Cattle Inventories and Feed Demand

By Ben Brown
Department of Agricultural, Environmental and Development Economics
The Ohio State University – 5/1/2020

Challenges across the agricultural sector continue into May with great concern on the extent to which the supply chains are able to bend, maintain and then recover. The probability for a prolonged economic slowdown continues to grow as impacts of COVID-19 become more visible. The World Trade Organization estimates World GDP contraction at 5% for a "V-Shaped" (more optimistic) economic recovery and 10% for a "U-Shaped" (more pessimistic) economic recovery. These are large changes in global GDP and will impact public expenditures on protein sources. Animal protein consumption declines with decreasing GDP as grain protein consumption increases. Human capital shortages exacerbate the downward price pressure on live cattle and hog prices as packing plants slow or temporarily suspend operations. The price pressure then continues to ripple through the supply chain affecting all market participants. Feeders have nowhere to go with their fed cattle and no space or interest to take on new cattle. This decreases placements in the short term for Ohio's cow-calf operators. The same is true for hogs, only it is more difficult to slow hog growth. Compounding issues are also building in the grain complex as decreased domestic vehicle use has reduced gasoline and ethanol consumption removimg the incentive for ethanol plants to produce two important biproducts: ethanol and dried distillers' grains (DDGs). Reduced DDG production opens the possibility for more feed corn and soybean meal but does not completely make up the difference. This article examines livestock on feed and the potential for corn feed use in the second half of the marketing year.

Cattle on Feed

The National Agricultural Statistics Service (NASS) released the anticipated April *Cattle on Feed Report* April 24, 2020 to hopeful yet anxious market observers. There is no doubt that the United States is in a different place socially and economically than it was at the start of the year with the biggest changes and market movements coming in the month of March. Cattle placements on feed were expected down in March foreshadowed by decreased local auction prices and weekly slaughter reports. Net cattle placements (gross placements minus other disappearance) on feedlots in March totaled 1.557 million head- nearly 23% below 2019 and 9% below the month prior. This is the lowest March placement value since 1996. It was the middle weight categories seeing the biggest weakness from a year ago as cattle 600- 899 pounds came in 28% lower. Cattle under 600 pounds were only down 5% from a year ago. Using Kentucky weekly auction data provided by the Agricultural Marketing Service (AMS) out of Frankfort Kentucky for the most recent week ending April 24th- showed the 500-550-pound cattle fell slightly week over week to $144/cwt.- roughly $35 less than the 5 year average. Heavy feeder cattle prices are relatively steady between $105-$110 over the last couple of weeks. Historical comparisons of Livestock Marketing Reporting (LMR) of the price weight relationship indicates that 2020 has not structurally changed the relationship across weight classes.

The soft cattle placements number following a weak cattle placements number the month prior is extremely bullish by itself as tight placements of feeder cattle now mean competition for live cattle would drive price discovery in a couple months. Nearby and futures contracts would suggest that market participants expect cash cattle prices to recover in later months. However, cattle marketed during the month of April and recent kill rates supplied by AMS out of St. Joseph, MO would indicate that irregular price patterns will develop over the next 4-6 weeks. The irregular price pattern is exemplified by the March marketing value of 2.01 million head that was 13% higher than the year prior and second highest for the month. This is due to price premiums offered by some packers pulling cattle forward off feed in early March prior to the COVID-19 outbreaks in US facilities. Cattle slaughter rates really accelerated during the back end of the first quarter as a result (figure 2). Regardless the continuing trend of recent contractions in the overall cattle herd will lower the availability of cattle for slaughter later in the fourth quarter of 2020. The important question that

remains- how much buying power does the US consumer have later in the year to spend on animal protein? If the World Trade Organization is correct in their estimates- it could mean a sharp decline in animal protein demand.

Total cattle and calves on feed in feedlots with capacity of 1,000 or more head totaled 11.297 million, 5% below the same point a year ago and 4% below one month prior. All states either stayed the same or decreased except for Arizona, which saw a modest 2% increase. Feeder profitability looked healthy to start 2020 with the *Cattle Feeding Returns* report from Kansas State University indicating a $122/steer margin in January however, this assumes unhedged cash prices. Throughout the month of February feeder margins continued to drop before the abysmal month of March. Continued closures in April have negative feeder margins estimated for losses above $300/head the next three months. The next *Cattle on Feed* report on May 22, 2020 is likely to show placements down again in April and flat cattle on feed, even with lower slaughter rates. Figure 1 illustrates cattle on feed values per month to start 2020 relative to the year prior. The 5-year average is included to visually illustrate the increase in the US beef sector over the last 5 years. Even with lower cattle on feed numbers to start April 2020, they remain above the 5-year average.

