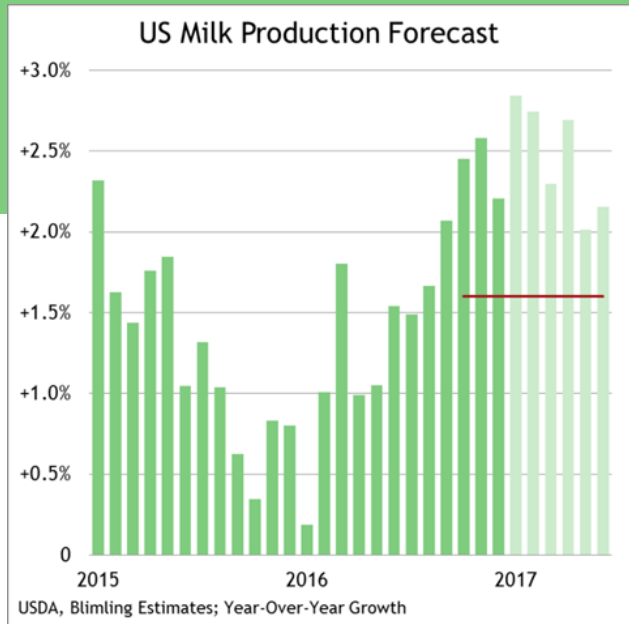
- The December *Cold Storage* figures raised important questions about domestic demand.
- Those questions and subsequent price action lead us to shave topside expectations for first half cheese and butter markets.
- Even so, it would not surprise to see markets stay firm and prone to upside agitation, especially if end-users run out of patience with light coverage levels. We are still operating in a global milk environment characterized by less, not more supply.
- Arguments for counter-seasonal price action remain compelling. In particular, we see potential for stronger milk production in the EU weighing on global markets during the third quarter and potentially beyond.
- Abundant stocks will continue to sap upside momentum in the NDM/SMP marketplace. We are not bearish from current levels. But, we have a hard time generating enthusiasm for much higher, either.
- We have not changed our view on January inventory data. That *Cold Storage* report, set for publication on February 23, will say a lot about domestic demand.





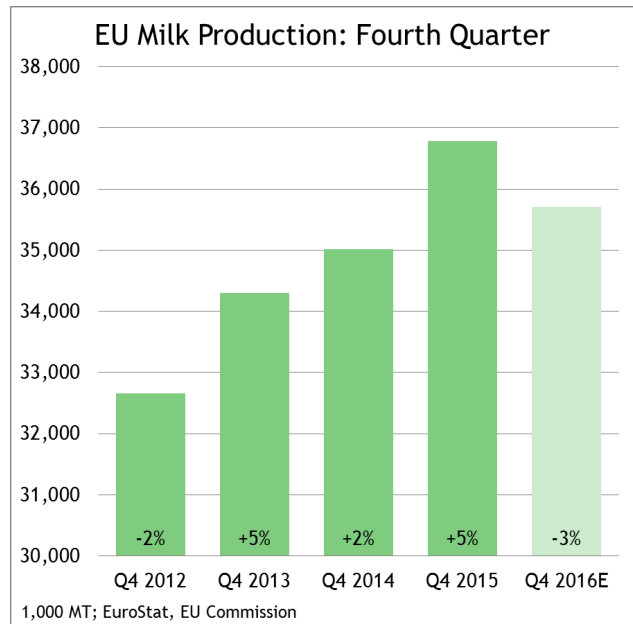
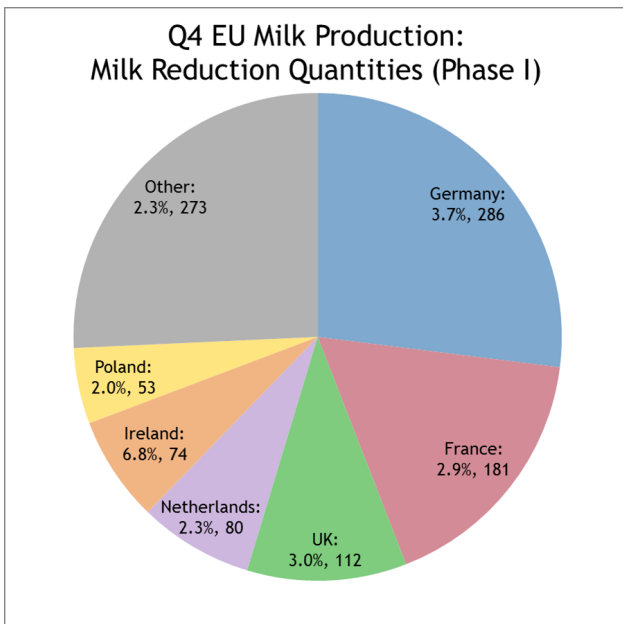
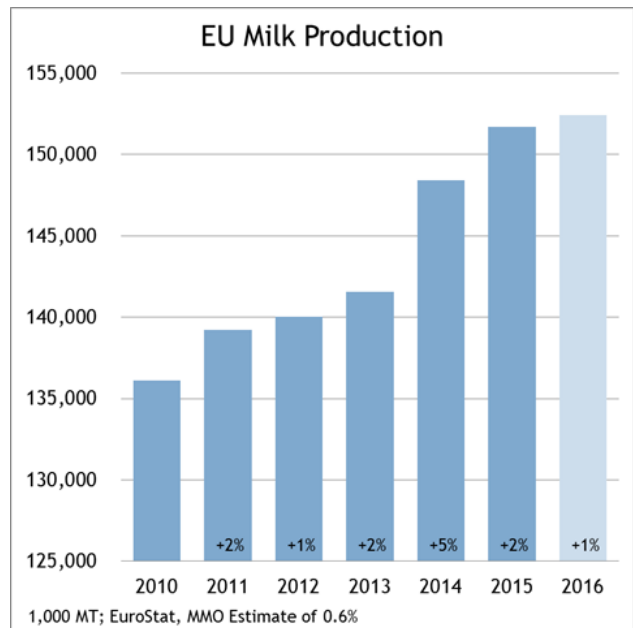
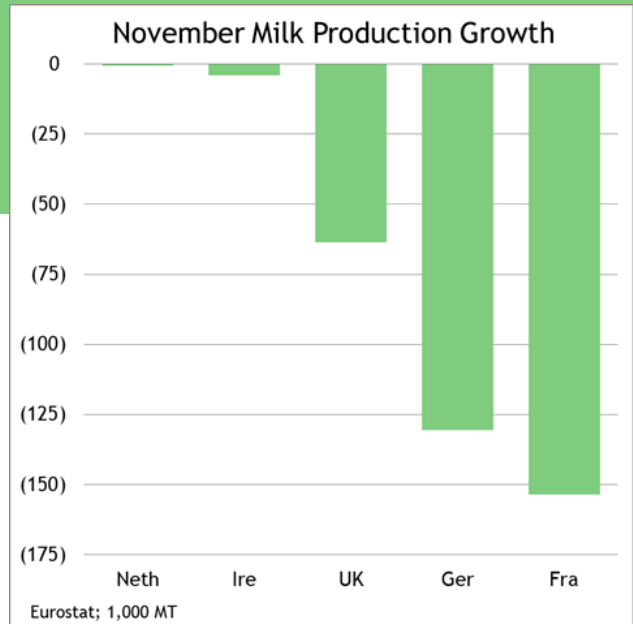
# US MILK

