IOWA STATE UNIVERSITY
Extension and Outreach

Iowa Farm Outlook

Department of Economics
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Big Jump in Cash Hog Prices Likely in Store

Lean hog futures have been on a wild ride this spring. On March 6, 2019 the April contract settled at $57.075. In the span of 15 trading days prices rocketed up to $81.325 on March 27, then quickly fell to $77.375 two days later before settling up at $78.600 on April 8. Deferred contracts showed a similar pattern but at much higher prices especially for summer contracts. Such whipsaw price action demonstrates that the futures road to price discovery can be rocky.

Hog futures prices can serve as a mechanism for price discovery for either present or expected future prices. Commodity futures markets are often considered efficient markets in the price discovery process because they account for all public and nonpublic information in determining an equilibrium price in the market. That is, the price quoted for hogs on the futures market is thought to be the best measure of the actual price, either current or future. Therefore, if you would like a good predictor of what hog prices will be in June, the June futures price quote may be the best and easiest price forecast.

You can think of basis as "localizing" a futures price. Hog basis, for example, is the difference between the cash hog price and the futures price, i.e., cash price – futures price = basis. The choice of a cash price series is important. USDA's Market News Iowa/Minnesota Daily Direct Prior Day Hog Report (LM_HG204), for example, has five producer sold prices that are routinely reported—negotiated, other market formula (futures/options), swine or pork market formula, other purchase arrangement, and the total weighted average of all purchase arrangements. The reported prices are all BASE prices and are on carcass weight units. NET prices are available in the National Daily Direct Prior Day Hog Report (LM_HG201) and are the total amount paid including all premiums, less all discounts per hundred pounds of carcass weight of swine delivered at the packing plant.

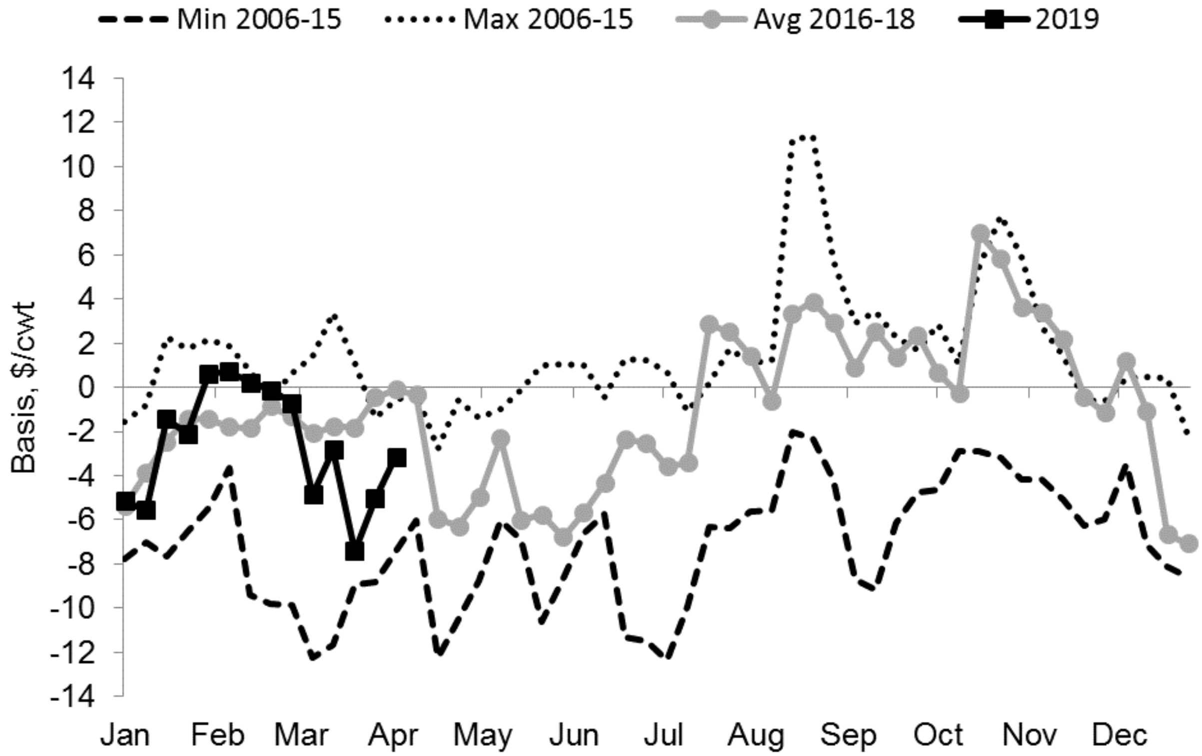
I use the Iowa/Minnesota (LM_HG204) producer sold total weighted average of all purchase arrangements price as a barometer for the price received by Iowa producers selling in a manner representative of Iowa producers. Received bids or formula prices for producers on any given day may or may not be very close to this weighted average price. All I have to work with are the prices published by USDA. Producers can calculate their own historic basis. Adjusting for transportation costs can further fine tune the difference they might see between their realized price and those reported by USDA or traded every day at the CME. It's a chore. Still, the better basis data you have for your own farm, the better marketing decisions you will make.

