Research Report

February 27, 2020 Volume 24 • Number 2

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Shatter every window till it's all blown away
Every brick, every board, every slamming door blown away
Till there's nothing left standing,
nothing left of yesterday
Every tear-soaked whiskey memory blown away
— Carrie Underwood "Blown Away"

2810 Crossroads Drive, Suite 3900 • Madison, WI 53718 • 800-945-8891 • info@blimling.com

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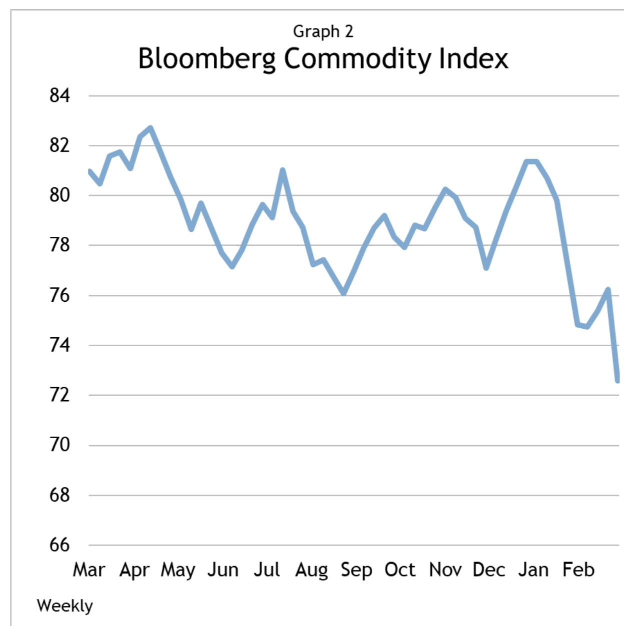
What's an appropriate level of fear? It's a crazy question, of course. Sure, if you happen to find yourself tied to the railroad tracks and hear the train whistle blowing, the answer is "extremely high!" Most often, though, it's a question only answered in hindsight. We'll have to wait for tomorrow to know whether today's response counts as under-reaction or over-reaction.

And so it is as we contemplate the potential impact of the COVID-19 coronavirus that, to date, has infected more than 81,000 people in more than 40 countries, killing more than 2,700. Do we go with "people and markets are over-reacting…the flu has already killed more than 10,000 people in the US since October we have less than 100 cases here and infections in only 0.001% of the world population… it's under control and will be gone before we know it…"? Or do we go with "this seems much, much worse than recent epidemics…a lot more people are going to get sick in a lot more places…people are going to start staying home and global economic growth is going to crater…"?

Two or three weeks ago, we were confident that markets (and people) were not paying enough attention to the story as it unfolded in China. Now, with US equity prices down sharply (Graph 1), dairy commodity prices breaking down (Graph 3) and the virus story dominating headlines, things are definitely getting panicky. We are pricing more risk into markets. That means we are closer to the crest. But there's no way to know how close.

We are comfortable making a few assertions, though:

1) **Uncertainty is rarely bullish.** So long as the virus continues to spread and we have more questions than answers, buyers will likely be cautious. They will buy what they need when they need it, but not much more. This will be especially true for global powder markets given that China is a major importer and sits at the center of this story. But, across the dairy market spectrum, we doubt prices will move sharply higher if and as "outside markets" trade lower. Dairy won't likely be an exception to widespread "risk off" trading activity. In this environment, physical market longs (dairy farmers, holders of unpriced inventory) should be more wary than physical market shorts (end-users).
2) **Headline macro risk is suddenly growing in a way that we have not seen in some time.** For the past few years, we've routinely (and correctly) asserted that abundant jobs, rising wages and inexpensive gasoline generated a reliable tailwind for consumer confidence, solid economic growth and, by extension, solid dairy product demand. That's at risk. The clues will likely come from the service sector. Do airlines have to trim employment? This week, for example, Delta dramatically cut its number of fights from the US to South Korea. That probably means lost wages for flight attendants, pilots and maybe others. Are hotels seeing fewer bookings? We see that

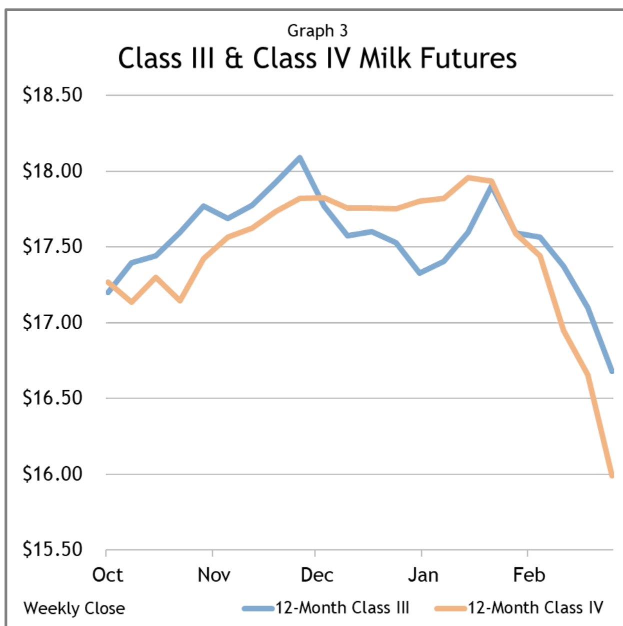


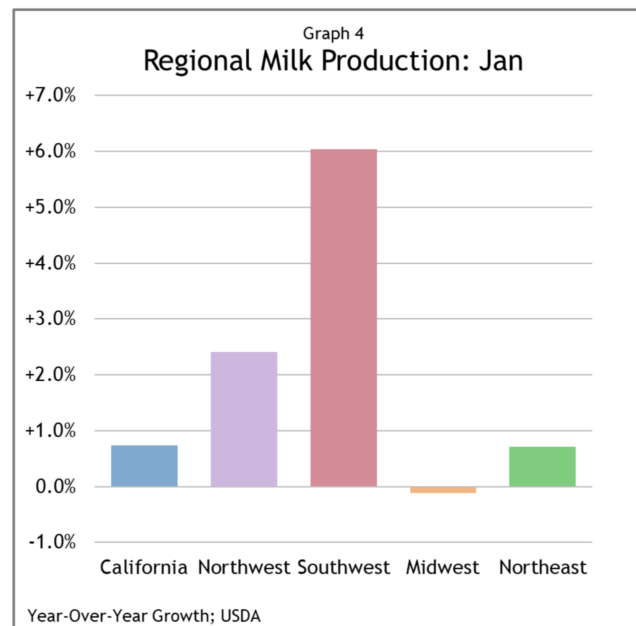
HR tech firm Workday just canceled a sales conference in Florida that was going to bring 3,000 people to Orlando next week. It's going to use videoconferencing instead (Zoom has already added more users this year than in all of 2019…) Are restaurant sales going to start sagging, too? If Americans start staying home, whether by choice or because a wider outbreak forces their hand, we will see spending go down and unemployment begin to go up. We will see confidence erode. We will see economic growth slow. At the margins, that won't be good for dairy product demand.

