

# Iowa Farm Outlook

Department of Economics  
Ames, Iowa

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## Larger Breeding Herd Weighs on Deferred Hog Market

The pork industry has been in expansion mode now for three plus years. After an initial surge of breeding herd expansion of 2% to 3% in late-2014 and early-2015, expansion has been steady averaging 1.3% year over year growth for the past 12 quarters. Breeding herd expansion of about 1% was favorable. This meant pork supplies grew at about 2.5% a year. This was about the same rate that total use (domestic consumption, exports, cold storage) was increasing. With that rate of sustainable expansion, hog prices were generally at or above total cost of production. The positive return to owner management was a key factor influencing national herd growth.

A sizable acceleration in the expansionary pace is a new twist. Average annual returns for farrow to finish production are forecasted to be about breakeven in 2018 and negative in 2019. Intuitively this should result in slowed or stalled expansion. Avoiding supply expansion to a point where prices are not profitable is the goal for the industry. Of course, many other factors could be cause for a larger reported breeding herd.

The kept for breeding, or breeding herd, inventory, a sub-inventory of the all hogs and pigs inventory, is an estimate of all the sows, gilts (both bred and open) and boars that comprise the breeding stock. As of June 1, 2018, 6.320 million head comprised the breeding herd based on producer surveys for USDA's Hogs and Pigs Report (Table 1). This quantity was up 5.7% and 3.5% from the June 1 2016 and 2017 inventories, respectively.

**Table 1. USDA Quarterly Hogs and Pigs Report Summary**

	U.S.			Iowa		
	2017	2018	2018 as % of '17	2017	2018	2018 as % of '17
Jun 1 inventory *						
All hogs and pigs	71,010	73,451	103.4	21,900	22,700	103.7
Kept for breeding	6,109	6,320	103.5	1,030	1,040	101.0
Market	64,901	67,131	103.4	20,870	21,660	103.8
Under 50 lbs	20,647	21,387	103.6	5,450	5,590	102.6
50-119 lbs	18,741	19,388	103.5	6,870	7,150	104.1
120-179 lbs	13,646	14,198	104.0	4,950	5,220	105.5
180 lbs and over	11,867	12,157	102.4	3,600	3,700	102.8
Sows farrowing **						
Dec – Feb <sup>1</sup>	2,986	3,057	102.4	510	560	109.8
Mar – May	3,014	3,121	103.6	510	570	111.8
Jun – Aug <sup>2</sup>	3,121	3,170	101.6	530	570	107.5
Sep – Nov <sup>2</sup>	3,130	3,180	101.6	560	570	101.8
Mar – May pigs per litter	10.55	10.63	100.8	10.95	11.10	101.4
Mar – May pig crop *	31,790	33,167	104.3	5,585	6,327	113.3

Full report: <http://usda.mannlib.cornell.edu/usda/current/HogsPigs/HogsPigs-12-22-2017.pdf>

\* 1,000 head; \*\*1,000 litters; <sup>1</sup> December preceding year; <sup>2</sup> Intentions.

Quarterly Hogs and Pigs reports provide valuable and timely market data, but some of the numbers often need to be put into a context, especially when unexpected situations happen. The year over year increase of 3.5% in the breeding herd was the largest annual increase since March 1, 1998. The trade was expecting a 1.7% increase. For those concerned that hog production may begin to outpace demand, the ever expanding breeding herd is a cause for worry.

From March 1 to June 1, 110,000 head were added to the national breeding herd. This is a big quarterly jump. The industry has not added that many in a quarter since 1997 and it happened to be in the same March through May period. One needs to always keep in mind, either herd numbers actually seen a large increase, or the numbers were underestimated earlier. The increase of 3.4% in market hog inventory probably reflects the fact the breeding herd was perhaps higher than previously stated in earlier quarterly reports. This is especially true since the number of pigs saved per litter has average about 1% growth the last three quarters.

USDA's track record has been pretty good on these Hogs and Pig reports, especially relative to pig numbers and slaughter reports. So playing catching up on the breeding herd estimate, if that's the case, will only make numbers more consistent going forward. It is still the best survey the industry has available.

States with the most robust expansion over the past year as measured by the largest increases in the breeding herd include: Illinois +40,000; South Dakota +40,000; North Carolina +30,000; Missouri and Texas each +20,000; Pennsylvania +15,000, and then a host of states at +10,000. Where the large increases occurred regionally, non-coincidentally, happened to be where new packing plants have been constructed.