Since basis is typically fairly stable and predictable, it is a common practice among buyers and sellers to use current fundamentals as depicted by the futures market price in conjunction with historical basis information to calculate anticipated buying and selling prices. To determine an expected buying or selling price, you add the expected basis to the price of a futures contract. This can be done as part of a futures market hedge or in price forecasting.

Figure 1 shows 2019 basis levels compared to the 2016-2018 average and the minimum and maximum levels during the 2006-2015 period. A 3-year historical average basis is often used as an estimate for expected basis. The average covers enough years to smooth out aberrations, but is short enough to adjust to changing seasonal patterns.

Figure 1. Iowa/Minnesota Lean Hog Basis

Producer Sold, Wtd Avg All Purchase Arrangements (LM_HG204)



Data Source: USDA Market News, Report LM_HG204; CME Lean Hog Futures.

Early in the 2019, basis moves held within historical basis norms. However, as April futures contract prices rocketed up in March, the futures price rise outpaced the cash market increase. Basis for March over the last three years has averaged -$1.52, or the cash price was $1.52 below the nearby April futures price. In 2019, March basis averaged -$5.03. The last time March basis was this low was in 2014 when futures prices were escalating due to the realized and perceived expected impact of PEDV. Cash prices escalated too, but not at the pace of futures prices.

Looking beyond the nearby futures contract, deferred futures are trading at premiums to the cash market as well as to nearby futures. One of the reasons for this is seasonality. There is a normal tendency for market hog prices to show seasonal strength during late spring and summer. This results in part from somewhat smaller pork production during these periods than during the winter months. This seasonal price strength is also attributed to consumer demand for particular fresh and processed cuts of pork and by the seasonal tendency of reduced inventories of pork in cold storage.

The current situation and outlook of the hog market offers another reason for the rather strong forward futures prices relative to cash prices. Notwithstanding a recent recovery, the cash hog market has been under heavy pressure as supplies have been large. In 2019, Iowa/Minnesota producer sold total weighted average of all purchase arrangements prices stayed in the mid-$50/cwt ranged through the first week of March as hog slaughter and pork production posted strong year-over-year increases from 2018. Total hog slaughter during the first quarter was estimated at 31.843 million head, up 2.5% from a year ago and estimated pork production of 6.831 billion pounds during the quarter was 2.8% higher than last year as hogs were coming to market at slightly heavier weights.

Moreover, the latest USDA Hogs and Pigs report indicated market hog inventories are larger and supply growth is likely to continue into at least next year, if not longer. The inventory of pigs weighing 180 pounds and over was up 1.6% compared to a year ago and pigs weighing 120 to 179 pounds was up 1.8% (Table 1). These hogs are expected to reach slaughter during March to mid-April and mid-April to mid-May, respectively. Pigs weighing 50 to 119 pounds were up 2.3% and are expected to reach market weight mid-May through June while pigs weighing less than 50 pounds were up 2.5% and should be marketed July through mid-August.

Table 1. USDA Quarterly Hogs and Pigs Report Summary

	U.S.				Iowa		
	2018	2019	2019 as % of '18		2018	2019	2019 as % of '18
Mar 1 inventory *							
All hogs and pigs	72,748	74,296	102.1		22,600	23,500	104.0
Kept for breeding	6,210	6,349	102.2		1,020	1,039	101.9
Market	66,538	67,948	102.1		21,580	22,470	104.1
Under 50 lbs	20,942	21,456	102.5		5,490	5,610	102.2
50-119 lbs	18,212	18,639	102.3		6,670	7,210	108.1
120-179 lbs	14,996	15,268	101.8		5,460	5,780	105.9
180 lbs and over	12,387	12,585	101.6		3,960	3,870	97.7
Sows farrowing **							
Dec – Feb [1]	3,034	3,084	101.6		550	530	96.4
Mar – May [2]	3,100	3,119	100.6		560	530	94.6
Jun – Aug [2]	3,200	3,191	99.7		580	560	96.6
Dec – Feb pigs per litter	10.58	10.70	101.1		11.00	11.20	101.8
Dec – Feb pig crop *	32,101	32,999	102.8		6,050	5,936	98.1

Full report: http://usda.mannlib.cornell.edu/usda/current/HogsPigs/HogsPigs-09-27-2018.pdf.
* 1,000 head; **1,000 litters; [1] December preceding year; [3] intentions for 2019.