- US milk production expanded 1.6% in 2016, nearing a new all-time high of 212 billion pounds. December output increased 2.2% year-over-year, the fourth consecutive month with gains exceeding 2.0%.
- The US has cow power. USDA counted 9.358 million milking animals at year-end – the largest herd size since 1996. Cow numbers gained 11,000 head in December, ending the year up 38,000 head. And the growth isn't over. The USDA *Cattle* report showed 4.75 million heifers to begin the year, down 1% from a year ago. But the 50.9% heifer-to-cow ratio ranks second highest in more than 30 years.
- Strong on-farm margins will likely fuel growth in early 2017. Absent a grain price rally, the cost of production should remain near the seven-year low reached in 2016. Milk prices should improve from 2016, too. Futures project an average margin near \$3.75 per hundredweight. If realized, the return would be second highest since 2008, only trailing 2014's record profitability.
- Heavy precipitation has basically wiped away California's multi-year drought. Today the state is nearly 40% drought free, with only 2% qualifying as extreme drought. In contrast, the drought extended over 100% of the state in early 2016, with more than 60% in extreme drought. Despite the rain, contacts suggest that milk flows are doing well.
- Wet weather across the Pacific Northwest is reportedly stressing cows. As a result, cull rates ticked higher and there are some reports of reduced output.
- Our model shows US milk production expanding by more than 2% in 2017 compared to 2016.