Along with herd expansion has come investment in new and remodeled facilities. New sow units that were on the drawing boards the last couple of years are now likely in production. Spreading fixed (building, equipment) and quasi-fixed (labor) costs over more units of output is important. Sow farms can reduce average fixed and sunk costs by stocking and farrowing more sows. In fact, the latest numbers support this. The latest breeding herd utilization rate (March through May sows farrowing / March 1 breeding herd) was 50.3%, up from 49.4% last year and the highest for the quarter since 2012 (Figure 1). To achieve and keep up this pace producers may have needed to add or retain more breeding females which would contribute to the reported higher breeding herd number.

In the Hogs and Pigs report survey producers are asked—How many sows and gilts for breeding (Include unweaned gilts intended for breeding)? It is certainly possible that more gilts have entered the breeding herd than previous thought and reported by producers. Large investments in gestation and farrowing facilities dictate that these investments will be used to produce pigs, not sit idle.

Pork producers have made significant investments in many facets of production, from breeding operations to finishing to packing and processing to even pork marketing with many adopting an integrated business model capturing many stages of production. Just looking solely at hog profits, i.e., farrow to finish, only tells part of the story. Making use of the term throughput is telling on why vertically integrated firms may be adding sows. Throughput, defined in terms of pork production, is the pounds of pork “put through” a system and delivered to customers within a specified period of time. Businesses with high throughput levels can take market share away from lower throughput firms because the former can produce pork more efficiently than their competitors.

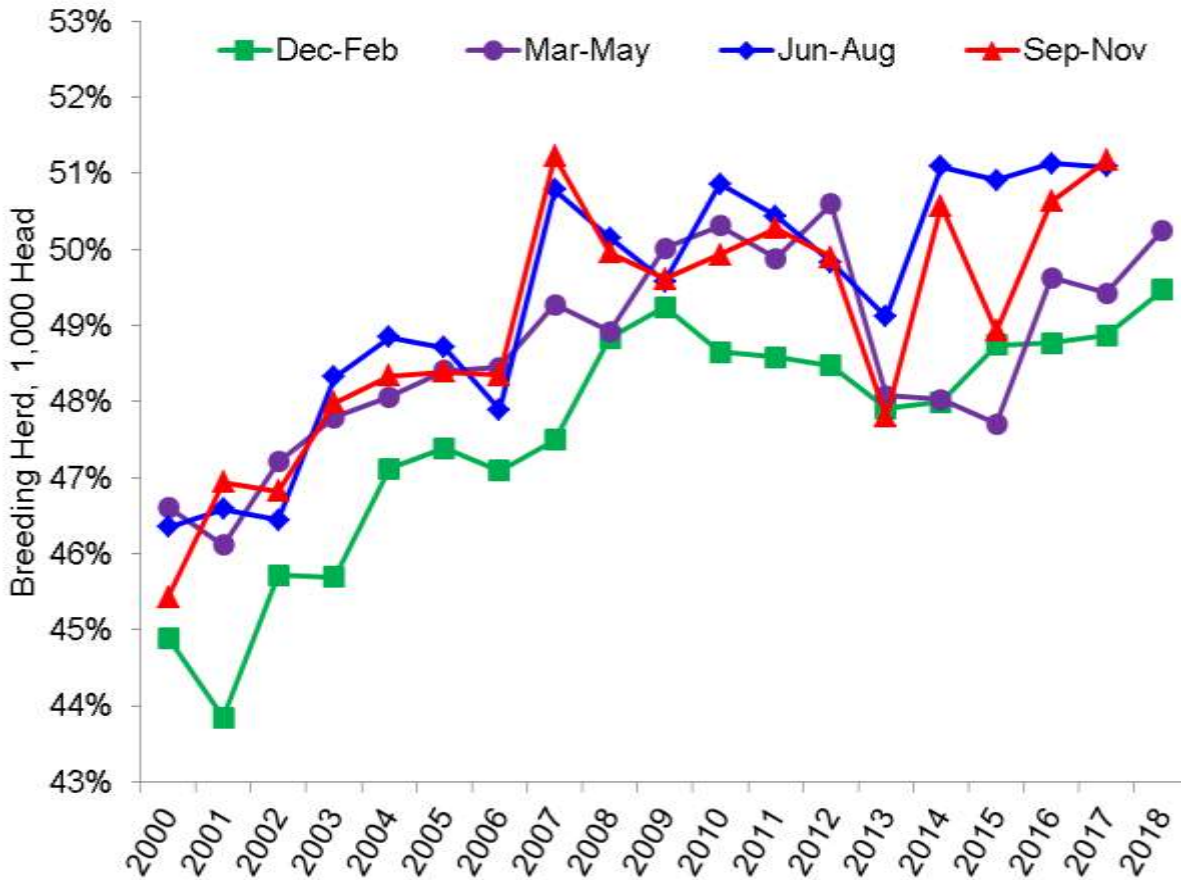
What are the implications of the larger breeding herd?