The hog breeding herd on March 1 was estimated at 6.349 million head, the largest inventory since 1999 with producers reporting that they intend to farrow more sows than a year ago in the next quarter. March-May farrowing intentions were up 0.6% from 2018. The June-August farrowing intentions showed a decrease of 0.3% from last year. However, if a 1% increase in pigs saved per litter is realized, which has been the general trend recently, pig crops could be larger than one year ago contributing to larger October-December 2019 and January-March 2020 slaughter.

U.S. pork muscle cut and variety meat exports in January, the latest month for which official data is available, showed retaliatory tariffs continued to pressure U.S. pork exports to Mexico, with volume down 9% from a year ago and export value dropping 28%. Exports to China/Hong Kong in January also felt the sting of China's retaliatory tariffs, dropping 16% from a year ago in volume and 32% in value. While Japan's import tariffs on U.S. pork remain unchanged, Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) countries received tariff relief at the end of 2018 and will see another rate decrease on April 1. This likely contributed to the January decline in U.S. pork exports to Japan, which were down 6% from a year ago in volume and 8% in value. Lower tariff rates for European pork under the Japan-EU Economic Partnership Agreement (EPA) were implemented February 1, so the EPA's impact was not likely yet reflected in Japan's January import data but U.S. exports to Japan could further decline if the United States doesn't quickly gain access on par with international competitors.

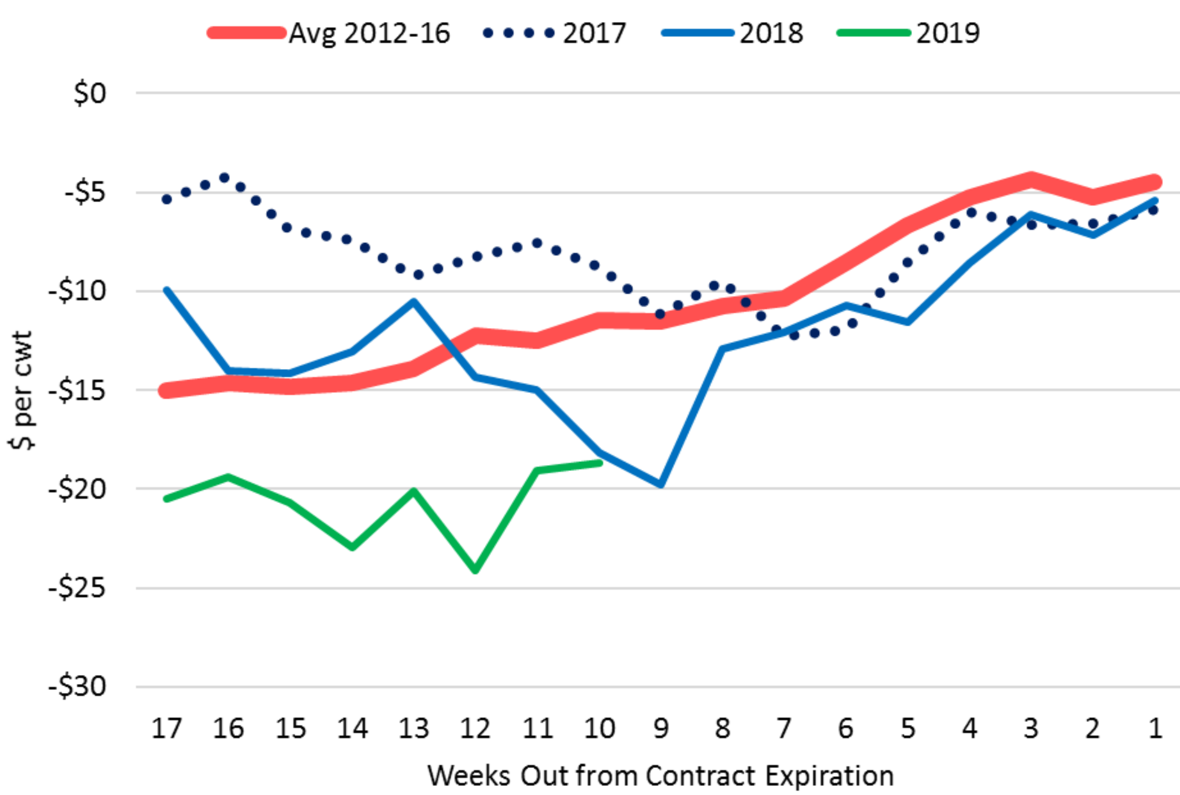
Concern about pork exports, which were down overall 1% by volume and 9% by value from a year ago in January have been tapered. Weekly export data, from USDA's Foreign Agricultural Service, appears to verify this optimism. The weekly data are preliminary and do not include all pork items sold but do provide a quick glimpse as to how exports are trending and provide a quick alert to the market of any big export sales packages. Weekly sales of fresh, chilled, or frozen muscle cuts of pork extending through the week ending March 28 have total commitments (already exported plus unshipped outstanding sales for this year) up 3%. On this more extensive data, China (plus Hong Kong) commitments for the year are up 104%; Mexico is down 9%; Canada is up 14%; Japan is down 26%; and South Korea is down 23%. Impressive growth in many emerging and developing markets have certainly helped buoy U.S. pork exports as some of the major export destinations are down. Together this information helps support the idea of possibly stronger exports in 2019 and is being dialed into prices.