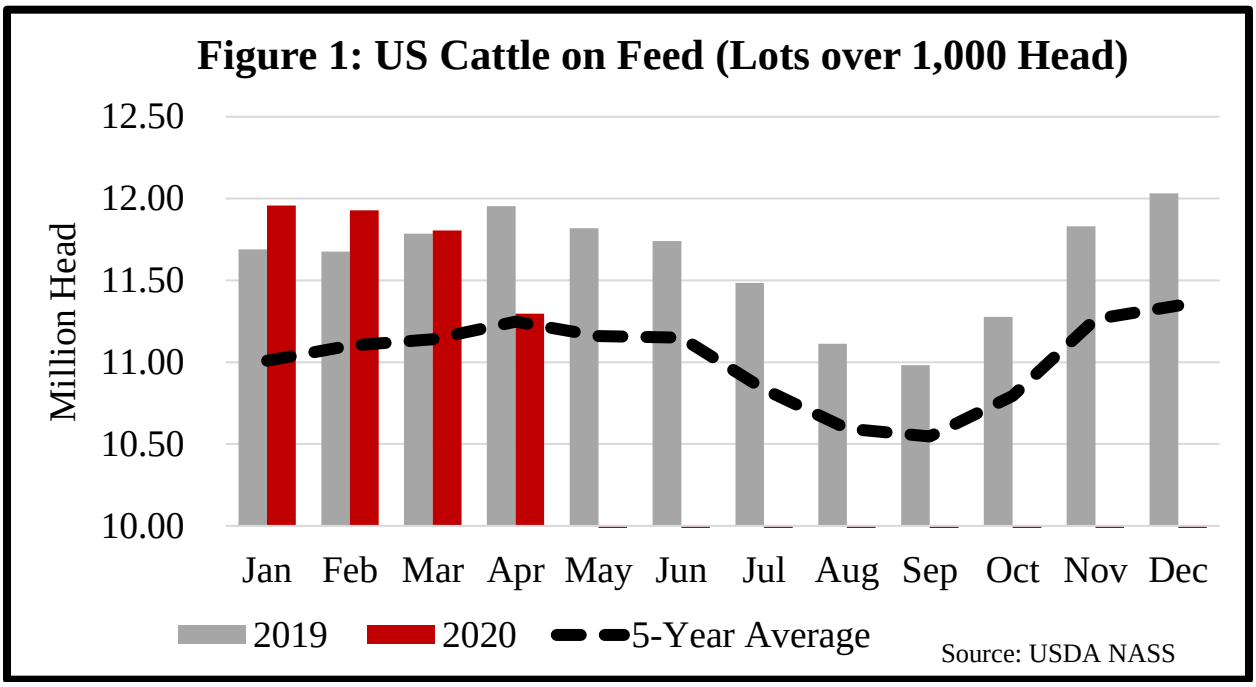
