

# Crops Marketing and Management Update

## Grains and Forage Center of Excellence

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### Topic 1. USDA Issues Final 2018 Crop Production Estimates for Corn and Soybeans

The government shutdown delayed the final 2018 crop production estimates until February 8, 2019. Analysts surveyed before the report was released expected USDA to reduce the size of both the corn and soybean crops from the November production estimates. The February production estimates did reduce the size of the corn and soybean crops from the November estimates. However, the market did not react to the verification of smaller crops.

Table 1 shows the updated corn yield projections for Midwestern and Southern states with the change from the November report and the change from the 2017 corn yield. USDA increased the projected corn yield in North Dakota (+7) from the previous estimate. Yields in Indiana (-5), Iowa (-2), Kansas (-1), Michigan (-13), Minnesota (-2), Missouri (-5), Nebraska (-3), Ohio (6), South Dakota (-6) and Wisconsin (-5) were all reduced from the November projections coinciding with the weather problems and delayed harvest in that region. The Midwest states west of the Mississippi River are projected to have a worse yielding corn crop than last year with Iowa (-6), Kansas (-3), Michigan (-6), Minnesota (-12), and Missouri (-30) projected to have lower yields than in 2017 (Table 1).

USDA projects the 2018 corn crop in the South to have lower yields than in 2017. Only Virginia (+6) and Oklahoma (+8) are expected to have higher yields this year. For some states, the 2018 crop is significantly lower in Texas (-32), North Carolina (-29), Georgia (-19), Alabama (-11), Louisiana (-11), and South Carolina (-9) bushels from last year (Table 1).

The United States corn yield was trimmed 2.5 bushels per acre from the November report to 176.4 bushels. This yield is only 0.2 bushels per acre less than 2017's yield.

**Table 1. Projected Corn Yields from the November and Final 2018 Crop Production Reports with a Comparison to the 2017 Final Yields.**

	Corn Yield (Bu/Acres)				
	Nov	Final	2017	Change from	Change from
	2018 (F)	2018 (F)		Nov (bu)	2017 (bu)
<b>Midwest States</b>					
Illinois	210	210	201	+0	+9
Indiana	194	189	180	-5	+9
Iowa	198	196	202	-2	-6
Kansas	130	129	132	-1	-3
Michigan	166	153	159	-13	-6
Minnesota	184	182	194	-2	-12
Missouri	145	140	170	-5	-30
Nebraska	195	192	181	-3	+11
North Dakota	146	153	139	+7	+14
Ohio	193	187	177	-6	+10
South Dakota	166	160	145	-6	+15
Wisconsin	177	172	174	-5	-2
<b>Southern States</b>					
Alabama	176	156	167	-20	-11
Arkansas	181	181	183	+0	-2
Georgia	169	157	176	-12	-19
Kentucky	179	175	178	-4	-3
Louisiana	170	173	184	+3	-11
Mississippi	188	185	189	-3	-4
North Carolina	117	113	142	-4	-29
Oklahoma	140	134	126	-6	+8
South Carolina	121	127	136	+6	-9
Tennessee	173	168	171	-5	-3
Texas	113	108	140	-5	-32
Virginia	148	146	140	-2	+6
<b>United States</b>	<b>178.9</b>	<b>176.4</b>	<b>176.6</b>	<b>-2.5</b>	<b>-0.2</b>

Source: *Crop Production* report February 8, 2019.

**Table 2. Projected Soybean Yields from the November and Final 2018 Crop Production Reports with a Comparison to the 2017 Final Yields.**

	Soybean Yield (Bu/Acres)				
	Nov	Final	2017	Change from	Change from
	2018 (F)	2018 (F)		Nov (bu)	2017 (bu)
<b>Midwest States</b>					
Illinois	64	65	58	+1	+7
Indiana	60	59	54	-2	+5
Iowa	58	57	57	-1	+0
Kansas	42	44	38	+2	+6
Michigan	48	48	43	+0	+6
Minnesota	50	51	48	+1	+3
Missouri	46	45	50	-1	-5
Nebraska	61	59	58	-2	+2
North Dakota	36	36	35	-1	+1
Ohio	59	58	50	-1	+9
South Dakota	49	46	43	-3	+3
Wisconsin	49	49	48	+0	+2
<b>Southern States</b>					
Alabama	44	41	46	-3	-5
Arkansas	50	51	51	+1	+0
Georgia	33	40	42	+7	-2
Kentucky	54	52	53	-2	-1
Louisiana	50	52	54	+2	-2
Mississippi	53	55	53	+2	+2
North Carolina	35	34	40	-1	-6
Oklahoma	31	30	29	-1	+1
South Carolina	30	30	38	-1	-9
Tennessee	48	46	50	-2	-4
Texas	30	32	37	+2	-5
Virginia	44	43	44	-1	-1
<b>United States</b>	<b>52.1</b>	<b>51.6</b>	<b>49.3</b>	<b>-0.5</b>	<b>+2.3</b>

Source: *Crop Production* report February 8, 2019.

Table 2 shows the change in soybean yields in the Midwest and Southern States from the November report and last year. USDA increased or kept unchanged soybean yields in from the November projections in Illinois (+1), Kansas (+2), Michigan (+0), Minnesota (+1), and Wisconsin (+0). However, USDA projects 2018 yields to be higher than last year's yield throughout the Midwest except for Missouri (-5). For the top-five soybean states, Illinois (+7), Indiana (+5), Nebraska (+2), Iowa (+0), and Minnesota (+3) are projected with higher yields than last year. USDA also pegs the soybean yields to be higher than last year in Kansas (+6), Michigan (+6), and Ohio (+9) over their 2017 yields.

