University of Kentucky
College of Agriculture, Food and Environment

# Economic & Policy Update

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## Mid-year Cattle Inventory Suggests Halting Expansion

Kenny Burdine, UK Ag Economics

In some ways, USDA's July Cattle Inventory report brought some welcome news to cattle producers. Flat beef cow inventory and a decrease in beef heifer development suggested that the expansion phase of this cattle cycle may finally be over. I have always put more stock in the January inventory number than July, but this is the first report that clearly suggests a halt in expansion. Beef cow numbers were unchanged from a year ago and beef heifer development was actually down a little more than 4%.

Most all other estimates line up with this general overview. A slight decrease in the expected size of the 2019 calf crop is also good news for cow-calf operations who continue to struggle to see attractive returns to labor and capital. Cattle-on-feed numbers remain above 2018 levels, but this is largely a function of last year's calf crop. A summary table from the inventory report can be found below.

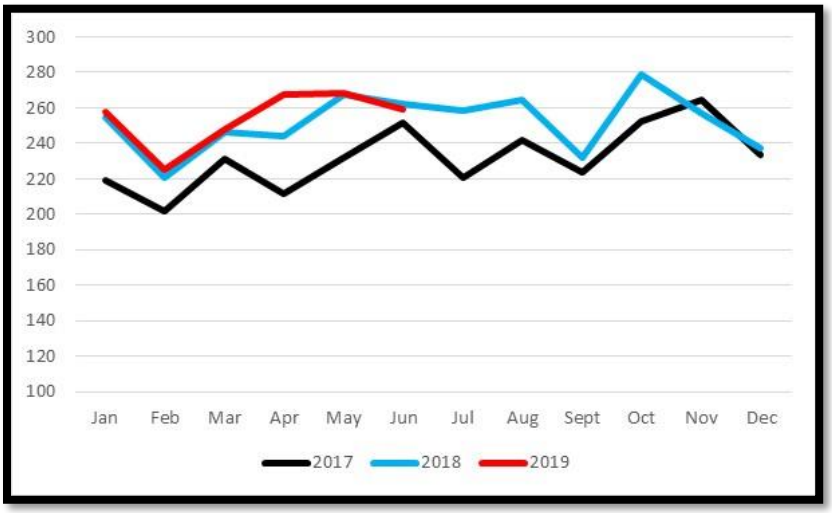
USDA July 1, 2019 Cattle Inventory Estimates

| | 2018 (1,000 hd) | 2019 (1,000 hd) | 2019 as % of 2018 |
|---|---|---|---|
| **Total Cattle and Calves** | 103,000 | 103,000 | 100 |
| | | | |
| **Cows and Heifers That Have Calved** | 41,800 | 41,700 | 100 |
| **Beef Cows** | 32,400 | 32,400 | 100 |
| **Milk Cows** | 9,400 | 9,300 | 99 |
| | | | |
| **Heifers 500 Pounds and Over** | 16,300 | 16,400 | 101 |
| **For Beef Cow Replacement** | 4,600 | 4,400 | 96 |
| **For Milk Cow Replacement** | 4,200 | 4,100 | 98 |
| **Other Heifers** | 7,500 | 7,900 | 105 |
| | | | |
| **Steers 500 Pounds and Over** | 14,500 | 14,700 | 101 |
| **Bulls 500 Pounds and Over** | 2,100 | 2,100 | 100 |
| **Calves Under 500 Pounds** | 28,300 | 28,100 | 99 |
| | | | |
| **Calf Crop** | 36,403 | 36,300 | 100 |
| | | | |
| **Cattle on Feed** | 13,300 | 13,600 | 102 |

Source: NASS, USDA

Heifer retention is usually the focus of discussions about beef cowherd expansion and contraction, but slaughter is another piece of the inventory puzzle. Beef cow slaughter was up more than 8% for 2018, which was much more than expected given the size of the cow herd. This was an early sign that herd expansion was coming to an end. This general trend has continued as beef cow slaughter is up 2% for the first six months of 2019. I think we can trace a lot of this back to drought in the Southern Plains from 2011-2013. Weather forced beef producers to cull very hard for a few years and the result was a younger cow herd. That has caught up with us now as a larger share of our cows are older, which means we are being forced to cull this cow herd harder. Challenging winter weather conditions in the southeast also added to numbers this winter. A summary graphic of cow slaughter can be found below.