Although the increase will not likely have an impact on nearby market prices, it is bearish to the deferred hog market, as more females are being retained for breeding. This will, in turn, yield larger pig crops in the future, thus increasing the supply of market hogs, slaughter numbers, and pork production.

USDA gets three shots to estimate quarterly sows farrowing. The second estimate of sows farrowing for the March through May quarter was presented in the March report and was at 3.078 million sows (Figure 2). This was 2.1% higher than the previous year. The actual March through May sows farrowing estimate reported in the June report was 3.121 million sows and was up 3.6% year over year. This was 43,000 sows more than the

intention estimate last quarter. At commensurate pigs saved per litter of 10.63 this totals 457,090 more pigs added to the pig crop than expected. This equates to about an extra day's worth of slaughter added to the mix in the fourth quarter this year. Not prohibitive but another factor that will weigh on the market.

**Figure 1. U.S. Breeding Herd Utilization**



Data source: USDA-NASS.

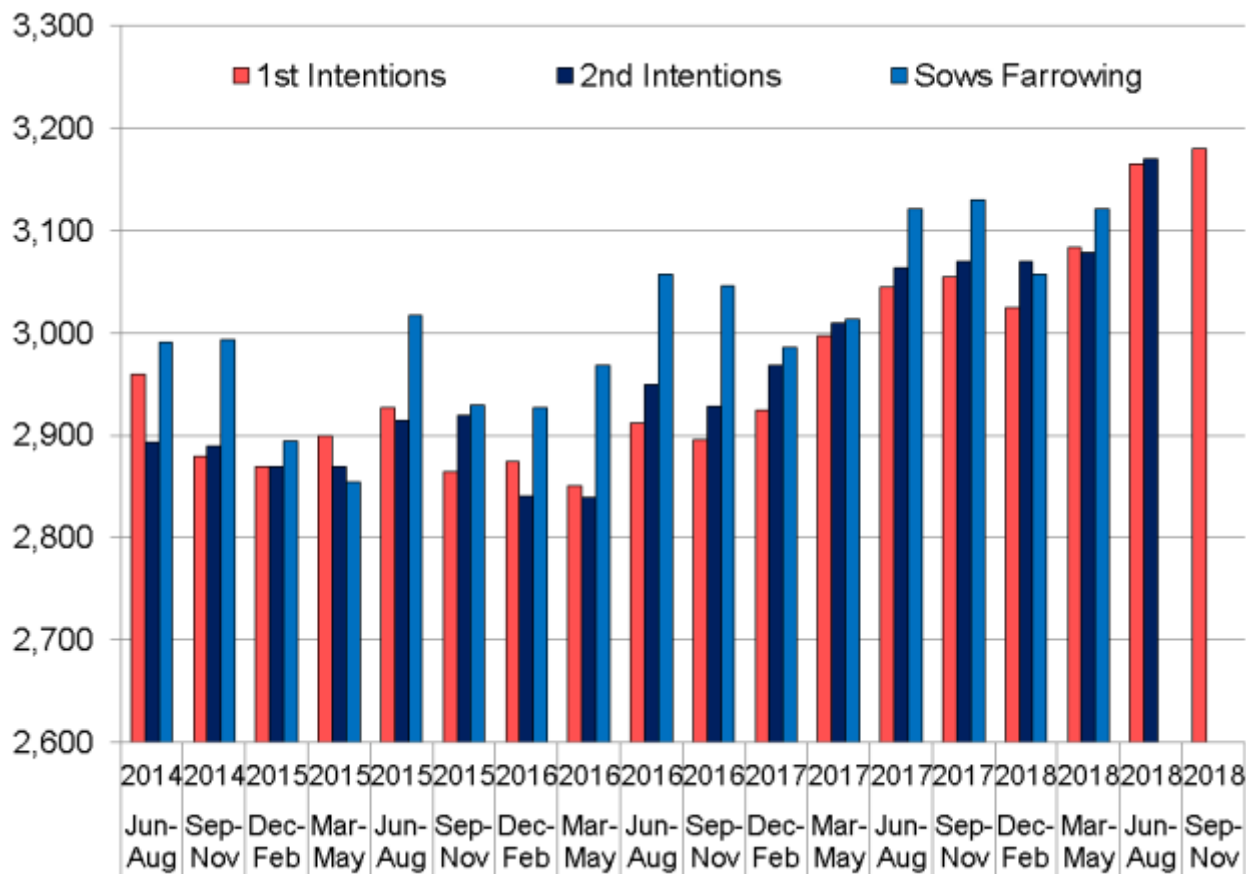
For June through August sows farrowing, USDA only reported a year over increase of 1.6% and only increased the intention number from the first to second estimate by 5,000 sows or 0.2%. Given the size of the June 1 breeding herd, one would expect June through August sows farrowing to be about 3.5% higher than the previous year. This would be consistent with a farrowing ratio (farrowings divided by breeding herd) of 51.1%, which is in line with the last two June through August quarterly estimates. With a trend increase in the number of pigs saved per litter this implies a 4.5% increase in the June through August pig crop which will roughly reach slaughter during January through March 2019.

