

# Crops Marketing and Management Update

## Grains and Forage Center of Excellence

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### Topics in this Month's Update:

1. **November *Crop Production* Report: USDA Trims Corn Crop**
2. **November *WASDE* Report: Corn Stocks Reduced Less Than Expected**
3. **2019 Corn, Soybean, and Wheat Basis vs. Previous Years**
4. **Projected Corn, Soybean, and Wheat Futures Trading Ranges to July 2020**
5. **Pre-Harvest 2020 Corn, Soybean, Wheat, and Double-Crop Soybean Risk Management Opportunities**
6. **2019 Projected Return to Storage for Corn and Soybeans**
7. **Post-Harvest 2019 Corn and Soybean Risk Management Opportunities**
8. **Potential 2019-20 Corn and Soybean Balance Sheets and Price Potential**
9. **USDA Releases Preliminary Baseline Projections**
10. **Baseline Projections and Implications for ARC-CO and PLC**
11. **Sign-up for the Second Tranche of MFP 2.0**
12. **How Do I Get on the Email Distribution List to Receive this Newsletter?**

### Topic 1. November *Crop Production* Report: USDA Trims Corn Crop

Market bulls keep hoping that USDA projections meet their expectations of late-planted corn and soybeans showing a further reduction in production. Analysts surveyed before the report was released expected USDA to reduce the 2019 corn crop by 177 million bushels from the October report. The analysts believed the smaller corn crop would come from a 1.1 bushel/acre (BPA) reduction from the October report along with a 500 thousand acre reduction in harvested area. USDA did reduce the 2019 corn crop by 118 million bushels from the October projections by trimming the yield by 1.4 BPA from last month. USDA did not adjust the harvested area this month but may adjust the harvested area in the final estimates of the 2019 crop released in January 2020.

The projected yields for the Midwest and Southern States, along with the change from the October estimate and the change from 2018, are reported in Table 1. USDA increased the corn yield in Indiana (+3 BPA) and Ohio (+3 BPA), from last month's projections. USDA reduced yields in Kansas (-3 BPA), Michigan (-4 BPA), Minnesota (-3 BPA), Nebraska (-4 BPA), North Dakota (-4 BPA), and South Dakota (-3 BPA) from October. If you recall corn planting progress, Indiana and Ohio lagged the Western Corn Belt in planting progress, so the increased yields could reflect the greater use of in-field measurements over the statistical estimates. Compared to 2018, only Kansas (+4 BPA) and Missouri (+15 BPA) are projected to harvest higher yields this year (Table 1).

**Table 1. November 2019 Corn Yield, Change from the October Report and from 2018 (Bushels/Acre).**

	Corn Yield (Bu/Acre)				
	Nov	Oct	2018	Change from	Change from
	2019 (F)	2019 (F)		Oct (bu)	2018 (bu)
<b>Midwest States</b>					
Illinois	179	179	210	+0	-31
Indiana	165	162	189	+3	-24
Iowa	192	192	196	+0	-4
Kansas	133	136	129	-3	+4
Michigan	151	155	153	-4	-2
Minnesota	170	173	182	-3	-12
Missouri	155	155	140	+0	+15
Nebraska	182	186	192	-4	-10
North Dakota	142	146	153	-4	-11
Ohio	163	160	187	+3	-24
South Dakota	151	154	160	-3	-9
Wisconsin	163	163	172	+0	-9
<b>Southern States</b>					
Alabama	156	151	156	+5	+0
Arkansas	175	175	181	+0	-6
Georgia	168	168	176	+0	-8
Kentucky	177	178	175	-1	+2
Louisiana	164	166	173	-2	-9
Mississippi	174	174	185	+0	-11
North Carolina	107	110	113	-3	-6
Oklahoma	142	142	134	+0	+8
South Carolina	105	110	127	-5	-22
Tennessee	174	175	168	-1	+6
Texas	137	142	108	-5	+29
Virginia	140	148	146	-8	-6
<b>United States</b>	<b>167</b>	<b>168.4</b>	<b>176.4</b>	<b>-1.4</b>	<b>-9.4</b>

Source: USDA Crop Production November 2019.

**Table 2. November 2019 Soybean Yield, Change from the October Report and from 2018 (Bushels/Acre).**

	Soybean Yield (Bu/Acre)				
	Nov	Oct	2018	Change from	Change from
	2019 (F)	2019 (F)		Oct (bu)	2018 (bu)
<b>Midwest States</b>					
Illinois	51	51	64	+0	-13
Indiana	49	48	58	+1	-9
Iowa	53	53	56	+0	-3
Kansas	44	43	43	+1	+1
Michigan	42	44	48	-2	-6
Minnesota	45	44	49	+1	-4
Missouri	46	46	45	+0	+2
Nebraska	57	56	58	+1	-1
North Dakota	33	35	35	-2	-2
Ohio	48	48	56	+0	-8
South Dakota	43	43	45	+0	-2
Wisconsin	46	46	48	+0	-2
<b>Southern States</b>					
Alabama	37	40	40	-3	-3
Arkansas	50	50	51	+0	-1
Georgia	26	28	40	-2	-14
Kentucky	50	49	51	+1	-1
Louisiana	48	48	52	+0	-4
Mississippi	50	51	54	-1	-4
North Carolina	36	37	33	-1	+3
Oklahoma	26	28	28	-2	-2
South Carolina	29	29	29	+0	+0
Tennessee	47	47	46	+0	+2
Texas	31	29	32	+2	-1
Virginia	34	38	42	-4	-8
<b>United States</b>	<b>46.9</b>	<b>46.9</b>	<b>50.6</b>	<b>+0</b>	<b>-3.7</b>

Source: USDA Crop Production November 2019.

USDA increased Alabama's corn yield by 5 BPA from the October report but kept yields unchanged or reduced yields throughout the rest of the Southern Region. Compared to 2018, Kentucky (+2 BPA), Tennessee (+6 BPA), Oklahoma (+8 BPA), and Texas (+29 BPA) are currently projected to harvest higher yields this year (Table 1).

Analysts expected USDA to reduce the 2019 soybean crop by 37 million bushels from the October projections. The analysts believed that USDA would reduce the soybean yield by 0.3 BPA from last month and reduce the harvested area by 200 thousand acres from last month's projections. USDA surprised the analysts by keeping the projected 2019 soybean crop unchanged at 3.55 billion bushels.

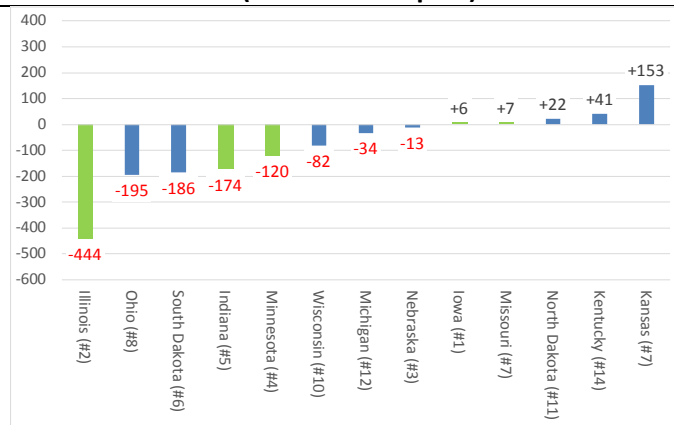
USDA lowered the soybean yield in Michigan and North Dakota by 2 BPA each from last month but increased the yield in Indiana, Kansas, Minnesota, and Nebraska by 1 BPA (Table 2). Compared to 2018, the Midwest States soybean yields are projected to be lower than in 2018 except in Kansas and Missouri. The largest decrease in yields are projected in Ohio (-8 BPA), Indiana (-9 BPA), and Illinois (-13 BPA) from last year. USDA projects yields in the Southern region to be lower in 2019 except in North Carolina (+3 BPA) and Tennessee (+2 BPA).

USDA projects the 2019 U.S. corn yield at 167 BPA, which would be 9.4 bushels less than the 2018 corn yield (Table 1). Similarly, USDA projects the U.S. soybean yield at 46.9 BPA, which would be 3.7 bushels below last year's yield (Table 2).

USDA projects the 2019 corn crop to be 759 million bushels smaller than the 2018 corn crop. Figure 1 shows the change in corn production from 2018 to 2019 for the Midwest region. The top-five corn states are shaded green, and these states are projected to harvest 745 million fewer bushels this year. The states east of the Mississippi River (Illinois, Indiana, Ohio, Michigan, and Wisconsin) are projected to harvest 929 million bushels less this year than last year. The states west of the Mississippi River are also expected to have a smaller crop with South Dakota, and Minnesota projected to harvest 306 million bushels less than in 2018.