Monthly Commercial Beef Cow Slaughter
(1,000 head)




Source: USDA-NASS, Livestock Marketing Information Center

Recently, discussion of cattle numbers has been overshadowed by the fire at the Tyson Plant in Kansas. There isn't a way to paint a pretty picture of the situation as this was a large plant that accounted for 4.5-5.0% of total fed cattle slaughter. In the short run, there will be a significant impact on fed cattle prices. At the time I wrote this (August 19, 2020), CME© fed cattle futures through December had decreased by roughly $8 per cwt since the fire. Even the April 2020 contact was off by around $6 per cwt. I can't argue with the short-term response, but I do question the impact that far out. That impact on spring CME© live cattle futures explains why the feeder board has also been off the last two weeks.

In reality, there are two major things we do not know. First, we don't know how long the plant will be down and that is what will determine how long markets will be impacted and how significant any backlog of fed cattle could be. Secondly, we don't know for certain how much of that lost capacity can be absorbed by other plants. If other regional plants have excess capacity, they can pull some of the displaced cattle in their direction. Plus, plants have the potential increase harvest by adding additional shifts. Given the widening margin between fed cattle and boxed beef values, I would definitely expect some of this to occur. Markets will adjust over time, but this is a significant shock on a market that was already struggling.

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## August Reports Leave Many Questions Unanswered

**Todd D. Davis, Grain Marketing Specialist**

In a typical year, the August *Crop Production* and *World Agricultural Supply and Demand Estimates (WASDE)* reports would shed light on the potential size of the corn and soybean crops. Unfortunately, 2019 is not a typical year. The historic late corn and soybean planting season created uncertainty on how many corn and soybean acres were planted this year with anticipation of a large number of acres filed for prevented planting. Market analysts surveyed before the reports were released expected the 2019 U.S. corn crop to be 13.1 billion bushels with a range of 12.7 and 13.5 billion bushels. Uncertainty over acreage and yield created this wide range of projected production from market analysts. USDA surprised the market with a projected corn crop of 13.9 billion bushels. The analysts also expected the 2019 soybean crop at 3.78 billion bushels with a range of 3.6 to 3.96 billion bushels. The reports currently peg the 2019 soybean crop at 3.68 billion bushels.

What do the larger than expected corn crop and slightly smaller than expected soybean crop mean for ending stocks and price potential? The corn, soybean, and wheat balance sheets for the 2019-20 marketing-year are reported in Table 1. For corn, the 2019 corn crop would be 519 million bushels less than that for the 2018 crop, if realized. The impact of the smaller crop is partially offset by an increase in beginning stocks and imports. USDA projects the 2019 corn supply to be 16.3 billion bushels, which is a reduction of 279 million bushels from 2018. USDA projects a slight reduction in both the domestic and export corn demand from 2018. The combination of larger carry-in and slightly smaller demand is projected to lower ending stocks by 179 million bushels. At this point, the smaller corn crop is not having a significant impact on stocks or the U.S. marketing-year average (MYA) price (Table 1).

Table 1. Consolidated Corn, Soybean and Wheat Balance Sheets for the 2019-20 Marketing-Year.

| | Corn | Change from 2018-19 | Soybeans | Change from 2018-19 | Wheat | Change from 2018-19 |
|---|---|---|---|---|---|---|
| Planted (million acres) | 90.0 | +0.9 | 76.7 | -12.5 | 45.6 | -2.2 |
| Harvested (million acres) | 82.0 | +0.3 | 75.9 | -12.2 | 38.4 | -1.2 |
| Yield (bushels/acre) | 169.5 | -6.9 | 48.5 | -3.1 | 51.6 | +4.0 |
| | ---------- Million Bushels ---------- | | | | | |
| Beginning Stocks | 2,360 | +220 | 1,070 | +632 | 1,072 | -27 |
| Production | 13,901 | -519 | 3,680 | -864 | 1,980 | +96 |
| Imports | 50 | +20 | 20 | +3 | 135 | +0 |
| Total Supply | 16,311 | -279 | 4,771 | -228 | 3,187 | +69 |
| Domestic Use | 12,080 | -50 | 2,241 | +12 | 1,198 | +87 |
| Exports | 2,050 | -50 | 1,775 | +75 | 975 | +39 |
| Total Use | 14,130 | -100 | 4,016 | +87 | 2,173 | +127 |
| Ending Stocks | 2,181 | -179 | 755 | -315 | 1,014 | -58 |
| Days of Stocks | 56 | -4 | 69 | -31 | -21 | -191 |
| U.S. Average Farm Price | $3.60 | +$0.00 | $8.40 | -$0.10 | $5.00 | -$0.16 |

Source:August 2019 WASDE - USDA: WAOB.

