

# Crops Marketing and Management Update

## Grains and Forage Center of Excellence

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### Topic 1. USDA Releases Surprising Corn and Soybean Production Estimates – Once Again

The August and September *Crop Production* reports disappointed market bulls as expectations were that a less than perfect growing season would produce trend-line or below-trend yields. The potential of a smaller crop would then allow stocks to decline and provided a needed boost to market prices. Analysts surveyed prior to the October 12<sup>th</sup> report expected USDA to trim corn and soybean yields slightly from the September estimates. The analysts surveyed expected the October corn and soybean yields at 169.7 and 49.8 bushels, down 0.2 and 0.1 bushels per acre (BPA), respectively, from the September report.

USDA's October *Crop Production* report disappointed the bulls in the corn market because the projected 2017 yield of 171.8 BPA was larger than the analysts anticipated yield before the report release. The soybean market bulls received good news as USDA reduced the 2017 soybean yield to 49.5 BPA, which was lower than the anticipated yield.

Table 1 reports the current 2017 projected harvested corn area, yield, and production with the percentage change from the 2016 corn crop. USDA incorporated the Farm Service Agency (FSA) certified acreage data in their acreage estimates along with their survey of farmers and their in-field measurements.

USDA reduced the projected corn yield in Michigan (-1) from last month's report. USDA also increased yields in four of the top five corn producing states. Illinois (+3), Indiana (+2), Iowa (+4), and Minnesota (+2) were projected to have larger yields than the previous estimate. These top-five corn states, by production, are projected to produce

less than last year due to reduced acreage and lower yields than in 2016. The Midwest region is projected to produce 12.36 billion corn bushels, which would be a 6.5% reduction from 2016 if realized.

	Harvested Area (1,000 Acres) 2017 (F)	% Change in Acres from 2016	Yield (bu. / acre) 2017 (F)	% Change in Yield from 2016	Production (Million Bushels) 2017 (F)	% Change in Production from 2016
<b>Midwest States</b>						
Illinois	11,050	-3.5%	192	-2.5%	2,122	-5.9%
Indiana	5,220	-4.6%	173	+0.0%	903	-4.6%
Iowa	12,900	-4.4%	191	-5.9%	2,464	-10.1%
Kansas	5,200	+5.7%	134	-5.6%	697	-0.3%
Michigan	1,950	-4.4%	168	+7.0%	328	+2.3%
Minnesota	7,650	-4.4%	184	-4.7%	1,408	-8.8%
Missouri	3,250	-7.1%	172	+5.5%	559	-2.0%
Nebraska	9,300	-2.6%	181	+1.7%	1,683	-1.0%
North Dakota	3,190	-2.4%	126	-20.3%	402	-22.2%
Ohio	3,130	-5.2%	173	+8.8%	541	+3.2%
South Dakota	5,250	+2.3%	147	-8.7%	772	-6.6%
Wisconsin	2,950	-8.4%	164	-7.9%	484	-15.6%
<b>Midwest Total</b>	<b>71,040</b>	<b>-3.1%</b>			<b>12,362</b>	<b>-6.5%</b>
<b>Southern States</b>						
Alabama	235	-25.4%	170	+41.7%	40	+5.7%
Arkansas	595	-20.1%	179	+4.7%	107	-16.4%
Florida						
Georgia	250	-26.5%	184	+11.5%	46	-18.0%
Kentucky	1,240	-11.4%	174	+9.4%	216	-3.1%
Louisiana	490	-10.9%	183	+10.9%	90	-1.2%
Mississippi	500	-30.6%	188	+13.3%	94	-21.4%
North Carolina	830	-11.7%	138	+7.0%	115	-5.5%
Oklahoma	320	-8.6%	123	+1.7%	39	-7.1%
South Carolina	325	-7.1%	135	+6.3%	44	-1.3%
Tennessee	705	-15.1%	170	+12.6%	120	-4.4%
Texas	2,190	-14.1%	142	+11.8%	311	-4.0%
Virginia	340	+0.0%	152	+2.7%	52	+2.7%
<b>South Total</b>	<b>8,020</b>	<b>-15.0%</b>			<b>1,272</b>	<b>-6.6%</b>
<b>United States</b>	<b>83,119</b>	<b>-4.2%</b>	<b>171.8</b>	<b>-1.6%</b>	<b>14,280</b>	<b>-5.7%</b>

USDA projects the Southern region to harvest a 6.6% smaller corn crop than in 2016 due to a 15% smaller harvested area. The projected corn yields are larger than last year's crop. USDA increased projected yield in Alabama (+3), Kentucky (+3), Mississippi (+3), North Carolina (+3), and Georgia (+2) from last month's report.

USDA projects the U.S. corn crop at 14.28 billion bushels, down 5.7% from 2016. If realized, the 2017 corn crop would be the 2<sup>nd</sup> largest on record with the 2<sup>nd</sup> largest yield.

	Harvested Area (1,000 Acres) 2017 (F)	% Change in Acres from 2016	Yield (bu. / acre) 2017 (F)	% Change in Yield from 2016	Production (Million Bushels) 2017 (F)	% Change in Production from 2016
<b>Midwest States</b>						
Illinois	10,540	+4.9%	57	-3.4%	601	+1.3%
Indiana	5,940	+5.5%	55	-4.3%	327	+0.9%
Iowa	9,950	+5.4%	56	-6.7%	557	-1.6%
Kansas	5,100	+27.2%	41	-14.6%	209	+8.6%
Michigan	2,280	+10.7%	49	-3.0%	112	+7.4%
Minnesota	8,100	+8.1%	46	-11.5%	373	-4.3%
Missouri	5,920	+6.9%	49	+0.0%	290	+6.9%
Nebraska	5,650	+9.7%	56	-8.2%	316	+0.7%
North Dakota	7,100	+18.5%	36	-13.3%	256	+2.8%
Ohio	5,040	+4.1%	52	-4.6%	262	-0.6%
South Dakota	5,610	+8.5%	45	-9.1%	252	-1.4%
Wisconsin	2,140	+9.7%	47	-14.5%	101	-6.2%
<b>Midwest Total</b>	<b>73,370</b>	<b>+9.0%</b>			<b>3,655</b>	<b>+0.7%</b>
<b>Southern States</b>						
Alabama	340	-17.1%	44	+37.5%	15	+14.0%
Arkansas	3,500	+12.9%	51	+8.5%	179	+22.5%
Florida						
Georgia	145	-39.6%	45	+50.0%	7	-9.4%
Kentucky	1,940	+9.0%	53	+6.0%	103	+15.5%
Louisiana	1,240	+4.2%	54	+11.3%	67	+16.0%
Mississippi	2,170	+7.4%	52	+8.3%	113	+16.4%
North Carolina	1,670	+0.6%	39	+11.4%	65	+12.1%
Oklahoma	630	+34.0%	27	-6.9%	17	+24.8%
South Carolina	390	-3.7%	36	+16.1%	14	+11.8%
Tennessee	1,660	+1.8%	50	+11.1%	83	+13.2%
Texas	185	+27.6%	37	+19.4%	7	+52.3%
Virginia	590	-1.7%	42	+16.7%	25	+14.7%
<b>South Total</b>	<b>14,460</b>	<b>+5.9%</b>			<b>693</b>	<b>+16.8%</b>
<b>United States</b>	<b>89,471</b>	<b>+8.2%</b>	<b>49.5</b>	<b>-4.8%</b>	<b>4,431</b>	<b>+3.1%</b>

USDA projects the 2017 soybean crop at a record 4.43 billion bushels. The 8.2% increase in harvested area offsets the 4.8% yield reduction from last year. While smaller than last year, USDA projects the 2017 soybean yield to be the 2<sup>nd</sup> largest, if realized.