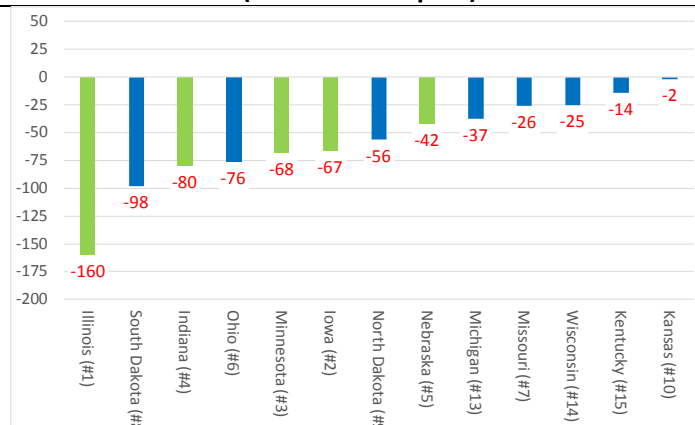
Figure 1 shows that Kentucky and Kansas are projected to have a larger corn crop this year. The production problems in the Eastern Corn Belt may create basis opportunities for areas with corn to meet demand in those regions with smaller production. A stronger than expected basis appreciation will reward those with access to low-cost storage.

**Figure 1. Change in Corn Production (Million Bushels) from 2018 to 2019 (November Report).**



Source: USDA *Crop Production* November 2019.

**Figure 2. Change in Soybean Production (Million Bushels) from 2018 to 2019 (November Report).**



Source: USDA *Crop Production* November 2019.

The change in soybean production for the Midwest region from 2018 to 2019 is shown in Figure 2. The top-five soybean states are shaded green and are projected to account for 416 million bushels of the 878 million bushels decline in production from 2018. The states east of the Mississippi River (IL, IN, OH, MI, and WI) are projected to harvest 378 million fewer bushels than last year. Similarly, the states west of the Mississippi River (IA, NE, MN, and SD) are also projected to harvest 275 million fewer bushels than in 2018. While Kentucky is projected to have a smaller crop than last year, the lost production in the Midwest may provide soybean basis opportunities for Kentucky as the market attempts to meet regional soybean demand.

**Topic 2. November WASDE Report: Corn Stocks Reduced Less Than Expected**

Analysts expected that USDA would reduce corn stocks by 130 million bushels from the October report due to an anticipated reduction in the size of the 2019 corn crop. USDA did reduce 2019 corn ending stocks by 19 million bushels, which was disappointing to the market.

The November WASDE adopted the lower projected corn yield of 167 bushels per acre, which reduced the 2019 corn crop by 118 million bushels from October. If realized, the 2019 corn crop would be 13.66 billion bushels and 759 million bushels less than last year’s crop (Table 3). USDA pegs the 2019 corn supply at 15.8 billion bushels, which is down 763 million bushels from 2018.

**Table 3. U.S. Corn Supply and Use.**

	2016-17	2017-18	2018-19 Estimated	2019-20 Projected	Change from 18-19
Planted Area (million)	94.0	90.2	89.1	89.9	+0.8
Harvested Area (million)	86.7	82.7	81.7	81.8	+0.1
Yield (bushels/acre)	174.6	176.6	176.4	167.0	-9.4
----- Million Bushels -----					
Beginning Stocks	1,737	2,293	2,140	2,114	-26
Production	15,148	14,609	14,420	13,661	-759
Imports	57	36	28	50	+22
Total Supply	16,942	16,939	16,588	15,825	-763
Feed and Residual	5,472	5,304	5,618	5,275	-343
Food, Seed & Industrial	6,883	7,056	6,791	6,790	-1
Ethanol and by-products	5,432	5,605	5,376	5,375	-1
Exports	2,293	2,438	2,065	1,850	-215
Total Use	14,649	14,799	14,474	13,915	-559
Ending Stocks	2,293	2,140	2,114	1,910	-204
Stocks/Use	15.7%	14.5%	14.6%	13.7%	-0.9%
Days of Stocks	57	53	53	50	-3
U.S. Marketing-Year Average Price (\$/bu)	\$3.36	\$3.36	\$3.61	\$3.85	+\$0.24

Source: November 2019 WASDE - USDA: WAOB.

USDA reduced total corn use by 100 million bushels from the October projections. Feed, industrial, and exports were reduced by 25, 25, and 50 million bushels from the previous estimate. Lower feed demand reflects the residual component that tends to shrink in years with lower production. Ethanol demand is currently projected at last year’s demand and reflects the lack of profitability for producing ethanol. Exports are also lagging last year’s pace and are currently projected to be 215 million bushels lower than 2018 exports.

The reduced corn demand cushions the impact of smaller corn supply by reducing ending stocks by 204 million bushels from last year. The stocks-to-use ratio is currently projected to decline by 0.9% from 2018. The U.S. marketing year average (MYA) farm price is projected to increase from 2018 to a projected \$3.85/bushel.

Analysts expected USDA to reduce soybean ending stocks by 31 million bushels from last month's report based on an anticipated reduction in the size of the 2019 crop. USDA actually increased projected soybean ending stocks from the October report due to cuts in crushing demand. USDA did not adjust any other supply and demand category in the November report.

	2016-17	2017-18	2018-19 Estimated	2019-20 Projected	Change from 18-19
Planted Area (million)	83.4	90.2	89.2	76.5	-12.7
Harvested Area (million)	82.7	89.5	87.6	75.6	-12.0
Yield (bushels/acre)	52	49.3	50.6	46.9	-3.7
----- Million Bushels -----					
Beginning Stocks	197	302	438	913	+475
Production	4,296	4,412	4,428	3,550	-878
Imports	<u>22</u>	<u>22</u>	<u>14</u>	<u>20</u>	+6
Total Supply	4,515	4,735	4,880	4,483	-397
Crushings	1,901	2,055	2,092	2,105	+13
Exports	2,174	2,129	1,748	1,775	+27
Seed	105	104	89	96	+7
Residual	<u>34</u>	<u>9</u>	<u>39</u>	<u>32</u>	-7
Total Use	4,213	4,297	3,967	4,008	+41
Ending Stocks	302	438	913	475	-438
Stocks/Use	7.2%	10.2%	23.0%	11.9%	-11.2%
Days of Stocks	26	37	84	43	-40.7
U.S. Marketing-Year Average Price (\$/bu)	\$9.47	\$9.33	\$8.48	\$9.00	+\$0.52

Source: November 2019 WASDE - USDA: WAOB.

Compared to 2018, soybean production is projected to be 878 million bushels lower. The large carry-in partially offsets this production loss with 2019 supply projected to be 397 million bushels less than last year (Table 4).

Soybean use is projected to be slightly above last year's use with crushing and exports projected to be 13 and 27 million bushels larger than in 2018. The export project will be scrutinized, given the trade uncertainty, and maybe reduced as we move through the marketing year.

USDA projects 2019 ending stocks at 475 million bushels, which would almost be a 50% reduction in stocks from 2018. The 2019 stocks-to-use ratio is projected at 11.9%, which is projected to support a U.S. MYA price of \$9.00/bushel (Table 4).

	2016-17	2017-18	2018-19 Estimated	2019-20 Projected	Change from 18-19
Planted Acres (million)	50.1	46.1	47.8	45.2	-2.6
Harvested Acres (million)	43.9	37.6	39.6	37.2	-2.4
Yield (bushels/acre)	52.7	46.4	47.6	51.7	+4.1
----- Million Bushels -----					
Beginning Stocks	976	1,181	1,099	1,080	-19
Production	2,309	1,741	1,885	1,920	+35
Imports	<u>118</u>	<u>157</u>	<u>135</u>	<u>120</u>	-15
Total Supply	3,402	3,079	3,119	3,120	+1
Food	949	964	955	955	+0
Seed	61	63	59	61	+2
Feed and Residual	156	51	90	140	+50
Exports	<u>1,055</u>	<u>901</u>	<u>936</u>	<u>950</u>	+14
Total Use	2,222	1,980	2,039	2,106	+67
Ending Stocks	1,181	1,099	1,080	1,014	-66
Stocks/Use	53.2%	55.5%	53.0%	48.1%	-4.8%
Days of Stocks	194	203	193	176	-18
U.S. Marketing-Year Average Price (\$/bu)	\$3.89	\$4.72	\$5.16	\$4.60	-\$0.560

Source: November 2019 WASDE - USDA: WAOB.

Analysts projected wheat stocks to be trimmed slightly, 8 million bushels, from the October report. USDA reduced wheat stocks by 21 million bushels to a projected carryout of 1.01 billion bushels.

USDA adjusted the 2019 wheat crop lower by 41 million bushels due to a 900 thousand reduction in harvested are but a 0.1 BPA increase in yield. Wheat demand was lowered in November because of lower food and seed use.