This foreshadows the importance of price-risk management. In late 2017, the market was offering opportunities to capture higher prices in 2018. The ability to hedge against the downward price movement experienced this year has put many producers in a much more favorable position than markets are currently offering. While this report has a bearish tone to it especially for the deferred hog market and will likely weigh on prices, the market will offer opportunities in the future. It is important to take advantage of those opportunities.

**Commercial slaughter and price forecasts**

Table 2 contains the Iowa State University price forecasts for the next four quarters and the quarterly average futures prices based on June 28, 2018 settlement prices. The futures price forecasts are adjusted for a historic Iowa/Southern Minnesota basis. The table also contains the projected year over year changes in commercial hog slaughter.

**Figure 2. Quarterly U.S. Sows Farrowing and Intentions**



Data source: USDA-NASS.

**Table 2. Commercial Hog Slaughter Projections and Lean Hog Price Forecasts, 2018-19**

	Year-over-Year Change In Commercial Hog Slaughter (percent)	ISU Model Price Forecast, Negotiated IA/So MN (\$/cwt)	CME Futures (6/28/18) Adjusted for Negotiated IA/So MN Basis (\$/cwt)
Jul-Sep 2018	3.78	67-71	68.67
Oct-Dec 2018	4.71	52-56	54.04
Jan-Mar 2019	2.48	58-62	60.12
Apr-Jun 2019	3.48	62-66	65.00

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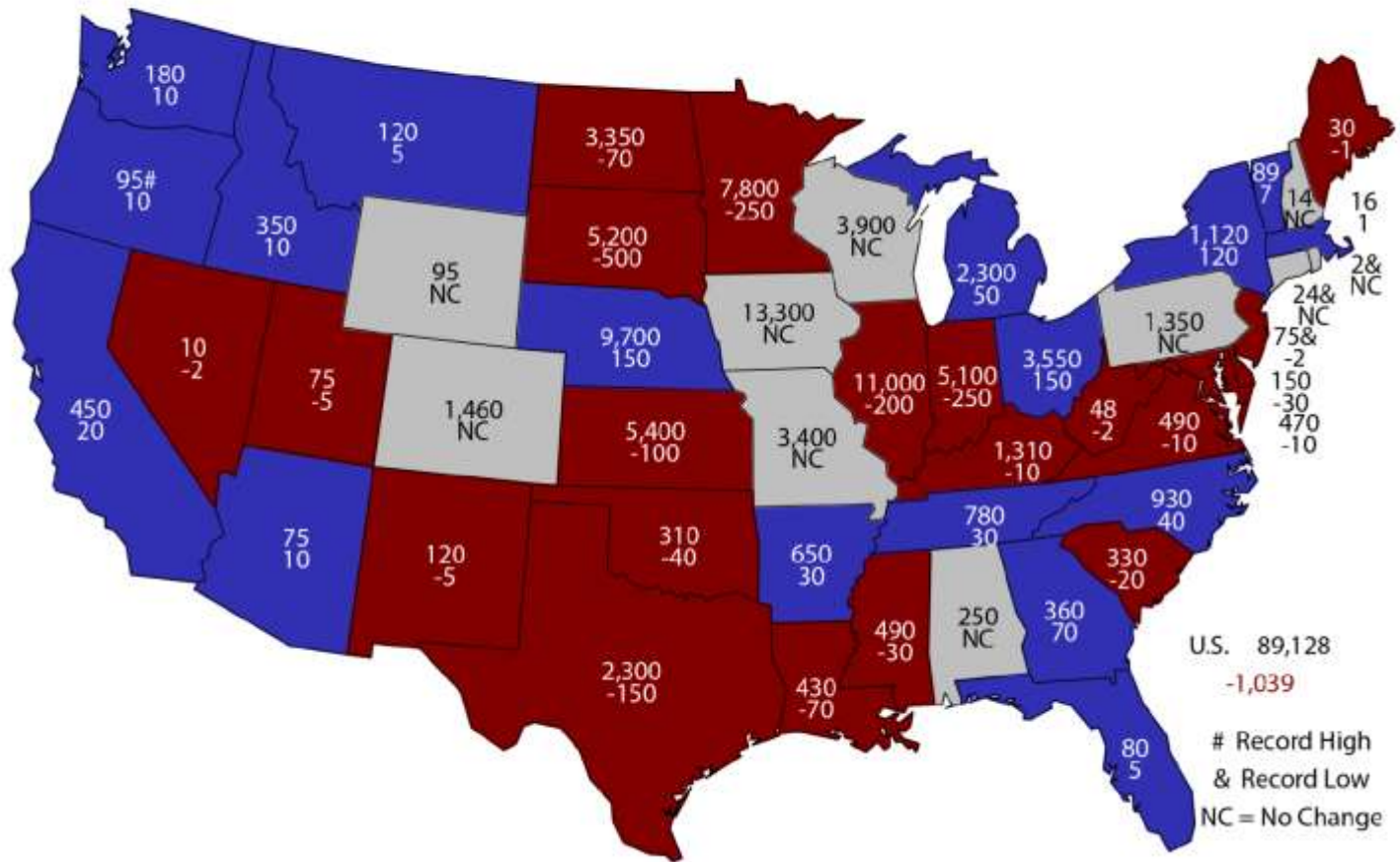
### No Fireworks from the June Reports