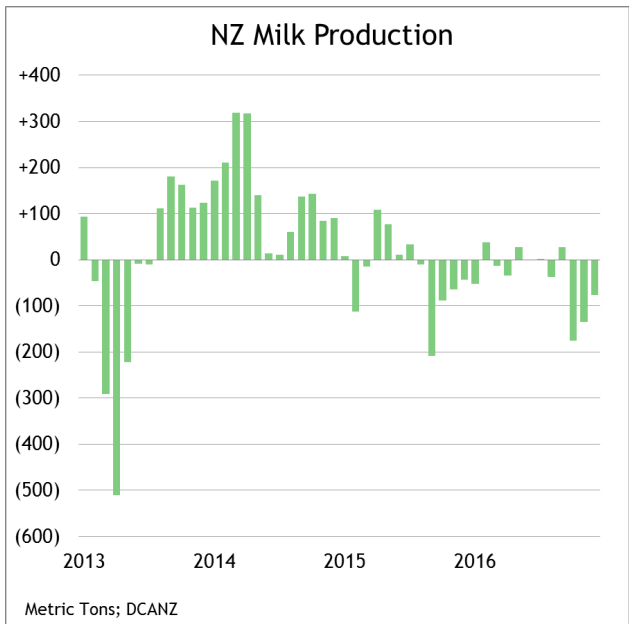
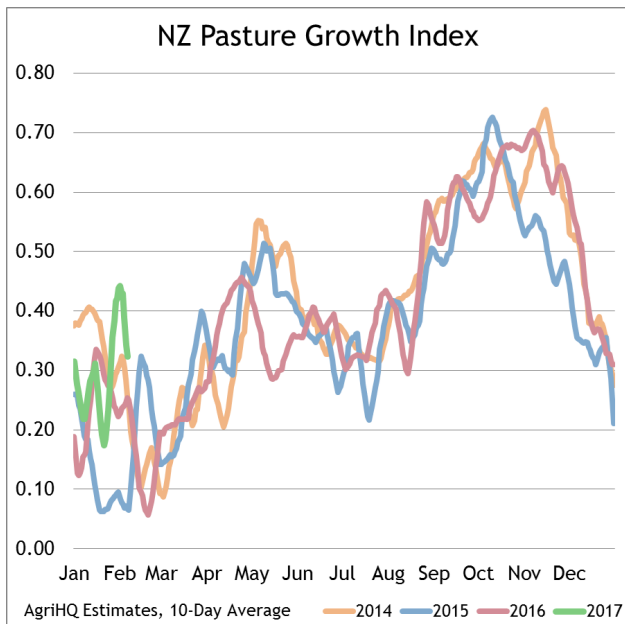
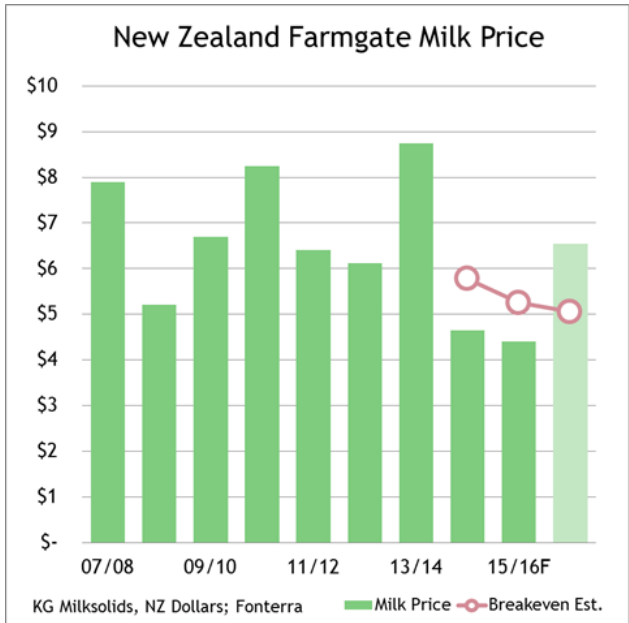
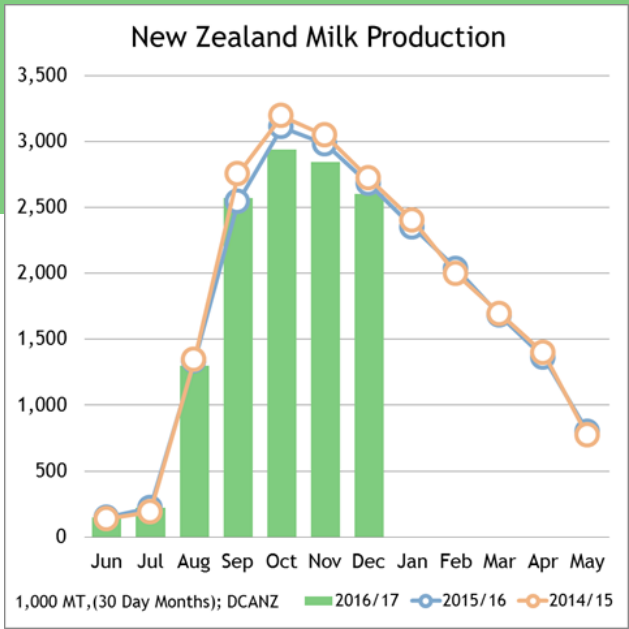
# EU MILK

- EU milk output fell 3.6% year-over-year in November to 25.251 billion pounds. Early indications suggest contraction extended into December. Losses in the UK, Germany, and France drove much of the fourth quarter decline.
- Estimates suggest total 2016 output gained marginally over 2015. Despite the slowdown, production was still up 8.9 billion pounds from 2014. By comparison, US production increased 6.5 billion pounds between 2014 and 2016.
- Given stronger dairy commodity prices and rising farm milk prices, production erosion should slow. Current EU estimates point to a slight increase in milk production over the course of the year.
- The EU milk production reduction scheme worked to trim back milk supplies. The program did not, however, create structural change. In light of higher farmgate milk prices and plenty of cows in the barn, production should start to rebound in the months ahead. The big question: when? Today spot milk prices are tracking with 2015 levels – nearly 60% above early 2016.
- Return estimates continue to favor cheese/whey production over butter/powder. But strong demand for butter/butterfat in the region could keep milk moving toward powder dryers.