3) **We don't see any obvious, recent analogs for the current situation**. SARS comes to mind. But that was in 2003. The world is a lot more integrated today. Global airline passenger traffic, to cite one relevant metric, has more than doubled since then. From a dairy perspective, China was not an especially big import customer in those days. Moreover, SARS peaked at 8,500 cases. We are at 10x and counting with this situation (though, to be sure, SARS was more fatal). Between there and here, we cannot think of a comparable, worldwide health scare.
4) **People still have to eat.** Consumer retrenchment would reel in some consumption. That's almost certainly happening in China, where cheese consumption is more food service oriented. It could happen elsewhere. But demand is not going to go to zero.
5) **It's probably smart to think about snapback demand scenarios, but there's no way to really predict the timing.** On Wednesday, JPMorgan said that it expects China GDP to grow by 15% in the second quarter on a quarter-by-quarter, annualized basis. This after declining 4% in the current quarter. It's a view predicated on a belief that China's government will turn on the fiscal stimulus. Plausible enough. But it's also predicated on a belief that the bottom is near. We're not that bold. So, yes, when China gets going again, it's going to need to reload. That could create a surge in dairy product demand, pushing prices sharply higher. But…when?

Our revised price forecasts are down from a month ago. Coronavirus is clearly a (new) factor in our thinking. But other things are at work too — a couple worth discussing in a bit more detail.

Just like last year, spot milk prices in Upper Midwest deserve attention. But unlike last year, we're talking about low prices, not high prices (Graph 5). Through the first nine reports this year, USDA shows spot milk trading at an average discount of $2.61 per hundredweight. That compares to -$1.06 per hundredweight for the same period last year and -$1.46 per hundredweight on average over the past five years. In fact, it's the lowest nine-week average going back to at least 2012, the first year for which we have data. That

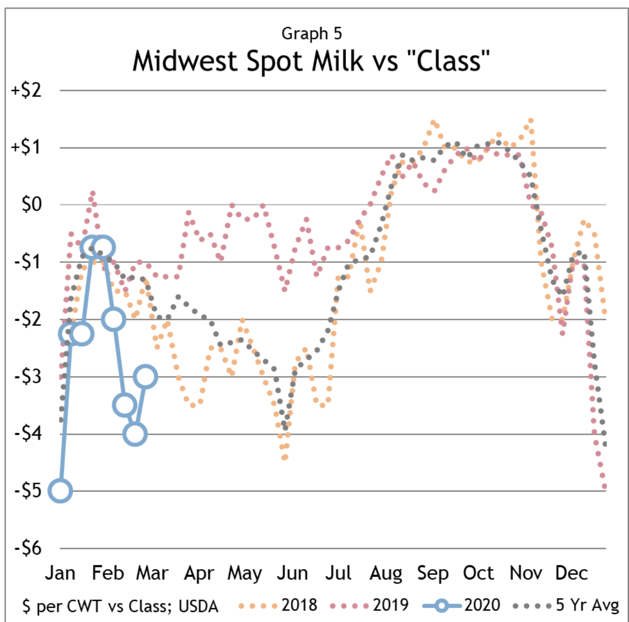




suggests the region has access to plenty of milk even though January farm output there continued to trail year-prior levels.

Last year, when spot discounts were significantly smaller than average, we struggled to make concrete connections to higher Class III or Class IV milk prices down the road. But, we did say that, *the "highest since 2014" spot milk discussion tells us that things are different today than the last few years. There is less margin for supply-side error and more upside potential.* That was helpful.

We've gone back into the data to see if we can tease out different or more profound conclusions this time around. For example, we compared average January through June spot differentials going back to 2012 against second half Class III pricing. We see that in years with bigger discounts during the first half, second half Class III prices tended to be lower (Graphs 6 and 7). Four of the eight years had discounts greater than $2.00 per hundredweight — 2015 (-$2.14), 2016 (-$2.14), 2017 (-$2.68) and 2018 (-$2.49). In those years, second half Class III prices averaged $15.73 per hundredweight and skewed 8% below year-prior levels. In the other four years, discounts came in at -$1.24 (2012), -$1.30 (2013), -$0.10 (2014) and -$0.84 (2019). Second half Class III averaged $19.48 in those years and a 10% gain over year-prior levels. Eight aggregated data points may not prove everything. But just as "smallest discounts since 2014" proved telling last year, we think "biggest discounts we've seen since at least 2012" probably says something, too.



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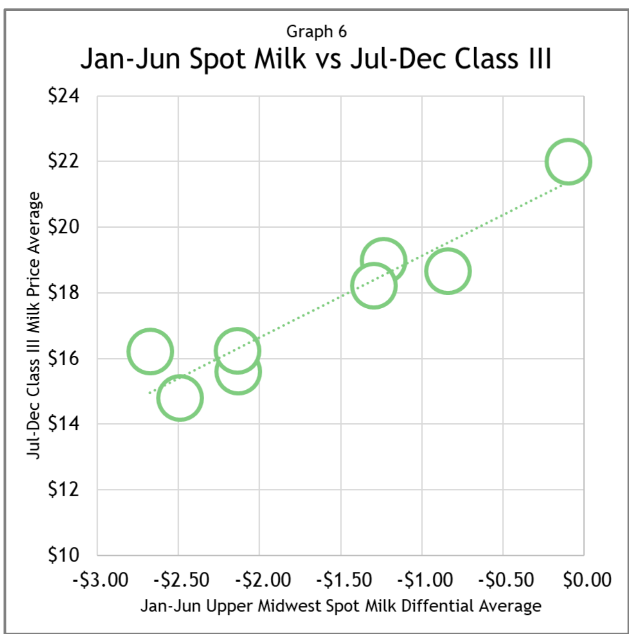
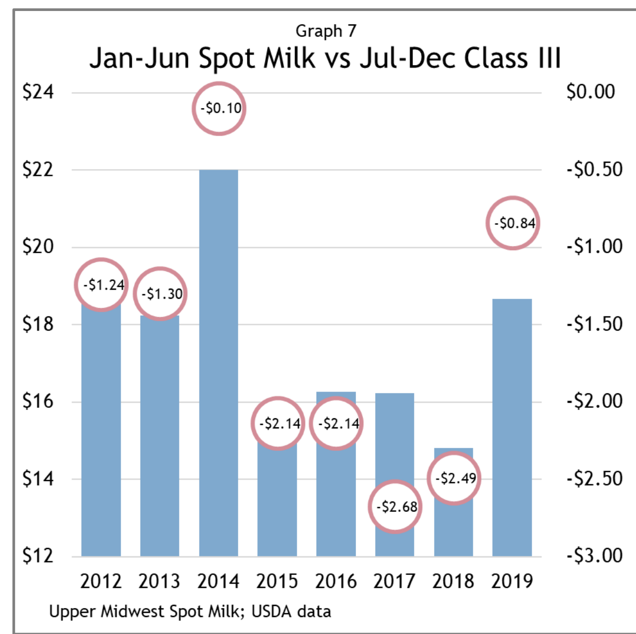
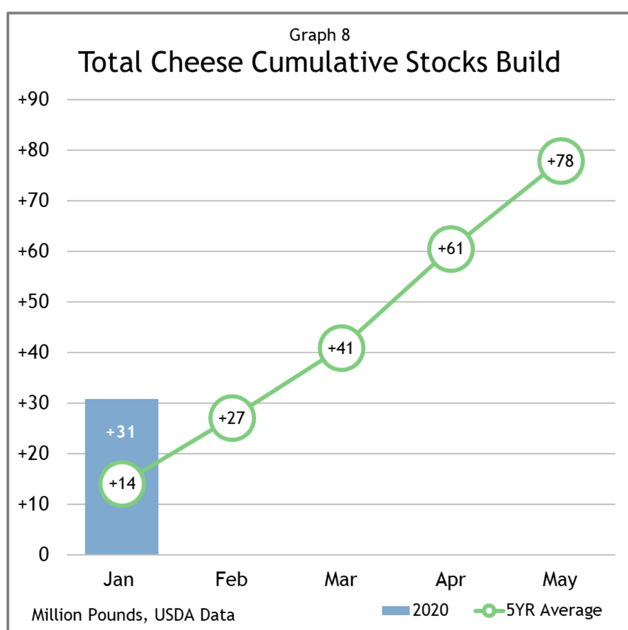
One of our 2020 "statistics to watch" covered cheese inventory building. Our assertion: if stocks don't build at an aggressive rate early, there's probably reason to expect higher prices later. We thought the process would be especially important this year because we headed into 2020 with depleted pipelines (a hangover from below average stocks building during the first half of 2019).