USDA reduced yields in four of the top five soybean states. Illinois (-1), Indiana (-1), Iowa (-1), and Minnesota (-1) had lower projected yields from last month's report. USDA projects the Midwest to harvest a 3.65 billion bushel crop, which is slightly larger than 2016 due to lower yields offsetting the 9% increase in harvested area.

The Southern region is projected to harvest 693 million bushels, which is a 17% increase from last year. The combination of the increased area (+5.9%) and better yields benefited this region.

The November report is the last production estimate until the final projections in January. As corn and soybean harvest is lagging behind the five-year average in key states, the November report may provide the bulls hope for smaller soybean crops. The corn market is slowly coming to terms of dealing with the 2<sup>nd</sup> largest corn crop.

## Topic 2. WASDE Update: Market Reacts to Larger Corn Stocks but Smaller Soybean Stocks

Analysts expected the October WASDE to project 2017-18 corn stocks tightening, slightly, from the September report based on an anticipated smaller corn crop. The increased yield and production surprised the corn market as 2017-18 ending stocks were above the average analysts' guess and towards the top-end of the range of forecasted

ending stocks. As the projected yield has increased three consecutive reports, market bulls are struggling to find traction in the market. However, the soybean market found a bullish story that may eventually lift the corn market.

	2014-15	2015-16	2016-17 Estimated	2017-18 Projected	Change from 16-17
Planted Area (million)	90.6	88	94.0	90.4	-3.6
Harvested Area (million)	83.1	80.8	86.7	83.1	-3.6
Yield (bushels/acre)	171	168.4	174.6	171.8	-2.8
----- Million Bushels -----					
Beginning Stocks	1,232	1,731	1,737	2,295	+558
Production	14,216	13,602	15,148	14,280	-868
Imports	<u>32</u>	<u>67</u>	<u>57</u>	<u>50</u>	-7
Total Supply	15,479	15,401	16,942	16,625	-317
Feed and Residual	5,323	5,131	5,464	5,500	+36
Food, Seed & Industrial	6,560	6,635	6,890	6,935	+45
Ethanol and by-products	5,200	5,206	5,438	5,475	+37
Exports	<u>1,864</u>	<u>1,898</u>	<u>2,293</u>	<u>1,850</u>	-443
Total Use	13,748	13,664	14,647	14,285	-362
Ending Stocks	1,731	1,737	2,295	2,340	+45
Stocks/Use	12.6%	12.7%	15.7%	16.4%	+0.7%
Days of Stocks	46	46	57	60	+3
U.S. Marketing-Year Average Price (\$/bu)	\$3.70	\$3.61	\$3.36	\$3.20	-\$0.16

Source: October 2017 WASDE - USDA; WAOB.

USDA reduced old-crop corn ending stocks by 55 million bushels to conform to the September 30<sup>th</sup> *Grain Stocks* report's survey of stocks on September 1, 2017. Still, the 2017-18 carry-in is 558 million bushels greater than the previous year. The combination of 3.6 million fewer acres and a 2.8 BPA smaller yield results in a corn crop that is 868 million bushels less than 2016. USDA projects this crop to be the 2<sup>nd</sup> largest on record with supply also projected to be the 2<sup>nd</sup> largest. Because of the smaller crop, supply is reduced 317 million bushels from last year.

USDA projects 2017-18 ending stocks at 2.34 billion bushels, which is a slight increase from last year. The projected increase in carryout will reduce the U.S. marketing-year average (MYA) farm price to \$3.20/bushel, which is a \$0.16/bushel decline from last year.

The October report trimmed the 2016 soybean yield by 0.1 BPA, which reduced the 2016 soybean crop by 11 million bushels to 4.296 billion bushels (Table 4). Total old-crop soybean use increased by 31 million bushels for a total reduction in 2016 ending stocks by 44 million bushels. This smaller carry-in for 2017-18 is still a 104 million bushel increase over the previous year. USDA currently projects the 2017 soybean crop to be a new record at 4.43 billion bushels (Table 4). USDA projects the 2017-18 soybean supply to increase by 242 million bushels to 4.757 billion (Table 4). Demand is strong with crush projected to be 41 million bushels more than last year and exports increasing by 76 million bushels from 2016-17. USDA projects the strong demand will not completely absorb the increased supply with ending stocks projected to increase to 430 million bushels. This increase in stocks will dampen price potential with the 2017-18 U.S. MYA price projected lower to \$9.20/bushel. The stocks to use ratio is expected to increase to about 10%. However, soybeans have less cushion than corn and greater upside potential (Table 4).

	2014-15	2015-16	2016-17 Estimated	2017-18 Projected	Change from 16-17
Planted Area (million)	83.3	82.7	83.4	90.2	+6.8
Harvested Area (million)	82.6	81.7	82.7	89.5	+6.8
Yield (bushels/acre)	47.5	48	52.0	49.5	-2.5
----- Million Bushels -----					
Beginning Stocks	92	191	197	301	+104
Production	3,927	3,926	4,296	4,431	+135
Imports	<u>33</u>	<u>24</u>	<u>22</u>	<u>25</u>	+3
Total Supply	4,052	4,140	4,515	4,757	+242
Crushings	1,873	1,886	1,899	1,940	+41
Exports	1,843	1,936	2,174	2,250	+76
Seed	96	97	105	101	-4
Residual	<u>49</u>	<u>24</u>	<u>36</u>	<u>35</u>	-1
Total Use	3,862	3,944	4,214	4,326	+112
Ending Stocks	191	197	301	430	+129
Stocks/Use	4.9%	5.0%	7.1%	9.9%	+2.8%
Days of Stocks	18	18	26	36	+10.2
U.S. Marketing-Year Average Price (\$/bu)	\$10.10	\$8.95	\$9.47	\$9.20	-\$0.27

Source: October 2017 WASDE - USDA; WAOB.

	2014-15	2015-16	2016-17 Estimated	2017-18 Projected	Change from 16-17
Planted Acres (million)	56.8	55	50.1	46.0	-4.1
Harvested Acres (million)	46.4	47.3	43.9	37.6	-6.3
Yield (bushels/acre)	43.7	43.6	52.7	46.3	-6.4
----- Million Bushels -----					
Beginning Stocks	590	752	976	1,181	+205
Production	2,026	2,062	2,309	1,741	-568
Imports	<u>149</u>	<u>113</u>	<u>118</u>	<u>150</u>	+32
Total Supply	2,766	2,927	3,402	3,072	-330
Food	958	957	949	950	+1
Seed	79	67	61	66	+5
Feed and Residual	122	152	157	120	-37
Exports	<u>854</u>	<u>775</u>	<u>1,055</u>	<u>975</u>	-80
Total Use	2,014	1,952	2,222	2,111	-111
Ending Stocks	752	976	1,181	961	-220
Stocks/Use	37.3%	50.0%	53.2%	45.5%	-7.6%
Days of Stocks	136	183	194	166	-28
U.S. Marketing-Year Average Price (\$/bu)	\$5.99	\$4.89	\$3.89	\$4.60	+\$0.71

Source: October 2017 WASDE - USDA; WAOB.