# NZ MILK

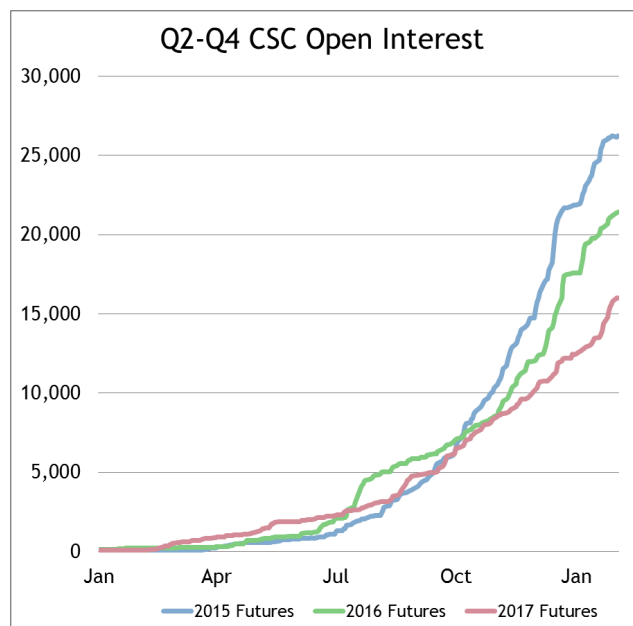
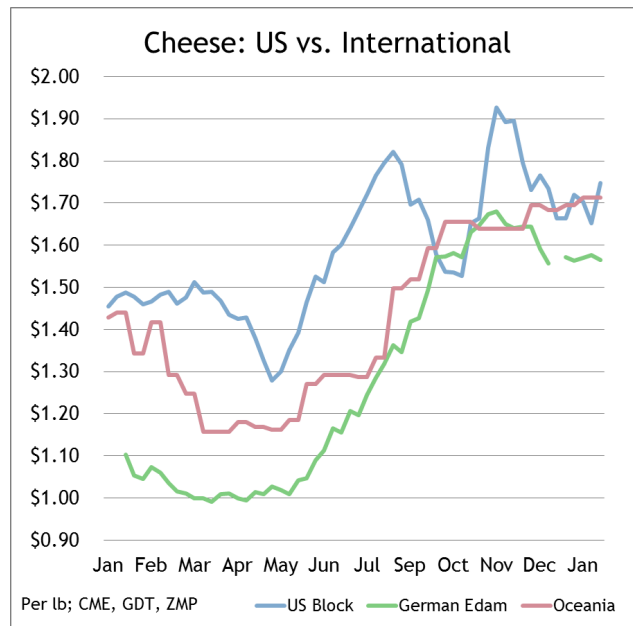
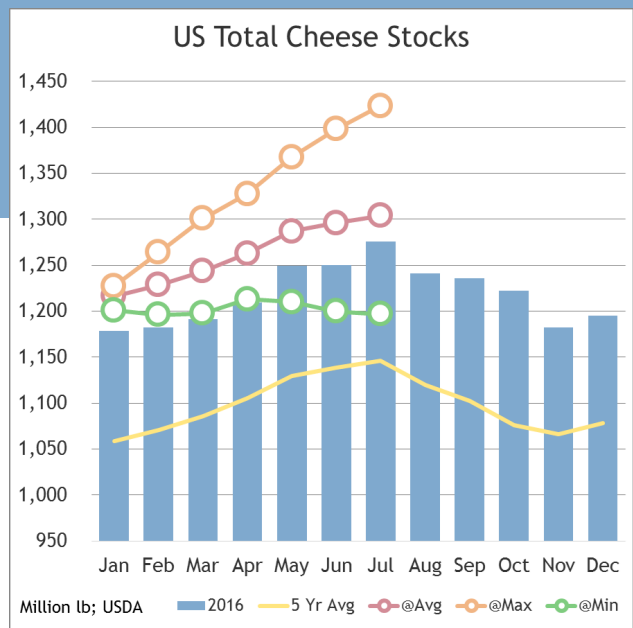
- Milk production in New Zealand continues to trail the prior-year pace. December shipments dropped 2.7% year-over-year, down 167.5 million pounds. Through December, season-to-date output fell 3% below 2015, bringing production back to 2012/2013 levels.
- Despite a dry start to January, pasture growth rates returned to normal and ample grass availability will keep cows milking. Some cooperatives in the region maintain forecasts for season production to fall by nearly 7%. A drop of that magnitude would require declines near 10% during the back half of the season.
- Stronger GlobalDairyTrade prices helped boost farm milk price projections. Today, the largest cooperative is forecasting a payout of NZ\$6.55 per kilogram of milk solids. That's more than NZ\$2.00 higher than last season's price.
- Sustained butter and AMF price strength in New Zealand is increasing returns for skim milk powder/butterfat. That could pull some milk supplies away from WMP production as the season winds down. Strong cheese returns together with demand growth into Asia could also keep milk flowing into cheese production.