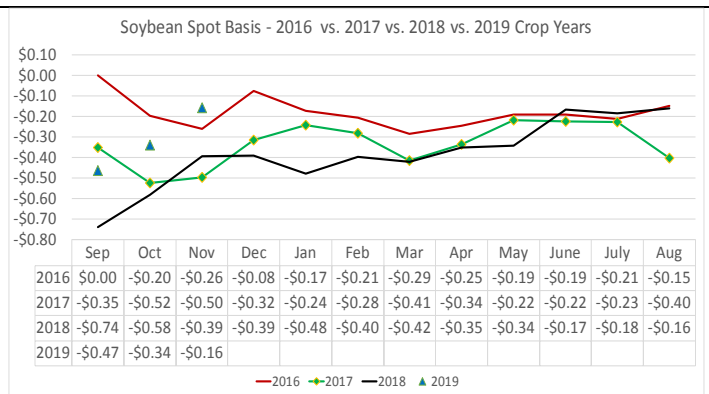
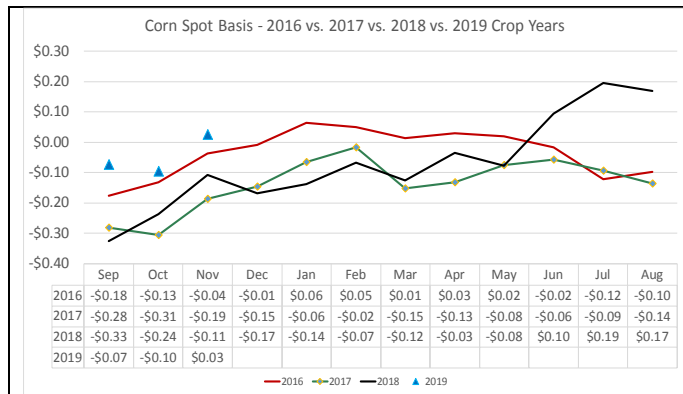
While wheat stocks are projected to decline by 66 million bushels from 2018, USDA pegs the 2019 U.S. MYA price to be lower in 2019. The 2018 wheat crop experienced a price rally at harvest due to a production risk premium during harvest 2018. The 2019 crop did not experience that risk premium; thus, the lower price at \$4.60 per bushel.

### Topic 3. 2019 Corn, Soybean and Wheat Basis vs. Previous Years

Figure 3, Figure 4, and Figure 5 show the monthly average corn, soybean, and wheat spot basis, respectively, for twelve Western Kentucky markets. For each figure, the red line is the basis for the 2016 crop. The green line is the 2017 basis, while the black line represents the 2018 basis. The blue triangles represent the 2019 basis.

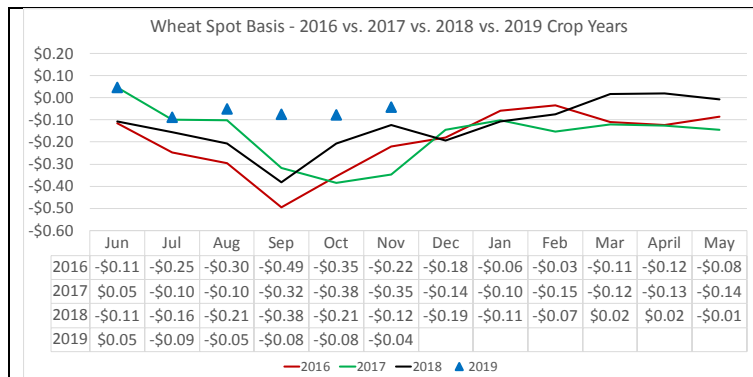
The corn basis is \$0.03/bushel above the December corn contract, which is a \$0.14/bushel increase from the 2018 basis in November. Last year, the corn basis appreciated from October to February by \$0.17/bushel, which was \$0.12/bushel less than the amount of appreciation in basis for the 2017 corn crop from harvest to February (Figure 3).

The average soybean basis, as of November 15, 2019, was -\$0.16/bushel under the January 2020 soybean contract. The basis is \$0.23 per bushel narrower than the 2018 basis in November, and \$0.34 per bushel narrower than the 2017 basis (Figure 4). Last year, the basis appreciated \$0.18/bushel from October to February, but the 2017 crop's basis appreciated \$0.24/bushel from harvest to February. For the 2019 crop, the appreciation from October is \$0.18.



**Figure 3. Western Kentucky Corn Spot Market Basis Appreciation from September to August for the 2016 to 2019 Crop Years.**  
Basis Calculated on November 15, 2019

**Figure 4. Western Kentucky Soybean Spot Market Basis Appreciation from September to August for the 2016 to 2019 Crop Years.**  
Basis Calculated on November 15, 2019



The average wheat spot basis has been strengthening since January 2019. The average basis for the 2018 crop (black line) has been narrower than the 2017 crop since March 2018 and is much stronger than the basis for the 2016 wheat crop.

The 2019 wheat basis is -\$0.04/bushel below the December futures contract. Seasonality suggests that the basis will continue to narrow through the fall and into winter. Since the basis is stronger than previous years, the extent of basis depreciation this year might be limited. The 2019-wheat basis is still narrower than the basis for the 2018, 2017, and 2016 crops in October.

**Figure 5. Western Kentucky Wheat Spot Market Basis Appreciation from June to May for the 2016 to 2019 Crop Years.**  
Basis Calculated on November 15, 2019

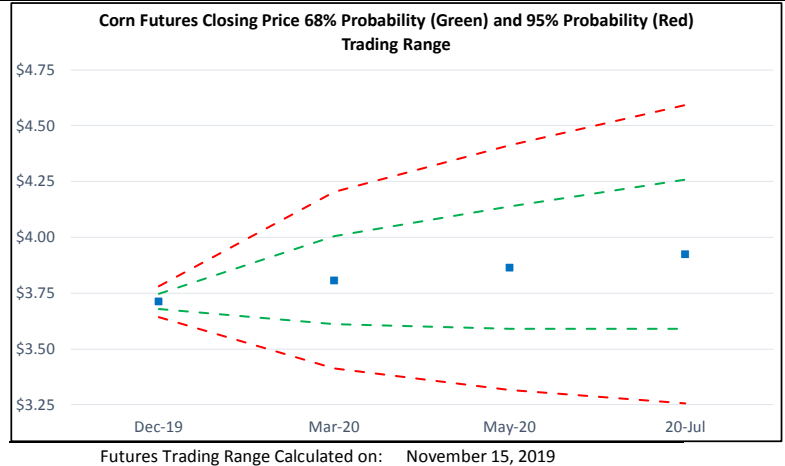
#### Topic 4. Projected Corn, Soybean, and Wheat Futures Trading Ranges to July 2020

Figures 6–8 provide the projected futures price trading range by futures contract month, based on the contracts' volatility for the previous 21-day period for corn, soybeans, and wheat. The green lines represent the range that describes the 68% probability of the projected trading range with the red line representing a 95% likelihood of the expected trading range. Notice how these projections fan out for the contracts that will expire later in 2020. That is because there is more time until the contract's expiration; thus, there is a wider potential trading range for these deferred futures contracts.

Figure 6 provides the probabilistic trading range for the corn futures contracts from December 2019 to July 2020. There is a 68% probability that the December 2019 corn contract will trade between \$3.68 and \$3.75 and a 95% probability that the December 2019 corn contract will trade between \$3.64 and \$3.78. Managers considering storing corn into 2020 should monitor the March 2020 contract, which has a 68% probability of trading between \$3.61 and

\$4.00 per bushel. The July 2020 corn contract has a 68% probability of trading between \$3.59 and \$4.26 per bushel, which reflects the volatility in the corn futures contracts for the deferred months (Figure 6).

**Figure 6. Corn Futures Closing Price 68% Probability (Green) and 95% Probability (Red) Trading Range.**



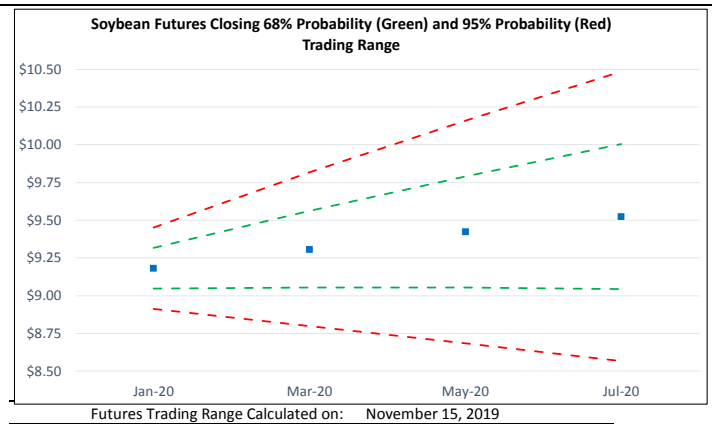
Futures Trading Range Calculated on: November 15, 2019

Trading range calculated on November 15, 2019, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on November 15, 2019, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.

Figure 7 provides the probabilistic trading range for soybean futures contracts from January 2020 to July 2020. Managers planning to store soybeans into the new-year should monitor the March 2020 soybean contract. The March 2020 contract has a 68% probability of trading between \$9.05 and \$9.56 per bushel. The July 2020 soybean contract has a 68% probability of trading between \$9.05 and \$10.00 per bushel (Figure 7).

Figure 8 provides the probabilistic trading range for the wheat futures contract from December 2019 to July 2020 contracts. The December 2019 wheat contract has a 68% chance of trading between \$4.76 and \$5.29/bushel, which should be monitored for managing 2019 wheat that is planned to be stored. Similarly, the March 2020 contract has a 68% chance of trading between \$4.68 and \$5.44/bushel. The July 2020 Futures contract has a 68% probability of trading between \$4.55 and \$5.74 per bushel and should be considered as a tool to manage price risk for producers growing wheat for 2020 (Figure 8).