The October report increased old-crop wheat ending stocks by 29 million bushels due to a reduction in old crop feed and residual. The 2017-18 wheat carry-in is 205 million bushels larger than last year, which reduces the impact of

a 568 million bushels smaller wheat crop (Table 5). The 6.3 million fewer acres and 6.4 BPA smaller yield are steps in moving the wheat market in the right direction by trimming supply by 330 million bushels. Wheat demand remains a struggle with exports projected to be 80 million bushels less than 2016. USDA projects wheat stocks to decline but the stocks to use ratio remains at 46%. The U.S. MYA price is projected higher at \$4.60 per bushel (Table 5).

The wheat market's reduction in stocks is mostly from the spring wheat crops, which is providing the overall price support. The hard red and soft red winter wheat crops do not have the same degree of inventory tightness, which will limit price potential for both markets.

### Topic 3. 2017 Corn and Soybean Basis vs. Previous Years – Implications for Storage

Once managers complete harvest, their focus will be on marketing stored corn and soybeans. A key component of marketing stored grain is monitoring local basis and understanding the seasonal components of basis. Figure 1 and Figure 2 show the monthly average corn and soybean spot basis, respectively, for 12 Western Kentucky markets. Notice that basis tends to follow seasonal patterns with the widest level at harvest with appreciation into spring and early summer.

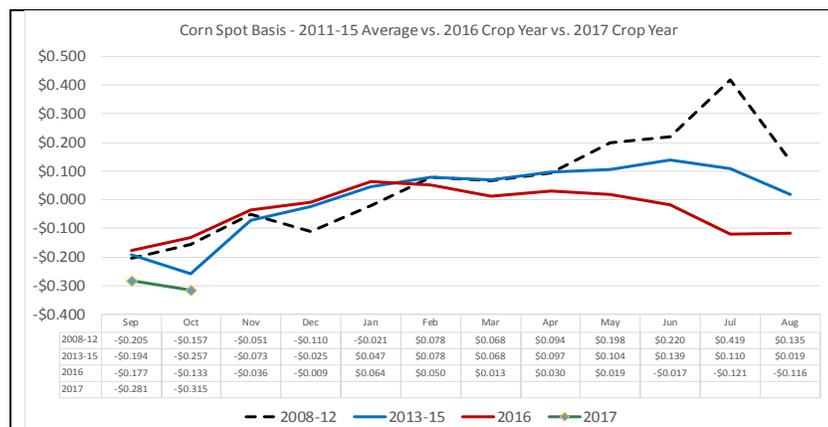


Figure 1. Western Kentucky Corn Spot Market Basis Appreciation from September to August for 2008 to 2017 Crop Years

Figure 1 compares the corn spot market average basis for the 2008-12 crop years (black line), the 2013-15 average (blue line), and last year's basis change (red line). The average 2017 basis is the green line.

The 2017 corn basis is significantly wider than the previous years' basis. The October average corn basis, as of October 13, was **-\$0.32/bushel** under the December corn futures contract. The 2017 basis is **-\$0.182** wider than last year's basis and **-\$0.058/bushel** wider than the 2013-15 average basis (Figure 1).

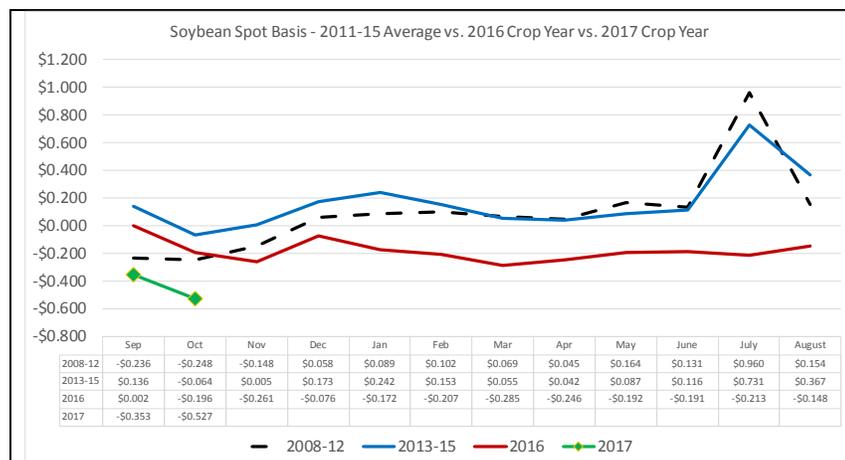


Figure 2. Western Kentucky Soybean Spot Market Basis Appreciation from September to August for 2008 to 2017 Crop Years

Figure 2 compares the soybean spot market average basis for the 2008-12 crop years (black line), the 2013-15 average (blue line), and last year's basis change (red line). The average 2017 basis is the green line.

The soybean basis (Figure 2) has a similar story as corn. The average soybean basis, as of October 13, was **-\$0.527/bushel** under then November 2017 soybean contract. The basis is **-\$0.33/bushel** wider than the 2016 basis and **-\$0.462** per bushel wider than the 2013-15 average basis (Figure 2).

The wider than average basis is the market's signal that the market wants corn or soybeans stored. A concern is that this wider than average may hinder basis appreciation. The 2016 corn crop's basis appreciated \$0.197/bushel from October to January, which is disappointing compared to the average \$0.397/bushel increase from October to June for the 2013-15 crop years (Figure 1). The 2016 soybean basis appreciated only \$0.12 from October to December

(Figure 2), which is significantly less than the \$0.795/bushel average basis appreciation from October to July for the 2013-15 crop years (Figure 2). If basis remains wide, any increase in the futures price will not be fully transmitted to the cash market price. Managers should remain aware of basis and the cost of storage for an additional month to profit from storage.

#### Topic 4. Projected Returns to On-Farm and Commercial Storage for Corn and Soybeans

The basis figures show the challenge managers may have in earning a return over on-farm and storage costs in 2017. For this analysis of returns to storing corn, the author assumes that 4 points of moisture are removed at the same drying cost on-farm as off-farm. Corn stored on-farm has a shrink of 1% plus 0.1% per month stored. The shrink for off-farm stored grain is 1.4%. The interest cost reflects the opportunity cost of delayed revenue. The corn crop could have been sold at harvest for \$3.20/bushel with revenue used to pay debt or to earn a return elsewhere. A 5% annual interest rate is the assumed opportunity cost compounding monthly from October until the sales date. The variable cost of on-farm grain handling and conditioning is assumed to be \$0.127/bushel based on estimates from Shockley (2017). Perhaps this cost will be greater when corn is stored into late spring and summer, as more aeration will be needed to keep the grain in condition. However, this cost is kept constant for simplicity in this analysis. The off-farm storage fee is modeled by a DP contract. A flat fee of \$0.40/bushel is charged from October until January 31, 2018. Then the additional charge is 0.03/month. This is based on conversations with elevators in Western Kentucky.