June couldn't end fast enough for the crop markets. The weather premium and positive demand news that had built up over the spring dissipated quickly in June and the markets are searching for a bottom as we approach the 4<sup>th</sup> of July. And what could have been one last jolt to the system, with the release of the Acreage and Grain Stocks reports, turned into relatively minor news. The reports were close enough to expectations that the price moves in the last trading day of June were small. Acreage for corn and soybeans was lower than last year, but above the March planting intentions. Stock levels were higher than last year, but again, no surprise, given the large crops harvested last fall. With fewer acres planted, crop supplies should be a bit smaller, implying smaller stocks for the coming year.

Corn planted area split the difference between last year's planted area and March's planting intentions. Corn area in 2018 is roughly 1 million acres less than last year, but 1.1 million acres above the intentions farmers outlined in March. Compared to the March intentions, the largest shifts occurred in the Great Plains. Kansas, Minnesota, and Nebraska each added at least 300,000 acres to stated intentions, while South Dakota scaled back on corn by 500,000 acres. But compared to last year, corn lost ground across most of the Great Plains, along with reductions in Illinois and Indiana. Despite the planting issues, especially in the northern third of the state, Iowa planted the same amount of area to corn as last year. Given USDA's trend yield, the 89.1 million acres of corn would translate to a 14.22 billion bushel crop. That would be 380 million bushels below last year's production.