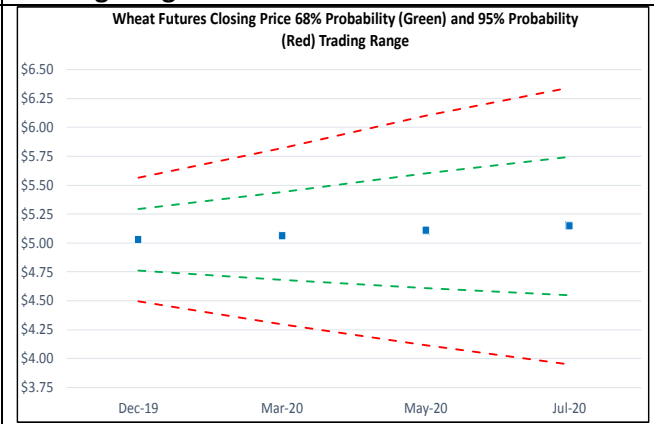
**Figure 7. Soybean Futures Closing Price 68% Probability (Green) and 95% Probability (Red) Trading Range.**



Futures Trading Range Calculated on: November 15, 2019

Trading range calculated on November 15, 2019, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on November 15, 2019, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.

**Figure 8. Wheat Futures Closing Price 68% Probability (Green) and 95% Probability (Red) Trading Range.**



Trading range calculated on November 15, 2019, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on November 15, 2019, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.



## Topic 5. Pre-Harvest 2020 Corn, Soybean, Wheat and Double-Crop Soybean Risk Management Opportunities

Tables 6-9 analyze the effectiveness of using hedging with futures, forward contracts, and put options in protecting revenue that covers total input costs, cash rent, overhead, and family living for corn, soybeans, and double-crop soybeans in 2020. Managers should monitor the futures market for opportunities because sometimes the best pricing opportunities occur several weeks before planting. These examples are provided to help raise awareness of risk management opportunities available now for managers planning their 2020 production. I am using the same costs as 2019 because I do not anticipate input costs or rental rates to decline significantly from 2019.

Table 6 presents risk management alternatives for Western Kentucky corn production for 2020. Several yield projections are provided to show what yield is needed to find profitable pricing opportunities. Three risk management alternatives are compared. The first marketing alternative is to hedge with commodity futures, or HTA contracts, that would lock in an expected cash price at \$3.71/bushel assuming a -\$0.25/bushel harvest-time basis. The second alternative is to lock in a cash price through a forward contract at \$3.69/bushel. The third alternative is to establish a price floor at \$3.47/bushel by buying a put option with a \$4.00 strike price that costs \$0.28 (Table 6).

Yield	150	160	170	180	190	200
TVC+Rent+Overhead+Family Living (\$/acre)	\$714	\$714	\$714	\$714	\$714	\$714
TVC+Rent+Overhead+Family Living (\$/bu)	\$4.76	\$4.46	\$4.20	\$3.97	\$3.76	\$3.57
Hedge @ \$3.96+ -\$0.25 basis = \$3.71	-\$1.05	-\$0.76	-\$0.49	-\$0.26	-\$0.05	+\$0.14
Forward Contract at \$3.69	-\$1.07	-\$0.78	-\$0.51	-\$0.28	-\$0.07	+\$0.12
Put: \$4.00 strike @\$0.28 = \$3.47 floor	-\$1.29	-\$0.99	-\$0.73	-\$0.50	-\$0.29	-\$0.10
Strategies Evaluated on:	November 15, 2019					

Table 6 demonstrates that risk management opportunities only exist to lock in a profit above total economic costs and family living if yields exceed 200-bushels. If the 2019 corn crop is reduced in future reports and stocks decline, the December 2020 corn futures contract may increase to a price level that provides profitable risk management opportunities for lower expected yields.

Table 7 illustrates the risk management potential for full-season soybeans in 2020. Current prices are providing an opportunity to lock in a return over total economic costs plus family living of \$0.32/bushel for yields of 60 bushels/acre or greater. The November 2020 contract has strengthened \$0.52/bushel from September 6 to October 24, 2019, due to USDA reduction in projected ending stocks for the 2019 soybean crop. The futures contract has been trading lower to a price of \$9.53 on November 15, 2019. Since September 6, 2019, the top-third of the November 2020 futures contract would be at \$9.70/bushel or higher.

Yield	45	50	55	60	65
TVC+Rent+Overhead+Family Living (\$/acre)	\$532	\$532	\$532	\$532	\$532
TVC+Rent+Overhead+Family Living (\$/bu)	\$11.82	\$10.64	\$9.67	\$8.87	\$8.18
Hedge @ \$9.53 + -\$0.50 basis = \$9.03	-\$2.79	-\$1.61	-\$0.64	+\$0.17	+\$0.85
Forward Contract at \$9.18	-\$2.64	-\$1.46	-\$0.49	+\$0.32	+\$1.00
Put: \$9.60 strike @\$0.512 = \$8.59 floor	-\$3.23	-\$2.05	-\$1.08	-\$0.28	+\$0.40
Strategies Evaluated on:	November 15, 2019				

Yield	80	85	90	95	100
TVC+50% Rent+Overhead+Family Living (\$/acre)	\$470	\$470	\$470	\$470	\$470
TVC+50% Rent+Overhead+Family Living (\$/bu)	\$5.88	\$5.53	\$5.22	\$4.95	\$4.70
Hedge @ \$5.15 - \$0.15 basis = \$5.00	-\$0.88	-\$0.53	-\$0.23	+\$0.05	+\$0.29
Forward Contract at \$5.19	-\$0.68	-\$0.34	-\$0.03	+\$0.24	+\$0.49
Put: \$5.20 strike @\$0.326 = \$4.72 floor	-\$1.15	-\$0.81	-\$0.50	-\$0.22	+\$0.02
Strategies Evaluated on:	November 15, 2019				

Table 8 illustrates the risk management potential for wheat in 2020. The costs in Table 8 assume that rent and family living expenses are split evenly between wheat and double-crop soybeans. Current prices are providing an opportunity to lock in a return over total economic costs plus family living for yields of 95 bushels/acre or larger. Some managers have been able to harvest yields of 95 bushels or better, which suggests an opportunity may exist to manage risk by using cash forward contracts.

**Table 9. Risk Management Alternatives for 2020 Western Kentucky Double-Crop Soybeans for Various Yield Objectives.**

Yield	35	40	45	50	55
TVC+Rent+Overhead+Family Living (\$/acre)	\$380	\$380	\$380	\$380	\$380
TVC+Rent+Overhead+Family Living (\$/bu)	\$10.86	\$9.50	\$8.44	\$7.60	\$6.91
Hedge @ \$9.53+ -\$0.50 basis = \$9.03	-\$1.82	-\$0.47	+\$0.59	+\$1.43	+\$2.12
Forward Contract at \$9.18	-\$1.67	-\$0.32	+\$0.74	+\$1.58	+\$2.27
Put: \$9.60 strike @\$0.512 = \$8.59 floor	-\$2.27	-\$0.91	+\$0.14	+\$0.99	+\$1.68
Strategies Evaluated on:	November 15, 2019				

The market is providing an opportunity to protect double-crop soybean risk for those that typically harvest 45-bushel double-crop soybeans or better. The November 2020 soybean futures could rally further if the size of the 2019 crop declines and if there is some resolution to the trade uncertainty with China (Table 9). Similarly, the market has rallied over rumors of positive trade negotiations only to find the rumors were not true, and the market may slip lower. Managers should monitor pricing opportunities throughout the fall to reduce risk for double-crop soybeans.

## Topic 6. 2019 Projected Return to Storage for Corn and Soybeans

Table 10 provides projected returns to on-farm and commercial corn storage from harvest to the following June. The return to on-farm storage is calculated as the deferred price less the harvest price less the monthly opportunity cost less the on-farm storage fee. The harvest price for corn is projected at \$3.72 per bushel. The annual interest rate is 5%, which gives a monthly interest cost of \$0.015/bushel for corn. The corn futures complex closing prices on November 15, 2019, and the five-year average monthly spot basis are used to forecast the most-likely deferred cash prices. The maximum monthly basis is the optimistic basis, and the minimum basis is the pessimistic basis. On-farm storage is charged \$0.127 per bushel, and the return to on-farm storage is the return to the farm's drying and storage system.

The projected return to on-farm corn storage, assuming the most likely basis, is **-\$0.08**/bushel in February 2020. The combination of an optimistic basis appreciation and carry in the futures market provides even larger projected returns to on-farm storage into spring 2020 (Table 10).