**Table 6. Projected Return to On-Farm and Commercial Storage for the 2017 Corn Crop.**

Projected Harvest Cash Price	\$3.20							
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
On-Farm Storage Cost (\$/bu)	\$0.364	\$0.381	\$0.397	\$0.414	\$0.430	\$0.447	\$0.463	\$0.480
Commercial Storage (\$/bu)	\$0.611	\$0.625	\$0.638	\$0.681	\$0.725	\$0.768	\$0.811	\$0.855
Spot Price Appreciation from Harvest (2013-15)	\$0.16	\$0.33	\$0.32	\$0.41	\$0.54	\$0.61	\$0.60	\$0.56
Spot Price Appreciation from Harvest (2016)	\$0.05	\$0.17	\$0.32	\$0.38	\$0.31	\$0.30	\$0.36	\$0.34
Projected Spot Price (\$/bu) -- 2013-15 Average	\$3.36	\$3.53	\$3.52	\$3.61	\$3.74	\$3.81	\$3.80	\$3.76
Projected Spot Price (\$/bu) -- 2016	\$3.25	\$3.37	\$3.52	\$3.58	\$3.51	\$3.50	\$3.56	\$3.54
Return On-Farm Storage (\$/bu) -- 2013-15 Average	-\$0.21	-\$0.05	-\$0.07	-\$0.00	+\$0.11	+\$0.17	+\$0.13	+\$0.08
Return On-Farm Storage (\$/bu) -- 2016 Average	-\$0.31	-\$0.21	-\$0.08	-\$0.03	-\$0.12	-\$0.15	-\$0.10	-\$0.14
Return Commercial Storage (\$/bu) -- 2013-15 Average	-\$0.46	-\$0.29	-\$0.32	-\$0.27	-\$0.18	-\$0.16	-\$0.22	-\$0.29
Return Commercial Storage (\$/bu) -- 2016 Average	-\$0.56	-\$0.46	-\$0.32	-\$0.30	-\$0.42	-\$0.47	-\$0.45	-\$0.51

Daily cash corn and soybean prices from twelve elevators in Western Kentucky, provided by the Kentucky Farm Bureau Federation, is used to forecast spot price appreciation from harvest into spring and early summer. The 2013-15 average spot price appreciated as much as \$0.61/bushel from October to April while the 2016 corn price only appreciated \$0.38/bushel from October to February.

If corn appreciates similar to last year, then the expected return to on-farm storage is -\$0.03/bushel in February (Table 6). If corn appreciates similar to the 2013-15 average, then storing on-farm until April would have a positive return of \$0.17/bushel (Table 6). Commercial corn storage is not projected to be profitable with February 2018 minimizing the loss if the corn market has limited appreciation like in 2016 (Table 6).

**Table 7. Projected Return to On-Farm and Commercial Storage for the 2017 Soybean Crop.**

Harvest Price	\$9.30							
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
On-Farm Storage Cost (\$/bu)	\$0.274	\$0.313	\$0.352	\$0.391	\$0.429	\$0.468	\$0.507	\$0.546
Commercial Storage (\$/bu)	\$0.474	\$0.513	\$0.552	\$0.590	\$0.629	\$0.668	\$0.707	\$0.745
Spot Price Appreciation from Harvest (2013-15)	\$0.23	\$0.56	\$0.37	\$0.46	\$0.63	\$1.05	\$1.33	\$1.54
Spot Price Appreciation from Harvest (2016)	\$0.25	\$0.58	\$0.64	\$0.60	\$0.17	-\$0.34	-\$0.18	-\$0.50
Projected Spot Price (\$/bu) -- 2013-15 Average	\$9.53	\$9.86	\$9.67	\$9.76	\$9.93	\$10.35	\$10.63	\$10.84
Projected Spot Price (\$/bu) -- 2016	\$9.55	\$9.88	\$9.94	\$9.90	\$9.47	\$8.96	\$9.12	\$8.80
Return On-Farm Storage (\$/bu) -- 2013-15 Average	-\$0.05	+\$0.25	+\$0.01	+\$0.07	+\$0.20	+\$0.58	+\$0.82	+\$0.99
Return On-Farm Storage (\$/bu) -- 2016 Average	-\$0.02	+\$0.27	+\$0.29	+\$0.21	-\$0.26	-\$0.80	-\$0.68	-\$1.05
Return Commercial Storage (\$/bu) -- 2013-15 Average	-\$0.25	+\$0.05	-\$0.19	-\$0.13	+\$0.00	+\$0.38	+\$0.62	+\$0.79
Return Commercial Storage (\$/bu) -- 2016 Average	-\$0.22	+\$0.07	+\$0.09	+\$0.01	-\$0.46	-\$1.00	-\$0.88	-\$1.25

The projected returns to storing soybeans are reported in Table 7. Soybean shrink is assumed to be 0.25% for on-farm storage and 0.5% for off-farm storage. The opportunity cost is calculated at 5% annual interest assuming a harvest price of \$9.30/bushel and is the same for on-farm and off-farm storage. On-farm handling/conditioning is \$0.127/bushel regardless of when soybeans are sold.

The off-farm storage fee is modeled by a DP contract. The storage fee is \$0.35/bushel from October 1, 2017, to September 30, 2018 (Table 7).

The soybean market provides a more optimistic forecast for positive returns to storage. If the soybean cash price has limited appreciation, as in 2016, a positive return from on-farm storage is forecasted at \$0.29/bushel in January 2018. If the price appreciates further, as in the 2013-15 average, then storing later into spring and early summer could yield returns to storage in excess of \$0.80/bushel (Table 7). Commercial storage may yield a positive return in January of \$0.09/bushel if the price has a pattern similar to 2016. Managers could expect greater excitement in soybeans than in corn given the relatively tighter stocks. A South American weather event could spur the soybean market higher. Recognize that the risk window closes in February as soybean harvest starts and risk premium is removed from the market when the market is able to measure the size of the 2018 South American crops (Table 7).

## Topic 5. Corn and Soybean Storage Risk Management Opportunities to May 2018

As we focus on storage costs and profitable returns from storage, managers may want to consider if the futures or options markets are providing opportunities to protect prices at levels that would cover budgeted inputs, rent, overhead, and provide a return for family living. Table 8 compares the risk protection provided by hedging (or Hedge-to-Arrive contracts) with put options for corn for varying harvested yields.

Table 8. Risk Management Comparison for Corn Stored On-Farm until May 2018 for Western Kentucky Markets.				
Storage Hedge: June 2018	Corn			
Yield	<u>165</u>	<u>175</u>	<u>185</u>	<u>195</u>
TVC+Rent (\$/acre)	\$640	\$640	\$640	\$640
Overhead + Family (\$/acre)	\$110	\$110	\$110	\$110
TVC+Rent+OH+Family+\$0.48 storage (\$/bu)	\$5.03	\$4.77	\$4.53	\$4.33
Hedge @ \$3.83 +\$0.09 basis = \$3.92	-\$1.11	-\$0.85	-\$0.62	-\$0.41
Put: \$3.80 strike @\$0.193 = \$3.70 floor	-\$1.33	-\$1.07	-\$0.83	-\$0.63
Strategies Evaluated on:	October 13, 2017			

The July 2018 corn futures contract is trading below budgeted break-even prices. With a 185-bushel corn yield, the break-even cash price is \$4.53/bushel to pay for inputs, rent, overhead, and family living expenses. Put options provide flexibility by placing a floor on price. However, put options are not at a price that would reduce the risk for this example corn farm.

Table 9. Risk Management Comparison for Soybeans Stored On-Farm until May 2018 for Western Kentucky Markets.				
Storage Hedge: June 2018	Soybeans			
Yield	<u>55</u>	<u>65</u>	<u>75</u>	<u>85</u>
TVC+Rent (\$/acre)	\$486	\$486	\$486	\$486
Overhead + Family (\$/acre)	\$110	\$110	\$110	\$110
TVC+Rent+OH+Family+\$0.55 storage (\$/bu)	\$11.39	\$9.72	\$8.50	\$7.56
Hedge @ \$10.36 + \$0.03 basis = \$10.39	-\$0.99	+\$0.67	+\$1.90	+\$2.83
Put: \$10.40 strike @\$0.555 = \$9.88 floor	-\$1.51	+\$0.16	+\$1.38	+\$2.32
Strategies Evaluated on:	October 13, 2017			

Farmers harvesting 65-bushel or greater soybeans might be able to use the July soybean futures to hedge a return over inputs, rent, overhead and family living expense. A put option may be feasible for those with even better yields depending on cost structure and cost of the put option. Put options can place a floor on price while having the flexibility to benefit from higher prices between purchase and selling grain in May 2018.