USDA reduced soybean yields for the Southern states, excluding Arkansas (+1), Georgia (+7), Louisiana (+2), Mississippi (+2), and Texas (+2) from the November report. Compared to 2017, soybean yields in the south are projected to be lower except in Mississippi (+2), and Oklahoma (+1).

USDA projects Kentucky's corn yield at 175 BPA, which is 3 bushels below 2017 and 4 bushels less than the November report. Kentucky's soybean yield is projected at 52 BPA, which is a 1-bushel decrease from 2017 and a 2-bushel reduction from November.

The 2018 U.S. soybean yield is 2.3 BPA larger than last year's yield, and is a 0.5 BPA reduction from the November projections (Table 2).

## Topic 2. February WASDE Update: Shifting Focus to South America and Use

The February WASDE incorporated the final production projections for the 2018 crop. The market shrugged off the smaller corn and soybean production estimates as the focus has shifted to the size of the South American crops and the demand side of the balance sheet.

Analysts expected USDA to reduce ending stocks for corn from the December report. USDA cut harvested area by 100 thousand acres and yield by 2.5 bushels/acre from the December projections. The combination of reduced area and yield trimmed the size of the 2018 corn crop by 206 million bushels from the November projections. The 2018 corn crop is estimated to be 189 million bushels smaller than the 2017 corn crop (Table 3). USDA reduced the total corn supply for 2018 by 211 million bushels from the December estimate.

USDA also reduced feed demand from the December projections. Feed demand was lowered by 125 million bushels, corn processed into ethanol demand was reduced by 25 million bushels, and other processing demand was reduced by 15 million bushels from the December report (Table 3).

Ending corn stocks are projected at 1.735 billion bushels down 46 million bushels from the December estimates. If realized, 2018 ending corn stocks will decline by 405 million bushels from 2017. This reduction in inventories will support a higher U.S. marketing-year average (MYA) price of \$3.60 per bushel. Further decrease in stocks will be supportive of higher prices, especially as the stocks-to-use ratio falls below 10%.

<b>Table 3. U.S. Corn Supply and Use.</b>						<b>Table 4. U.S. Soybeans Supply and Use.</b>					
	2015-16	2016-17	2017-18 Estimated	2018-19 Projected	Change from 17-18		2015-16	2016-17	2017-18 Estimated	2018-19 Projected	Change from 17-18
Planted Area (million)	88.0	94.0	90.2	89.1	-1.1	Planted Area (million)	82.7	83.4	90.2	89.2	-1.0
Harvested Area (million)	80.8	86.7	82.7	81.7	-1.0	Harvested Area (million)	81.7	82.7	89.5	88.1	-1.4
Yield (bushels/acre)	168.4	174.6	176.6	176.4	-0.2	Yield (bushels/acre)	48	52	49.3	51.6	+2.3
----- Million Bushels -----						----- Million Bushels -----					
Beginning Stocks	1,731	1,737	2,293	2,140	-153	Beginning Stocks	191	197	302	438	+136
Production	13,602	15,148	14,609	14,420	-189	Production	3,926	4,296	4,412	4,544	+132
Imports	67	57	36	40	+4	Imports	24	22	22	20	-2
Total Supply	15,401	16,942	16,939	16,600	-339	Total Supply	4,140	4,515	4,735	5,002	+267
Feed and Residual	5,131	5,472	5,304	5,375	+71	Crushings	1,886	1,901	2,055	2,090	+35
Food, Seed & Industrial	6,635	6,883	7,056	7,040	-16	Exports	1,936	2,174	2,129	1,875	-254
Ethanol and by-products	5,206	5,432	5,605	5,575	-30	Seed	97	105	104	96	-8
Exports	1,898	2,293	2,438	2,450	+12	Residual	24	34	9	31	+22
Total Use	13,664	14,649	14,799	14,865	+66	Total Use	3,944	4,213	4,297	4,092	-205
Ending Stocks	1,737	2,293	2,140	1,735	-405	Ending Stocks	197	302	438	910	+472
Stocks/Use	12.7%	15.7%	14.5%	11.7%	-2.8%	Stocks/Use	5.0%	7.2%	10.2%	22.2%	+12.0%
Days of Stocks	46	57	53	43	-10	Days of Stocks	18	26	37	81	+44.0
U.S. Marketing-Year Average Price (\$/bu)	\$3.61	\$3.36	\$3.36	\$3.60	+\$0.24	U.S. Marketing-Year Average Price (\$/bu)	\$8.95	\$9.47	\$9.33	\$8.60	-\$0.73

Source: February 2019 WASDE - USDA: WAOB.

Source: February 2019 WASDE - USDA: WAOB.

USDA reduced soybean harvested area by 200 thousand acres and yield by 0.5 bushels/acre from the November projections. Total soybean production for 2018 was reduced by 56 million bushels with total soybean supply declining by 61 million bushels from the November projections (Table 4).

USDA reduced soybean use by 15 million bushels with reduced exports of 25 million bushels offsetting the 10 million bushel increase in soybean crush. The lower soybean demand muted the impact of smaller supplies with soybean stocks declining by 45 million bushels to 910 million bushels (Table 4). The projected U.S. MYA soybean farm price is unchanged from the December projections at \$8.60 per bushel.