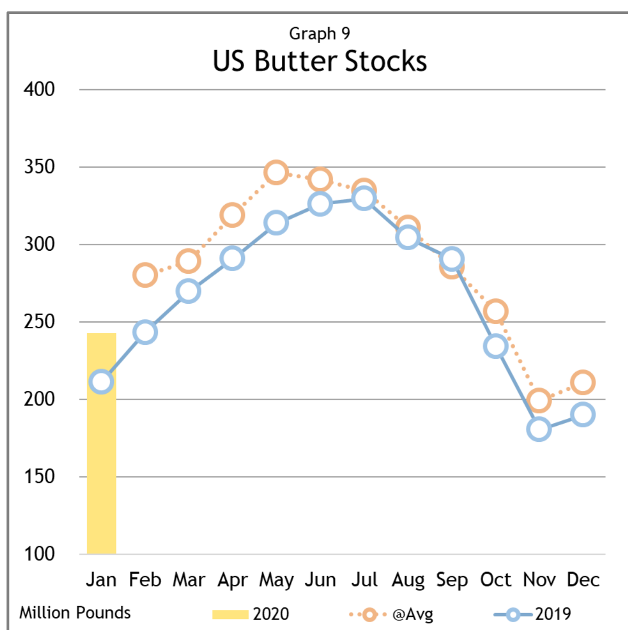
One month's performance doesn't assure success or defeat, but January's figures clearly point toward abundance. The USDA/NASS *Cold Storage* report showed total cheese stocks at 1.35 billion pounds, up 31 million from December (Graph 8). That compares to +16 million on average over the previous 10 years and was just a million pounds short of the maximum build for the month since 2010. The year-over-year deficit dropped to 1.2%, the smallest since August. Looking at the five-year average, stocks typically grow by another 19 million pounds between January and February. If that happens this year, stocks would be up a fraction over year-prior levels.

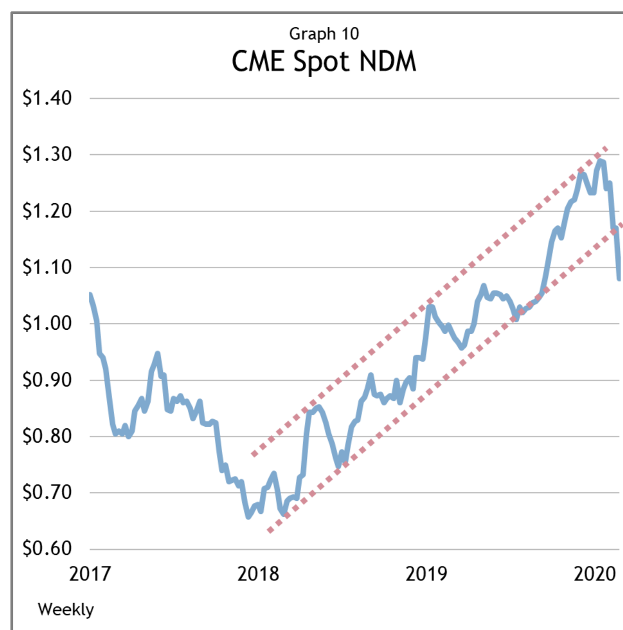


Butter inventories also advanced at a stronger-than-average pace: +53 million pounds compared to +45 million on average (Graph 9). Stocks are already in abundant territory, with 243 million pounds on hand as of January 31, up 15% year-over year. Average growth into May would put stocks at 346 million pounds, a multi-year high.

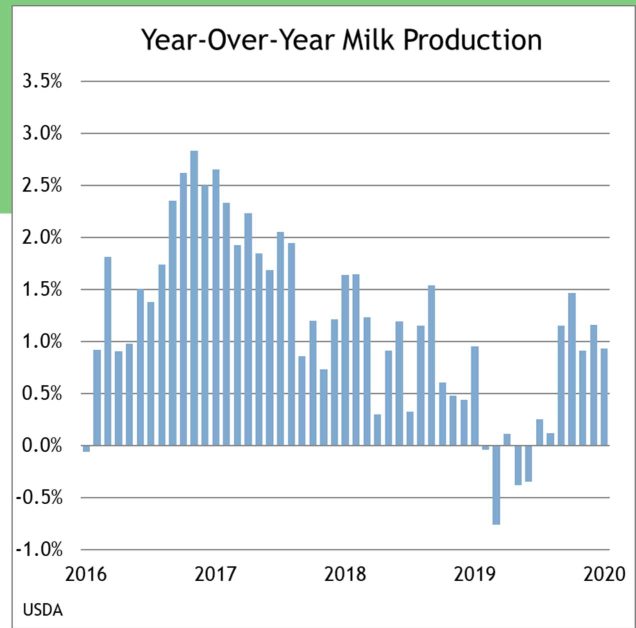
Rapidly rising domestic supply and unease about demand have combined to put the US powder market on the defensive. Critically, pricing has broken below a major uptrend line that has been in place on the weekly chart for nearly two years. With that, we can no longer simply point to the chart, note that prices are moving from the lower left to the upper right, and assume higher is more likely than lower (Graph 10). Now, we are looking to see where the market might find support.