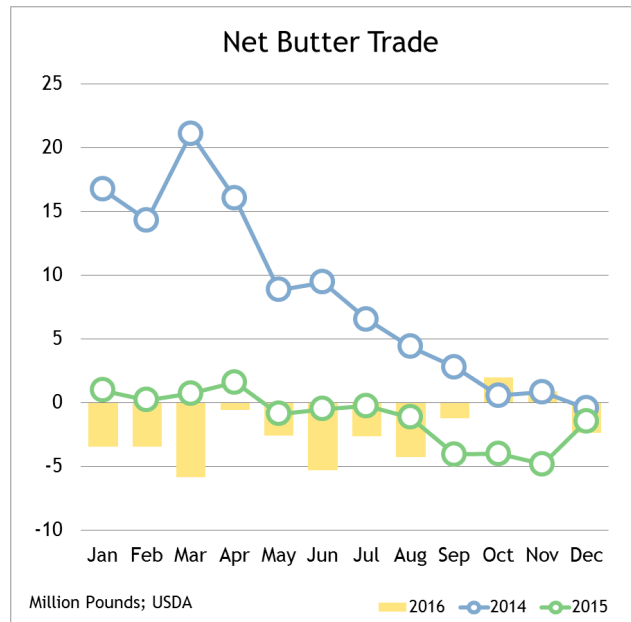
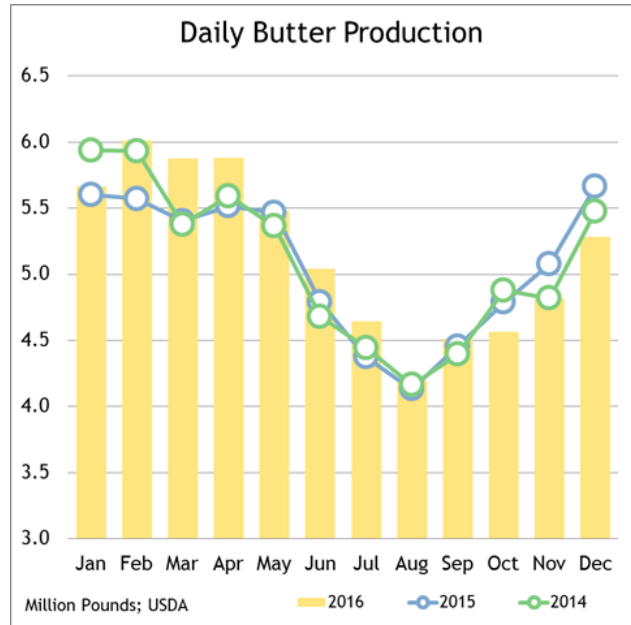
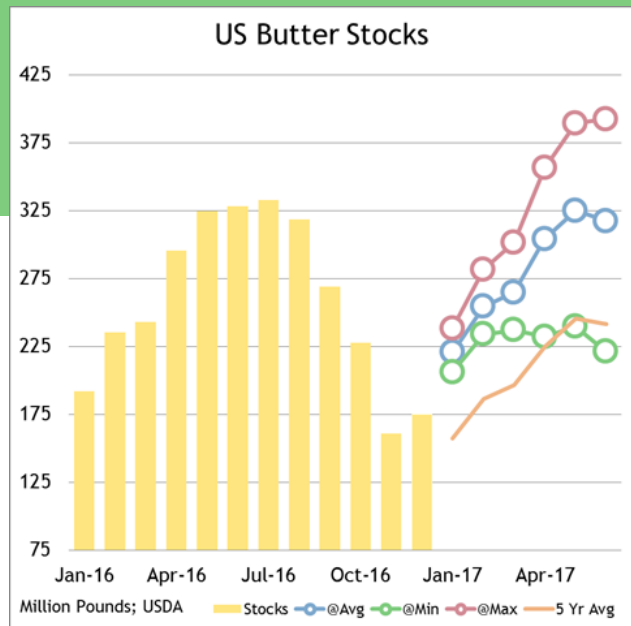
# CHEESE