<b>Table 5. U.S. Wheat Supply and Use.</b>					
	2015-16	2016-17	2017-18 Estimated	2018-19 Projected	Change from 17-18
Planted Acres (million)	55.0	50.1	46.1	47.8	+1.7
Harvested Acres (million)	47.3	43.9	37.6	39.6	+2.0
Yield (bushels/acre)	43.6	52.7	46.4	47.6	+1.2
----- Million Bushels -----					
Beginning Stocks	752	976	1,181	1,099	-82
Production	2,062	2,309	1,741	1,884	+143
Imports	113	118	157	140	-17
Total Supply	2,927	3,402	3,079	3,123	+44
Food	957	949	964	970	+6
Seed	67	61	63	63	+0
Feed and Residual	152	156	51	80	+29
Exports	775	1,055	901	1,000	+99
Total Use	1,952	2,222	1,980	2,113	+133
Ending Stocks	976	1,181	1,099	1,010	-89
Stocks/Use	50.0%	53.2%	55.5%	47.8%	-7.7%
Days of Stocks	183	194	203	174	-28
U.S. Marketing-Year Average Price (\$/bu)	\$4.89	\$3.89	\$4.72	\$5.15	+\$0.43

Source: February 2019 WASDE - USDA: WAOB.

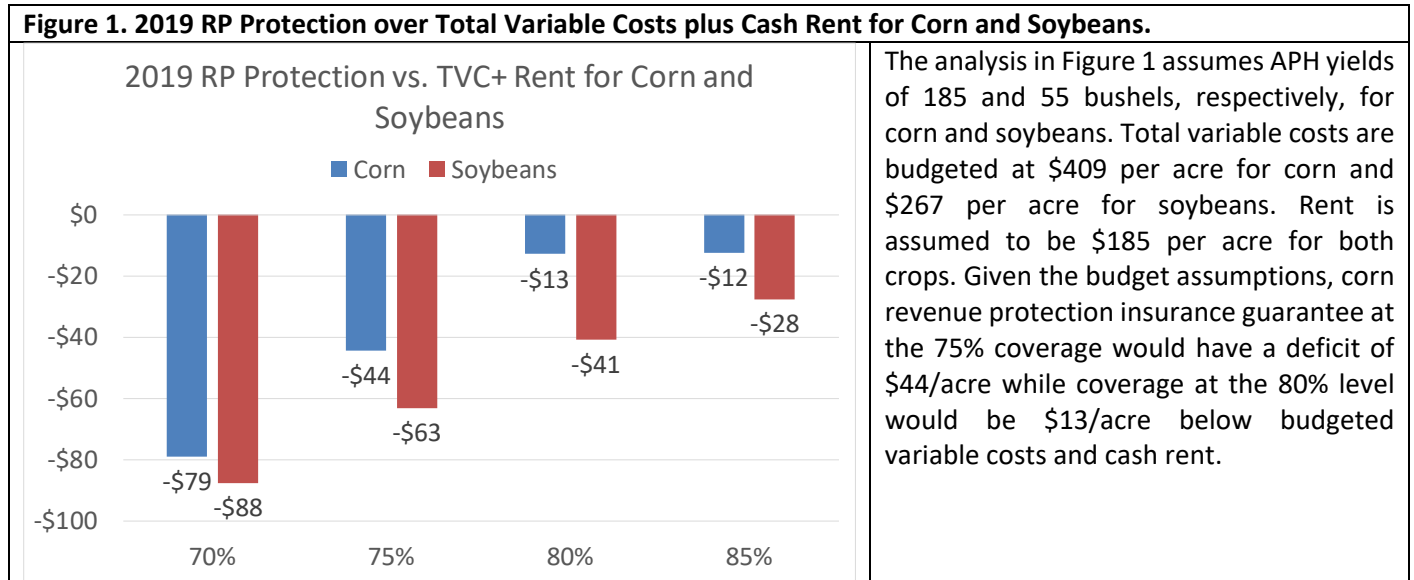
USDA made minor adjustments to the wheat demand estimates. USDA reduced seed use by 6 million bushels, feed use by 30 million bushels from the December estimates. The net impact on stocks is a 36 million bushel increase from the December projections.

If realized, wheat stocks could shrink by 89 million bushels from last year and will be at the lowest level since the 2015-16 marketing-year. The days of stocks are projected at 174 days, which is a 28-day reduction in inventories from last year. The U.S. MYA price is expected to increase by \$0.43/bushel to \$5.15/bushel for 2018-19.

### Topic 3. Potential 2019 Projected Prices for Corn and Soybeans Revenue Protection Insurance

The closing prices of the December 2019 corn and November 2019 soybeans futures contract during February provide the initial price guarantee used in crop insurance. As of February 22, 2019, the projected prices for corn and soybeans are \$4.01 and \$9.55 per bushel, respectively. If realized, the 2019 price guarantees are \$0.05 higher and \$0.61 lower from the 2018 price guarantees for corn and soybeans, respectively.

Figure 1 compares the expected crop insurance guarantees for corn and soybeans compared to the budgeted total variable costs and cash rent for each crop. Unlike 2017 and 2018, corn will likely have a better safety net than soybeans this year.



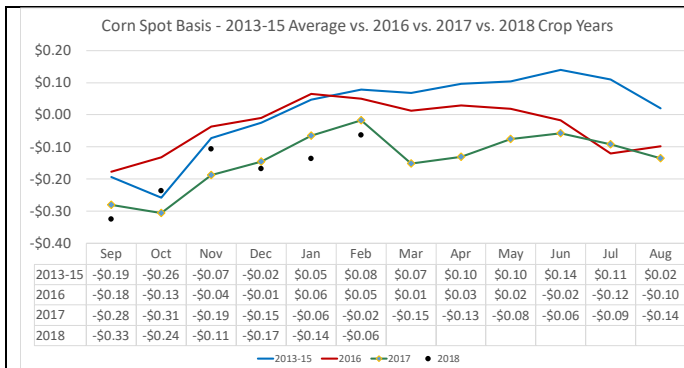
As managers consider the coverage levels purchased for 2019, first take stock of the farm business’s financial strength and the availability of working capital to absorb a loss. If the farm’s working capital is limited, managers may want to consider increasing coverage to protect the farm’s ability to cash flow this fall if there is a yield loss or lower prices. Managers planning to sell grain at harvest should consider price risk management tools to lock in a price before harvest. Another large U.S. corn and soybean crop in 2019 will contribute to lower fall prices and create profitability and cash flow challenges.