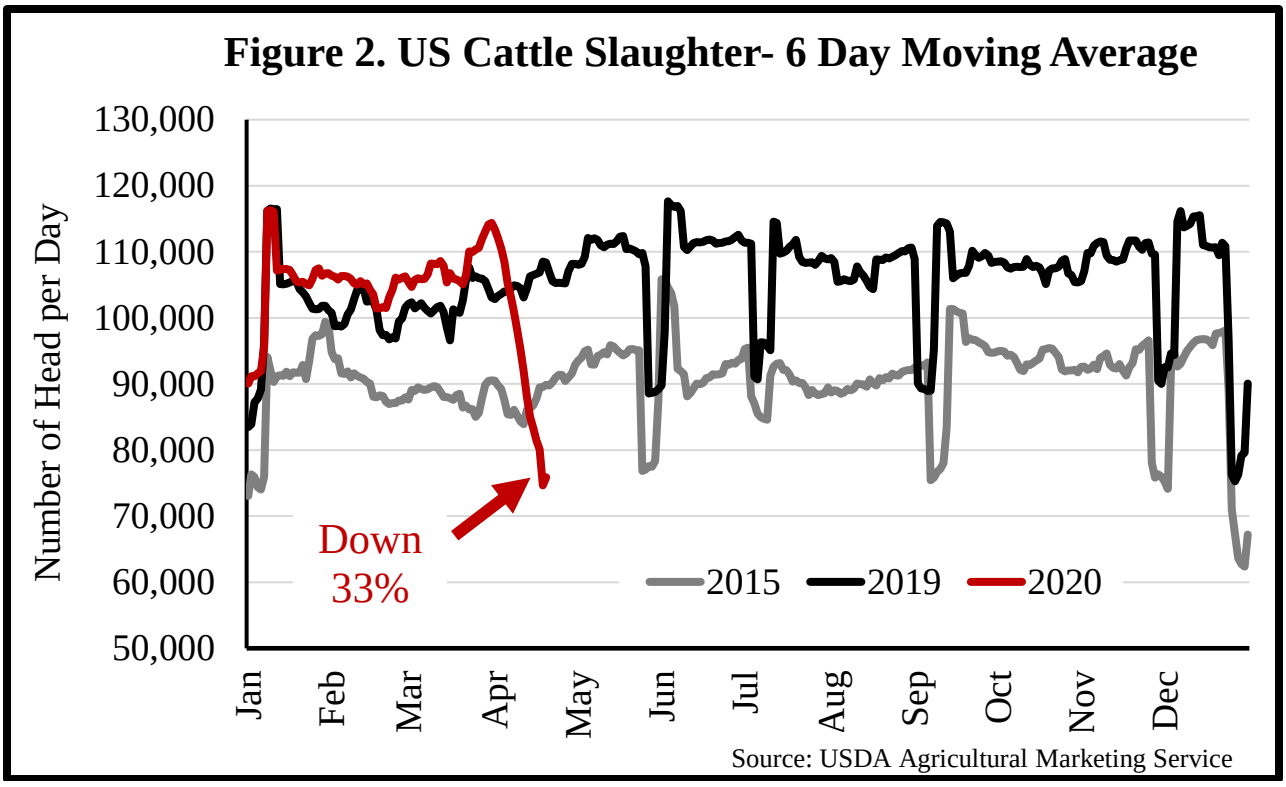