Much of the focus in the current market is on the potential demand from China and other markets later this year and in 2020. The spread of African swine fever (ASF) risks creating a very big hole in the global pork supply. If ASF does result in increased Chinese imports, the U.S. is suited to fill this demand as U.S. supplies are expected to increase while supplies in other markets are steady or even lower. However, the U.S. may not get a large share of that business, due to the current trade conflict and the retaliatory tariffs in place and other non-tariff barriers, but rather Canada and the EU will. Under this scenario, the advantage for the U.S. is that we could get added exports to some of the destinations that Canada and the EU were shipping to. In a typical year, the majority of U.S. pork exports to China occur within the first seven months, with peak exports occurring in April through June. Watching exports sales throughout the year will be a good barometer of the added demand from China.

The summer futures prices with June currently at $98.150, July at $100.975, and August at $100.800 indicate expectations for a continued rise in the cash market over the next few months as would seasonally be expected, although those expectations are much more optimistic than the increase in cash prices witnessed the last several years. This rise is predicated on demand keeping up with or outpacing supply especially with respect to the export market.

With nine weeks before expiration of the June 2019 lean hog futures contract, basis differences have been dramatic. During 2012-2016, mid-February through March cash prices averaged about a $14 discount to the June contract, two years ago a $7 discount, last year a $14 discount, and this year that number was a $21 discount (Figure 2). For planning purposes, hedgers should approach using historical basis levels in estimating target prices of a hedge with more caution than usual.

Figure 2. June Weekly Lean Hog Basis for IA/MN



Data Source: USDA Market News, Report LM_HG204; CME Lean Hog Futures.

Hedging locks in a price exactly as long as the estimate of the basis is correct. In most typical situations there will be a difference between the actual and estimated basis, and a price within a small range can be locked in. This year the difference between expected and actual basis could be especially stark and the price range particularly large. Remember, a weaker than expected basis would work to a buyer's (or a long hedger's) advantage while a stronger than expected basis would work to a seller's (or short hedger's) advantage.

In the nine weeks the difference between cash and futures will get smaller, but which will give more the cash market or the futures? At this point, it's fair to say futures have dialed in a huge jump in the cash hog market going into the summer. However, if expected demand fails to materialize, cash prices could fail to rise as much as futures prices currently have dialed in. Then the basis gap could narrow by futures prices falling.

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 March 29, 2019 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.

Table 2. Commercial Hog Slaughter Projections and Lean Hog Price Forecasts, 2019-20

	Year-over-Year Change In Commercial Hog Slaughter (percent)	ISU Model Price Forecast, Negotiated IA/So MN ($/cwt)	CME Futures (3/29/19) Adjusted for All Producer Sold Purchase Arrangements IA/So MN Basis ($/cwt)
Apr-Jun 2019	2.39	79-83	80.81
Jul-Sep 2019	3.55	85-89	88.03
Oct-Dec 2019	1.61	73-77	74.59
Jan-Mar 2020	1.54	70-74	72.34