The August reports surprised the soybean market with the 2019 soybean crop currently projected to be 864 million bushels smaller than the 2018 soybean crop. USDA projects the harvested area to be reduced by 12.2 million acres and a yield that is 3.1-bushels smaller than last year's yield. The large carry-in of over 1 billion bushels offsets the large production loss, and total soybean supply is projected to be reduced by 228 million bushels from 2018.

The challenge in the soybean market is export demand, which is currently projected to be 1.7 billion bushels. Given the trade disruption with China and strong export competition, projected exports could be reduced in future reports. Crushing demand has steady growth but cannot compensate for the reduced exports. USDA currently projects soybean ending stocks to fall to 755 million bushels, which would be a 315 million bushel reduction from 2018 if realized. The smaller stocks level is not expected to improve soybean price for the 2019-20 marketing year.

Wheat's production estimates are more solid than those for corn and soybeans as the winter wheat crop is projected to be 93% harvested. The balance sheet for wheat shows minor changes from the previous marketing year. Total supply is projected to increase by 69 million bushels with a larger wheat crop offsetting a smaller carry-in. Demand is projected to increase by 127 million bushels driven mostly by expected increase feed use for wheat. Ending stocks, similarly, are projected to decline by 58 million bushels to a little over 1 billion bushels. The 2019 U.S. MYA wheat price is projected to be $5.00 per bushel, down $0.16 from the 2018 MYA price.

Questions remain about the size of the corn and soybean crops, as USDA has not conducted any in-field objective yield surveys. Given the late planting, the in-field measurements may not provide solid estimates until the October report. Until then, the market will be in flux, responding to any news that moves production higher or lower.

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## Protecting Your Broiler Flock (And Wallet) From the Bird Flu

**Jordan Shockley, Kenny Burdine, and Tyler Mark**

The bird flu, officially known as avian influenza (AI) is a highly contagious virus that infects poultry and wild birds. AI consists of two general strains, highly pathogenic avian influenza (HPAI) and low pathogenic avian influenza (LPAI). HPAI is the deadlier of the two strains, is infectious, and can spread between birds rapidly. Various waterfowl species (ducks, geese, and swans) are known hosts of AI. Since Kentucky's broiler production is concentrated on one of the main migratory waterfowl flyways (Mississippi Flyway), biosecurity measures are imperative to prevent an outbreak (Figure 1). The economic consequences of an infected flock can be catastrophic to the producer and have implications at the state and global levels.

Kentucky ranks 7$^{th}$ in the U.S. in broiler production and broilers are the number agricultural commodity in the commonwealth, accounting for more than $1 billion in farm-level cash receipts in 2017. The boiler industry also has a significant impact on local economies. For example, McLean County, Kentucky has one of the highest concentrations of broiler

houses in the state (350 houses) with a total economic impact on the county valued at $86.9 million in 2018. Also, McLean County is one of the smallest counties in the state, which means that an HPAI outbreak in such a county would be devastating. Figure 2 illustrates that the majority of the county, due to its size, would be under quarantine from the required control zone of 10 km.

States along the Mississippi Flyway have had outbreaks of AI infections in commercial poultry operations. Since the widespread HPAI outbreak in 2014/2015, 667,000 more birds have died from both HPAI and LPAI costing the federal government $33 million for control measures. These outbreaks occurred in Indiana, Alabama, Georgia, Tennessee, and Kentucky. In March of 2017, LPAI was detected in a Christian County, KY operation where 22,000 hens were depopulated. This outbreak is one of the most recent occurrences of the virus in a commercial poultry operation in the U.S. While the federal government provides financial aid to a producer for depopulation, cleaning and disinfecting, indemnity payments are only for the birds infected with HPAI. It is important to note that the contract grower is not guaranteed 100% of the indemnity payment, as a portion can be distributed to the owner/integrator. There is also no financial assistance provided for future loss of production while the contaminated area is cleared of the virus. This timeframe could last more than 120 days and has lasting financial implications. A 120-day loss of operation could mean the producer loses income associated with 2-3 broiler flocks, but still has the expenses of maintaining the facilities and making any payments on debts associated with the operation. With the lack of financial support from the federal government for future losses and limited private insurance options, what is the farm-level financial impact from contracting AI on a Kentucky broiler operation?