### Topic 4. 2018 Corn, Soybean, Wheat Basis vs. Previous Years – Implications for Storage

Figure 2, Figure 3, and Figure 4 show the monthly average corn, soybean and wheat spot basis, respectively, for twelve Western Kentucky markets. For each figure, the blue line represents the average basis for the 2013-15 crop years, and the red line is the basis for the 2016 crop. The green line is the 2017 basis while the black dots represent the 2018 basis.

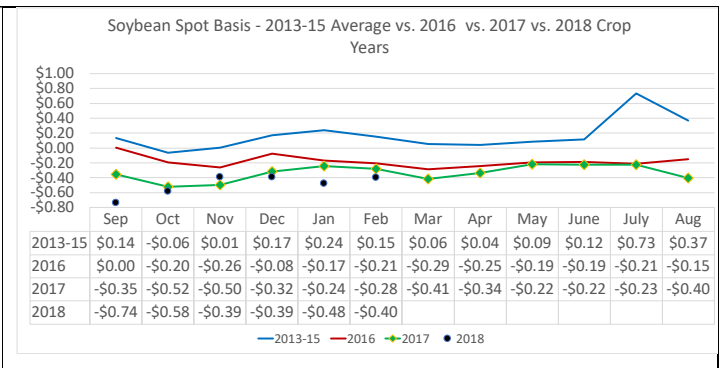
The corn basis is -\$0.06/bushel under the March corn contract, which is a \$0.18/bushel increase from harvest in October. Last year, the corn basis appreciated from October to February by \$0.29/bushel, which is \$0.11/bushel more than the appreciation in basis for the 2016 corn crop (Figure 2).

The average soybean basis, as of February 22, was -\$0.40/bushel under the March 2019 soybean contract. The basis is \$0.12 per bushel wider than 2017 basis and \$0.19 per bushel wider than the 2016 basis (Figure 3). Last year, the basis appreciated \$0.28/bushel from October to January, but the 2016 crop’s basis had a maximum appreciation in the basis of \$0.12/bushel in December. Basis appreciation will be important for positive returns to soybean storage with current appreciation at \$0.18/bushel from October to February (Figure 3).



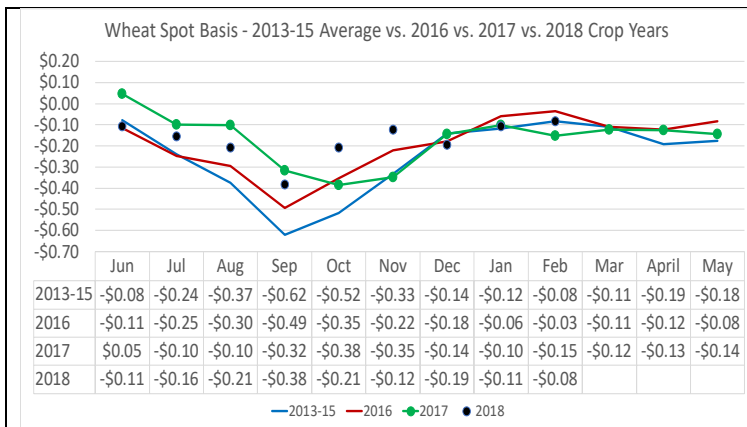
**Figure 2. Western Kentucky Corn Spot Market Basis Appreciation from September to August for 2013 to 2018 Crop Years.**

Basis Calculated on February 22, 2019



**Figure 3. Western Kentucky Soybean Spot Market Basis Appreciation from September to August for 2013 to 2018 Crop Years.**

Basis Calculated on February 22, 2019



**Figure 4. Western Kentucky Wheat Spot Market Basis Appreciation from June to May for 2013 to 2018 Crop Years.**

Basis Calculated on February 22, 2019

The average appreciation in wheat basis was \$0.14/bushel from harvest to February for the 2013-15 crop years. The average appreciation in the basis for the 2016 crop year was \$0.21/bushel from harvest to February. Maximum appreciation was \$0.00/bushel in January for the 2017 crop (Figure 4).

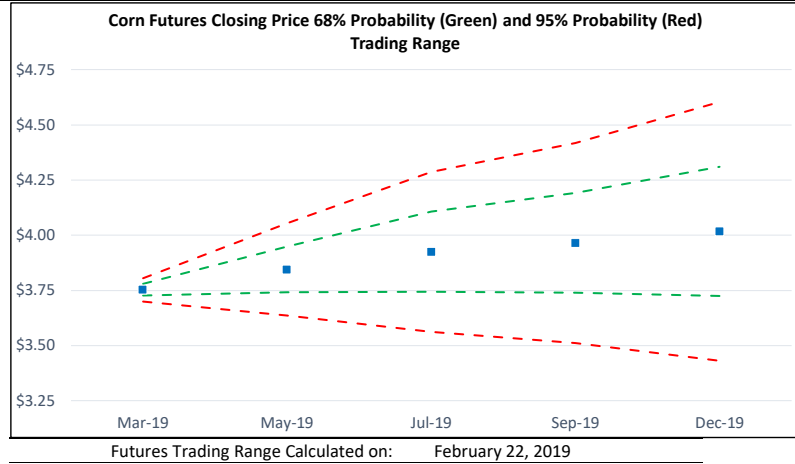
The 2018 wheat basis is currently at -\$0.08 / bushel under the MAR contract. Seasonal narrowing in basis will improve the returns to wheat storage with the best basis typically in January or February.