**Table 10. Projected Return to Storage for On-Farm and Commercial for Corn.**

Harvest Cash Price	\$3.72							
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
On-Farm Storage Cost (\$/bu)	\$0.14	\$0.16	\$0.17	\$0.19	\$0.20	\$0.22	\$0.24	\$0.25
Commercial Storage (\$/bu)	\$0.22	\$0.23	\$0.25	\$0.31	\$0.38	\$0.44	\$0.51	\$0.57
Most Likely Spot Price Forecast (\$/bu)	\$3.63	\$3.73	\$3.79	\$3.83	\$3.85	\$3.88	\$3.94	\$3.97
Conservative Spot Forecast (\$/bu)	\$3.53	\$3.64	\$3.67	\$3.74	\$3.71	\$3.73	\$3.85	\$3.87
Optimistic Spot Forecast (\$/bu)	\$3.78	\$3.87	\$3.90	\$3.88	\$3.96	\$3.99	\$4.08	\$4.07
Returns to On-Farm Storage	-\$0.23	-\$0.14	-\$0.10	-\$0.08	-\$0.08	-\$0.06	-\$0.01	+\$0.01
Conservative	-\$0.33	-\$0.24	-\$0.22	-\$0.16	-\$0.21	-\$0.20	-\$0.10	-\$0.10
Optimistic	-\$0.08	-\$0.00	+\$0.01	-\$0.02	+\$0.04	+\$0.05	+\$0.13	+\$0.10
Returns to Commercial Storage	-\$0.30	-\$0.21	-\$0.17	-\$0.20	-\$0.25	-\$0.28	-\$0.29	-\$0.32
Conservative	-\$0.41	-\$0.31	-\$0.29	-\$0.29	-\$0.38	-\$0.43	-\$0.38	-\$0.42
Optimistic	-\$0.16	-\$0.07	-\$0.06	-\$0.15	-\$0.13	-\$0.17	-\$0.14	-\$0.22

Projected on November 15, 2019.

**Table 11. Projected Return to Storage for On-Farm and Commercial for Soybeans.**

Harvest Cash Price	\$8.84							
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
On-Farm Storage Cost (\$/bu)	\$0.16	\$0.20	\$0.24	\$0.27	\$0.31	\$0.35	\$0.38	\$0.42
Commercial Storage (\$/bu)	\$0.34	\$0.37	\$0.41	\$0.50	\$0.53	\$0.57	\$0.61	\$0.64
Most Likely Spot Price Forecast (\$/bu)	\$8.97	\$9.09	\$9.19	\$9.19	\$9.22	\$9.25	\$9.38	\$9.44
Conservative Spot Forecast (\$/bu)	\$8.69	\$8.79	\$8.83	\$8.91	\$9.00	\$9.07	\$9.18	\$9.30
Optimistic Spot Forecast (\$/bu)	\$9.27	\$9.34	\$9.49	\$9.52	\$9.58	\$9.57	\$9.77	\$9.76
Returns to On-Farm Storage	-\$0.03	+\$0.05	+\$0.12	+\$0.08	+\$0.07	+\$0.06	+\$0.16	+\$0.18
Conservative	-\$0.32	-\$0.25	-\$0.25	-\$0.20	-\$0.15	-\$0.12	-\$0.04	+\$0.04
Optimistic	+\$0.27	+\$0.31	+\$0.42	+\$0.41	+\$0.43	+\$0.39	+\$0.54	+\$0.50
Returns to Commercial Storage	-\$0.20	-\$0.13	-\$0.06	-\$0.15	-\$0.15	-\$0.16	-\$0.06	-\$0.04
Conservative	-\$0.49	-\$0.42	-\$0.42	-\$0.42	-\$0.37	-\$0.34	-\$0.26	-\$0.18
Optimistic	+\$0.10	+\$0.13	+\$0.24	+\$0.18	+\$0.20	+\$0.16	+\$0.32	+\$0.28

Projected on November 15, 2019.

The return to commercial corn storage is the deferred price less the harvest price, interest costs, and commercial storage fees. Commercial storage is assumed at \$0.20/bushel from harvest to January 31, with an additional \$0.05/bushel per month starting in February. The projected commercial storage return is **-\$0.17**/bushel in



January, assuming the most-likely basis and the current carry in the futures market. Commercial storage returns decline when the additional monthly charge begins in January.

If the 2019 corn crop is reduced further, basis appreciation may be greater than that modeled by the most likely basis. The optimistic return to on-farm storage for corn to March 2020 is \$0.04/bushel. The corn futures market needs to increase carry for commercial storage to be profitable (Table 10).

The projected on-farm and commercial storage returns for soybeans are presented in Table 11. The harvest price for soybeans is projected at \$8.84 per bushel, with a monthly interest cost of \$0.037/bushel. The five-year average monthly spot basis is used to forecast the most-likely deferred cash prices. The maximum monthly basis is the optimistic basis, and the minimum basis is the pessimistic basis. On-farm storage is charged \$0.127 per bushel, and the return to on-farm storage is the return to the farm's storage system.

Assuming the most likely basis and the current carry in the soybean futures market, the return to on-farm storage is +\$0.12/bushel in January 2020 (Table 11). Soybean basis has been wider than average for the 2017 and 2018 crops, so the conservative basis suggests a return to on-farm storage of -\$0.25/bushel in January. The optimistic returns might be too optimistic given recent basis appreciation and market fundamentals.

The return to commercial soybean storage is the deferred price less the harvest price, interest costs, and commercial storage fees. Commercial storage is assumed at \$0.30/bushel from harvest to January 31, with an additional \$0.05/bushel per month starting in February. The projections in Table 11 suggest a -\$0.06/bushel return to commercial storage for the most likely basis assumption, but a -\$0.42/bushel return for the conservative basis (Table 11).

## Topic 7. Post-Harvest 2019 Corn and Soybean Risk Management Opportunities

Managers storing corn and soybeans to February 2020 may want to consider if the futures or options markets are providing opportunities to protect prices at profitable levels.

Table 12 compares the potential of using hedging, forward contracts, or put options to lock in a return over total economic costs, family living, and on-farm storage. Those farms that produced more than 190-bushel corn in 2019 may be able to lock-in a profit above total budgeted costs. Farms with lower expected yields do not have profitable risk management opportunities at current prices to cover all budgeted costs (Table 12).

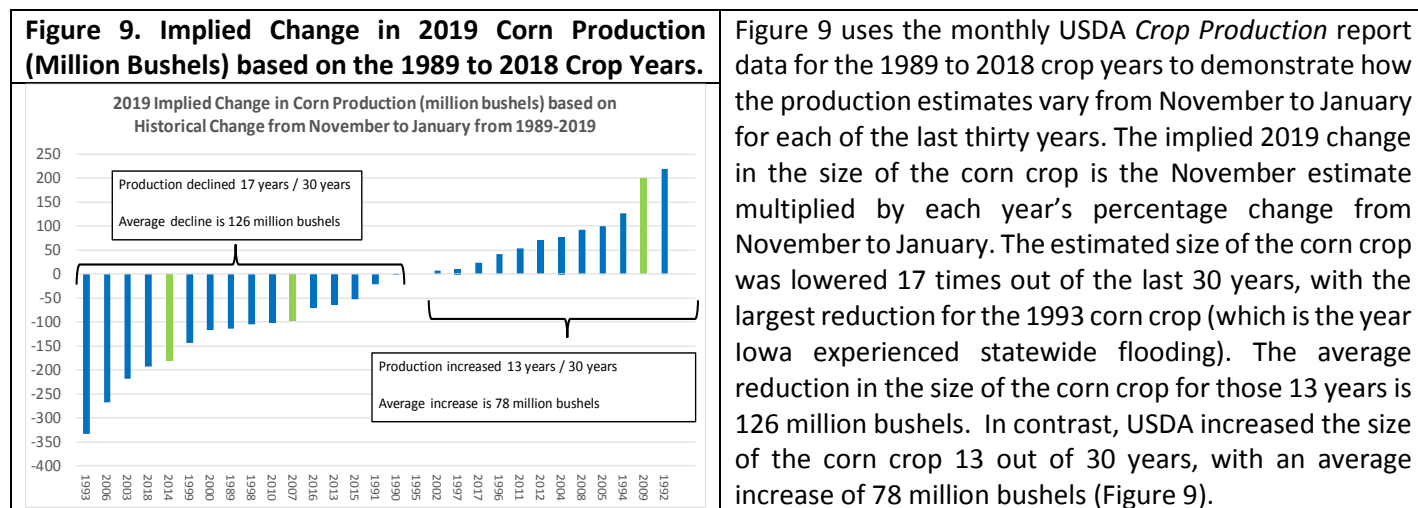
<b>Storage Hedge: Feb 2020</b>	<b>Corn</b>			
	<u>170</u>	<u>180</u>	<u>190</u>	<u>200</u>
Yield				
TVC+Rent+Overhead+Family Living (\$/acre)	\$714	\$714	\$714	\$714
TVC+Rent+Overhead+Family Living (\$/bu)	\$4.20	\$3.97	\$3.76	\$3.57
TVC+Rent+OH+Family+\$0.21 storage (\$/bu)	\$4.41	\$4.18	\$3.97	\$3.78
Hedge @ \$3.81+\$0.05 basis = \$3.86	-\$0.55	-\$0.32	-\$0.11	+\$0.08
Forward Contract at \$3.94	-\$0.47	-\$0.23	-\$0.02	+\$0.16
Put: \$3.80 strike @\$0.112 = \$3.74 floor	-\$0.67	-\$0.44	-\$0.23	-\$0.04
Strategies Evaluated on:	November 15, 2019			

<b>Storage Hedge: Feb 2020</b>	<b>Soybeans</b>				Table 13 presents risk management alternatives for storing soybeans from harvest to February 2020. The example varies the harvested yield to illustrate how the break-even price over inputs, rent, overhead, family living, and storage changes with yield.
	<u>40</u>	<u>50</u>	<u>60</u>	<u>70</u>	
Yield					
TVC+Rent+Overhead+Family Living (\$/acre)	\$532	\$532	\$532	\$532	
TVC+Rent+Overhead+Family Living (\$/bu)	\$13.30	\$10.64	\$8.87	\$7.60	
TVC+Rent+OH+Family+\$0.27 storage (\$/bu)	\$13.57	\$10.96	\$9.19	\$7.92	
Hedge @ \$9.31 + -\$0.30 basis = \$9.01	-\$4.56	-\$1.95	-\$0.18	+\$1.09	
Forward Contract at \$9.22	-\$4.35	-\$1.74	+\$0.03	+\$1.30	
Put: \$9.40 strike @\$0.226 = \$8.82 floor	-\$4.75	-\$2.14	-\$0.36	+\$0.90	
Strategies Evaluated on:	November 15, 2019				

The example illustrates that a yield of 60-bushels is needed to lock in a profit using forward contracts. Table 13 also illustrates that farmers harvesting lower yields will be challenged to find profitability at current prices and the assumed costs.