The answer: we think somewhere between $1.00 and $1.05 per pound in CME spot market terms. That target squares with projections from the downside breakout as well as a 38% retracement of the March 2018 lows to last year's highs. We also see $1.00 per pound as a big "old resistance/new support" line.

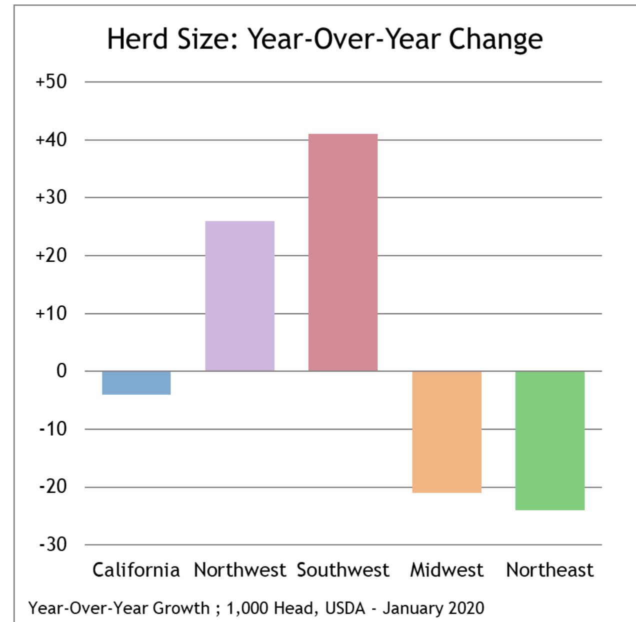


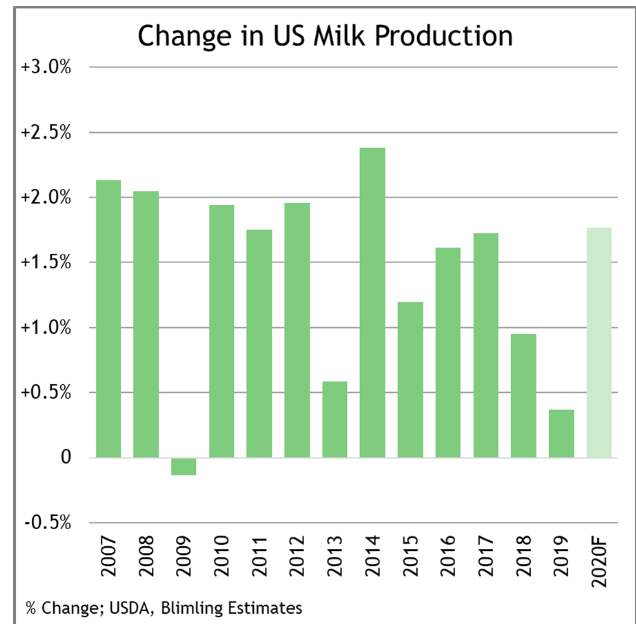


US MILK



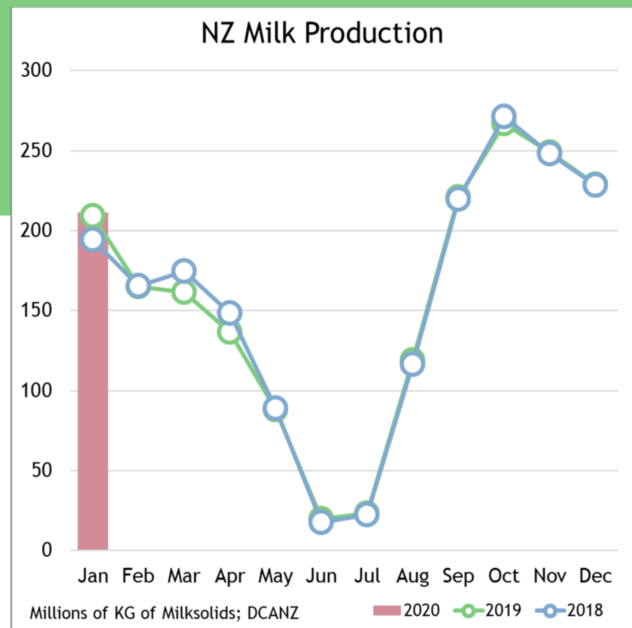
- For several months, US dairy producers were getting clear signals to make more milk. Milk checks were trending higher. Grain prices were under control. Margins were improving in real time…and futures markets painted an optimistic picture about the months ahead.
- In the West and Southwest, producers have been heeding that call. Production in Texas increased by 8% year-over-year in January—the fifth consecutive month of 8% or greater growth. And in Idaho, output increased by nearly 4% from January 2019. Increased cow power helped to drive expansion with 55,000 head added between the two states over the past year.
- While producers in the West push ahead, operations in the Midwest and East have not supercharged production. Output in the Northeast increased by just 0.7% year-over-year in January, while the Midwest saw a 0.1% decline.
- Growth in the West is becoming problematic, though. Too much milk in places like Idaho is overrunning processing capacity, forcing some handlers to put growth restrictions in place. And though oversupply isn't an issue in the East today, handlers are utilizing production caps to limit having to deal with too much milk (again).
- Even with production constraints, the Blimling and Associates model is still forecasting growth of between 1.5% and 2.0% year-over-year, but continued margin erosion could downgrade those expectations.