## Topic 6. Comparing Harvest-Time and January Cash Forward Contract Bids and Managing Risk

Figures 3 and 4 compare current harvest-time and January CFC bids to budgeted variable costs, land rent, fixed costs, and a minimum storage cost from October harvest to January. The production costs, fixed costs, and land rent are from the University of Kentucky *Farm Business Management Program* budgets for Western Kentucky assuming harvested yields of 170-bushels and 55-bushels, respectively, for corn and soybeans. On-farm storage costs are

explained above and are assumed to be \$0.397/bushel for corn and \$0.352/bushel for soybeans from October 2017 to January 2018.

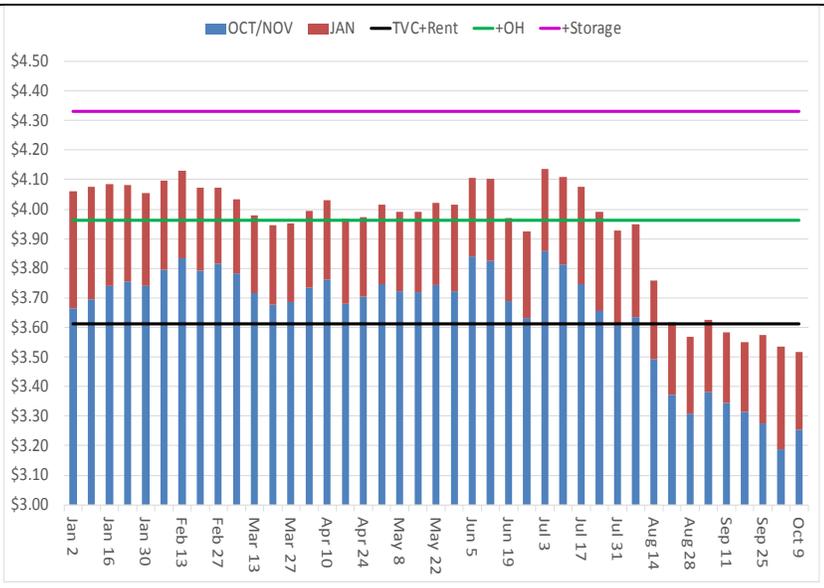


Figure 3. October 2017 and January 2018 Corn Cash Forward Bids with Per Bushel Costs for Inputs plus Rent, Overhead, and Storage.

Analyzed on October 13, 2017.

Figure 3 compares the October corn CFC (blue column), January CFC (red column) to production costs plus rent (black line), overhead costs (green line) and minimum storage costs to January (purple line).

While not covering storage costs, the August 7<sup>th</sup> weekly average January CFC provided the last best risk management opportunity for those wanting to lock in a price before January delivery. Current bids are well below the cost of inputs, overhead, and storage to January 2018 (Figure 3).

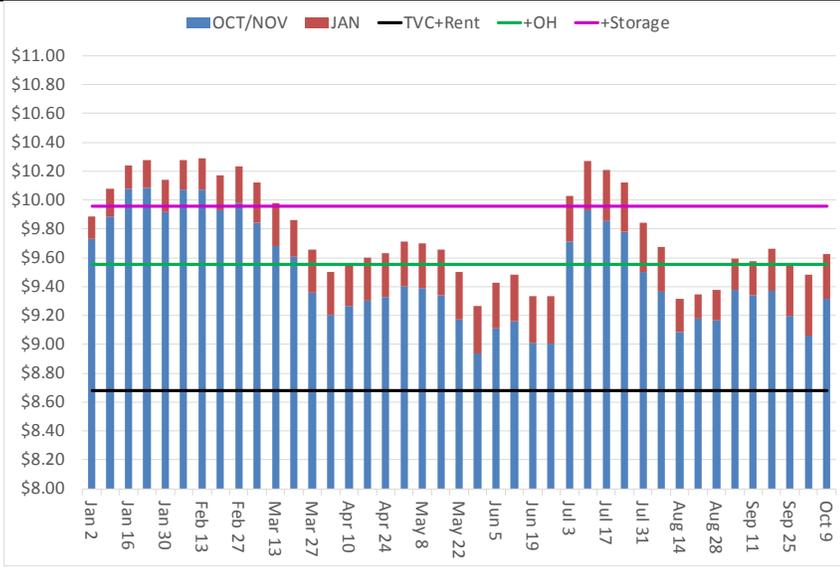


Figure 4. October 2017 and January 2018 Soybean Cash Forward Bids with Per Bushel Costs for Inputs plus Rent, Overhead, and Storage.

Analyzed on October 13, 2017.

Managers are not projected to be able to lock in a soybean price that covers economic costs plus storage to January (Figure 4). This pricing opportunity was available in January and February with the futures rally in July providing another risk management opportunity.

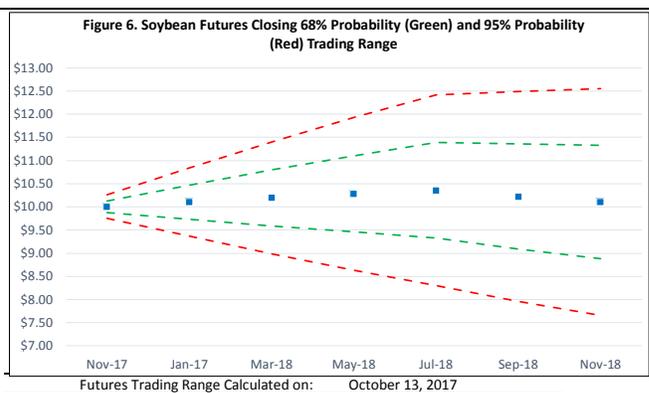
Managers need to understand their **per bushel** costs to guide their marketing.

**Topic 7. Projected Corn, Soybean, and Wheat Futures Trading Ranges to Harvest 2018**

Understanding the probabilistic trading ranges based on current futures market volatility will help managers gauge the likelihood of reaching their pricing objectives. 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 95% likelihood of the expected trading range. Notice how these projections fan out for the contracts that will expire later

this year or in 2018. 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 December 2017 to December 2018. There is a 68% probability that the December 2017 corn contract will trade between \$3.46 and \$3.59 and a 95% probability that the December 2017 corn contract will trade between \$3.40 and \$3.66 (Figure 5). Looking at the potential to hedge stored corn from the 2017 harvest, the 68% trading range for the March 2018 corn contract is \$3.51 to \$3.82 (Figure 5).



Trading range calculated on October 13, 2017, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on October 13, 2017, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.

Trading range calculated on October 13, 2017, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on October 13, 2017, 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 November 2017 to November 2018. The November 2017 soybean futures have a 68% probability of trading between \$9.88 to \$10.13 with a 95% likelihood of trading between \$9.75 and \$10.25 (Figure 6). For hedging stored 2017 soybeans, the March 2018 soybean contract has a 68% probability trading range of \$9.59 to \$10.50 (Figure 6).