### Topic 8. Potential 2019-20 Corn and Soybean Balance Sheets and Price Potential

Market bulls are still searching for a story that would further reduce the size of the 2019 corn and soybean crops and provide higher MYA prices. Even with the late-planted, late maturing, and slowly harvested crop, the market may have a corn and soybean crop that is “large enough” given the tepid demand. While production projections typically do not change substantially from the November to January report, it is worthwhile to compare how changes in production could affect ending stocks and the U.S. MYA farm price.



There is not a year that can be considered comparable to 2019 for the last thirty years. However, there are three years where USDA increased the yield from the September to October report and then reduced the yield from the October to November report. Those similar years are shaded green in Figure 9. These years imply a reduction of 181 million bushels (2014), a reduction of 98 million bushels (2007), and an increase in production of 200 million bushels (2009). Since the 2019 corn crop is currently pegged at 13.66 billion bushels, these comparable years imply a change of -1.3% to +1.4% from the November 2019 to the January 2020 report (Figure 9).

**Table 14. Potential 2019 Corn Balance Sheet and Price Potential for Changes to 2019 Corn Production.**

	Nov. WASDE	Potential change in 2019 Corn Production (million bushels)			
		-150 mil bu.	-75 mil bu.	+50 mil bu.	+100 mil bu.
Beginning Stocs	2,114				
Imports	50				
Production	13,661	13,511	13,586	13,711	13,761
Total Supply	15,825	15,675	15,750	15,875	15,925
Total Domestic	12,065				
Exports	1,850				
Total Use	13,915	13,915	13,915	13,915	13,915
Ending Stocks	1,910	1,760	1,835	1,960	2,010
Stocks/Use	13.7%	12.6%	13.2%	14.1%	14.4%
Days Stocks	50	46	48	51	53
U.S. MYA Price	\$3.85	\$3.94	\$3.89	\$3.82	\$3.79

Table 14 provides a sensitivity analysis of how changes to the size of the 2019 corn crop could affect ending stocks and the U.S. MYA price. The 2019 corn crop is assumed to decrease by 150 and 75 million bushels and increase by 50 and 100 million bushels. The other items in the supply and demand table are assumed to be the same as in the November *WASDE*.  
If the 2019 corn crop is reduced by 150 million bushels, the stocks-to-use ratio would be 12.6%, and the U.S. MYA price would increase to \$3.94/bushel. A greater reduction in production is needed to support a higher U.S. MYA price.

A 75 million bushel reduction in the corn crop would reduce stocks to a level that would potentially support a \$3.89 U.S. MYA price. Alternatively, a 50 million and 100 million bushel increase in production would push stocks above 1.96 billion bushels and support a U.S. MYA price of \$3.82 and \$3.79/bushel, respectively (Table 14).

**Figure 10. Implied Change in 2019 Soybean Production (Million Bushels) based on the 1989 to 2018 Crop Years.**

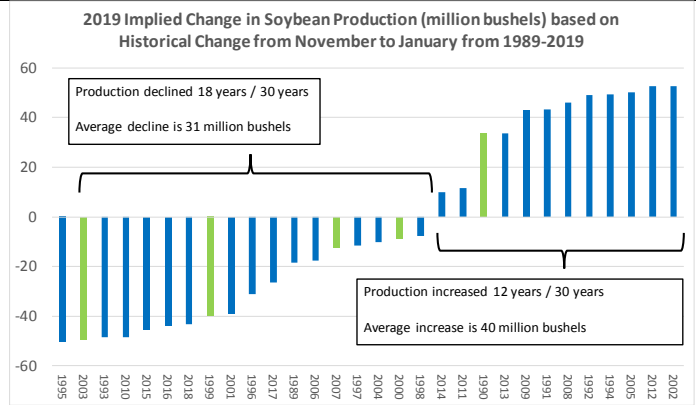


Figure 10 shows the implied change in the 2019 soybean crop based on USDA's adjustments to the estimated crop for the 1989 to 2018 crop years. USDA revised the soybean crop lower from the November to January reports 18 of the last 30 years with an average reduction of 31 million bushels. Alternately, USDA revised the soybean crop higher in 12 of the 30 years, with an average increase of 40 million bushels.

Like corn, there is not a comparable year that accurately reflects the 2019 soybean crop. However, Figure 10 implies that the production estimates do not change substantially from the November to January reports. The production sensitivity analysis reported in Table 15 reduces and increases production by 25 and 50 million bushels. Table 15 assumes the same beginning stocks, imports, and demand estimates from the November *WASDE*.

**Table 15. Potential 2019 Soybean Balance Sheet and Price Potential for Change to 2019 Soybean Production.**

	Nov. <i>WASDE</i>	Potential change in 2019 Soybean Production (million bushels)			
		-50 mil bu.	-25 mil bu.	+25 mil bu.	+50 mil bu.
Beginning Stocs	913				
Imports	20				
Production	3,550	3,500	3,525	3,575	3,600
Total Supply	4,483	4,433	4,458	4,508	4,533
Total Domestic	2,233				
Exports	1,775				
Total Use	4,008	4,008	4,008	4,008	4,008
Ending Stocks	475	425	450	500	525
Stocks/Use	11.9%	10.6%	11.2%	12.5%	13.1%
Days Stocks	43	39	41	46	48
U.S. MYA Price	\$9.00	\$9.29	\$9.14	\$8.87	\$8.75

Table 15 demonstrates that the soybean U.S. MYA price could increase to \$9.29/bushel if the 2019 soybean crop shrinks by 50 million bushels. If the 2019 crop is reduced by 25 million bushels and demand does not change lower, then the impact on stocks would be less significant, and the U.S. MYA price would increase to \$9.14/bushel.

Of course, an increase in the soybean crop without increased demand would increase stocks from the November estimate. A 25 and 50 million-bushel increase implies a U.S. MYA price of \$8.87 and \$8.75 per bushel, respectively (Table 15).

The sensitivity analyses in Table 14 demonstrate that significant adjustments in the size of the corn crop do not typically occur from the November estimates to the final January estimate. A reduction greater than 150 million bushels is required to move the U.S. MYA price above the \$4.00/bushel level, but that is a lower probability event.

The soybean market is very sensitive to a decrease or increase in the size of the soybean crop. While unlikely, a 50 million bushel increase in the size of the 2019 soybean crop would potentially increase the stocks-to-use ratio to 13.1% and support a U.S. MYA price of \$8.75/bushel (Table 15). Until the trade disruptions are resolved, the soybean market is at the mercy of production estimates to support a higher U.S. MYA price.

### Topic 9. USDA Releases Preliminary Baseline Projections

Each fall, USDA prepares a set of price projections for the next ten years for the major commodities as part of the Federal budgeting process. The price forecasts are from an economic model that does not include any input from farmers regarding planting intentions. The forecasts assume trend yields, and there will be no production shock for the forecast period. Similarly, the economists assume no demand shocks and that use will increase at the average annual increase in recent history.

While these assumptions will not reflect what really will happen over the next ten years, the projections can be used to describe the strengths and weaknesses in the corn, soybean, and wheat markets.

Table 16 reports the preliminary outlook for the U.S. corn market for the 2020 to the 2022 marketing years. USDA is assuming that the corn planted area will increase by 4.6 million acres from 2019 to 2020. The increase in corn planted area is due to corn having better profitability potential than soybeans or wheat. USDA is assuming that planted area will then fall to 89 million acres for 2021 and 22; however, the projections suggest stocks increasing to over 2.7 billion bushels for the 2020 through 2022 marketing years (Table 16).