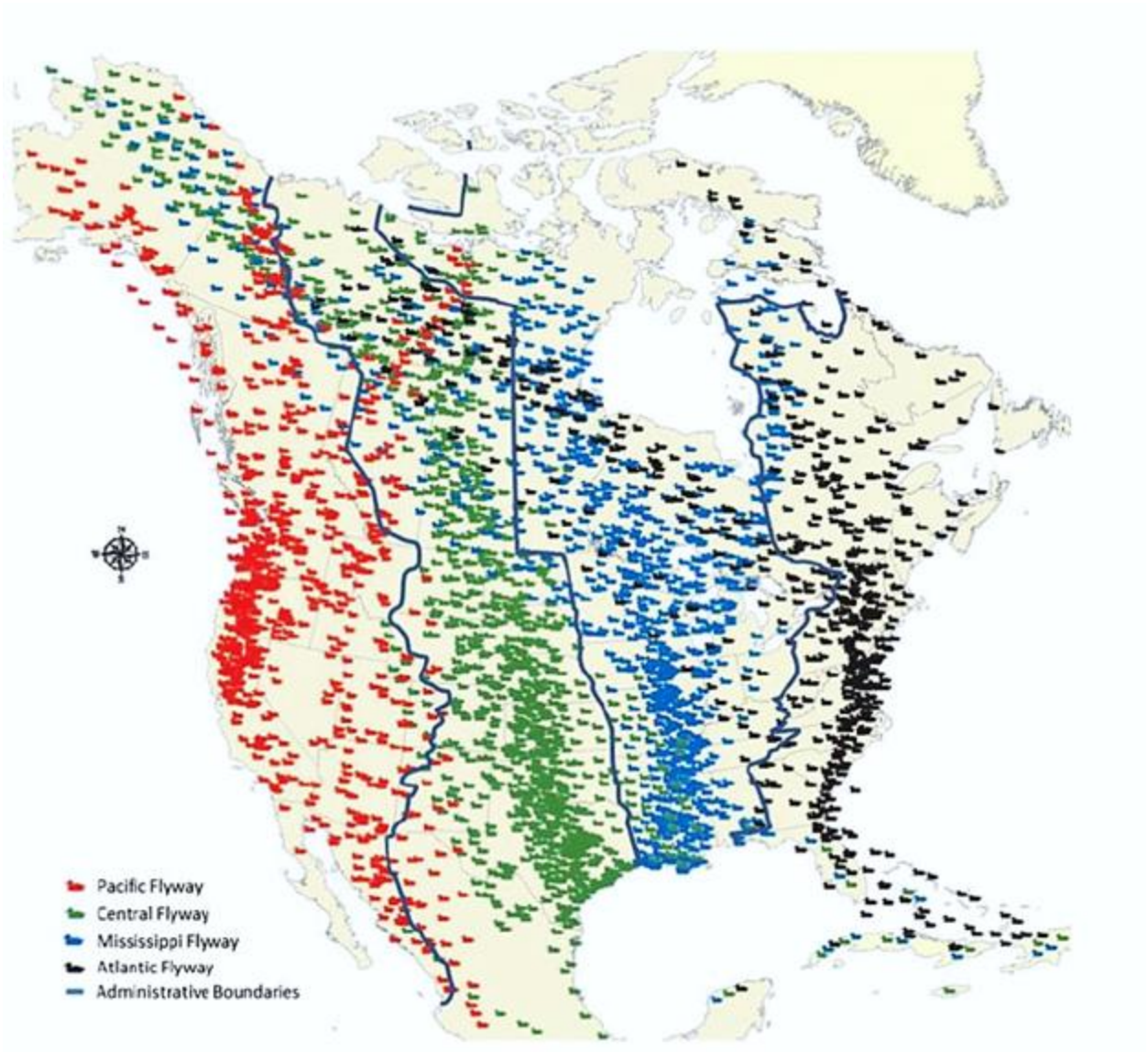
We studied the financial impact of contracting HPAI in a standard four broiler house (43 ft. x 600 ft.) operation in Kentucky. We looked at various scenarios including the type of farmer, number of flocks out, and the timing for which the infection occurred during a 20-year timeframe. The two types of farmers considered were a beginning farmer and an experienced farmer. The beginning farmer was defined by the requirements to qualify for the Beginning Farmer Loan Program through the Kentucky Agricultural Finance Corporation. We also looked at losing one, two, and three flocks due to an outbreak and three timings of when the infection occurred during a 20-year timeframe. The results of our study showed that beginning farmers were more susceptible to significant financial losses compared to the experienced farmer due to their more vulnerable financial position.