- The US market has cheese. On December 31, 1,207 million pounds sat in coolers across the country.
- Stockpiles may be growing as milk and cheese output stays strong. USDA said December cheese production topped 2015 levels by 1.3% .
- Where's all this cheese coming from? More milk makes cheese. If US milk production does in fact increase by 2% or more in 2017, cheese plants will stay busy. And that won't be just a US phenomenon. Strong returns for cheese/whey production in Europe should keep available milk supplies flowing toward the vat.
- Implied domestic demand in 2016 jumped 3% year-over-year. That means Americans ate another 381 million pounds of cheese in 2016 versus 2015. But demand indicators appear soft as 2017 gets underway. Did we make a sharp turn? Or was end-user inventory evaluation the driver? Is it possible that the four-cent drop in the block cheese average between December and January will spur buy-side interest?
- After a stretch of tight availability, European cheese vats are active. And, rising supply is pressuring price levels. Commodity cheese prices in the EU recently slipped below \$1.60 per pound. By comparison, US futures prices are stuck trading in the mid-\$1.70s. A rough 20-cent price wedge together with a strong US Dollar could limit US sales opportunities. That said, elevated prices in Oceania could encourage greater US sales opportunities into Asia.
- Is there pent-up demand for forward coverage? And, if so, will that prove supportive to spot pricing in the weeks and months ahead? On February 3, CME cheese futures open interest through was off by 25% when compared to last year.
- This week's reversal in the CME spot market block-barrel spread defies easy explanation. But, it reaffirms a critical point: crazy things can — and do — happen in thin, structurally flawed marketplaces.



# BUTTER

- Will butter inventories prove ample enough to quiet end-user anxiety? That's the critical question as the new year gets underway.
- Butter production dropped 7% year-over-year in December to 164 million pounds. December inventories increased by 14 million pounds from November to 175 million pounds. Conversations suggest that demand – particularly at retail – was strong throughout the holiday season. But the numbers point to a different story.
- Is the McDonald's effect wearing off? Buttery breakfast sandwiches started rolling out in mid-2015. All-day breakfast started in late 2015. Recent reports suggest the chain's sales have started to slip.
- In 2016, implied domestic use increased 5% above 2015, or about 85 million pounds to 1,898 million pounds. The butter "health halo" is still shining. But without another big jump in food service demand, is it realistic to expect another 5% demand increase in 2017?
- An above-average increase in butter stocks between November and December surprised market participants. It seems possible, however, that the restocking was as much about massive draw-down (and movement to market) in November as it was about anything new at year-end.
- Today, cream is abundant and cheap. So long as churns take the extra supply, stockpiles will grow – perhaps at an above-average pace.
- Sustained price strength will continue to curb US butter export opportunities. With fewer imports as well, US end-users may end up relying more on domestic butterfat supplies. This could help limit above-average stockpiling through the first half.
- The futures market continues to trade in a \$2.20 to \$2.30 band...for the whole year. Open interest statistics suggest that end-users have less coverage on today than was the case a year ago. That has been and could remain supportive to the spot market.

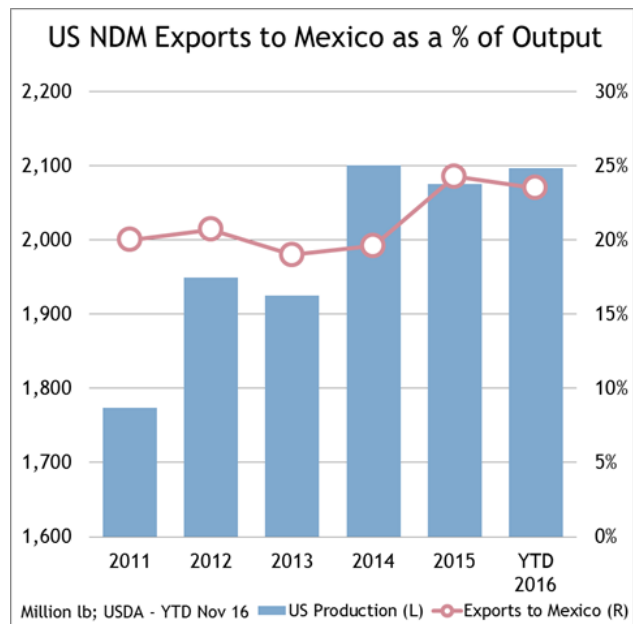
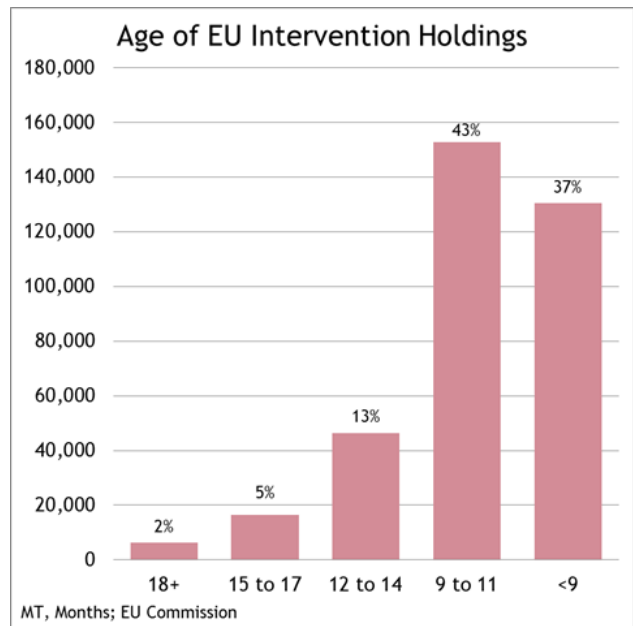
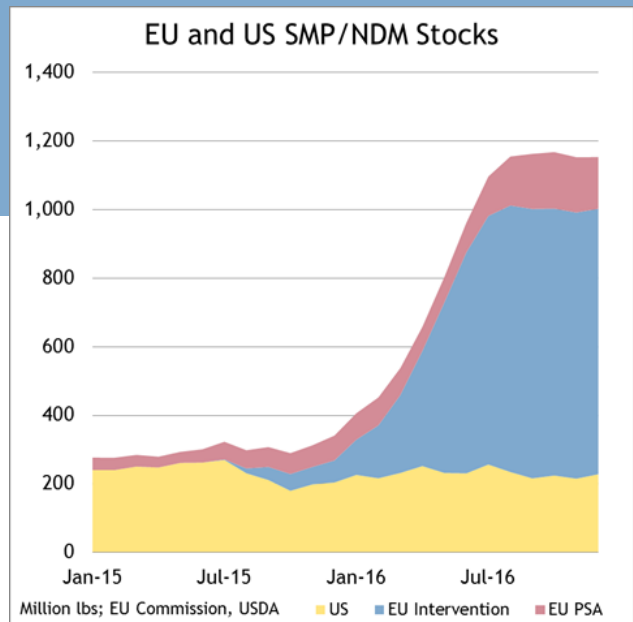