**Table 16. Preliminary Baseline Projections for U.S. Corn to 2022.**

	Nov WASDE	Nov WASDE	Preliminary Baseline Tables		
	2018-19	2019-20 (F)	2020-21 (F)	2021-22 (F)	2022-23 (F)
Planted (million)	89.1	89.9	94.5	89.0	89.0
Harvested (million)	81.7	81.8	87.1	81.6	81.6
Yield (bu/acre)	176.4	167	178.5	180.5	182.5
----- Million Bushels -----					
Beginning Stocks	2,140	2,114	1,910	2,735	2,764
Production	14,420	13,661	15,545	14,730	14,890
Imports	28	50	25	25	25
Total Supply	16,588	15,825	17,480	17,490	17,679
Feed & Residual	5,618	5,275	5,775	5,675	5,750
Food, Seed, Industrial	6,791	6,790	6,870	6,920	6,940
Ethanol	5,376	5,375	5,450	5,500	5,525
Exports	2,065	1,850	2,100	2,150	2,200
Total Use	14,474	13,915	14,745	14,745	14,890
Ending Stocks	2,114	1,910	2,735	2,745	2,789
Stocks-to-Use	14.6%	13.7%	18.5%	18.6%	18.7%
Days Stocks	53	50	68	68	68
U.S. MYA Price	\$3.61	\$3.85	\$3.40	\$3.40	\$3.45

USDA is projecting feed and residual use to increase by 500 million bushels from the 2019-20 to 2020-21 marketing year. While this may seem surprising initially, the increase in residual use reflects a larger crop and greater measurement error of bushels fed on-farm. USDA is projecting a sharp increase in exports to 2.1 billion bushels in 2020-21 with modest growth for the 2021-22 and 2022-23 marketing years. The demand growth would need the USMCA trade agreement ratified by congress along with the trade deal with Japan that has been talked about by the administration.

USDA is projecting the U.S. MYA farm prices to range from \$3.40 to \$3.45 per bushel for the next three marketing years. If exports do not increase as projected or if farmers harvest above-trend yields, then stocks will increase more than expected. The result is that prices will be lower than currently projected (Table 16).

**Table 17. Preliminary Baseline Projections for U.S. Soybeans to 2022.**

	Nov WASDE	Nov WASDE	Preliminary Baseline Tables		
	2018-19	2019-20 (F)	2020-21 (F)	2021-22 (F)	2022-23 (F)
Planted (million)	89.2	76.5	84.0	86.0	85.0
Harvested (million)	87.6	75.6	83.2	85.2	84.2
Yield (bu/acre)	50.6	46.9	50.5	51.1	51.6
----- Million Bushels -----					
Beginning Stocks	438	913	475	533	631
Production	4,428	3,550	4,200	4,350	4,345
Imports	14	20	20	20	20
Total Supply	4,880	4,483	4,695	4,903	4,996
Crush	2,092	2,105	2,135	2,170	2,200
Seed and Residual	128	128	132	132	132
Exports	1,748	1,775	1,895	1,970	2,045
Total Use	3,967	4,008	4,162	4,272	4,377
Ending Stocks	913	475	533	631	619
Stocks-to-Use	23.0%	11.9%	12.8%	14.8%	14.1%
Days Stocks	84	43	47	54	52
U.S. MYA Price	\$8.48	\$9.00	\$8.85	\$8.45	\$8.55

Table 17 shows the preliminary baseline outlook for soybeans. Again, USDA assumes no production or demand shock for each year and assumes trend yields and trend increases in use. For the 2020 crop year, USDA is assuming that soybean planted area will increase by 7.5 million acres to 84 million acres. This assumption is that farmers will return to a corn-soybean rotation with a larger percentage planted to corn due to relative profitability. USDA is assuming trend yields and assuming that planted areas will be below the plantings in the 2017 and 2018 crop years. Even with lower than typical planted area, the assumption of trend yields suggests that soybean supply is projected to increase from 4.48 billion in 2019-20 to about 5 billion bushels in 2022-23.

USDA is projecting steady increases in crushing demand for the 2020 to 2022 marketing years. Export demand is projected to increase from 1.775 billion in 2019 to 1.895 billion for 2020 with modest export growth for 2021 and 2022. Like in corn, the export projects might be optimistic without a more normal export relationship with China.

USDA projects soybean stocks to rebuild from the 475 million bushels for 2019 to over 600 million bushels for the 2021 and 2022 marketing years. As stocks increase, the U.S. MYA soybean price is pushed lower, with prices falling to the \$8.45 - \$8.55 price range for the 2021 and 2022 marketing years.

Table 18 shows the baseline projections for wheat. USDA is assuming that the wheat harvested area will increase modestly from 2019 and that yields will be lower than the 2019 wheat yield. These assumptions are necessary to keep total wheat supply below 3 billion bushels for the 2020 through the 2022 marketing years.

Wheat use is projected to be less than the projected 2019-20 use, with exports projected at 925 million bushels for the 2020 to 2022 marketing years. Feed use is also projected to decline over this period due to projected increases in corn stocks. Curiously, food use is projected to increase by 8 million bushels from 2019 to 2020 to near-record food use. This steady increase in food use is expected to continue into the 2021 and 2022 marketing years.

**Table 18. Preliminary Baseline Projections for U.S. Wheat to 2022.**

	Nov WASDE	Nov WASDE	Preliminary Baseline Tables		
	2018-19	2019-20 (F)	2020-21 (F)	2021-22 (F)	2022-23 (F)
Planted (million)	47.8	45.2	45.0	45.5	46.5
Harvested (million)	39.6	37.2	38.1	38.5	39.3
Yield (bu/acre)	47.6	51.7	48.2	48.6	49.0
----- Million Bushels -----					
Beginning Stocks	1,099	1,080	1,014	921	868
Production	1,885	1,920	1,836	1,871	1,926
Imports	135	120	140	140	140
Total Supply	3,119	3,120	2,990	2,932	2,934
Food	955	955	963	966	969
Seed	59	61	61	63	63
Feed and Residual	90	140	120	110	110
Exports	936	950	925	925	925
Total Use	2,039	2,106	2,069	2,064	2,067
Ending Stocks	1,080	1,014	921	868	867
Stocks-to-Use	52.9%	48.1%	44.5%	42.0%	41.9%
Days Stocks	193	176	162	153	153
U.S. MYA Price	\$5.16	\$4.70	\$4.80	\$4.90	\$5.00

The result of these assumptions is that wheat stocks would decline from a 48.1% stocks-to-use ratio for 2019 to a 42% stocks-to-use ratio for the 2021 and 2022 marketing years. The U.S. MYA wheat price is projected to increase to \$5 per bushel by the 2022-23 marketing year.

What can we learn from the baseline projections? USDA is projecting increased ending stocks for the three crops. USDA may be understating the production capacity of each market. While soybeans do not need an increase in soybean acres in 2020, the planted area will increase due to a return to crop rotations disrupted by the 2019 crop years. Some farmers facing credit constraints may plant soybeans even if the market discourages planting. Managers should prepare for stocks to increase more than projected.

A lesson from these projections is for managers to monitor the market to price their crops at profitable levels. Pricing opportunities often occur several months before planting. Seasonality in the futures market tends to penalize those who wait until they are sure about their farm’s production before pricing production because price tends to be lowest at harvest.

### Topic 10. Baseline Projections and Implications for ARC-CO and PLC

Farmers will have to make their ARC/PLC election for the 2019 and 2020 crops by March 15, 2020. Whatever policy is elected will depend on each farmer’s expectations for the MYA price and county yields for ARC-CO and the MYA price expectations for PLC. Farmers should use an online decision tool to simulate the variability in price and county yield to understand the potential farm bill payments and the probability of receiving payments. This article will discuss what the 2019 preliminary baseline means for the ARC and PLC decision for corn, soybeans, and wheat without price and yield variability.

**Figure 11. Potential Corn PLC Payment Rates for the 2018 Farm Bill and Payments for the 2014 Farm Bill.**

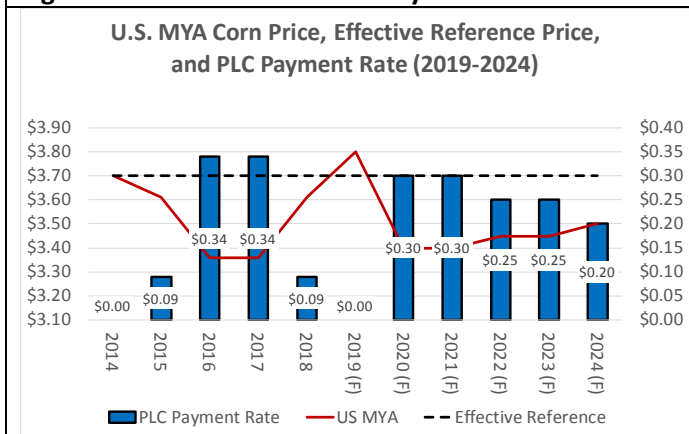


Figure 11 shows the PLC reference price, the U.S. MYA price, and PLC Payment rates for corn for the 2014 Farm Bill for the 2014-2018 crops and the 2018 Farm Bill for the 2019 to 2023 crops. The PLC program would trigger payments from 2020 to 2024 as USDA is projecting the U.S. MYA price to be below the reference price. USDA is projecting the U.S. MYA at \$3.40 for 2020 and the U.S. MYA price to range from \$3.40 to \$3.50 per bushel for the 2021 through 2023 crops. USDA currently projects the 2019 MYA price to be above the effective reference price, so no payment would be triggered.