Furthermore, contracting HPAI early (Year 2) in the broiler house investment had a larger financial impact than contracting HPAI later (Year 18) in the investment. Therefore, beginning farmers with low net worth when initially investing in a broiler operation also need to invest in biosecurity measures earlier to mitigate the potential for contracting HPAI. Regardless of farmer type, the loss in net farm income from contracting HPAI early is $46,512, $97,658, and $158,348 for the loss of one, two, and three flocks, respectively. This loss in net farm income could also be interpreted as the on-farm equity required to self-insure the operation from HPAI. Unlike net farm income, the impact on total equity in the business due to an HPAI infection does differ by farmer type. A beginning farmer's total equity was impacted more due to an HPAI infection. It would take seven years, nine years, and 11 years to regain total positive equity in the business if one, two, and three flocks were lost, respectively. Whereas it would take an experienced farmer three years, five years, and seven years to regain total positive equity in the business if one, two, and three flocks were lost, respectively.

While AI is a risk that is typically perceived to have a low probability of occurring, we have experienced it in Kentucky. As seen above, the potential impact on

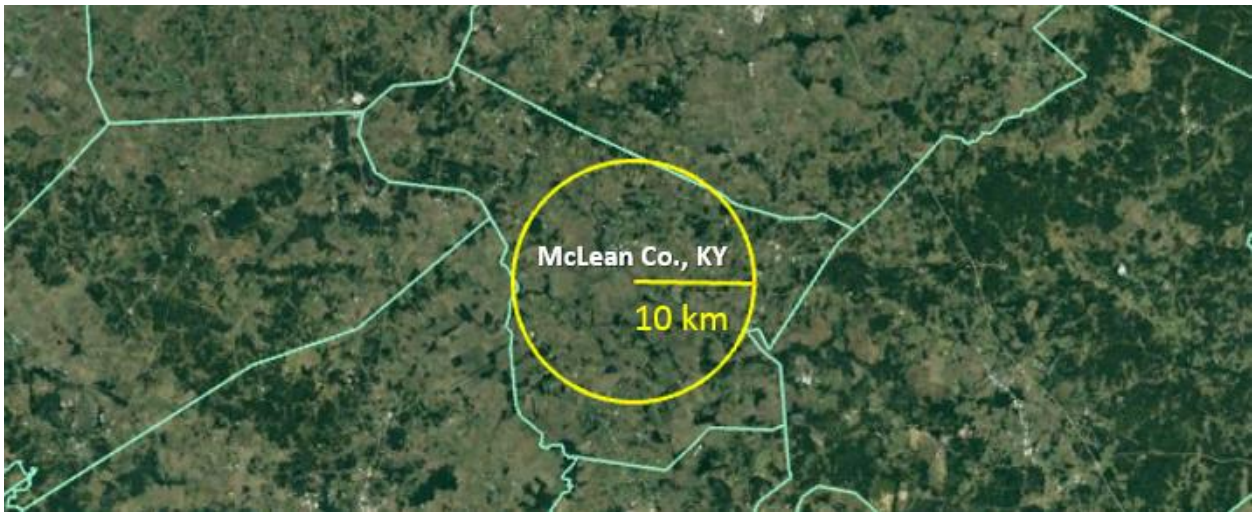
the operation can be substantial, and potentially catastrophic financially. Therefore, early adoption of biosecurity measures is imperative as a financial risk mitigation method from a disease outbreak such as AI. Producers should also consider how they would manage this type of risk, should they be forced to deal with it. These findings also highlight the importance of more insurance companies offering AI policies to protect Kentucky poultry producers in the event of an outbreak.

Figure 1. Biological and administrative waterfowl flyways of North America




Source: Anderson, M.G. and P.I. Padding. "The North American approach to waterfowl management: synergy of hunting and habitat conservation". *International Journal of Environmental Studies* (2015)

Figure 2. Quarantine zone from a hypothetical HPAI outbreak in McLean County, Kentucky.





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## Equity, Cash Flow? What's the Big Deal?

**Jennifer Rogers, Area Extension Specialist**

If you are an agricultural producer, especially a grain producer, the current economy may have you spending a little more time in conversation with your lender. It is likely that terms such as equity, cash flow, and ability to pay have been a topic of discussion. What do those terms mean, and what do they have to do with your ability to continue farming? The answer is EVERYTHING!

