Beef producers work to overcome 2019 challenges
By Lee Schulz, extension livestock economist, 515-294-3356, lschulz@iastate.edu

Raising cattle is not for the faint of heart - it never has been. Last year was a testament to that.

Extended periods of very cold weather forced producers to feed more hay than normal. Supplies got squeaky tight in some areas. The wintry conditions were challenging for calving. Feedlot operators had extra work removing ice and snow.

Snowy and icy roads slowed transportation. Snowmelt and rain caused major flooding, devastating large regions of the Mississippi and Missouri river basins. Mud created challenges. Wide temperature swings from cold to warm negatively impacted performance and increased animal morbidity and mortality. At the other extreme, fires devastated some grazing land.

Greening pastures always fuel optimism. Last year turned out to be an above average grazing and forage production season. However, “green up” optimism faded as cattle markets headed south.

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Figure 1. Medium & large #1 steer calf prices
500-600 pounds, Iowa, weekly

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Source: USDA Agricultural Marketing Service
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The state (Iowa) average price for 550 pound steer calves fell by almost $23/cwt from early June to the end of October, before rebounding nearly $16/cwt by the end of the year (Figure 1). Calf prices in 2019 averaged below 2018 levels for the year, and were more than $9/cwt lower October through December when a lot of calves were sold. Compared to 2018, the average annual price for a 750-pound feeder steer slid by roughly $6.50/cwt in 2019. Iowa/Minnesota slaughter steer prices in 2019 actually averaged above 2018 levels for the year, but averaged over $6/cwt lower in September.

Cow slaughter expansion benchmark

Adverse weather and tighter cow-calf margins combined to create uncertainty about the trajectory of the cattle herd. Total cow slaughter in 2019 was up 3.8% compared to 2018. Dairy cow slaughter rose 2.3%. Beef cow slaughter climbed 5.5% (Figure 2). Fourth quarter 2019 beef cow slaughter climbed nearly 15% relative to the same period in 2018. To some, the dramatic surge in beef cow slaughter suggested rising culling rates would drastically lower beef cow numbers going into 2020.

However, part of the rise in beef cow slaughter is simply due to higher cow numbers. Herd expansion sharply curtailed beef cow slaughter in 2014-2017. Net beef cow culling was a record low 7.6% in 2015. What followed were three consecutive years of single digit beef culling rates.

The long-term average annual beef cow culling rate is 9.6% and is typically higher than this level during liquidations and lower during herd expansions. The 2019 beef cow slaughter was 10% of the January 1, 2019 beef cow herd inventory. Rarely does the herd increase when the annual beef cow slaughter exceeds 10% of the beginning inventory. Typically, beef cow slaughter must be below 9% of the January 1 count to cause the cow herd to grow year-over-year. In other words, the industry is returning to normal beef cow culling rates. Beef cow slaughter in 2019 was consistent with some herd contraction.

USDA released its annual cattle inventory report, based on producer surveys, on January 31. The report established lower cattle numbers for most inventory categories. The National Agricultural Statistics Service estimated the January 1, 2020 inventory of all US cattle and calves totaled 94.413 million head, down 0.4% from the January 1, 2019 inventory of 94.805 million head (Table 1). Beef cows, at 31.317 million head, were down 1.2% or 374,000 head from a year earlier.

Trying to get in position

Cow-calf profitability has been slowly eroding. The last two years have been particularly insidious, reducing the incentives for producers to hold back heifers.

However, some recognize that a carrot is out there, potentially a pot of gold, when prices get stronger. Prices in 2014 and 2015 are not all that far in the rear view mirror. At minimum, forecasts call for year-over-year increases in both calf and yearling prices in 2020. You have to play the game to be able to win the game, so to speak.

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This thinking may help explain why the inventory of beef replacement heifers was down only 1.9% from January 1, 2019. On average analysts expected this number to decline 3.5% from January 1, 2019. The question is whether producers may adjust their intentions as 2020 progresses. Producers can easily divert open replacement heifers into feeder markets if their expectations dim.

Forced culling in 2011-2012 meant the beef cow herd was young in the early part of the last decade. As the decade progressed, producers trimmed culling rates and retained more heifers to expand. Now the herd is older. Producers may be keeping more heifers than expected to replace older cows, cows with health problems, cows with reproductive issues or all of these factors.