**Topic 5. Projected Corn, Soybean, and Wheat Futures Trading Ranges to December 2019**

Figures 5–7 provide the projected futures price trading range, by futures contract month, based on the contracts' volatility for the previous 21-day period. 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 2019. That is because there is more time until expiration; thus, there is a wider potential trading range for these deferred futures contracts.

Figure 5 provides the probabilistic trading range for the corn futures contracts from March 2019 to December 2019. There is a 68% probability that the May 2019 corn contract will trade between \$3.74 and \$3.95 and a 95% probability that the May 2019 corn contract will trade between \$3.64 and \$4.05 (Figure 5). Managers who are thinking about managing price risk for the 2019 corn crop should consider that there is a 68% probability that the December corn futures contract will trade between \$3.72 and \$4.31 per bushel.

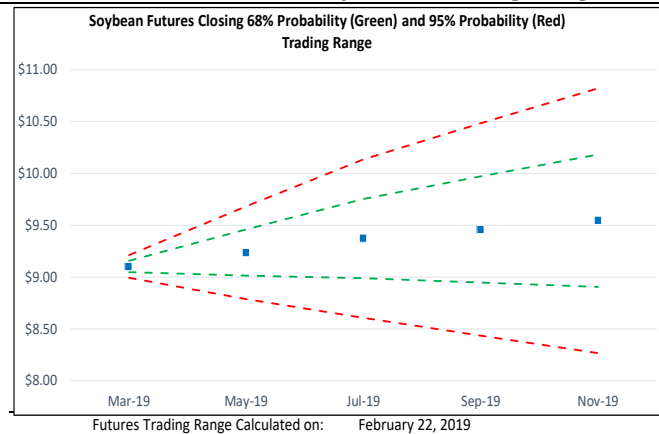
**Figure 5. Corn Futures Closing Price 68% Probability (Green) and 95% Probability (Red) Trading Range.**



Trading range calculated on February 22, 2019, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on February 22, 2019, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.

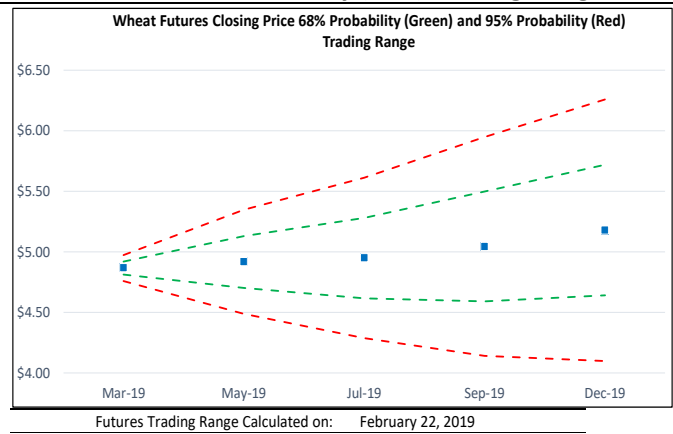
Figure 6 provides the probabilistic trading range for soybean futures contracts from March 2019 to November 2019. The May 2019 soybean futures have a 68% probability of trading between \$9.01 to \$9.46 with a 95% likelihood of trading between \$8.79 and \$9.68. The November 2019 futures contract has a 68% probability of trading between \$8.91 and \$10.18 per bushel (Figure 6). The increased volatility in the soybean market contributes to this wide range in possible soybean prices for the new-crop soybean futures contracts.

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



Trading range calculated on February 22, 2019, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on February 22, 2019, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.

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



Trading range calculated on February 22, 2019, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on February 22, 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 wheat futures contract from March 2019 to December 2019 contracts. The July 2019 wheat futures contract has a 68% probability of trading between \$4.62 and \$5.28 per bushel with a 95% chance of trading between \$4.29 and \$5.61/bushel (Figure 7). The wheat market is not as impacted by tariffs and trade uncertainty so any production problem domestic or worldwide would be supportive of higher prices. The December 2019 wheat contract has a 68% chance of trading between \$4.64 and \$5.72/bushel (Figure 7), which should be monitored for managing 2019 wheat that is planned to be stored.

## Topic 6. 2018 Corn and Soybean Risk Management Opportunities for May Delivery

Managers storing corn, soybeans, and wheat into May 2019 should consider if the futures or options markets are providing opportunities to protect prices at profitable levels. Table 6 compares the risk protection provided by hedging (or Hedge-to-Arrive contracts), forward contracts, or with put options for corn for varying harvested yields. Each table illustrates the break-even price that covers total inputs, rent, overhead, family living, and storage. The July 2019 corn futures contract and put options on the July 2019 corn contract are compared for May 2019 delivery. The similar price risk tools are evaluated for soybeans (Table 7) to measure the potential profitable returns over total variable costs, inputs, overhead, family living, and on-farm storage.

Storage Hedge: May 2019	Corn				Those farms that produced more than 190-bushel corn 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 (Table 6).
Yield	<u>170</u>	<u>180</u>	<u>190</u>	<u>200</u>	
TVC+Rent+Overhead+Family Living (\$/acre)	\$670	\$670	\$670	\$670	
TVC+Rent+Overhead+Family Living (\$/bu)	\$3.94	\$3.72	\$3.53	\$3.35	
TVC+Rent+OH+Family+\$0.31 storage (\$/bu)	\$4.25	\$4.03	\$3.84	\$3.66	
Hedge @ \$3.93+\$-0.10 basis = \$3.83	-\$0.43	-\$0.21	-\$0.01	+\$0.17	
Forward Contract at \$3.79	-\$0.46	-\$0.24	-\$0.05	+\$0.13	
Put: \$3.90 strike @\$0.145 = \$3.65 floor	-\$0.60	-\$0.38	-\$0.18	-\$0.01	
Strategies Evaluated on:	February 22, 2019				

Table 7 presents risk management alternatives for storing soybeans from harvest to February 2019. The example varies the harvested yield to illustrate how the break-even price over inputs, rent, overhead, family living, and storage changes with yield.