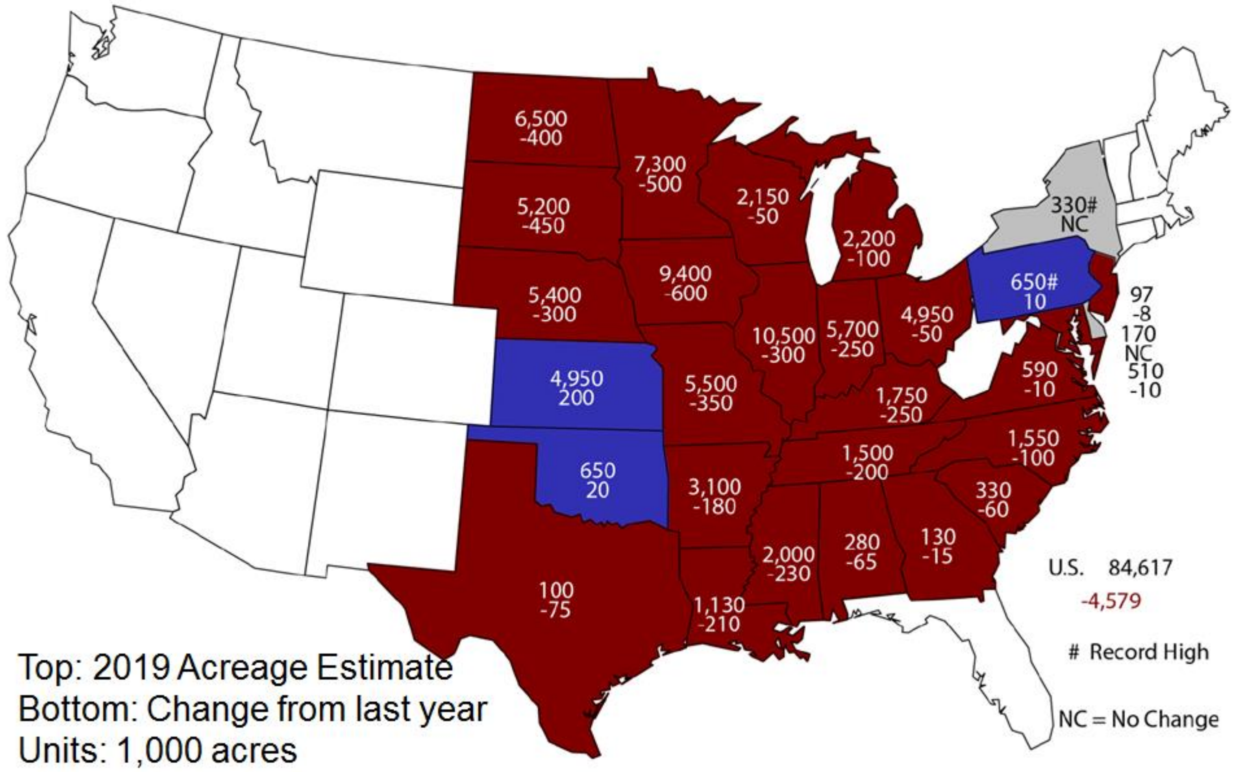
Lee Schulz

Information Pointing in the Wrong Direction

The flurry of USDA reports released over the past couple of weeks have provided a lot of information for the markets to chew on. The Prospective Plantings report showed the crop patterns farmers would like to plant. The Grain Stocks report highlighted the amounts of last year's crops that are still available for sale and use currently. And the World Agricultural Supply and Demand Estimates (WASDE) report updated estimates on world production and world and domestic usage. In total, these three reports summarize the state of agricultural markets as we enter planting season. That summary painted a bearish picture as we hope to enter the fields.

The U.S.-China trade dispute loomed large in these reports. With trade prospects murky at best and soybean prices running significantly below last year's levels, farmers across the nation indicated they would be planting fewer soybeans this year. Nationwide, farmers intend to plant 84.6 million acres to soybean. That would be 4.6 million acres less than last year. And while the biggest reductions are from Iowa and Minnesota, the pullback is occurring almost everywhere. Farmers in only 5 states (Kansas, Oklahoma, New York, Pennsylvania, and Delaware) intend to plant soybeans at the same level or above. Sizable areas in the Great Plains, the Southeast, and the Midwest are retreating from soybeans this year.

Figure 1. Prospective soybean plantings (Source: USDA-NASS).



However, even with the prospective reduction in soybean area, this year's soybean crop could still be large. With the national trend yield for soybeans at 49.5 bushels per acre, projected production of the 2019 soybean crop stands at 4.15 billion bushels, which would be the 4th largest soybean crop ever. The only soybean crops that are larger are the last three crops we've had (2016-2018). So the acre reduction itself does not mean soybean supplies will shrink. In fact, given the current projection for ending stocks, we may have more soybeans to work with in 2019 than we had in 2018.