Other heifers 500 pounds and over were up 0.9% to 9.706 million head. This is the highest other heifer inventory estimate since January 1, 2011. Other heifers are heifers that will not be bred or used as replacement animals for the beef or milk cow herd. On average analysts expected this number to rise 2.3% from the previous year. So analysts guessed more heifers would show up as other heifers than replacements compared to what the cattle inventory report indicated.

Using the inventory categories for steers and other heifers over 500 pounds along with calves under 500 pounds and subtracting the cattle already in feedlots, leaves a January 1 estimated feeder cattle supply outside of feedlots of 26.448 million head, down 0.4% percent from January 1, 2019. The total inventory of steers, other heifers and calves was up 0.5%, but large feedlot placements in 2019 pulled the feedlot inventory up 2.1% year-over-year, meaning that more of those feeder cattle were already in feedlots on January 1, 2020. Strong projected cattle feeding closeouts for the first half of 2020 motivated aggressive late 2019 feedlot placements.

The stable to slightly smaller feeder cattle supplies are supportive of calf and feeder cattle prices this year. January 1, 2020 feeder cattle supplies are still the third largest since 2012. That means feedlots should be able to find cattle to place and prices should not be prohibitive.

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* 1,000 head, ** 2018 and 2019. Source: USDA National Agricultural Statistics Service

Full report, [https://downloads.usda.library.cornell.edu/usda-esmis/files/h702q636h/rb68xv24k/76537h73d/catl0120.pdf](https://downloads.usda.library.cornell.edu/usda-esmis/files/h702q636h/rb68xv24k/76537h73d/catl0120.pdf)
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Small feedlots holding steady
In addition to the annual Cattle inventory report, USDA’s monthly January Cattle on Feed report for feedlots over 1,000 head capacity released January 24 provides more information. Total cattle on feed was at 14,668 million head, up 2.1% from last year as mentioned above. The monthly cattle on feed report said the number on feed January 1 in feedlots with capacity of 1,000 head or more was 11,958 million head, up 2.3% year over year. Thus, the number of cattle on feed in feed yards with capacity of 999 head or less was 2.710 million head, up 1.2% from the start of 2019. The small feedlots’ share of the total number on feed has been between 17.4% and 20.0% since 2000 and is currently at the 20-year average of 18.5%.

The 2019 calf crop in the US was estimated at 36,060 million head, down 0.7% from 2018’s calf crop. Calves born during the first half of 2019 were estimated at 26,350 million head, down 0.4% from the first half of 2018. Calves born during the second half of 2019 were estimated at 9,710 million head, down 1.6%. The 2019 calf crop as a percent of the total cowherd on January 1, 2019 was 87.9%. This ratio was over 88% in the years 2015-2018, peaking at 88.8% in 2016 and 2018. Thus, the current level of 87.9%, while down from recent years, is still above the levels seen in the previous years where weather may have played a role in the size of the calf crop.

Impacts of cold, snow, floods and fires on cattle producers in 2019 made dramatic headlines. The inventory data gathered from producers suggest the total impact on herd size was relatively small. Still, individual operations suffered devastating losses. The loss of animals, fence, pasture and other resources was a significant burden on the families and operations directly involved.

Cattlemen are hardy, resilient folk. But emotional healing and financial recovery take time. An old saying says, “Trying times bring top managers to the surface.” And they’re doing it again.

Almost two years after the start of the US-China trade war, leaders of both countries signed the highly anticipated Phase 1 trade deal on January 15, 2020. This is especially significant politically and symbolically because this deal represents the first time both countries made moves to actually reduce the tariff rate rather than escalate the situation. In the 88-page deal, China makes historic and bold promises regarding buying US goods and services, pledging to buy an additional $200 billion worth of US products in 2020 and 2021. In particular, China promises to purchase an additional $12.5 and $19.5 billion of US agricultural products in 2020 and 2021, respectively. If realized, these will be the two highest agricultural export watermarks for US-China agricultural trade ever. However, the commodity markets did not show a significant rally as hoped, but instead exhibited noticeable drops. In this article, I will share key details of the Phase 1 deal, focusing on its agricultural provisions, and share my personal opinions and thoughts about the deal and its implications for US and global commodity markets and agricultural exports.