Storage Hedge: May 2019	Soybeans				The example illustrates that a yield of 65-bushels is needed to lock in a profit using forward contracts. Table 7 also illustrates that lower yields will be challenged to find profitability at current prices and the assumed costs.
Yield	<u>45</u>	<u>55</u>	<u>65</u>	<u>75</u>	
TVC+Rent+Overhead+Family Living (\$/acre)	\$528	\$528	\$528	\$528	
TVC+Rent+Overhead+Family Living (\$/bu)	\$11.73	\$9.60	\$8.12	\$7.04	
TVC+Rent+OH+Family+\$0.32 storage (\$/bu)	\$12.05	\$9.92	\$8.44	\$7.36	
Hedge @ \$9.37 + -\$0.45 basis = \$8.92	-\$3.13	-\$1.00	+\$0.48	+\$1.56	
Forward Contract at \$8.88	-\$3.17	-\$1.03	+\$0.44	+\$1.53	
Put: \$9.40 strike @\$0.33 = \$8.62 floor	-\$3.43	-\$1.30	+\$0.18	+\$1.26	
Strategies Evaluated on:	February 22, 2019				

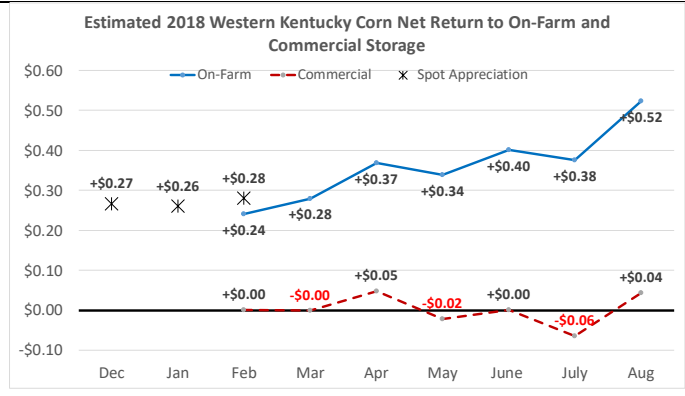
## Topic 7. Projected Return to Storage for Corn and Soybeans

Figure 8 provides projected returns to on-farm (blue) and commercial corn storage (red) from harvest to the following August. The return to on-farm storage is calculated as the deferred price less the harvest price less the monthly opportunity cost. The harvest price for corn is assumed at \$3.34 per bushel. The annual interest rate is 5.5%, which gives a monthly interest cost of \$0.015/bushel for corn. The corn futures complex closing prices on February 22, 2019, and the average monthly spot basis are used to forecast the deferred cash prices. The return to on-farm storage is the return to the farm's drying and storage system.

Figure 8 identifies two potential marketing periods – February 2019 and April 2019 – for corn stored on-farm. Given the current futures carry and average basis, the return in February is \$0.24/bushel with a \$0.37/bushel return in April. The average basis for the last five years provides a conservative forecast as years with strong use is expected to have a stronger basis after harvest.

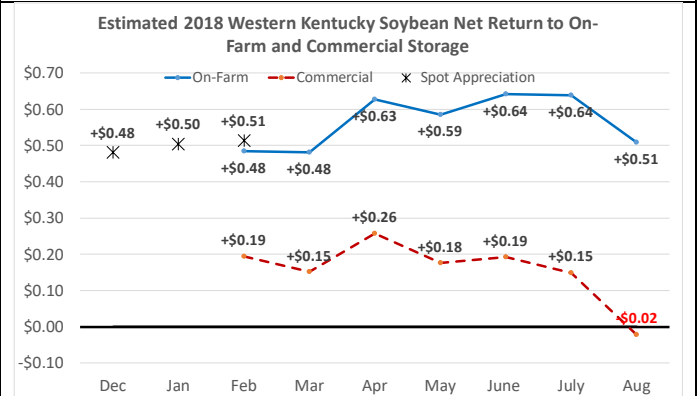
The return to commercial corn storage is the deferred price less the harvest price, interest costs, and commercial storage fees. Commercial storage is assumed at \$0.20/bushel from harvest to January 31, with an additional \$0.04/bushel per month starting in February. Given the conservative price forecast, returns from commercial storage for corn is currently projected to provide a return of \$0.00/bushel with returns declining after February (Figure 8).

**Figure 8. Projected Return to Storage for On-Farm and Commercial for Corn.**



Projected on February 22, 2019.

**Figure 9. Projected Return to Storage for On-Farm and Commercial for Soybeans.**



Projected on February 22, 2019.

The projected on-farm (red) and commercial (blue) storage returns for soybeans are presented in Figure 9. The harvest price for soybeans is projected at \$8.07 per bushel with a monthly interest cost of \$0.037/bushel. The implied basis from cash forward contract bids posted on DTN is used in forecasting the deferred spot prices. This implied basis is used as a conservative approach given the uncertainty in trade and the impact on basis. Figure 9 identifies potential return to storage of \$0.48/bushel in February 2019 with greater returns if held to April 2019 for stored soybeans on-farm. Given the current futures carry and wide basis, the return in April is \$0.63/bushel.