Figure 2 illustrates a six-day moving average of federally inspected actual slaughter numbers for 2015, 2019 and the start of 2020. Again, 2015 is included as a benchmark to show the growth in the beef industry over the last five years. Cattle slaughter for the last available week is down 33% from the peak mid-March. Prior to the COVID-19 outbreak beef production was expected to have another record year; however, reduced daily slaughter rates and prolonged packing plant closures bring this into question. Little is known about the success rate of packing plants starting back up or how The Administration's executive order (signed April 28) will impact the supply chain. However, under current conditions more cattle are backing up on-farm and using less feed than they otherwise would if the plants were working properly. Some cow-calf producers are facing the unusual experience of background and stocking available forage resources to meet feed needs. In most cases this decision is one of economics, where cost of gain (COG) vs value of gain (VOG) are considered and compared. If the VOG is less than the COG, then the producer would be advised to move cattle off farm to avoid losses. At the current time, the decision is being made for some producers who have no bidders for their calves.

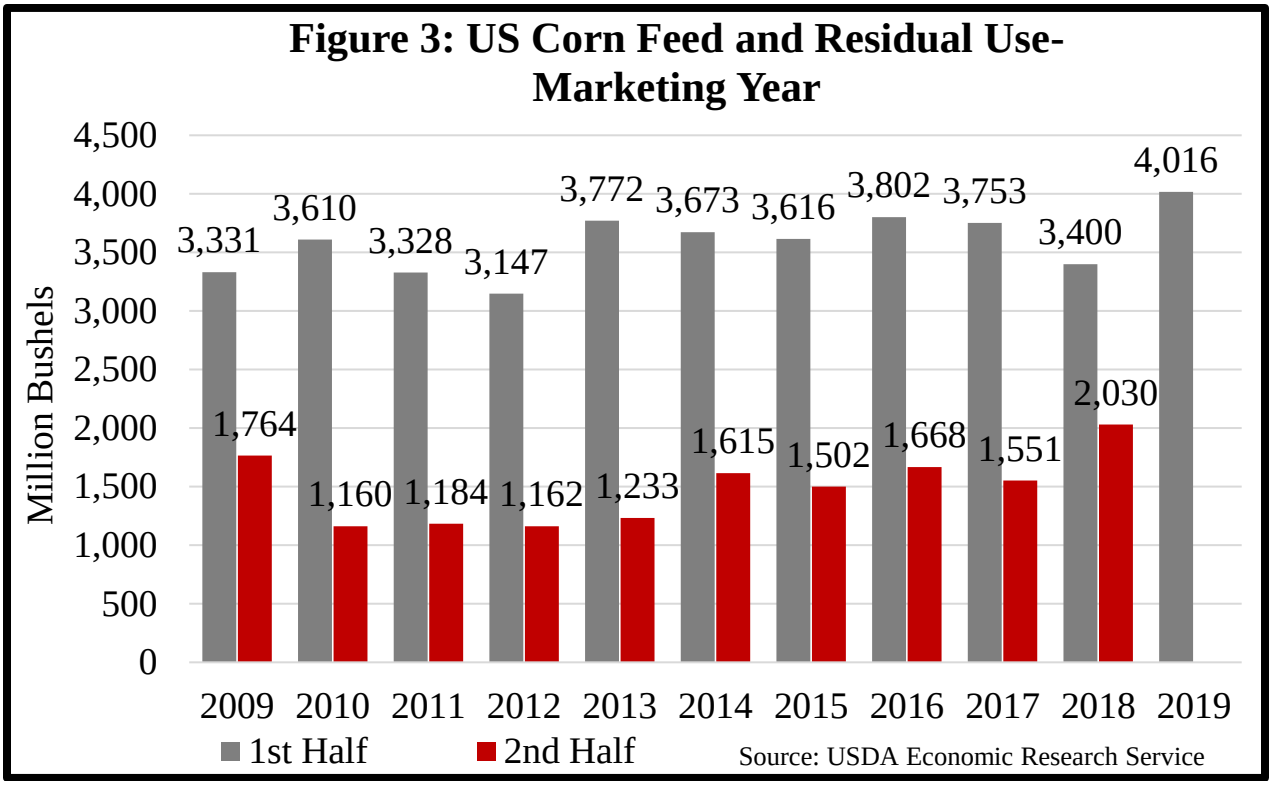


Feed Use Estimates

Softer cattle on feed placements, incentives for livestock producers to slow down rates of gain, and reports of depopulating the nations pork supply all weigh on corn used for feed. In reverse, cheaper corn and reduced availability of DDGS provide support for corn feed use. This is the typical two-handed economist conundrum. The current USDA estimate for feed and residual use during the 2019/20 marketing year sits at 5.675 billion bushels, which was a 150 bushel increase over the previous estimate. Looking through a COVID-19 lens only, it would be easy to say that the entire increase is directly related to the pandemic. However, estimating corn used for feed is always the most difficult category of the corn balance sheet to estimate because of the large amount of corn fed on farm that only goes through a point of sale when the fat animal gets sold. Therefore, deriving the feed and residual number from all other balance sheet items provides a correction to the market. The *March 1st Stocks Report* shocked market observers when corn stocks came in 173 million bushels lower than the pre-report guesses. This can imply three things: larger feed use in the second quarter than expected, a smaller 2019 corn crop than reported in January, or a mixture of both. USDA usually splits the surprise between feed and residual use and ending stocks. That appears to be the case again in the April report.