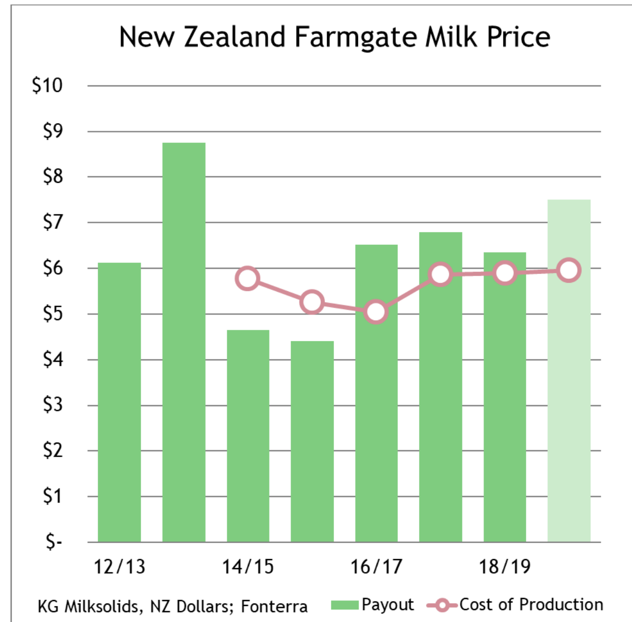


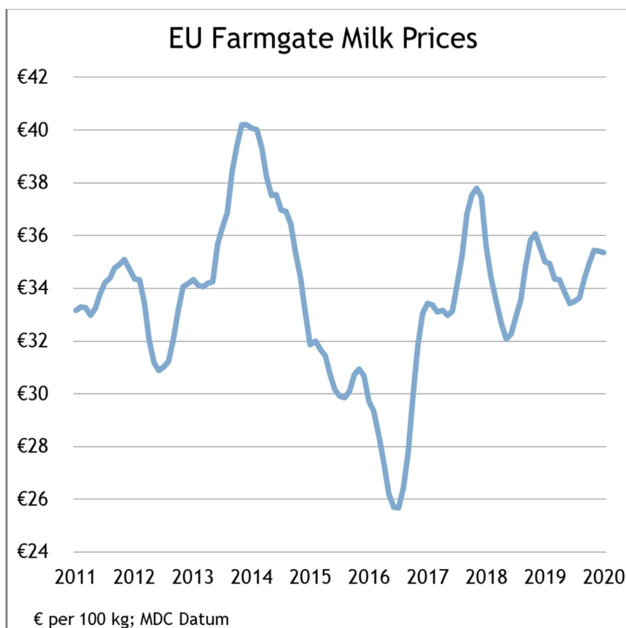


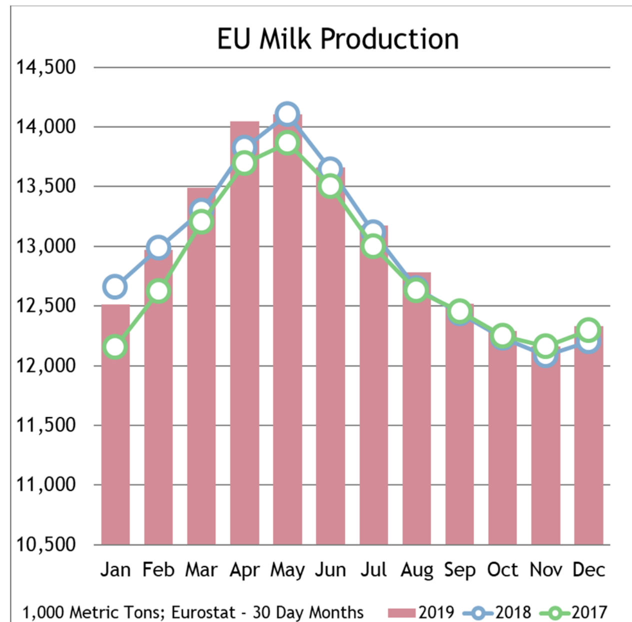
GLOBAL

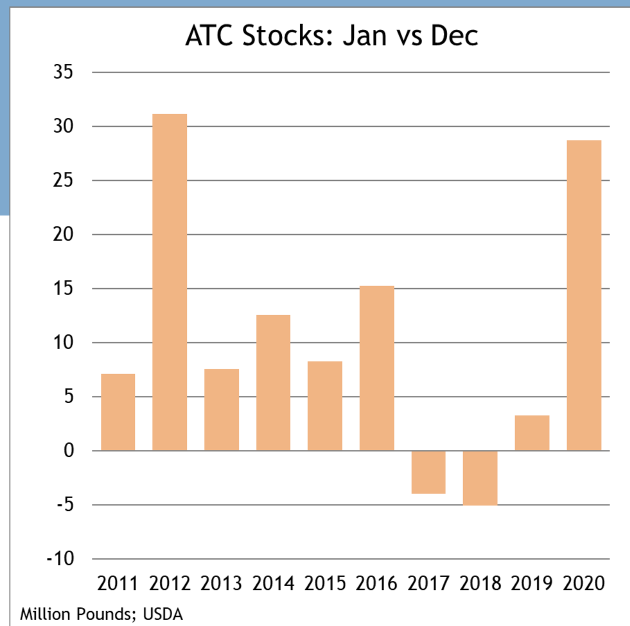
- New Zealand maps are looking toasty…stirring concern…but, really, we are at the end of the season. Output between February and May represents less than 30% of the country's annual milk production.
- Forecasters have knocked back New Zealand growth expectations to just +0.1% on a milk solids basis for the 2019/2020 season as poor pasture conditions push producers to dry off cows early. But high payouts could encourage farms outside of drought areas or those with ample feed reserves to keep cows milking late into the season. And sufficient rainfall over the winter months should put pastures back in favorable conditions heading into the start of the next season - typically around late August.
- EU milk supply expectations remain moderate for 2020 with the European Commission still calling for a little less than 1% growth. Reports suggest that 2020 milk flows are off to a fair start in most locations and above average milk prices to start the year should help encourage some expansion. Environmental pressure appears to be ramping up across the EU, however, putting medium to long term milk supply growth—especially in Northern Europe—at risk.