China’s bold promises of purchase sprees and commodity market reactions
Over the past two decades, China has quickly become one of the United States’ most important trading partners. The US averages $22 billion in annual agricultural exports to China, an almost tenfold increase from 2001. As I discussed in a previous article, China’s promised additional purchases in the Phase 1 deal, if realized, would make annual agricultural

US-China Phase 1 Trade Deal and US agriculture: A big win for farmers or too good to be true?
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exports from the US to China shoot up from $20-25 billion a year to around $35 billion in 2020 and more than $40 billion in 2021. These levels have never been seen before, but are not necessarily unachievable. Our previous research, www.card.iastate.edu/products/publications/pdf/18pb23.pdf, shows that China’s agricultural imports from the US could potentially rise to more than $50 billion a year if China removes all tariff and non-tariff trade barriers. However, the challenge is whether it is realistic to expect China to make all these structural changes over the next two years.

The agricultural commodity market reactions to the Phase 1 deal are very interesting: rather than offering rallies following the signing of the deal, the soybean and corn futures prices slipped about 1%. This languish reaction is due to three reasons:

1. The 88-page agreement did not include concrete details on how the $12.5 billion and $19.5 billion additional targets are derived based on commodity-level details.
2. The agreement has language that sounds like an escape clause for China: “purchases will be made at market prices based on commercial considerations and that market conditions, particularly in the case of agricultural goods, may dictate the timing of purchases within any given year.”
3. The agreement has unrealistic future promises that add further concerns. In particular, the agreement states that “the trajectory of increases in the amounts of manufactured goods, agricultural goods, energy products, and services purchased and imported into China from the United States will continue in calendar years 2022 through 2025.”

In summary, the commodity markets act as if these promises are too good to be true, and it needs more concrete evidence of elevated Chinese purchases.

Chad Bown at the Peterson Institute of International Economics also offers a nice summary of the “unappreciated hazards” of the deal, www.piie.com blogs/trade and investment policy watch/unappreciated-hazards-us-china-phase-one-deal, highlighting the challenges of meeting these purchase targets for agricultural and especially manufactured products. He also discusses how the “managed trade” approach to achieve bilateral export targets could create problems for the global trading system and hurt other US trading partners.
A possible and more-balanced pathway for China to deliver agricultural purchase promises

As discussed, the current US-China agricultural trade is dominated by feed grains, especially soybean. The Phase 1 deal offers an opportunity for both countries to upgrade to a more balanced portfolio of US agricultural exports to China. Figure 2 shows China's agricultural imports by commodity and country, and it is worth noting that China's total 2017 agricultural imports exceeded $140 billion; the United States accounts for very small fractions of China's meat, seafood and consumer-products demand.

As I argued before, the trade war offers strategic incentives for China and US competitors to diversify away from US agriculture. Given that China's promises in the Phase 1 deal are only for 2020 and 2021, it incentivizes Beijing to shift purchases away from other foreign suppliers to the US to overcome the gaps between current trade volume and the promised levels. In 2017, China imported 60% of US soybean exports and 75% of Brazilian soybean exports. As a result, a further expansion of US soybean exports at the expense of Brazil and Argentina for the Phase 1 deal would likely be short-lived, if at all possible. After all, the African Swine Fever outbreak led to a reduction in China's hog inventory of over 40%, and a 25% cut in pork production, which weakens soybean demand as a major source of feed for China's pigs. Actually, I anticipate US soybean exports to China dropping to a lower level, likely 40-45% of total US soybean exports, as China strives to find more suppliers.

I anticipate US livestock producers and producers of consumer-oriented products will benefit most from the Phase 1 deal, and that China's purchases of US agricultural exports will include more poultry, beef, pork, ethanol, wine, infant formulas, nuts, seafood, fruits and vegetables. In particular, I anticipate $1-2 billion more in exports of poultry, pork, and beef products to China in 2020, in part to satisfy the meat shortage created through ASF. US ethanol exports to China should increase significantly as well, due to China's 2020 ethanol mandate. However, do not expect major surges in exports from the Midwest states. California's agriculture might benefit more as China buys potentially $4-5 billion more in consumer products such as nuts, fruits and vegetables, wine, seafood, and dairy products. I think

Figure 2. Key Chinese agricultural imports by commodity and country in 2017
China should not have problems meeting the 2020 target for agricultural purchases. The 2021 target could pose more challenges, but that is after the 2020 election when uncertainties grow significantly.

One note of caution – trade flows are intertwined. The United States' trade partners might be worried as China's trade diversion to US products occurs to meet the Phase 1 deal. More US exports of seafood products like fish and lobster could pull Chinese demand away from Russia or Canada, and more US pork and beef exports to China will hurt the EU and Australia. More importantly, a significant increase in China's demand could push up US commodity prices and price out other partners we have, especially those with whom we do not have a Free Trade Agreement, www.extension.iastate.edu/agdm/articles/hart/HartJan20.html. A surge in US-China agricultural trade does not necessarily lead to a proportional or net increase in total US agricultural exports.