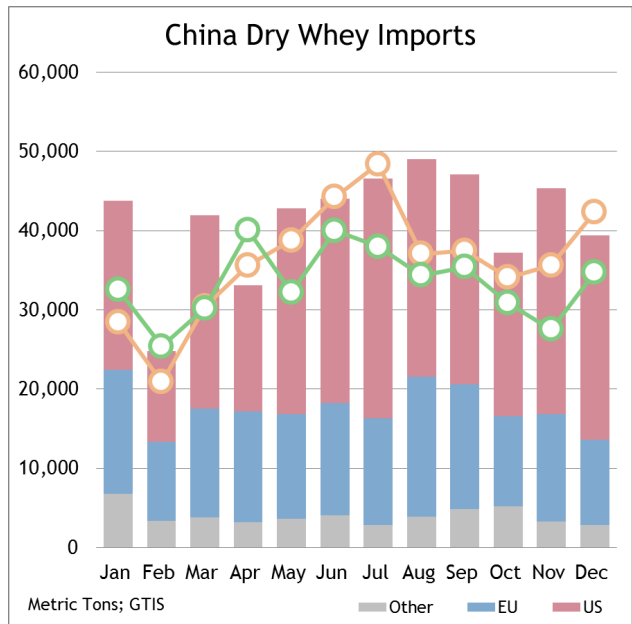
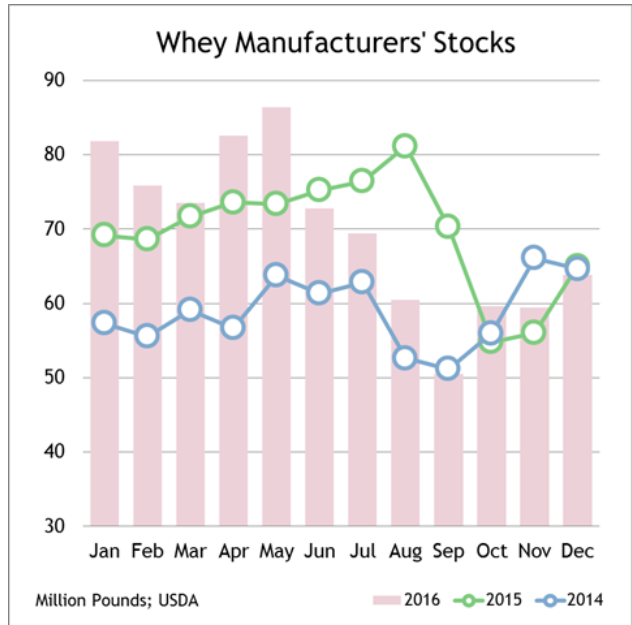
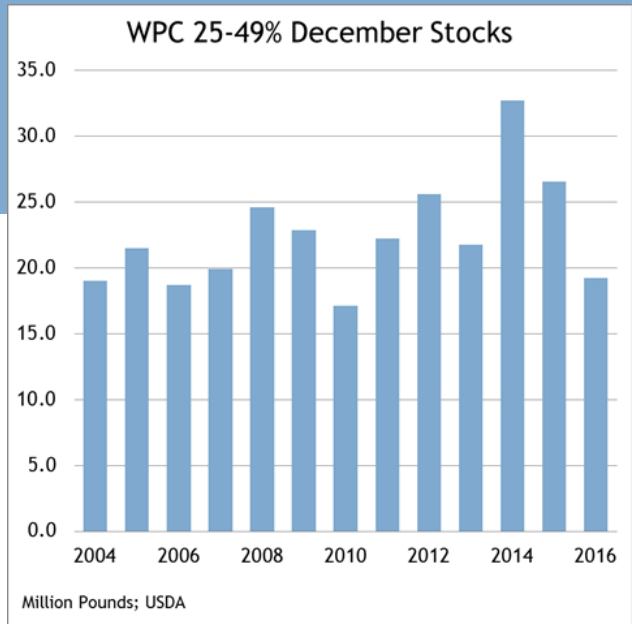
# NDM