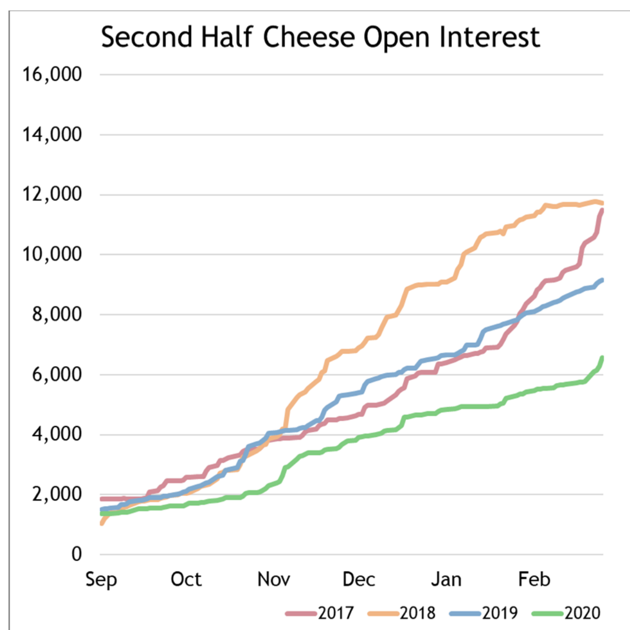




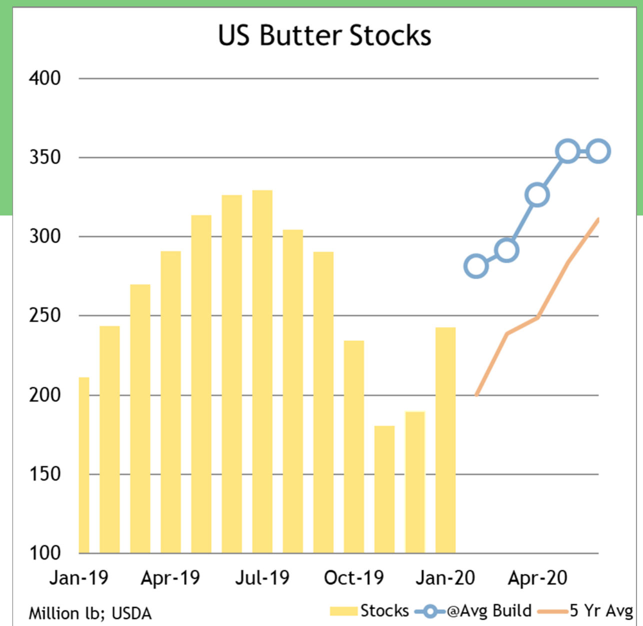


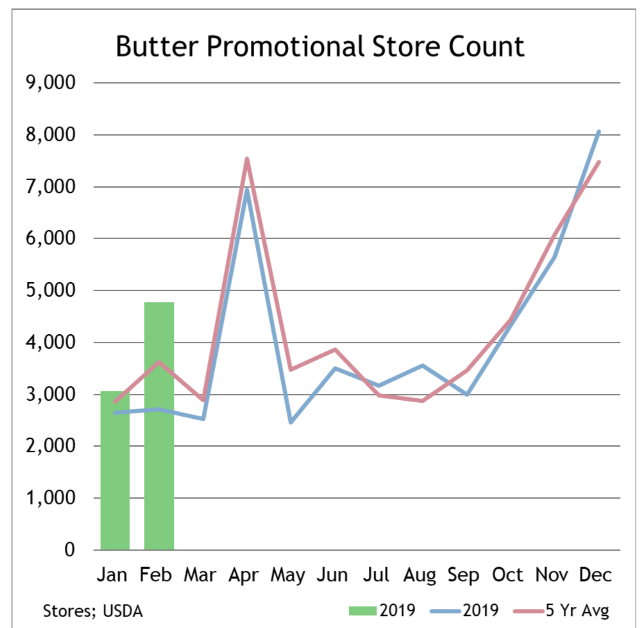


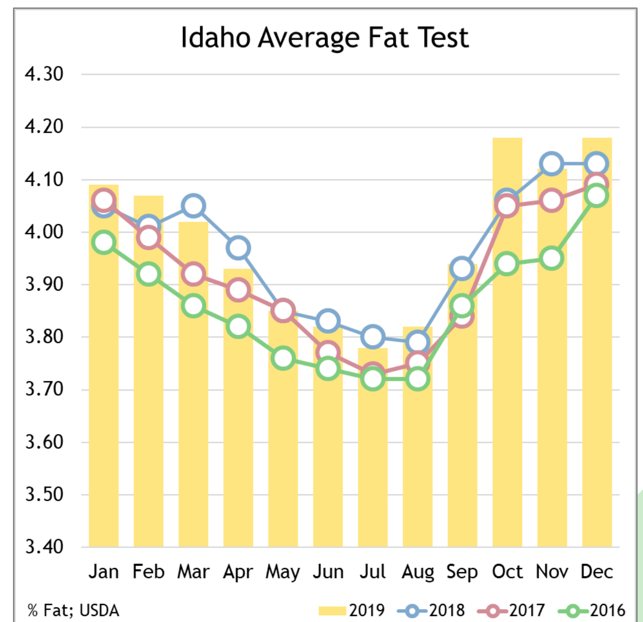
- More milk means more cheese, and as far as we can tell, there's more than enough milk in the market today. That's especially true in the West where milk is traveling distances to find homes. But recent reports to point to more milk in the Midwest, too. USDA reported Midwest spot milk prices trading between $2 to $6 under in mid-February. That compares to $1.25 below class on average over the past five years.
- Cheese inventories are picking up as a result of increased milk supplies. American-type cheese stocks increased by 29 million pounds from December to January—the most since 2012 and outpacing the four million five-year average. Even if American-type cheese stocks increase by just the average pace in both February and March, stocks would end the first quarter 1% above 2019 levels. That compares to down 3% year-over-year in January. History says that when American-type cheese stocks increased by an average to above-average rate to start the year, second quarter prices were lower than first quarter prices 57% of the time. Our forecast contemplates further weakness in the coming months as heavy supply weighs on the market.
- Demand could be a wildcard, though. As of late, demand seems like it's struggling some. Scanner data for the four weeks ending January 25 showed retail sales down 2% year-over-year, though off a strong base. Lower prices, however, may spur some additional cheese buying interest heading into the Easter holiday. And, with second half all cheese open interest running 31% behind prior year levels, lower prices could stir up some increased buy-side interest.