**Figure 1. U.S. corn planted area (Source: USDA-NASS).**

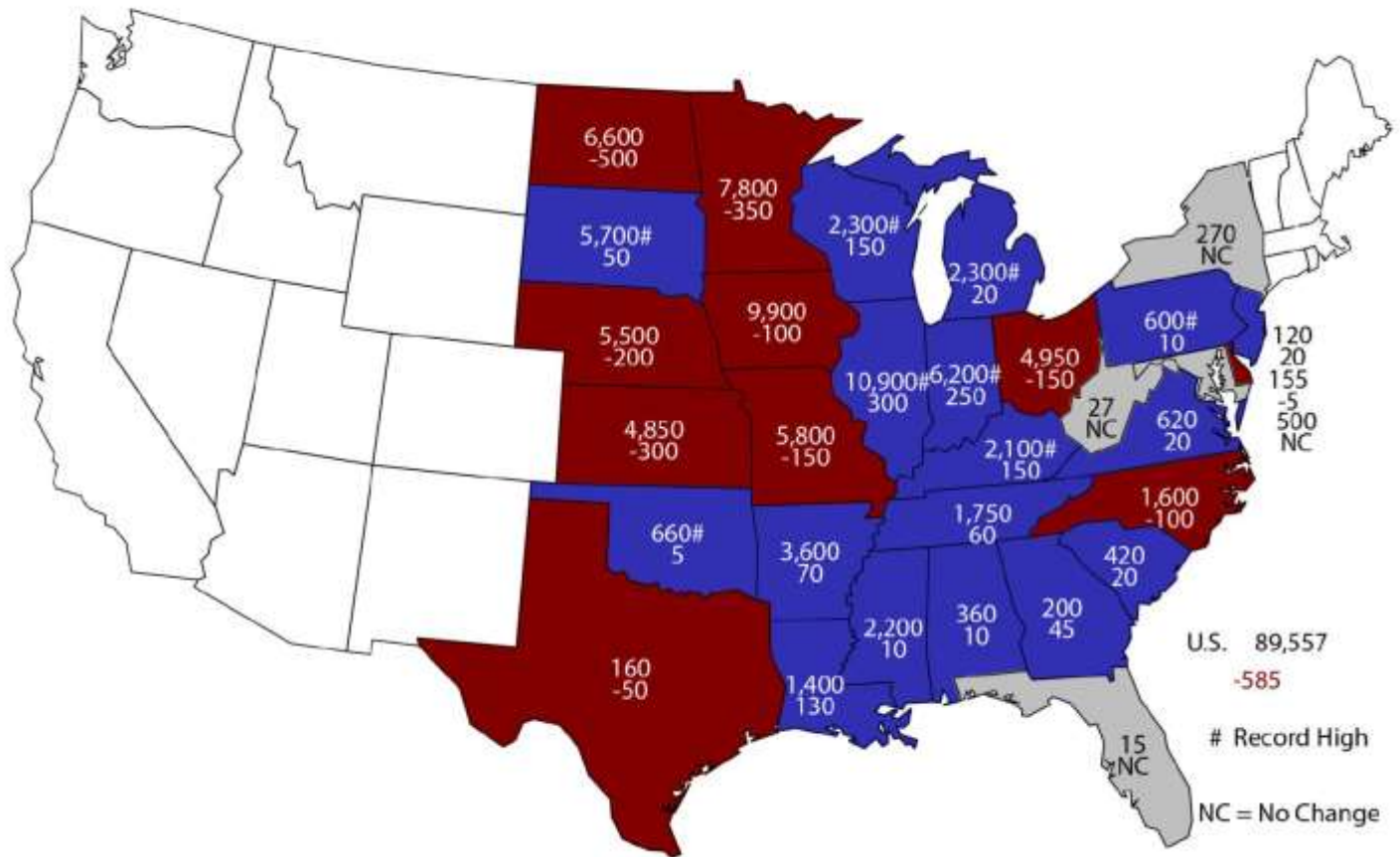
(000) Acres and Change From Previous Year



For soybeans, the national acreage changes mimic corn. This year's planted area is below last year, but above intentions. The state-by-state shifts mostly follow an east-west split. Eastern states tended to plant more soybeans, while western states reduced planting from intentions. The two largest shifts, both from last year and from intentions, occurred in Illinois and North Dakota. Illinois added 300,000 soybean acres, which will set a record for soybean area, along with records in seven other states. North Dakota producers reduced soybean area by 500,000 acres, as many farmers refocused their land for the wheat market. Soybean area exceeded corn area by approximately 400,000 acres nationwide, the first time soybeans topped corn since 1983. With USDA's trend yield, the 89.56 million acres of soybeans translates to 4.27 billion bushels. That would be 120 million bushels below last year's crop.

So this year's crops are shaping up to be a bit smaller, reducing the potential for another set of record supplies to start the marketing year. However, remaining supplies from last year's harvest are significant. As of June 1, 5.31 billion bushels of corn were still in storage, roughly 1 percent higher than in 2017. While on-farm stocks fell 3 percent, off-farm stocks rose 7 percent. Corn stocks are higher, but corn disappearance was also higher.