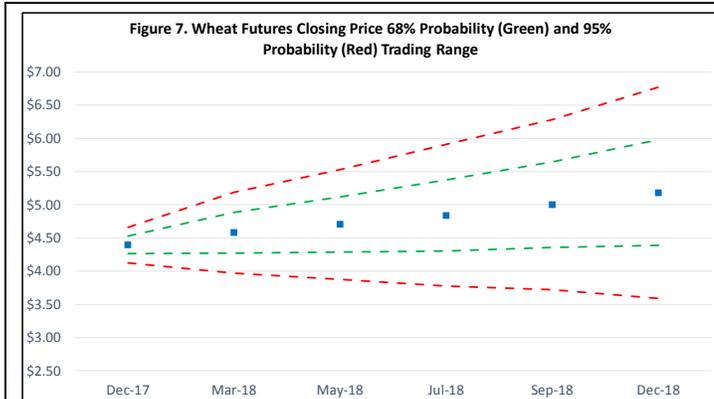


Figure 7 provides the probabilistic trading range for wheat futures contract from December 2017 to December 2018 contracts. The December 2017 futures contract has a 68% probability of trading from \$4.26 to \$4.53 (Figure 7). The 95% probability trading range is \$4.13 to \$4.66 (Figure 7).

The July 2018 wheat futures have a 68% probability of trading between \$4.31 and \$5.38 and a 95% probability of trading between \$3.77 and \$5.91. Those producing wheat in 2018 should monitor the July 2018 wheat contract for opportunities to manage price risk if pricing targets are reached.

Trading range calculated on October 13, 2017, using the average volatility of the previous 21-day period. The 68% probability range is the closing futures price on October 13, 2017, plus and minus one standard deviation. The 95% probability range is the closing price plus and minus two standard deviations.

### Topic 8. Evaluation of Using July Futures to Capture Corn and Soybean Carry for Storage to May

The management challenge once harvest is completed is to evaluate how to market stored corn and soybeans and decide if risk management is beneficial to protect positive storage returns. The analysis above suggests limited benefit for corn but potential to protect positive returns for soybeans. This topic uses cash market data (from the Kentucky Farm Bureau Federation) and July futures monthly average prices for October (harvest) and May (spring sales) to analyze the historical performance of using hedging or HTA contracts for corn and soybeans for 2000 to the 2016 crops.

The 17 year period is divided into three sub-periods: 2000 to 2006 (pre-boom); 2007-14 (biofuel/export boom); and 2015-16 (post-boom). Columns A and B in Table 11 are the monthly average cash price for corn in October and May, respectively. The price change from October to May is calculated in Column C. The summary statistics for Table 11 are included on the right side. The only year where price declined from October to May was 2012, which is an atypical year following a massive drought. The average price appreciation for corn in the spot market was \$0.41/bushel from 2000 to 2006 and \$0.75/bushel during 2007-2014 (Table 11). The post-boom years, 2015-16, experienced a \$0.32/bushel price increase but the price appreciation was not as pronounced as compared to the pre-boom and post-boom periods.

The results of hedging with July corn futures are mixed. During the price boom (2007-14), using July futures was beneficial 5 of 8 years with the average positive benefit of \$0.44/bushel. However, the average loss during the 3 years was -\$1.30/bushel. This result illustrates the importance of understanding what a Bull market looks like and the harm caused of locking in that market (Table 11). Locking a futures price removes the benefit of receiving a higher cash price. With only two years of data, the post-boom benefit of hedging was worth \$0.08/bushel with the 2015 crop providing a return of \$0.13 per bushel compared to the 2016 return of \$0.02/bushel (Table 11).

**Table 11. Historic Spot Price Change from October to May, July Corn Futures Hedging Returns, and Value over Harvest-Time Cash Price from 2000 to 2016 Western Kentucky Corn.**

Crop Year	Spot Market Average Price:			July Corn Futures Average:			Value over Cash Sale at Harvest
	Col A. October	Col B. May	Col C. Change	Col D. October	Col E. May	Col F. Return	
2000	\$1.83	\$1.92	+\$0.09	\$2.30	\$1.99	+\$0.31	+\$0.40
2001	\$1.83	\$2.06	+\$0.22	\$2.34	\$2.08	+\$0.26	+\$0.48
2002	\$2.54	\$2.57	+\$0.03	\$2.62	\$2.45	+\$0.17	+\$0.20
2003	\$2.23	\$3.05	+\$0.82	\$2.40	\$3.02	-0.62	+\$0.20
2004	\$1.86	\$2.10	+\$0.24	\$2.29	\$2.12	+\$0.17	+\$0.41
2005	\$1.74	\$2.38	+\$0.64	\$2.30	\$2.50	-0.20	+\$0.44
2006	\$2.93	\$3.72	+\$0.80	\$3.27	\$3.74	-0.48	+\$0.32
2007	\$3.46	\$5.71	+\$2.25	\$3.94	\$6.03	-2.09	+\$0.15
2008	\$3.72	\$4.21	+\$0.49	\$4.52	\$4.22	+\$0.31	+\$0.79
2009	\$3.61	\$3.67	+\$0.06	\$4.00	\$3.68	+\$0.32	+\$0.39
2010	\$5.20	\$7.24	+\$2.05	\$5.66	\$7.24	-1.58	+\$0.47
2011	\$6.29	\$6.45	+\$0.16	\$6.55	\$6.01	+\$0.54	+\$0.69
2012	\$7.53	\$7.07	-\$0.46	\$7.39	\$6.51	+\$0.87	+\$0.42
2013	\$4.18	\$5.01	+\$0.82	\$4.67	\$4.90	-0.23	+\$0.59
2014	\$3.10	\$3.77	+\$0.67	\$3.79	\$3.61	+\$0.18	+\$0.85
2015	\$3.66	\$3.96	+\$0.29	\$4.04	\$3.91	+\$0.13	+\$0.43
2016	\$3.36	\$3.70	+\$0.34	\$3.72	\$3.71	+\$0.02	+\$0.36

	Change in Spot Price	Return from Hedging	Value over Cash at Harvest
<b>2000 to 2006</b>			
Average	+\$0.41	-0.06	+\$0.35
No. Years > 0	7	4	7
Expected Value	\$0.41	\$0.23	\$0.35
No. Years < 0		3	
Expected Value		-0.43	
<b>2007 to 2014</b>			
Average	+\$0.75	-\$0.21	+\$0.54
No. Years > 0	7	5	8
Expected Value	\$0.93	\$0.44	
No. Years < 0	1	3	
Expected Value	-\$0.46	-\$1.30	
<b>2015 and 2016</b>			
Average	+\$0.32	+\$0.08	+\$0.39

The total value of hedging compared to a cash sale at harvest is the furthest column to the right. While hedging did not provide a positive return some years, the combination of price appreciation with hedging provided a price that was larger than selling off the combine at harvest in all 17 years analyzed.