BUTTER

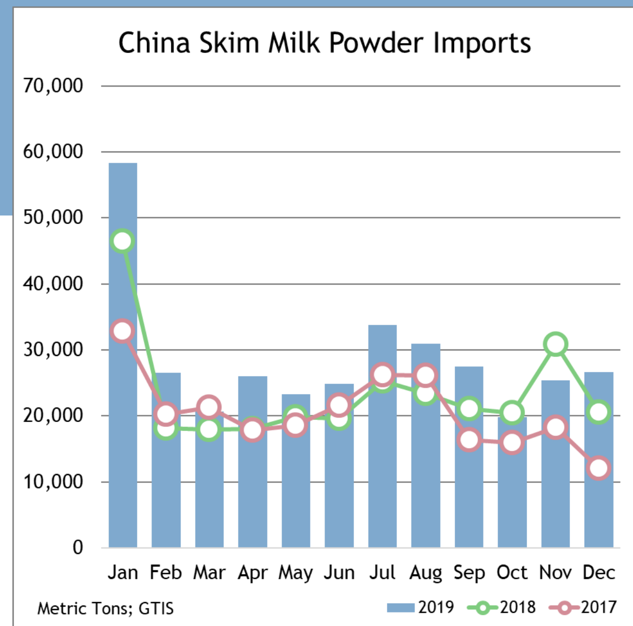


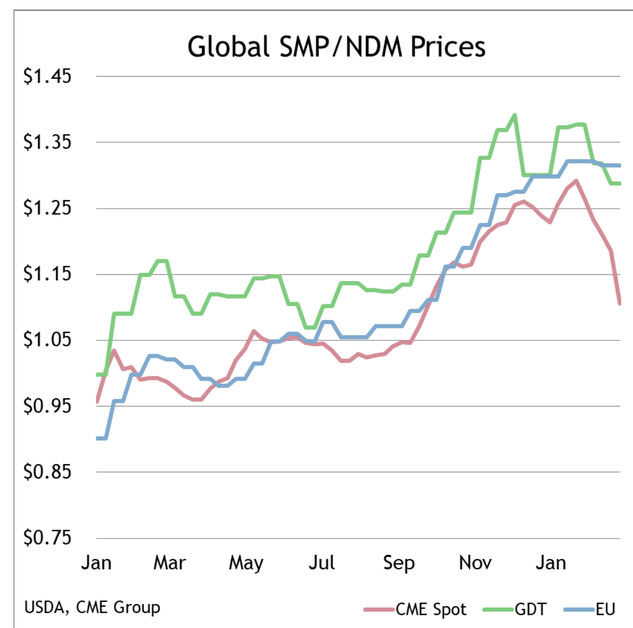


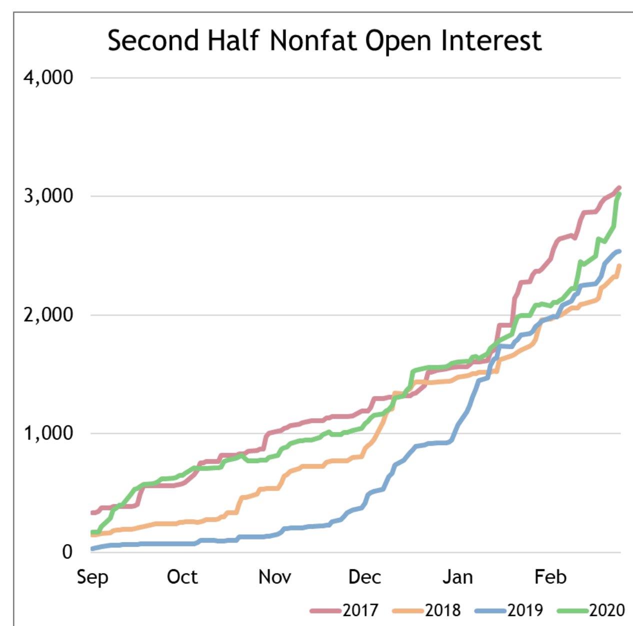


- The darling of the dairy category for the past several years has fallen back to the lowest price levels since 2015. And fundamentals support the weakness. Supplies are heavy. Cream is abundant. Fat tests are rising at the farm.
- January inventories increased by 53 million pounds from December—just ahead of the 45 million-pound five-year average. That took stocks up 15% year-over-year. Assuming stocks continue to increase at the historic average pace, that would put May 31 inventories at 354 million pounds, the most for the month since 1993.
- At current cream prices, churns—especially those in the West— have an incentive to keep plants up and running. Assuming a churn can secure a 115 multiple delivered, in a $1.75 CME market they could effectively make butter for about $1.60 per pound. Second half futures, meanwhile, are still trading above $2.00 on average, creating some lucrative arbitrage opportunities.
- More milk + more fat = more cream. Let's pick on Idaho. In December, milk production increased by 59 million pounds, while on-farm fat tests rose to 4.18%, up from 4.13% in 2018. That took the month's farm level butterfat output up 6% (3 million pounds) year-over-year. That's the equivalent of an extra 5 loads of cream per day.
- Lent is underway, meaning it won't be long before retailers start promoting butter for Easter. The number of stores promoting butter generally jumps heading into the holiday, while prices move lower. Over the past three years, the promotion price averaged around $3 per pound versus wholesale butter trading above $2.00. It's possible that sub-$1.80 spot pricing heading into the holiday could lead to more aggressive promotions and potentially, stronger demand.
- Our forecast reflects some rebound in butter prices over the remainder of 2020 as lower spot prices help to bring demand back to the table. But we recognize that the market will face several critical tests as prices pushed higher.

- CME spot NDM prices dropped by 17-cents over the past 15 trading days - the biggest decline of its kind since November 2015. That pushed the market out of its long-standing up-trend with prices falling below $1.10 per pound—the lowest since September 2019.
- Coronavirus is the obvious and easiest-to-point-to reason. Uncertainty is not bullish and every day there seems to be a new set of bearish "unknowns" for the market to sort through. There are no good analog events to look to for guidance on how it could play out. The SARS epidemic was almost 20 years ago and was more-or-less isolated to Asia. Plus, it happened at a time when dairy consumption in China was still quite low. What about melamine? That issue impacted dairy demand and pushed global powder prices lower, but the economic downturn came right on its heels. And given the ramp up in China's dairy industry in recent years, reduced demand for fresh goods regionally is assuredly sending more milk to domestic dryers … capacity that wasn't there a few years ago. So: we're entering new territory.
- But if we pull the covers off the NDM/SMP market, coronavirus isn't the only thing weighing on prices. Too much milk is an all too common theme when talking to market participants. Dryers in the West and Southwest are full. Activity in the East is picking up earlier than usual. There's a lot of NDM being made in the US today. Demand, meanwhile, is pulling back. Buyers appear to be taking a wait-and-see approach as uncertainty swirls. And with open interest for the second half up 19% from 2019, they may choose to stay sidelined.
- Our forecast reflects some sizable near-term erosion as coronavirus noise makes its way through the market and a quick rebound seems unlikely. Once the fear is gone, heavy domestic production will likely keep inventories expanding and prices under pressure at least through mid-year.