**Underappreciated promises of non-tariff barrier removals**

From the perspective of US agriculture, the Phase 1 deal is probably the most important; Phases 2 and 3 will likely deal with non-agricultural issues. While a lot of attention is paid to China's major purchase numbers, the Phase 1 deal also includes several important promises from China to remove or ease some non-tariff barriers related to agricultural trade. In total, 44 of the 88 pages of the agreement are devoted to agricultural sectors, the bulk of which focus on non-tariff barrier issues.

First, one of China's pledges is to formally allow imports of US meat and dairy products, provided that these products satisfy US food safety and sanitary standards, as regulated by USDA and FDA. For example, China promises not to block US pork products due to ractopamine use once the safety is demonstrated via a risk assessment based on “verifiable data and the approved conditions of ractopamine use in the US.” Related to that, China now states that it recognizes the US beef and beef products traceability system.

Second, China once again promises to accelerate the approval of Genetically Modified (GM) varieties for feed grains and fodders, which hopefully will result in speedy approvals of several GM-corn and GM-soybean varieties. It is interesting to note that recently China granted approvals of three corn and soybean varieties for domestic Chinese companies.

Third, China promises a more transparent and balanced allocation of the tariff rate quotas imposed for wheat, rice and corn, which is often unused and widely criticized by other countries.

Fourth, the agreement re-confirms that China is willing to enhance intellectual property protection and enforcement, and it avoids forced technology transfer.

China has made promises about removing structural non-tariff barriers before and didn't fully deliver; however, this Phase 1 deal is the most comprehensive so far and has a higher likelihood of real changes due to its high-stakes public nature. As evidenced by their ethanol mandate, China's agricultural markets and policies increasingly resemble the US and Europe. It is important to focus more on monitoring and enforcing the structural changes in lowering and removing non-tariff barriers outlined in the deal than the pledged purchase numbers, as those are only for 2020 and 2021. It is also worth noting that the $200 billion targeted increase largely represents a “managed trade” approach, and the impacts of removing the non-tariff barriers outlined in the Phase 1 deal remain to be seen.

**Newly added uncertainties due to the novel coronavirus**

February has brought new uncertainties in the implementation of the Phase 1 deal as China battles with the novel coronavirus epidemic. As of February 12, the outbreak has resulted in 43,141 confirmed cases, 22,082 suspected cases, and 1,017 deaths in China. The number of confirmed cases exceeds the 2003 SARS outbreak. The coronavirus has spread to 29 countries with 13 confirmed cases in the US. On January 30, the World Health Organization (WHO) declared a Public Health Emergency of International Concern (PHEIC). The United States has also announced temporary travel bans barring foreigners who have recently visited China, and several major airlines have suspended all flights from and to China until late March or April.
Unfortunately, the coronavirus outbreak adds new uncertainties to the implementation of the Phase 1 deal. Logistically, the spread of the virus has caused an unprecedented shutdown of transportation and manufacturing in China until mid- to late-February, and locked down much of Hubei province. The coronavirus epidemic is still escalating in China and likely won’t subside until April or May; however, the peak demand season for US soybean is from November to early May as well. This week both stock and commodity markets experienced significant declines, in part driven by worries about the impacts of coronavirus. Beyond agriculture, many market analysts worry about the negative impact of the coronavirus on China’s already-slowing economy, which will likely push the GDP growth in China below 6% for the first time in three decades. Slowing demand in China, and possibly globally, is not good for US agricultural export markets, as US agricultural production increasingly relies on international demand.

**Conclusion**

The highly anticipated US-China Phase 1 Trade Deal represents a long-awaited relief for US farmers. China made bold promises of an additional $32 billion in purchases of US agricultural products over the next two years; however, commodities markets are still cautious regarding the successful delivery of these promises. I think with diversions from other suppliers and dramatic increases of US meat products, ethanol, and consumer-oriented products, China has the capability to at least be compliant with the 2020 target. Given the new challenges posed by the ongoing coronavirus epidemic, the commodities markets are anxiously waiting to see when and whether the promised Chinese purchase sprees will materialize.