With soybeans set to lose area, the corn market was bracing for an influx. The number was higher than most expected. Farmers across the country plan to increase corn area by 3.66 million acres. Much of that gain comes from the Dakotas, with North Dakota farmers hoping to plant record acreage to corn. If farmers are able to plant all of those acres to corn, given trend yields, national corn production would top 15 billion bushels. That would be the 2nd largest corn crop ever, trailing the 2016 record by 130 million bushels. But given the flooding and generally wet conditions across the northern and central U.S., it is likely that the potential increase in corn plantings will get cut. The question is "How much?". Will planting delays force producers to look at shorter-season varieties or shift to different crops? Normally, a weather delay in planting translates into a move from corn to soybeans. Will Mother Nature force area back to soybeans?

The Prospective Plantings report pointed to the potential of another set of large crops. The Grain Stocks report reminded us that potential was realized last year. Corn stock levels as of March 1 were lower than the year before, but still at a very high level. With 8.6 billion bushels in storage, we have plenty of corn to meet usage needs and have roughly 2 billion bushels to carry into the next marketing year. With these stock levels in place, traders were primed for USDA to reduce corn usage in the WASDE report. And that's exactly what happened. USDA lowered feed usage by 75 million bushels, exports by 75 million bushels, and ethanol usage by 50 million bushels.

Figure 2. Prospective corn plantings (Source: USDA-NASS).