**Table 12. Historic Spot Price Change from October to May, July Soybeans Futures Hedging Returns, and Value over Harvest-Time Cash Price from 2000 to 2016 Western Kentucky Soybeans.**

Crop Year	Spot Market Average Price:			July Soybean Futures Average:			Value over Cash Sale at Harvest
	Col A. October	Col B. May	Col C. Change	Col D. October	Col E. May	Col F. Return	
2000	\$4.54	\$4.46	-\$0.07	\$5.08	\$4.43	+\$0.65	+\$0.58
2001	\$4.22	\$4.83	+\$0.61	\$4.57	\$4.82	-\$0.25	+\$0.36
2002	\$5.43	\$6.28	+\$0.85	\$5.46	\$6.34	-\$0.89	-\$0.03
2003	\$7.22	\$9.51	+\$2.29	\$6.71	\$9.35	-\$2.64	-\$0.35
2004	\$5.14	\$6.36	+\$1.22	\$5.52	\$6.38	-\$0.87	+\$0.35
2005	\$5.27	\$5.79	+\$0.52	\$6.05	\$5.97	+\$0.08	+\$0.60
2006	\$5.72	\$7.39	+\$1.67	\$6.32	\$7.77	-\$1.45	+\$0.22
2007	\$9.35	\$12.90	+\$3.55	\$10.16	\$13.36	-\$3.20	+\$0.35
2008	\$8.64	\$11.58	+\$2.94	\$9.64	\$11.41	-\$1.77	+\$1.17
2009	\$9.67	\$9.45	-\$0.22	\$9.66	\$9.54	+\$0.12	-\$0.10
2010	\$11.30	\$13.53	+\$2.23	\$11.89	\$13.57	-\$1.69	+\$0.55
2011	\$11.91	\$14.24	+\$2.32	\$12.46	\$14.19	-\$1.73	+\$0.60
2012	\$15.29	\$15.11	-\$0.18	\$14.49	\$14.38	+\$0.11	-\$0.07
2013	\$12.82	\$15.02	+\$2.19	\$12.47	\$14.81	-\$2.34	-\$0.15
2014	\$9.54	\$9.78	+\$0.23	\$9.93	\$9.54	+\$0.40	+\$0.63
2015	\$8.86	\$10.43	+\$1.56	\$9.07	\$10.61	-\$1.54	+\$0.02
2016	\$9.56	\$9.45	-\$0.10	\$10.02	\$9.57	+\$0.44	+\$0.34

	Change in Spot Price	Return from Hedging	Value over Cash at Harvest
<b>2000 to 2006</b>			
Average	+\$1.01	-0.77	+\$0.25
No. Years > 0	6	2	5
Expected Value	\$1.19	\$0.36	\$0.42
No. Years < 0	1	5	2
Expected Value	-\$0.07	-\$1.22	-\$0.19
<b>2007 to 2014</b>			
Average	+\$1.64	-\$1.26	+\$0.37
No. Years > 0	6	3	5
Expected Value	\$2.25	\$0.21	\$0.66
No. Years < 0	2	5	3
Expected Value	-\$0.20	-\$2.15	-\$0.10
<b>2015 and 2016</b>			
Average	+\$0.73	-0.55	+\$0.18

Soybean prices in the cash market, on average, increased \$1/bushel from 2000 to 2006, and by \$1.64/bushel from 2007 to 2014 (Table 12). It was not exactly like printing money as there was 1 year prior to 2007 and 2 years from 2007-14 where soybean prices did not appreciate post-harvest. The benefit from storing soybeans for the 2015 crop was a +\$1.56/bushel increase but a -\$0.10/bushel decrease for the 2016 soybean crop (Table 12).

Hedging stored soybeans have mixed results with more years with negative hedging returns than positive returns (Table 12). In general, hedging every year without understanding if the market was bullish reduced the value of stored soybeans by **-\$0.77** from 2000 to 2016, and by **-\$1.26** from 2007 to 2014. The value of hedging the 2015 crop was **-\$1.54**, but hedging would have added \$0.44/bushel to the price received for stored soybeans in 2016 (Table 12).

Should managers consider hedging? It is important to use your own expectations of how futures prices will change between now and when you pull the grain out of storage in May. If you expect prices to decrease, then consider the benefits of locking the futures price. If you expect the futures market to increase (which may happen to soybeans), then locking the futures price will cap price potential. A weather market in South America will revive both the corn and soybean markets; however, soybeans will likely benefit more than corn from reduced South American production.

### Topic 9. Evaluation of 2017 Pre-Harvest Risk Plans and Lessons Learned for Next Year

An important step of the management function is to evaluate the risk management plan at harvest to learn what aspects of the plan worked and what parts failed. This information will help improve next year's effort. This analysis dissects the pre-harvest risk management game plan discussed monthly from January through August 2017.

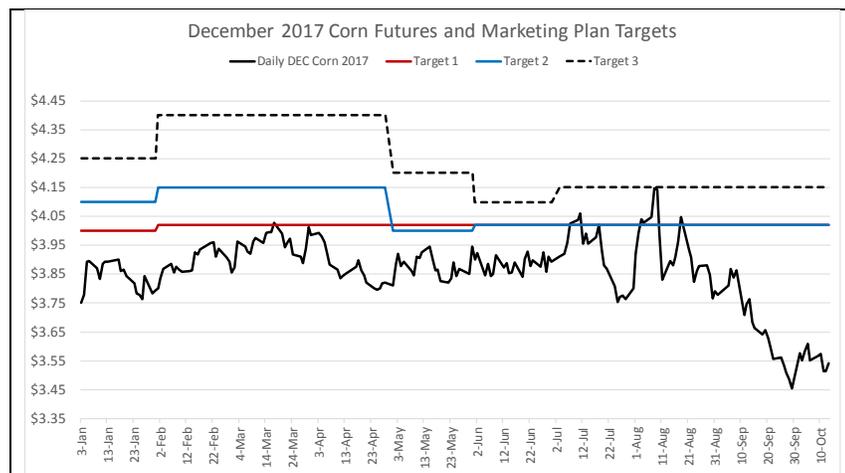


Figure 8. December 2017 Corn Futures Daily Closing Price and Risk Management Targets for Pre-Harvest Corn Risk Management Plan.

Figure 8 shows the daily 2017 December 2017 corn closing price with the three targets met in the ever-changing marketing plan. The red line is the \$4.02 target, which was filled in March. The second target was reduced to \$4.02 in May in response to the sideways trade in the market.

*Lesson #1: Optimism is not a price forecast.* The plan's initial targets did not recognize a side-ways market prevailed. A benefit of lowering Targets 2 and 3 in May was pricing additional bushels at \$4.02 and \$4.15 than originally planned. The corn market never rallied as anticipated.

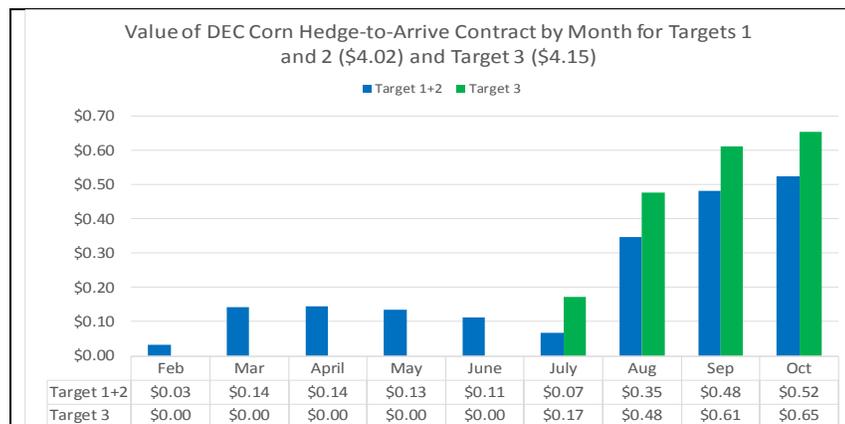


Figure 9. Value of the Hedge-to-Arrive Contracts Implemented by the Pre-Harvest Corn Risk Plan based on October 13, 2017, Harvest Date.

The value of the HTA contracts in the futures market for Targets 1 and 2 (blue) and Target 3 (green) show how hedging improved the harvest-time sales price for the 30% of expected corn production priced before harvest. The average value in the futures market of the HTA contracts was \$0.52 and \$0.65/bushel, respectively (Figure 9). The wider than typical basis (Figure 1, above) reduces the expected benefit as the HTA's were established using the average basis of -\$0.15 per bushel instead of the realized -\$0.31 per bushel for this fall.