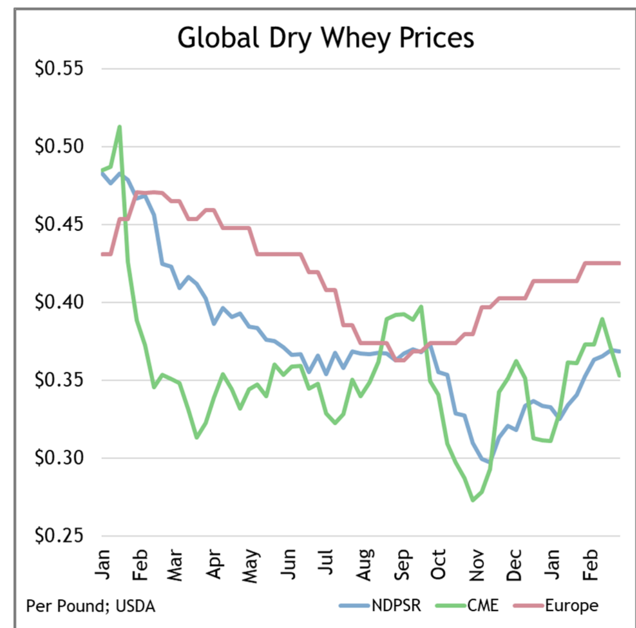


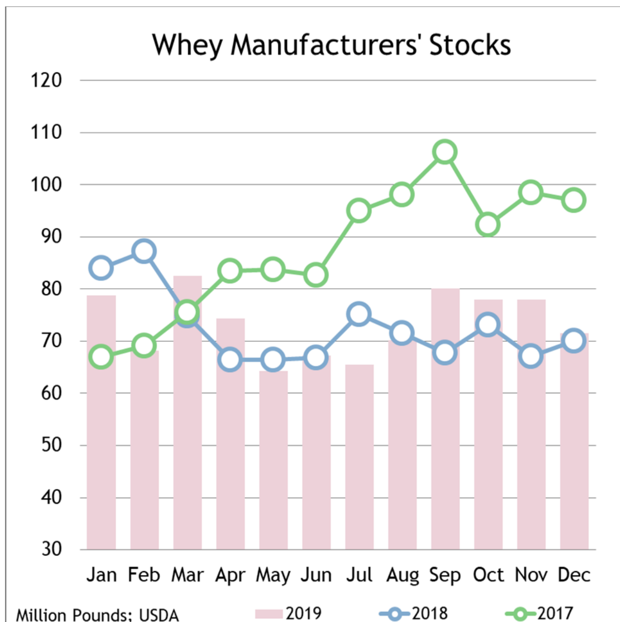


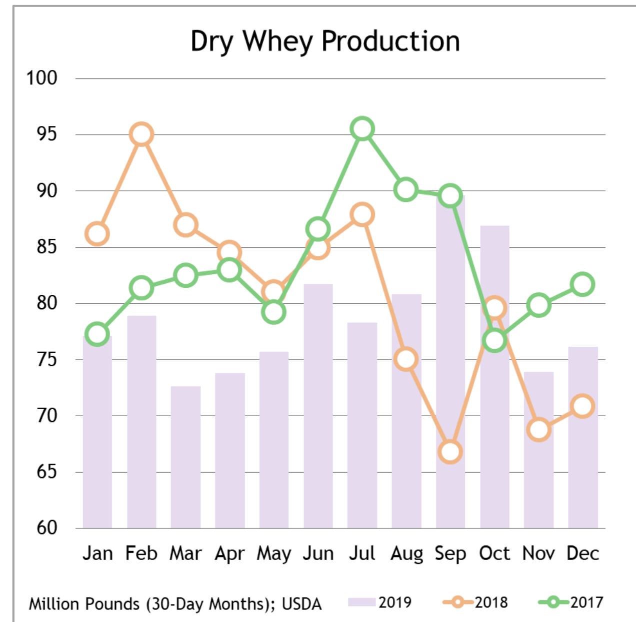


WHEY

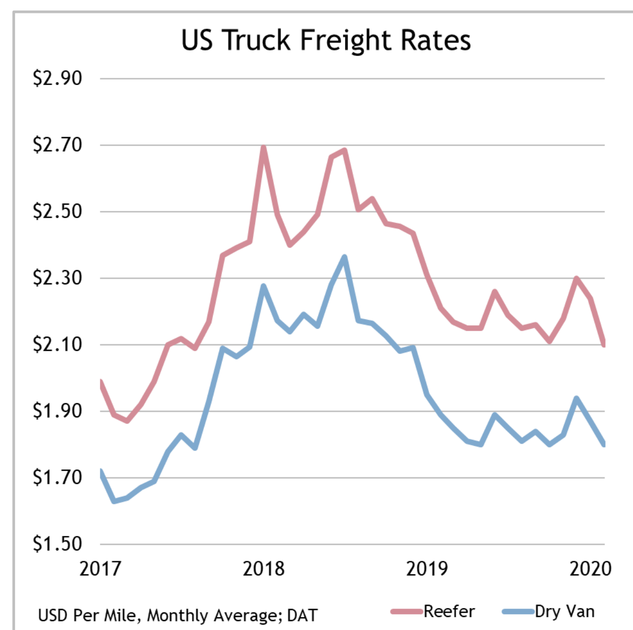
- Dry whey continues to face demand-side challenges, keeping prices treading water in the mid-30 cent range. And our forecast points to more of the same as the year rolls on.
- Though African Swine Fever's spread appears to be slowing, Asia's hog populations have yet to start rebuilding in any big way. Lockdowns due to coronavirus certainly won't help speed up the repopulation process either. In China, quarantines are crippling freight networks, making it harder for pork producers to receive imported whey solids for feed.
- While the US continues to struggle with sales into China due to both ASF and high retaliatory tariffs, a new waiver program could help to rebuild some interest. Applications for waivers are due on March 2 and are valid for one year—though volumes have yet to be announced. In 2019, sales to China slumped to 69 million pounds, down 61% from 2018. Though China stayed the top destination for US whey in 2019, share of exports fell to 20% from 37% in 2018.
- The one area of price support stems from strengthening whey protein and carbohydrate values. Better returns for WPC/WPI should continue to pull solids away from dry whey production and into high protein where possible.

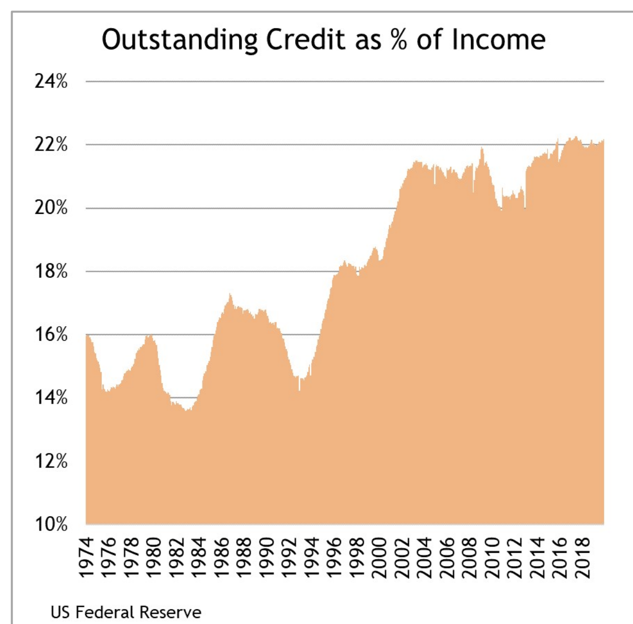






MACRO





- Remember all the talk about the US Dollar getting weaker in 2020? Turns out things are not working out that way. Today, the USDX is at about 98.30 — up 2.4% year-to-date. The Euro is trading at just about 1.10 versus the USD, down 2.1% year-to-date. (And, note that the USDX flirted with 100 at one point and the EUR/USD slipped below 1.08 for the first time since 2017). What's happened? It started with renewed thoughts that the US economy was likely to top EU performance. It accelerated on "safe haven" trades once the China coronavirus story got legs. Maybe the lows are in and that is that. But, for now, USD strength augurs poorly for commodity pricing across the spectrum.
- Freight rates are meandering near last year's lows. According to DAT, February month-to-date reefer rates are running at $2.10 per mile, down 6% from January and down 5% year-over-year. Dry van rates are averaging $1.80 per mile, down 4% from January and down 5% versus February 2018. The ATA Truck Tonnage Index increased in December and again in January, hinting that trade breakthroughs might be stirring up activity to and from US ports. But the coronavirus situation is a setback. This week, for example, *The Wall Street Journal* reported that container ship operators have canceled 40 sailings at the Port of Los Angeles between February 11 and April 1 — about 25% of typical volume.
- Data from the US Federal Reserve showed consumer credit expanding by more than $190 billion in 2019 versus 2018. That was the biggest advance in dollar terms in three years. As of December, outstanding credit added up to $4.197 trillion, an all-time high. Those are big numbers. But are they cause for concern? We can see some problem areas, namely student loans. But when you look at total debt outstanding as a percentage of personal income, the consumer is still acting with some restraint. That figure was at 22.2% in December — not much different than what we've seen over the past five years.