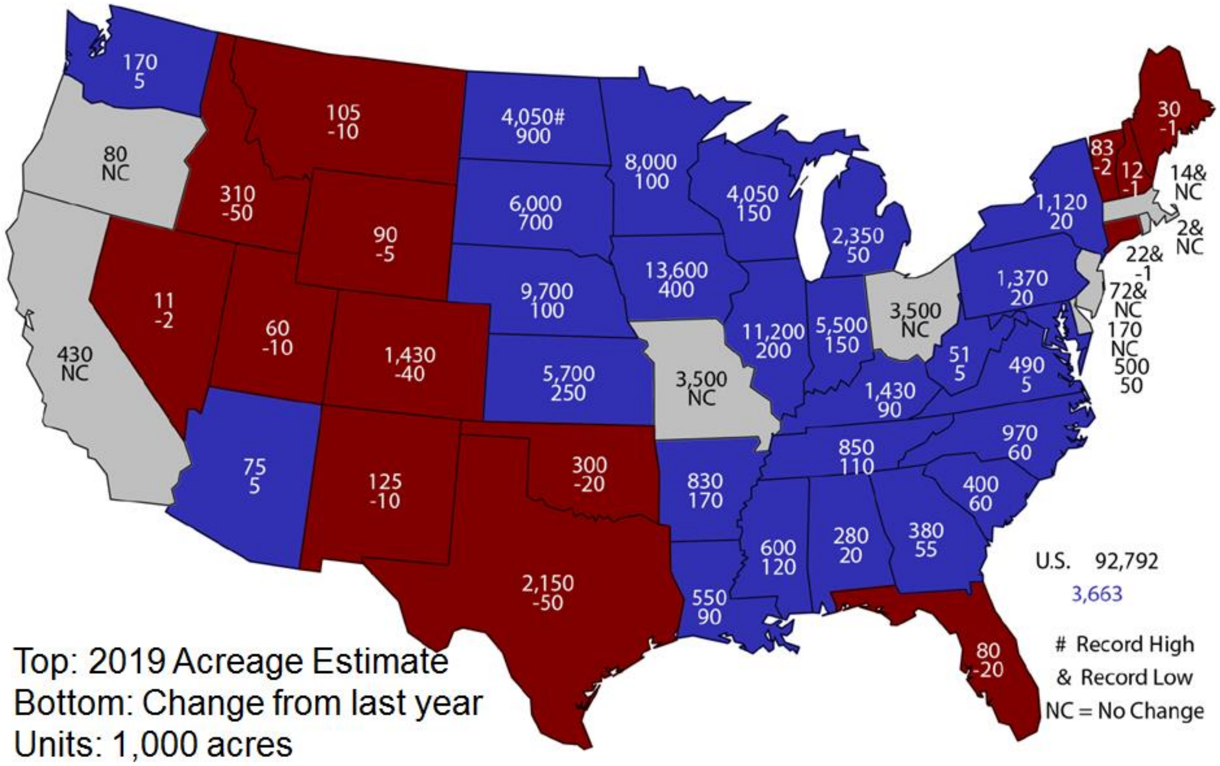
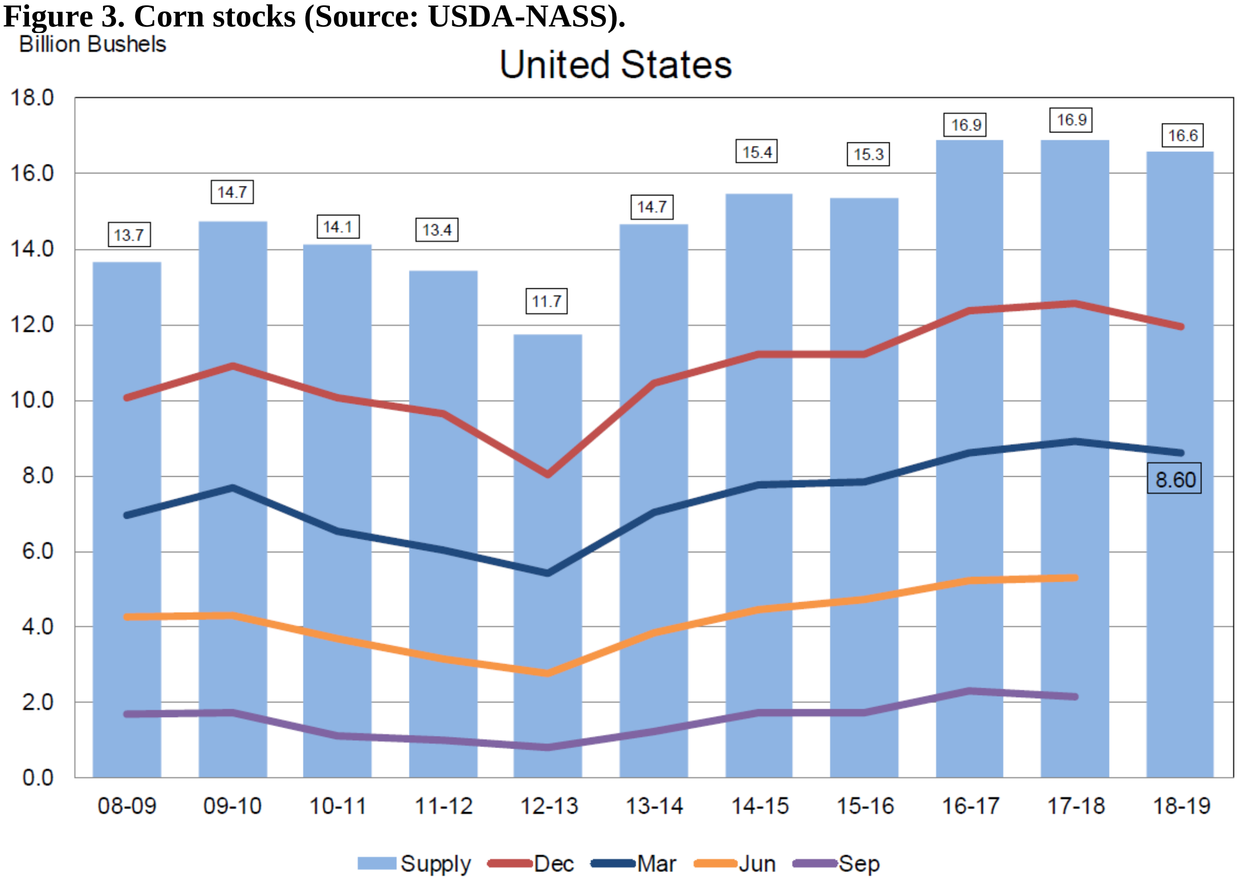