- Plain and simple: the NDM rally lost momentum in a major way. Global milk supply contraction spurred the move higher. But at the end of the day, supply remains adequate to abundant. And, peak milk flows in the Northern Hemisphere will further the surplus.
- In the EU, Intervention stocks continue to loom over the market. The EU Commission is still tendering 22,000 metric tons of 18 month old SMP at prevailing fresh price product levels. In total there's about 350,000 metric tons of SMP sitting in European warehouses. Roughly 20% of that product is more than a year old while about 37% is less than 9 months of age.
- US NDM supply remains ample as well. December manufacturers' stocks stood at 228 million pounds, up 24 million pounds more than a year ago.
- Demand for NDM remains uninspiring. Is it possible that low prices in 2016 allowed end-users to stock up on physical product, limiting 2017 needs?
- China SMP imports in 2016 fell 8% from 2015 (-9% in Q4), even with softer milk output.
- Stronger oil prices could help to drive stronger MENA imports 2017, but growth could remain stunted.
- Mexico - the US's largest trading partner - imports about 25% of US NDM/SMP production each month. But devaluation of the peso and possible policy changes could impact trade in 2017. Today, conversations suggest Mexico remains quiet.
- From a US perspective, current price levels could spur increased export sales. But, competition is aggressive – particularly from those sellers capable of doing long-term contracts. And, the pool of interested buyers may be shallow.



# WHEY

- Falling output and a surge of exports tightened the whey market to end 2016.
- Dry whey production dropped 13% year-over-year in December to 78 million. But that was still up 8 million pounds from November.
- Despite the production slow-down and reports of tight availability, manufacturers' stocks ended the year at 64 million pounds, down only 1 million from December 2015.
- Asia demand is reportedly slowing now that US prices have reached parity with the EU. US product is still flowing into Mexico. Contacts also suggest domestic demand is expanding, helping to provide market support.
- As spot prices near \$0.50, however, whey processors with flexibility may move out of high protein and back into commodity whey.
- The WPC 34 market continues to prove its two-tiered structure. Reports suggest transactions for infant-grade product are taking place between \$1.10 and \$1.20. Yet published prices continue to track well below \$1.00, dragged down by lower quality product. Even still, the gain is not all that surprising. Output is trending nearly 30% behind prior year due to a structural drop in capacity.



# MACRO

- Is gasoline cheap or expensive? The long view says cheap. Regular unleaded averaged \$2.35 per gallon in January, down 17% from the \$2.81 average over the previous five years. The short view? It says expensive. Prices are up from \$2.23 per gallon in the fourth quarter (+5%) and \$1.95 a year earlier (+21%).
- Here's what that means for the average American household: they spent about \$35 more on gasoline in January 2017 than in January 2016. That's \$35 that could be spent elsewhere, including restaurants. Call it three pizzas. Or a trip for two to a fast-casual restaurant.
- In our estimation, gasoline probably doesn't create problems until the national average is above \$3. And, that may not happen. As crude oil prices moved higher during the fourth quarter, US drilling followed suit. Baker Hughes counted 583 rigs drilling for oil in the US during the week ending February 3. That was up 17 on the week and up 116 year-over-year. US supply prospects are as strong as they are underestimated in overall macroeconomic analysis.
- Menu price inflation may also be working against restaurants. December data from the US Bureau of Labor Statistics showed "Food Away From Home" inflation running at +2.3% year-over-year. For all of 2016, eating out cost an average of 2.6% more than it did in 2015. Meanwhile, grocery prices are in deflation mode. "Food At Home" was 2.0% less expensive in December 2016 than in December 2015 and down an average of 1.3% for the entire year.
- Markets cannot decide what to do with the US Dollar. Initially, traders viewed the US election as bullish for the greenback. Now, they are not so sure, especially after President Trump suggested that a strong USD was not necessarily ideal. The result: gains evaporated. But... the analysts expect the Federal Reserve to continue raising interest rates. That would be at least supportive for the USD.