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 \$0.25/bushel from harvest to January 31, with an additional \$0.04/bushel per month starting in February. Commercial storage to February 2019 could provide a return of \$0.19 per bushel with returns tending to decline after February.

**Topic 8. Pre-Harvest 2019 Corn, Soybean, and Wheat Risk Management Opportunities**

Tables 8-11 analyze the effectiveness of using hedging with futures or put options in protecting revenue that covers total input costs, cash rent, overhead and family living for corn, soybeans, wheat, and double-crop soybeans in 2019.

Table 8 presents risk management alternatives for Western Kentucky corn production for 2019. 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 \$3.72/bushel assuming a -\$0.30/bushel harvest-time basis. The second is to lock in a cash price with a forward contract at \$3.71/bushel. The third alternative is to establish a price floor at \$3.46/bushel by buying a put option with a \$4.00 strike price that costs \$0.243.

Table 8 reminds managers that the corn market currently offers risk management opportunities for the 2019 crop if the farm routinely harvests corn yields above 180 bushels, as hedging with futures may lock in a positive return over input costs, rent, overhead, and family living.

**Table 8. Risk Management Alternatives for 2019 Western Kentucky Corn for Various Yield Objectives.**

Yield	160	170	180	190	200	210	
TVC+Rent+Overhead+Family Living (\$/acre)	\$670	\$670	\$670	\$670	\$670	\$670	
TVC+Rent+Overhead+Family Living (\$/bu)	\$4.19	\$3.94	\$3.72	\$3.53	\$3.35	\$3.19	
Hedge @ \$4.02+ -\$0.30 basis = \$3.72	-\$0.47	-\$0.22	-\$0.00	+\$0.19	+\$0.37	+\$0.53	Those farms that routinely produce 200-bushel corn may be able to lock-in a price floor that covers all of the budgeted costs by purchasing a put option (Table 8). A price floor at \$3.46 locks in a \$0.11/bushel return and allows farmers to benefit if the futures price increases.
Forward Contract at \$3.71	-\$0.48	-\$0.23	-\$0.01	+\$0.18	+\$0.36	+\$0.52	
Put: \$4.00 strike @\$0.243 = \$3.46 floor	-\$0.73	-\$0.48	-\$0.27	-\$0.07	+\$0.11	+\$0.27	
Strategies Evaluated on:	February 22, 2019						



**Table 9. Risk Management Alternatives for 2019 Western Kentucky Soybeans for Various Yield Objectives.**

Yield	35	45	55	65	75
TVC+Rent+Overhead+Family Living (\$/acre)	\$528	\$528	\$528	\$528	\$528
TVC+Rent+Overhead+Family Living (\$/bu)	\$15.09	\$11.73	\$9.60	\$8.12	\$7.04
Hedge @ \$9.55 + -\$0.50 basis = \$9.05	<b>-\$6.04</b>	<b>-\$2.69</b>	<b>-\$0.56</b>	+\$0.92	+\$2.01
Forward Contract at \$9.08	<b>-\$6.01</b>	<b>-\$2.65</b>	<b>-\$0.52</b>	+\$0.96	+\$2.04
Put: \$9.60 strike @\$0.517 = \$8.58 floor	<b>-\$6.50</b>	<b>-\$3.15</b>	<b>-\$1.02</b>	+\$0.46	+\$1.54
Strategies Evaluated on:	February 22, 2019				

The soybean market is not offering risk management opportunities for yields less than 65 bushels/acre. Given the uncertainty in the soybean market, managers should monitor opportunities to manage risk when they are available.

Table 9 illustrates the potential of using risk management products to lock in a profitable return on input costs, cash rent, overhead and family living for 2019 soybeans if managers routinely obtain yields of 65 bushels/acre or more. Managers that are comfortable with hedging with futures or using HTA contracts may be able to lock in a profit of \$0.92/bushel assuming a harvest-time basis of -\$0.50/bushel under the November 2019 contract. A forward contract could lock in a return of \$0.96/bushel for a yield of 65 bushels/acre. Put options could be used to establish a price floor at \$8.58/bushel. The flexibility of options to establish a floor and to benefit from higher prices may be a good alternative for managers to consider for bushels planned to be sold at harvest (Table 9).

**Table 10. Risk Management Alternatives for 2019 Western Kentucky Wheat for Various Yield Objectives.**

Yield	60	70	80	90	100
TVC+50% Rent+Overhead+Family Living (\$/acre)	\$476	\$476	\$476	\$476	\$476
TVC+50% Rent+Overhead+Family Living (\$/bu)	\$7.93	\$6.80	\$5.95	\$5.29	\$4.76
Hedge @ \$4.95 - \$0.10 basis = \$4.85	<b>-\$3.08</b>	<b>-\$1.95</b>	<b>-\$1.10</b>	<b>-\$0.44</b>	+\$0.09
Forward Contract at \$4.90	<b>-\$3.03</b>	<b>-\$1.90</b>	<b>-\$1.05</b>	<b>-\$0.39</b>	+\$0.14
Put: \$5.00 strike @\$0.284 = \$4.62 floor	<b>-\$3.32</b>	<b>-\$2.18</b>	<b>-\$1.33</b>	<b>-\$0.67</b>	<b>-\$0.14</b>
Strategies Evaluated on:	February 22, 2019				

Table 10 reports the potential of using risk management to lock in a profitable return on inputs, one-half of cash rent, overhead, and family living expense for 2019 winter wheat. Those who typically harvest more than 90-bushel wheat may be able to lock in a profitable return by hedging with the July 2019 wheat contract. Forward contracts may be a good alternative.