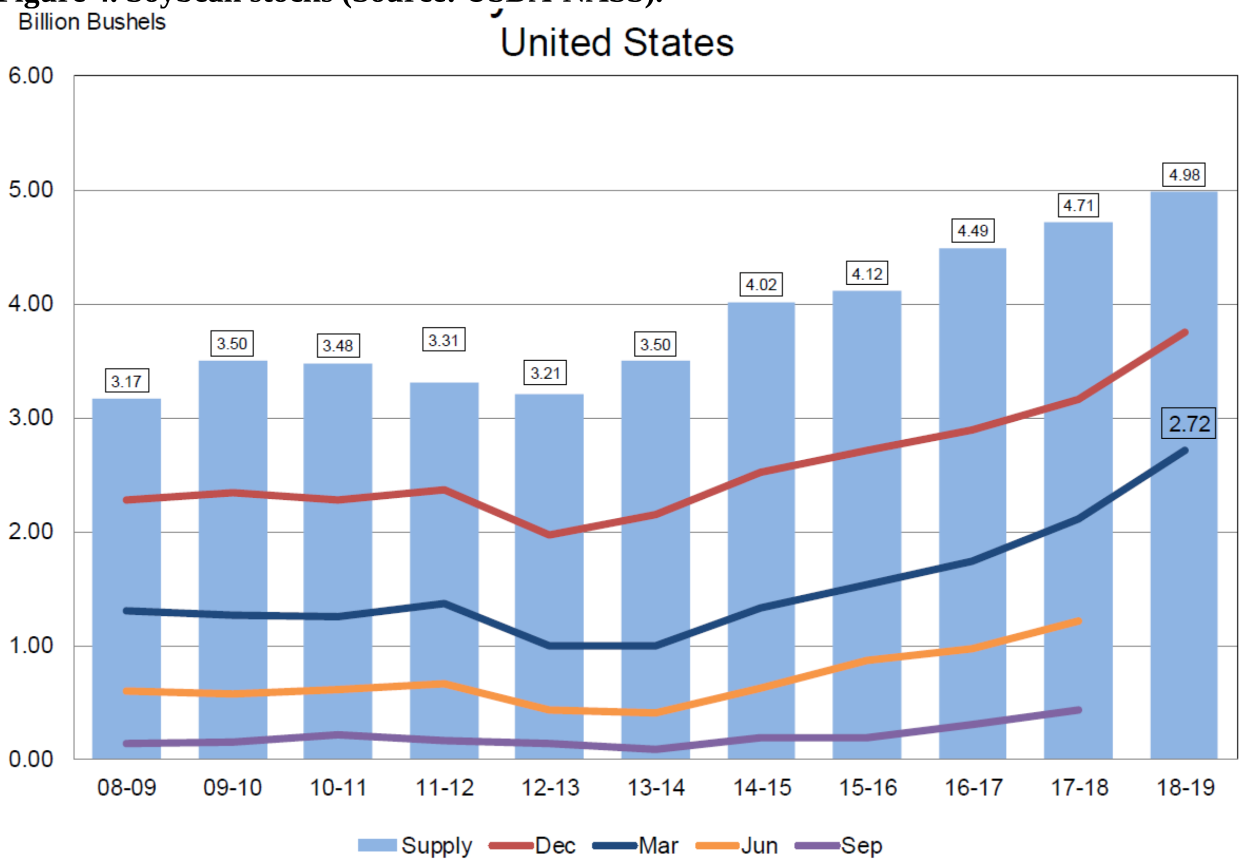
Figure 3. Corn stocks (Source: USDA-NASS).



The decrease in corn usage for ethanol was sparked by the combination of lower oil prices this past fall and early winter, tighter margins as corn prices rose, and lower ethanol exports in the second half of 2018. Weekly estimates of corn grind for ethanol have trended lower since September. Meanwhile, ethanol stocks have on the rise. The flooding has also created some logistical problems for the industry, limiting ethanol supplies that can reach the coasts, while keeping the central part of the country loaded with ethanol. Corn export sales started to lose steam at the first of the year. We fell behind last year's export pace at the beginning of March and the gap has continued to grow. Current data shows export sales running roughly 170 million bushels behind last year's pace. That's a nearly 9% drop. The drop is hard to pin to any specific market, as the largest deficit is in sales to "unknown destinations".

Soybean stock levels for March 1 are holding at a record 2.72 billion bushels. That's no surprise given the combination of seemingly ever increasing soybean supplies (supplies have grown every year since 2012) and the trade issues with China, who is still our largest customer. While some sales have been made to China, the gap in usage is staggering. Export sales have lagged all marketing year. The year-over-year gap with China is currently in the 600 million bushel range. Due to growth in other markets, the total export sales gap is roughly half of that (300 million bushels). While domestic usage is strong, it's not nearly enough to make up for that large of an export drop.

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



And so we head into planting facing roughly the same story we have had over the past few years, plenty of crop available from last year and plenty of potential to produce another good set of crops in the current year. Planting concerns are high now, likely higher than they have been over the past few years. But we've shown the ability to manage through planting problems and still create large crops. That's one of the reasons the markets have not really reacted to the weather issues. The experience from the past few years suggests farmers will find a way to plant and produce.

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