**Figure 12. Potential County Yield Thresholds to Trigger ARC-CO Payments for Corn for the 2018 Farm Bill.**

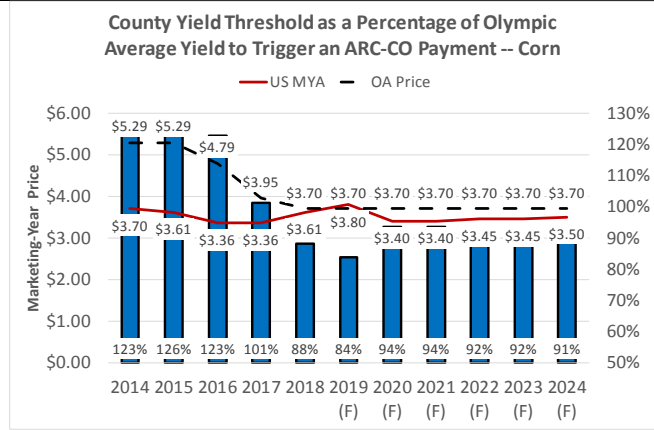


Figure 12 shows the Olympic Average corn price, the U.S. MYA price, and the county yield needed to trigger an ARC-CO payment for the 2014 Farm Bill and 2018 Farm Bill. Notice that the Olympic Average MYA price is projected to stay at the \$3.70 per bushel minimum for the life of the 2018 Farm Bill. Even though the U.S. MYA price is projected to be \$0.20 to \$0.30 below the Olympic Average price, the county yield would have to be 6% to 8% below the Olympic Average county yield to begin to trigger an ARC-CO payment. The yield loss for 2019 will have to be 16% to begin to trigger an ARC-CO payment for corn.

**Figure 13. Potential Soybean PLC Payment Rates for the 2018 Farm Bill and Payments for the 2014 Farm Bill.**

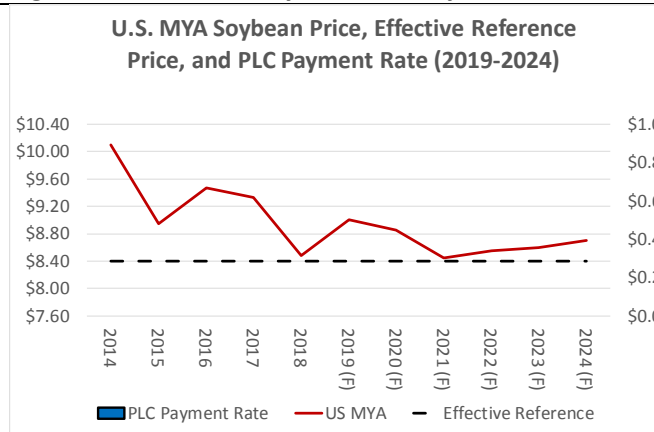


Figure 13 shows the PLC reference price, U.S. MYA price, and PLC payment rates for soybeans under the 2014 and 2018 Farm Bills. The PLC reference price is \$8.40 per bushel. While the U.S. MYA price for soybeans was as low as \$8.48 per bushel in 2018, the price was not low enough to trigger a PLC payment. The preliminary baseline projections suggest soybean prices on average will not be low enough to trigger a PLC payment for 2019, 2020, or the out-years of the 2018 Farm Bill.

**Figure 14. Potential County Yield Thresholds to Trigger ARC-CO Payments for Soybeans for the 2018 Farm Bill.**

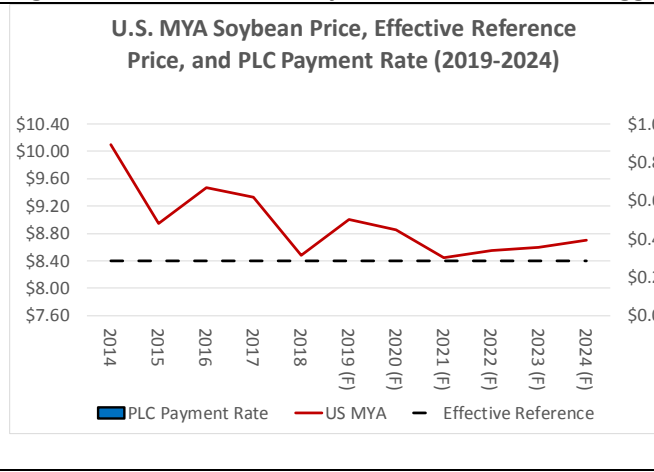


Figure 14 reports the Olympic Average U.S. MYA soybean price, U.S. MYA soybean price, and the county yield as a percentage of the Olympic Average Yield needed to trigger an ARC-CO payment. In contrast to corn, the soybean Olympic Average price has not reached the \$8.40 per bushel minimum level. However, the baseline projections suggest that the Olympic Average price will continue to decline throughout the life of the 2018 Farm Bill. The county soybean yield will have to decline by 8% in 2019 to trigger an ARC-CO payment, and a 10% yield loss is needed to trigger an ARC-CO payment in 2020 (Figure 14).

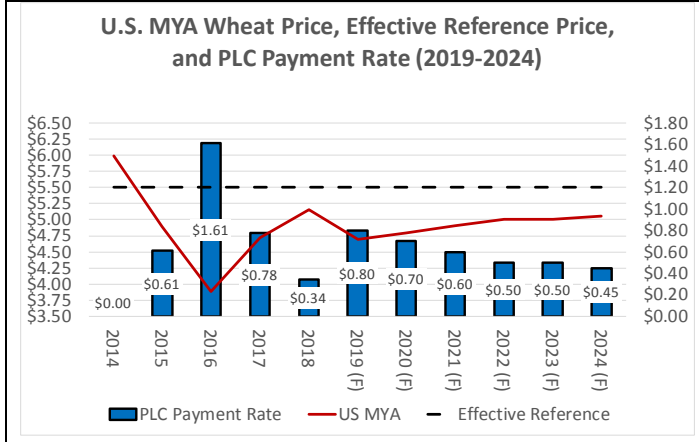
Notice as the Olympic Average soybean price decreases, the county yield loss needed to trigger a payment increases. For example, a 12% county yield loss is needed to trigger an ARC-CO payment in 2023, assuming the baseline price projections (Figure 14).

Figure 15 reports the PLC payment rates, Effective Reference Price, and the U.S. MYA price for wheat. While farmers tended to elect ARC-CO for corn and soybeans for the 2014 Farm Bill, wheat had better payouts for PLC. The baseline projections suggest that PLC wheat payments for 2019 and 2020 would be \$0.80 and \$0.70, respectively. Payments are likely for the out-years of the 2018 Farm Bill for wheat.

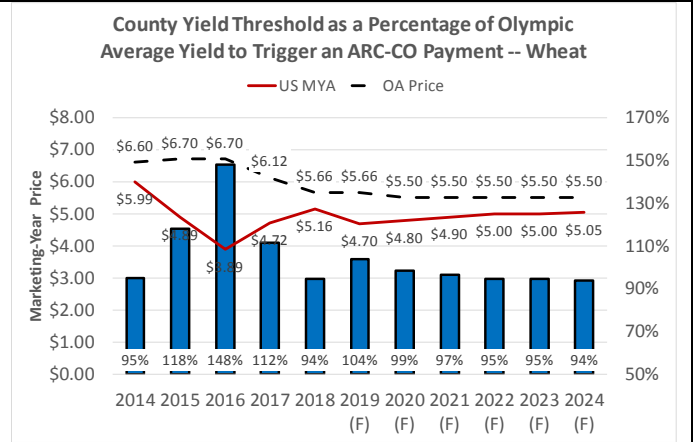


Like corn, the Olympic Average wheat price is projected to reach the minimum price of \$5.50 per bushel in 2020 and continue throughout the life of the 2018 Farm Bill (Figure 16). As the Olympic Average price approaches \$5.50 per bushel, the county yield loss needed to trigger an ARC-CO payment increases. For the 2019 crop, the county yield could be 104% of the Olympic average yield to start triggering a payment. For 2020, the county yield must be 1% below the Olympic Average yield to trigger a payment.

**Figure 15. Potential Wheat PLC Payment Rates for the 2018 Farm Bill and Payments for the 2014 Farm Bill.**



**Figure 16. Potential County Yield Thresholds to Trigger ARC-CO Payments for Wheat for the 2018 Farm Bill.**



Again, farmers should use a decision aide that captures price and yield variability to make an informed decision. The examples presented above suggest that PLC will potentially be better options for corn and wheat. Soybeans might be a push between ARC-CO and PLC.

Overall, farmers should prepare themselves for smaller payments for corn and soybeans than received under the 2014 Farm Bill. The wheat base could trigger large payments, but perhaps not the same as the \$1.61 payment rate triggered in 2016. Lower payments suggest the “safety net” aspect of the Title I programs will lower than the programs under the 2014 Farm Bill.

**Topic 12. Sign-up for the Second Tranche of MFP 2.0**

The Trump administration has announced the second tranche of 2019 Market Facilitation Program payments. Producers will now be eligible to receive 25% of the total payment expected. This payment is in addition to the 50% they have already received from the first tranche of the 2019 MFP. MFP signup at Farm Service Agency offices will run through Dec. 6, 2019.

**Topic 13. How Do I Get on the Email Distribution List to Receive this Newsletter?**

The *Crops Marketing and Management Update* is published monthly, usually after the release of the USDA: WASDE report. You can find this issue and past issue on the UK Agricultural Economics Department’s website at <http://www.uky.edu/Ag/AgEcon/extcmmu.php>. Email [todd.davis@uky.edu](mailto:todd.davis@uky.edu) to receive the newsletter by email.

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