**Figure 2. U.S. soybean planted area (Source: USDA-NASS).**  
 (000) Acres and Change From Previous Year

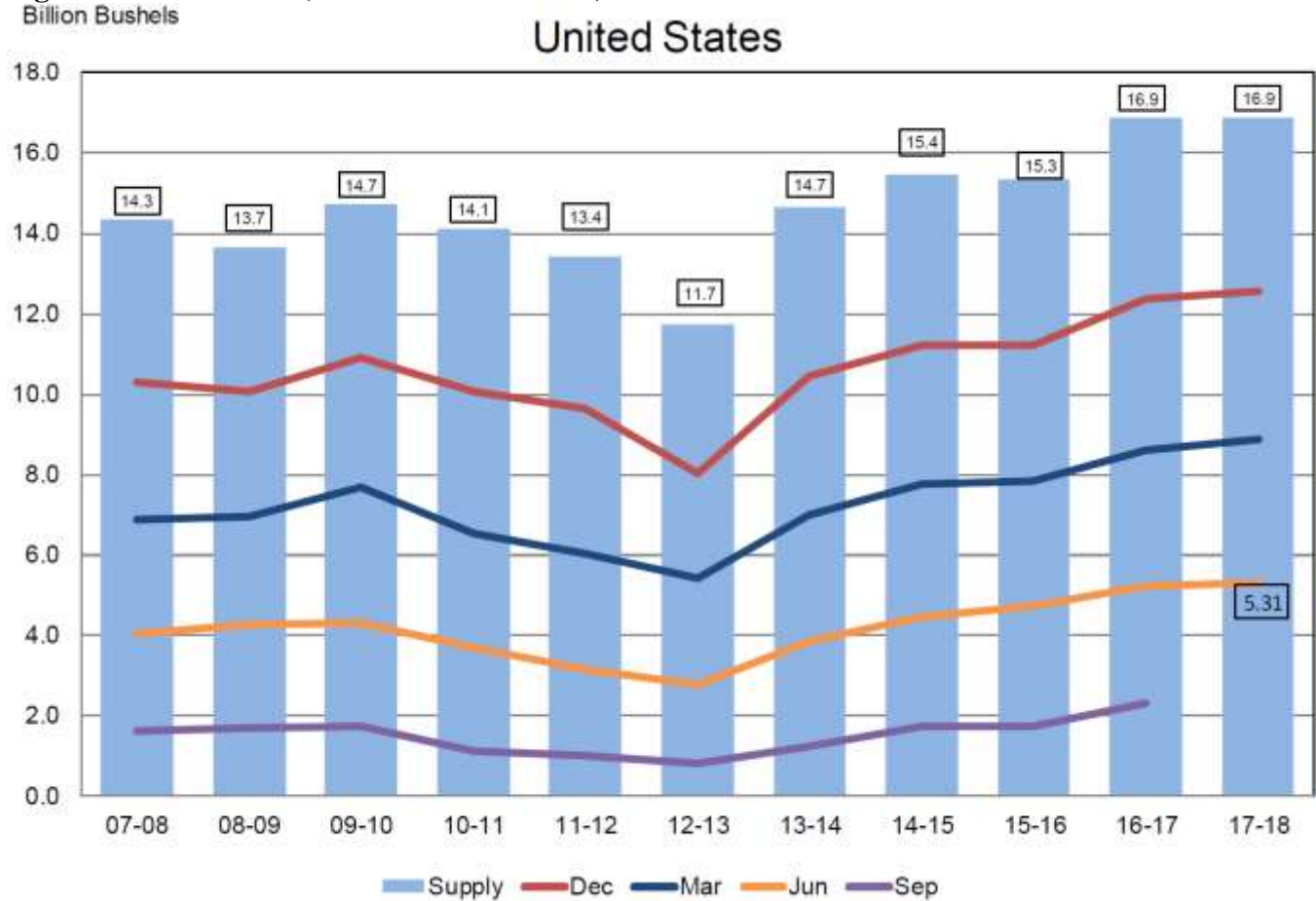


Through the 3-month period from March to May, corn disappearance grew 200 million bushels from last year's pace. Corn usage remains fairly strong, via feed, ethanol, and exports, even with the trade policy disputes. A big question for the corn market will be if usage can remain resilient if the trade disputes continue through the fall. Tariffs on many agricultural products would slow export sales for both crops, livestock, and biofuels. That will have negative consequences for corn usage across the board.