**Table 11. Risk Management Alternatives for 2019 Western Kentucky Double-Crop Soybeans for Various Yield Objectives.**

Yield	35	40	45	50	55
TVC+Rent+Overhead+Family Living (\$/acre)	\$393	\$393	\$393	\$393	\$393
TVC+Rent+Overhead+Family Living (\$/bu)	\$11.21	\$9.81	\$8.72	\$7.85	\$7.14
Hedge @ \$9.55 + -\$0.50 basis = \$9.05	<b>-\$2.17</b>	<b>-\$0.77</b>	+\$0.32	+\$1.20	+\$1.91
Forward Contract at \$9.08	<b>-\$2.13</b>	<b>-\$0.73</b>	+\$0.36	+\$1.23	+\$1.94
Put: \$9.60 strike @\$0.517 = \$8.58 floor	<b>-\$2.63</b>	<b>-\$1.23</b>	<b>-\$0.14</b>	+\$0.73	+\$1.45
Strategies Evaluated on:	February 22, 2019				

The soybean market is offering risk management opportunities for double-crop yields of 45 bushels/acre or larger. Given the uncertainty in the soybean market, managers should monitor opportunities to manage risk when they are available.

## Topic 9. What is USDA's Preliminary Outlook for the 2019-20 Grain and Oilseeds Balance Sheets?

This is the time of the year when analysts provide preliminary 2019-20 corn, soybean, and wheat balance sheet projections to help farmers, lenders, and policymakers understand how potential planted area and yields could impact ending stocks and prices. The *Preliminary Outlook for 2019-20* released at the *USDA Agricultural Outlook Symposium* receives attention as it is viewed as an initial guess by USDA of the planted area and potential production. To be clear, USDA does not survey farmers about their potential planting until March, so these projections are based on economic models instead of a survey of farmer behavior for 2019.

USDA is currently projecting an increase in corn planted area by 2.9 million acres over 2018 (Table 12). USDA assumes a trend-yield of 176-bushel corn which translates into a 14.89 billion bushel corn crop (Table 12). The increase

in production more than offsets the reduced carry-in from the 2018-19 marketing-year which would keep total corn supply about unchanged from 2018.

USDA assumes a 150-million-bushel increase in corn use from the 2018-19 marketing-year with most of the growth in domestic demand. Corn stocks are projected to decline to 1.65 billion bushels which would support a slightly higher MYA corn price of \$3.65 per bushel (Table 12).

**Table 12. USDA Preliminary Outlook for 2019-20 and Change from 2018-19.**

	Corn	Change from 2018-19	Soybeans	Change from 2018-19	Wheat	Change from 2018-19
Planted (million acres)	92.0	+2.9	85.0	-4.2	47.0	-0.8
Harvested (million acres)	84.6	+2.9	84.3	-3.8	39.8	+0.2
Yield (bushels/acre)	176.0	-0.4	49.5	-2.1	47.8	+0.2
----- Million Bushels -----						
Beginning Stocks	1,735	-405	910	+472	1,010	-89
Production	14,890	+470	4,175	-369	1,902	+18
Imports	40	+0	20	+0	140	+0
Total Supply	16,665	+65	5,105	+103	3,052	-71
Domestic Use	12,540	+125	2,235	+18	1,133	+20
Exports	2,475	+25	2,025	+150	975	-25
Total Use	15,015	+150	4,260	+168	2,108	-5
Ending Stocks	1,650	-85	845	-65	944	-66
Days of Stocks	40	-2	72	-9	163	-11
U.S. Average Farm Price	\$3.65	+\$0.05	\$8.80	+\$0.20	\$5.20	+\$0.05

Source: February 2019 WASDE - USDA: WAOB. Grains and Oilseeds Outlook for 2019 (February 22, 2019)

USDA is projecting soybean area to decline by 4.2 million acres from 2018 with harvested area falling by 3.8 million acres. The assumption of trend-yields with a smaller harvested area implies a soybean crop of 4.18 billion bushels which is a 369 million bushel reduction from 2018. Because of the large carry-in, total supply would increase by 103 million bushels from 2018.

Soybean demand is projected to increase more than use with exports projected to increase by 150 million bushels from the 2018-19 marketing-year. Domestic soybean use is also projected to increase by 18 million bushels from 2018 (Table 12).

USDA is projecting soybean stocks to be reduced modestly from 2018 to 845 million bushels. Table 12 reinforces the belief that it will take several years to whittle away at the mountain of soybean stocks currently projected for 2018-19.

USDA projects wheat planted area to decline from 2018-19, but harvested area might increase from 2018 with a smaller percentage of abandonment (Table 12). A smaller carry-in and a trend-yield could reign in the wheat supply for 2019 that may be slightly lower than 2018's wheat supply.




The wheat market's weakness remains exports which are projected to decline by 25 million bushels from 2018. Domestic wheat use is projected to increase, and that will partially offset the lower exports. The combination of smaller wheat supply with a slight decrease in use would allow wheat ending stocks to decline to 944 million bushels. As stocks fall, the U.S. MYA farm price is projected to increase slightly from 2018-19 to \$5.20 per bushel (Table 12).

USDA's projections suggest that grain farms will continue to experience tight profit margins and liquidity distress. Corn and soybean futures prices are not sending a strong signal to increase corn area or decrease soybean area from last year. Perhaps basis is sending the message to farmers to reduce soybean area. As farmers reveal their planting intentions in March and their actual planted area in June, the market may provide opportunities to price corn or soybeans before harvest at better prices. Particularly if the corn area does not increase by the projected 2.9 million

acres. Soybean prices may be under pressure if the planted area is not reduced by 4.4 million bushels as the implication is that stocks will remain substantial for another year. The wheat market needs a reduction in the area with a trend or below-trend yields to reduce inventories further.

**Topic 10. 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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