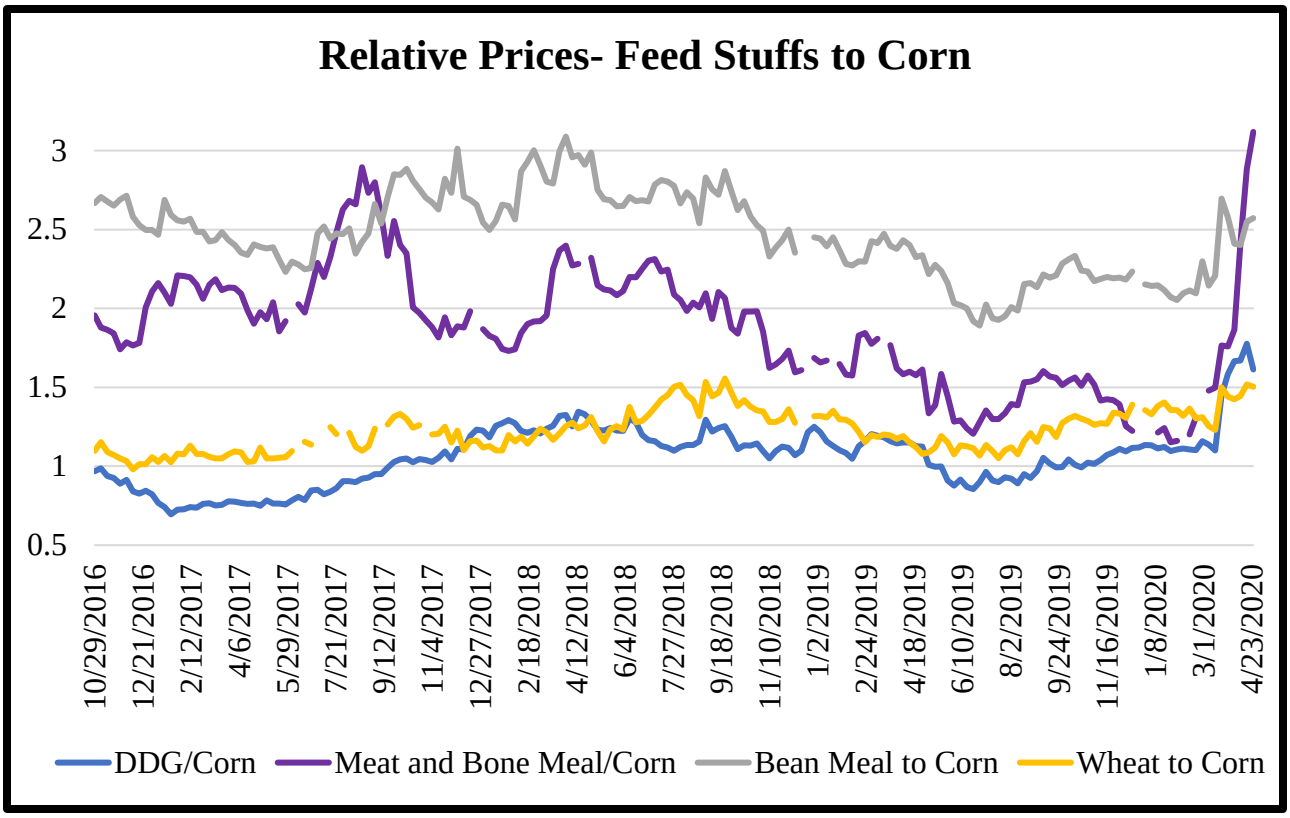
Feed use in the first half of the marketing year as a percent of the annual total has averaged between 63% and 76% the last ten years (figure 3). Strong cattle on feed numbers and hog inventory during the second quarter indicated a robust feed use even before COVID-19 issues started to arise in the United States. The question becomes what does feed use look like in the second half of the marketing year given all the uncertainty in the livestock sector. Table 1 outlines two implied values for feed and residual use in the back half of 2019/20. The first value implies that feed and residual use during the first half of the marketing year accounted for 63% of the total. If that is realized, then a feed and residual use well above USDA current estimate would be justified. However, the second value implies that feed and residual use during the 1st half of the marketing year accounts for a 5-yr average of 69%. This implied value is larger than USDAs current estimate by 145 million bushels. It seems plausible that USDA will increase the feed and residual number another 75 million bushels on decreased ethanol and DDG production. The May WASDE will be the

Agency's first estimates for the 20/21 marketing year. USDA's 10-year baseline for row crops released in February, indicated 5.8 billion bushels of corn used for feed and residual use during the next marketing year.



1st Half Disappearance of Corn	Estimated Value of Feed and Residual Use for 2019/20 Given 1st Half Percentage
Current USDA Estimate	5,675 bil. bushels
63%- 2018/19 Rate	6,375 bil. bushels
69% - 5 Year Average Rate	5,820 bil. bushels

The relative prices between corn and other feedstuffs is important in low cost rations for livestock producers. Figure 4 illustrates the relationship between the moving averages of corn to the prices of select alternative feedstuffs. This list is not exhaustive, nor does it take into account protein conversions, but does illustrate the increasing attractiveness of corn as a feed source over the last month- especially in areas where supply chains of these alternative feed sources have been drastically disrupted.



Summary

Large uncertainty remains in all aspects of agriculture, but especially in meat demand in the later half of 2020. The World Trade Organization and the International Monetary Fund have painted bleak outlooks for global GDP growth in a year when the US was projected to produce a record amount of beef. Current nearby and deferred futures contracts for live cattle would point to price recovery in the later half of the year after two months of relatively low new placements of cattle on feed. The next 2-6 weeks are going to shed light on how much pressure the US meat supply chain can handle. Until then local auction prices and feeder per head returns would suggest another month of low placements may be coming. Important questions that will be answered in the next couple weeks are how successful are these packing facilities at starting back up without additional challenges, what are buying attitudes toward meat of US consumers after the initial surge, and a clearer picture on overall feed use for producers not traditionally feeding animals to higher weights.

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