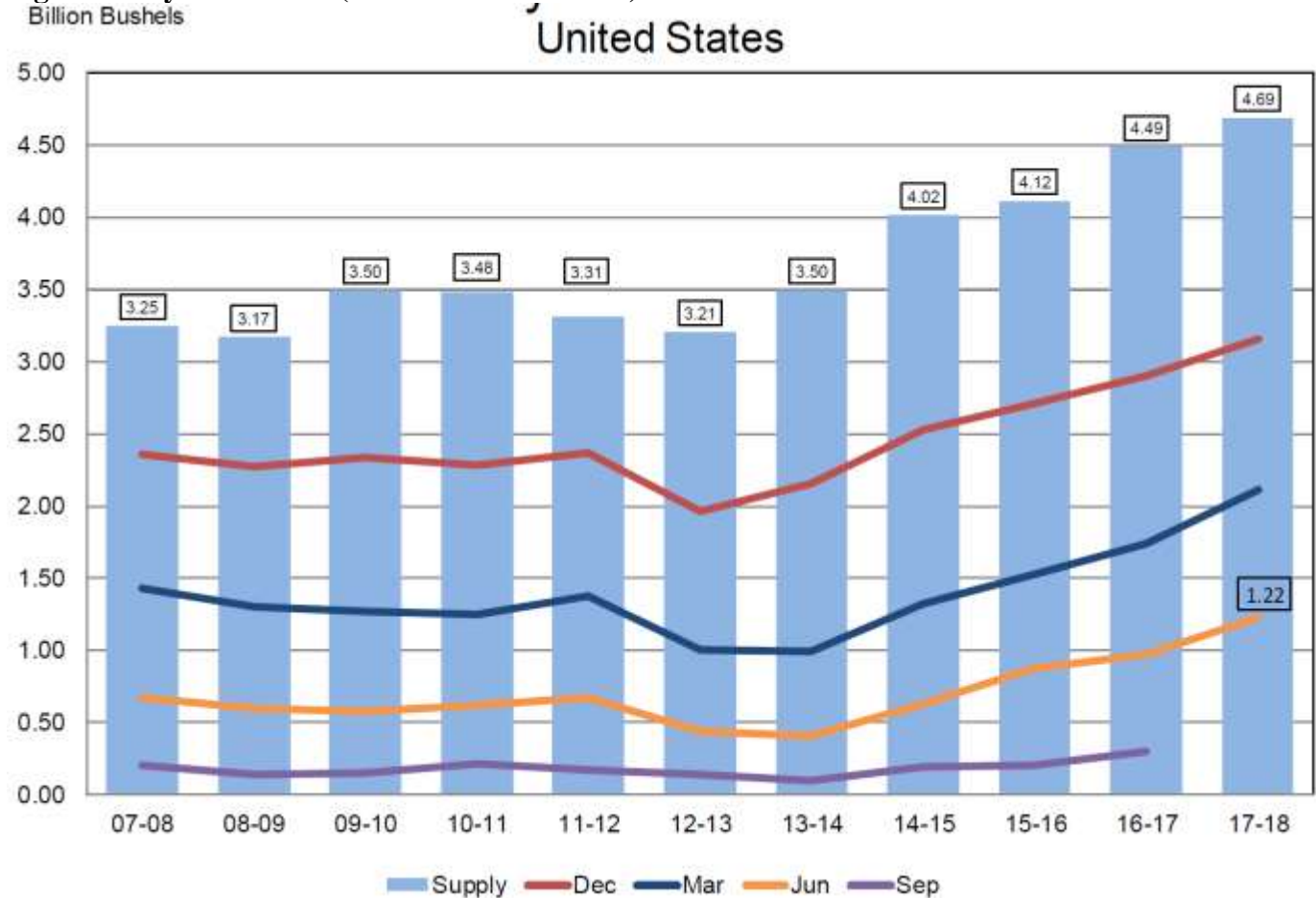
Soybean stocks are 26 percent higher than at this time last year. That's just a continuation from last year's large crop. We've had record stocks ever since. On-farm stocks increased 13 percent and off-farm stocks grew 33 percent. With June stocks above 1.2 billion bushels, they're significantly higher than we had in March five years ago, when soybean prices were much higher (reflecting the relative scarcity). Soybean usage remains strong though, as March-May disappearance was 15 percent higher than last year. While export sales have trailed last year, domestic soybean crush has been robust. But looking forward, soybeans faces similar issues as corn. The threat of tariffs is retarding potential usage for the upcoming crop.

In a couple of weeks, USDA will update their supply and demand outlook for the coming marketing year. Their June outlook held on to strong international crop demand, despite the trade troubles. That outlook will be hard to maintain, especially if tariffs are implemented on July 6 by both the U.S. and China. The crop markets have ramped down hard this past month, reflecting a growing sense that agricultural tariffs will actually be put in place. At the start of June, the futures markets pointed to 2018/19 season-average prices in the \$4.10 range for corn and \$10.10 range for soybeans. At the end of June, those estimates now stand at \$3.65 for corn and \$8.70 for soybeans. The threat of the tariffs and the potential for another set of large crops have provided a hard one-two punch to crop prices, turning what had projected to be an above breakeven year into another year where cash flows will be challenging to say the least.

**Figure 3. Corn stocks (Source: USDA-NASS).**



**Figure 4. Soybean stocks (Source: USDA-NASS).**



There is still a bit of time for negotiations to head off some of the agricultural tariffs. And if that happens, the markets will recover some of the price declines. But the longer this trade uncertainty lingers, the more damage occurs to the crop markets. Trade relationships decay faster than they are built. And for products where a majority of the demand comes from outside the country, such as soybeans, trade problems represent a significant threat. While soybeans may have the top spot this year in plantings, the ongoing trade disputes may ensure that soybeans will not hold onto that ranking for long.

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