Equity, or otherwise known as net worth, is the easy, more familiar term. Total assets minus total liabilities equals' equity. Equity is the amount of your assets that are paid for. As a starting point of your financial

analysis, it is vital that equity is positive, meaning that you have assets worth more than the amount that you owe against them. In general, the greater the equity, the better. When a lender is looking at your equity position, typically they are looking at the ratio of your debt to your assets. This is called the Debt-to-Asset ratio, and is calculated by dividing total liabilities by total assets. A Debt-to-Asset ratio of 60% or less is desired. A positive equity position assures the lender that if you were to default on your loans, that there are enough assets that could be sold to cover the debt you owe. Having less than 60% of your assets tied to debt creates a cushion to cover any current losses that might accumulate, to allow for the over-valuation of assets that might sell for less than is listed and to help cover any tax liability that might be experienced from liquidation. In the case of a complete liquidation, this cushion will hopefully leave you with a little bit of assets to restart your life.

Cash Flow refers to the ability to meet the cash requirements for your operation. The bottom line of a cash flow is determining if there will be enough revenue generated to pay for all of the cash outflows for a given period of time. Typically, for a grain crop operation, this period of time, is one crop year cycle. When taken a step further, a cash flow can be split into multiple periods (i.e. monthly) for that same crop cycle. With a monthly cash flow, you are able to determine the cash needs throughout the year. Are there cash reserves to use to pay bills at the time of year when revenue is not being received? If cash reserves are not available is there a line of credit available to provide those funds? An operation can be "profitable" from an income tax standpoint, yet not be able to cash flow. Principle payments as well as family living withdrawals influence cash flow, yet may not be reflected in the reported Net Farm Income.

In times past, it seemed that equity was the most important factor on being able to acquire a loan. Did you have assets to cover the purchase? Now there is a much great emphasis on the ability to pay. As a general rule, lending institutions do not want to own your farm or any of your other assets. Lending institutions want to lend you the money to purchase something, and then you pay that loan back over time with interest. Lending on equity did not confirm that your operation would be generating any income to be able to pay back the obligation. Ability to pay is an analysis to confirm that your business or other income is great enough to pay for the expenses of operation as well as debt service. Lending on ability to pay is ultimately in the best interest of the sustainability of the operation. Ability to pay keeps a borrower from spending above their means.

Our farm economy has taken a downturn in recent years and it has been slow to recover. Many producers are feeling the pinch, especially when it comes to securing operating funds and borrowing funds for big purchases. The producer must be aware of their equity position, cash flow needs, and ability to pay for those purchases. Being aware of your financial position will help you navigate through this downturn and hopefully, still be operating on the other side.

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## Policy Tidbits

- Various sources have indicated that the United States and Japan negotiators have reached an "agreement in principle" on a trade deal that would lower tariffs on U.S. agricultural commodities entering Japan. Recent trade agreements between Japan and other important agricultural trade markets like Canada, Australia, and the European Union have adversely impacted the competitiveness of U.S. farm products entering Japan. Given the recent trade disruptions between the U.S. and China, Japan is currently the United States' third largest export customer, following Canada and Mexico. In recent years, Japan has been a significant buyer of U.S. corn, beef, pork, soybeans, wheat, and dairy products.

- Last week USDA provided more calculation details on the second round of payments under the Market Facilitation Program (MFP 2.0). Payments for the second round are a flat per acre rate per county, based on the estimated adverse trade impacts over a 10 year period for the ag commodities produced in a given county. Below is a table of interest for Kentucky agricultural commodities comparing payment rates for 2018 and 2019 crops.

| Commodity | 2018 | 2019 |
|---|---|---|
| Alfalfa | -- | $2.81/ton |
| Corn | $0.01/bu | $0.14/bu |
| Dairy | $0.12/cwt | $0.20/cwt |
| Ginseng | -- | $2.85/lb |
| Pork | $8.00/head | $11.00/head |
| Sorghum | $0.86/bu | $1.69/bu |
| Soybeans | $1.65/bu | $2.05/bu |
| Wheat | $0.14/bu | $0.41/bu |

For details on USDA's trade demand estimation methodology for MFP (2.0) payments go to www.usda.gov/oce/trade/USDA_Trade_Methodology_Report.pdf. A description of MFP (2.0) can be found in the July 2019 Economic and Policy Update newsletter.

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