There’s that old saying, “May you live in interesting times.” There is no doubt that we do. The agricultural markets have been buffeted by a string of announcements and events within the first month of the year. We have seen positive news on the trade front, with the signings of the USMCA and US-China Phase 1 agreements. The announcement of the outbreak and spread of the coronavirus has significantly negatively impacted a number of markets, including agricultural ones. But while the general trend in crop pricing for the first month of 2020 has been lower, the markets are still providing signs that 2020 could be a better year for crop prices than the previous several years have been.

Figure 1 outlines the movement of corn and soybean price projections for the 2020 crops over the past month. For these projections, I use the corn and soybean futures contracts for the period between September 2020 and September 2021, as the 2020 marketing year covers the period September 1, 2020 to August 31, 2021. Given the daily futures prices and the five-year average basis levels, we can construct national season-average price estimates. These daily estimates are what are graphed in Figure 1.

As the graphic shows, crop prices have worked their way down since the start of the year. Corn has given up 10-15 cents per bushel, while soybean has lost roughly 50 cents. Some of these losses are profit-taking following the trade agreement announcements, a “buy the rumor, sell the fact” story. Crop prices had risen by roughly the same amounts in December, boosted by the progress in the US-China trade talks (which led to the Phase 1 deal) and the legislative action on USMCA. Thus, when both deals were signed by President Donald Trump last month, they were positive news stories for agricultural demand, but prices reacted negatively. You can especially see that market reaction with the pricing moves in the middle of January, in the days just after the signing of the Phase 1 deal. Soybean
prices declined by 15 cents, while corn lost 10 cents. While corn was able to recapture some of that loss in the week after the initial reaction, soybean prices continued to slide.

The latter part of January was dominated by the discussion surrounding the coronavirus and the possible impacts of the outbreak on both the Chinese and global economies. With the Chinese government implementing a quarantine around Wuhan and limiting travel within the country, it is expected that China’s economic output will decline. As various countries and industries move to reduce possible transmission pathways (see, for example, British Airways cancelation of flights to and from China), global economic output is likely to decline as well. Those concerns manifested themselves in a slew of markets, from energy and agriculture to stocks and bonds.

The coronavirus outbreak has also been added to the list of reasons for skepticism on the Phase 1 trade deal. Combined with the African Swine Fever (ASF) outbreak, China is dealing with significant health challenges for its human and livestock populations. While the ultimate impact of the coronavirus on Chinese agricultural demand is unknown, the impact of African Swine Fever is much easier to predict. The loss of hogs in China is dramatic and has and will continue to curtail the need for soybean. While China has re-emerged as our top soybean export market, soybean sales are still below pre-trade war levels. ASF has diminished China’s need for soybean as livestock feed, but has increased China’s need for meat, especially pork, and other protein sources to offset the swine losses.

Traders in the futures markets have also pointed to the lack of significant export sales to China since the signing of the Phase 1 deal. The 2020 target for agricultural sales to China is roughly $32 billion under the deal. That is $7 billion higher than the record amount of agricultural sales to China, set in 2012. Soybean represented a substantial portion of that record total. With the AFS effect on soybean demand, China will have to expand purchases dramatically in other commodities to make up the difference and meet the trade agreement target.

As we entered 2020, the futures markets pointed to 2020 season-average prices around $3.95 per bushel for corn and $9.50 per bushel for soybean. By the end of January, those price estimates had fallen to $3.83 for corn and $8.92 for soybean. But these price estimates are still above USDA’s initial projections for the 2020 crops. In late October of last year, USDA provided an early outlook for 2020. That outlook had crop price estimates of $3.40 per bushel for corn and $8.85 per bushel for soybean. The USDA outlook was based on some crucial assumptions: the continuation of current government policies at the time and a reversion to more “normal” planting conditions this spring. Since USDA released that outlook, government policies have shifted greatly with not only the signings of the Phase 1 deal and USMCA, but also the trade deal with Japan. While overall export sales have been lackluster over the first half of the 2019 marketing year, the three trade deals offer reason for optimism and are reflected in the futures market prices. And with time, we will see if crop planting progress returns to normal, but current conditions and National Weather Service forecasts do not look promising. Wet soil conditions created problems in 2019 and the potential for similar conditions this spring looms large.
Putting these two pieces of information together implies that USDA’s initial projections are likely too heavy on supplies and too light on demand. A recipe for higher prices, and that’s what the futures markets are showing. Does that guarantee 2020 will be better than 2019 price-wise? No, as futures prices in early 2019 were roughly at the same levels (actually, a bit higher). But it does provide another example that even in challenging times, the markets will provide windows of opportunity.