**Lesson #2: establish HTA's basis before harvest.** The basis was wider than average throughout the summer. Monitoring and fixing basis prior to harvest would have improved the effectiveness of the HTA contracts.

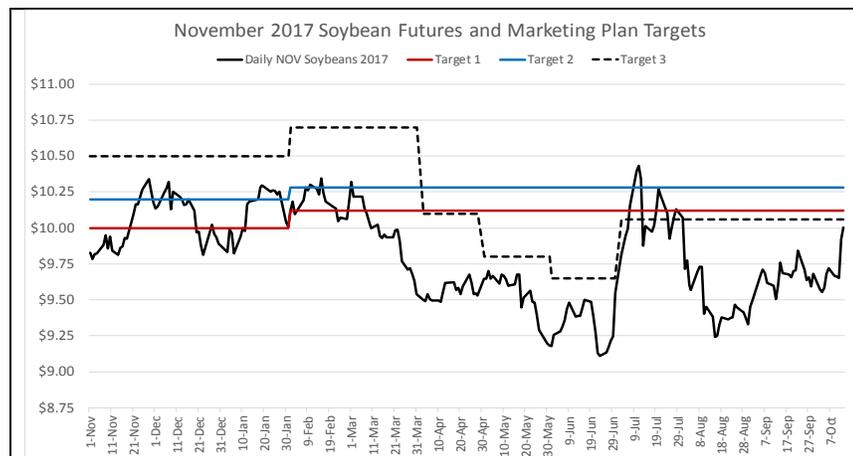


Figure 10. November 2017 Soybean Futures Daily Closing Price and Risk Management Targets for Pre-Harvest Corn Risk Management Plan.

Figure 10 shows the daily November 2017 soybean futures closing price compared to the fluctuating pre-harvest targets. Targets 1 and 2 were filled in February, which caused the remaining targets to be increased to \$10.75/bushel. The third target following the market lower into June.

**Lesson #3: Chasing the herd significantly lower missed the July rally.** The third target would have been filled at \$10.50 if the plan was followed as originally planned.

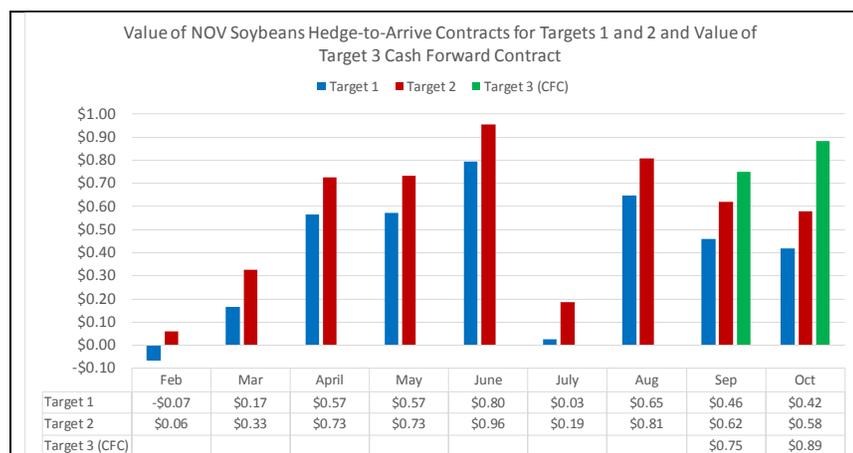


Figure 11. Value of the Hedge-to-Arrive and Forward Cash Contracts Implemented by the Pre-Harvest Soybean Risk Plan based on October 13, 2017, Harvest Date.

The red and blue columns represent the value of HTA soybean contracts in the futures market. The green bar is the value of the soybean CFC contract compared to the spot price at harvest.

The CFC price was \$0.89/bushel higher than the spot price average for Kentucky soybeans on October 13. In addition, the HTA's added \$0.42 and \$0.58/bushel value above to the spot price at harvest.

**Lesson #4: The total quantities protected by risk management should have been increased by June to protect known sales to be made at harvest.** The pre-harvest risk plan doesn't consider storage constraints. Having sufficient storage provides flexibility of using post-harvest marketing to price corn and soybeans at profitable levels.

### Topic 10. Post-Harvest Corn and Soybeans Risk Management Plan – October 2017 Update

The final topic builds the post-harvest risk management plan. The foundation of the plan is identifying what prices are needed to cover input costs, rent, overhead, storage, and family living expenses. Table 13 is the break-even prices needed for these costs at varying corn and soybean yields. Total economic costs are total inputs plus land cost plus overhead costs. Note that every acre is charged \$175/acre land rent regardless of land tenure. The storage costs calculated in Topic 4 is the total cost of on-farm storage to May 2018. The family living expense assumes that \$105,000 spent and the farm has 2200 crop acres. Family living expense varies widely but is an important component of the marketing plan for the household to have food, clothing, and shelter.

The most-likely corn yield, from an informal survey of ANR agents in Western Kentucky, is 175 BPA with a range of 165 to 190 BPA. Similarly, the most-likely soybean yield is 56 BPA with yields as low as 50 and some greater than 65 BPA. Managers could use Table 13 as a guide in calculating these pricing objectives using actual costs and yields for their farm. Family living is a difficult number to quantify unless managers use a record-keeping program like the

Kentucky Farm Business Management program. Managers may resolve to keep better records in 2018 to help with their marketing program and other management decisions.

The break-even price for corn at 175 BPA is \$4.75, but this price can be over \$5/bushel for lower yields. Similarly, the break-even price for soybeans ranges from \$9.46 to \$12.15 per bushel for the optimistic and pessimistic yields, respectively (Table 13). Knowing these break-even prices is crucial for managers to implement a risk management plan that recognizes profitable pricing opportunities and the value of using price risk tools at profitable price levels. The risk plans assume 175-bushel corn and 56-bushel soybeans.

**Table 13. Budgeted Risk Management Break-Even Target Prices for 2017 Corn and Soybeans for Pessimistic, Most-Likely and Optimistic Yields.**

	Corn			Soybeans		
	Pessimistic	Most Likely	Optimistic	Pessimistic	Most Likely	Optimistic
	165	175	190	50	56	65
Total Variable Costs	\$2.82	\$2.66	\$2.45	\$6.22	\$5.55	\$4.78
+ Cash Rent	\$1.06	\$1.00	\$0.92	\$3.50	\$3.13	\$2.69
+ Overhead	<u>\$0.38</u>	<u>\$0.36</u>	<u>\$0.33</u>	<u>\$0.97</u>	<u>\$0.87</u>	<u>\$0.75</u>
= Total Economic Costs	\$4.26	\$4.02	\$3.70	\$10.69	\$9.54	\$8.22
Family Living per bushel	\$0.29	\$0.27	\$0.25	\$0.95	\$0.85	\$0.73
Storage until May 2018	<u>\$0.46</u>	<u>\$0.46</u>	<u>\$0.46</u>	<u>\$0.51</u>	<u>\$0.51</u>	<u>\$0.51</u>
= Total Costs + Family living + Storage Costs	\$5.01	\$4.75	\$4.41	\$12.15	\$10.90	\$9.46

Let us gauge the price potential for July 2018 futures. The July 2018 soybean futures contract forecast is based on trading patterns established in 2008-12 (blue line), 2013-15 (red line), and 2016 (green line). The black line is the 2018 contract to date. If the July 2018 soybean futures trades similar to last year, there might be potential to establish a hedge at \$10.50 and \$10.75 per bushel.

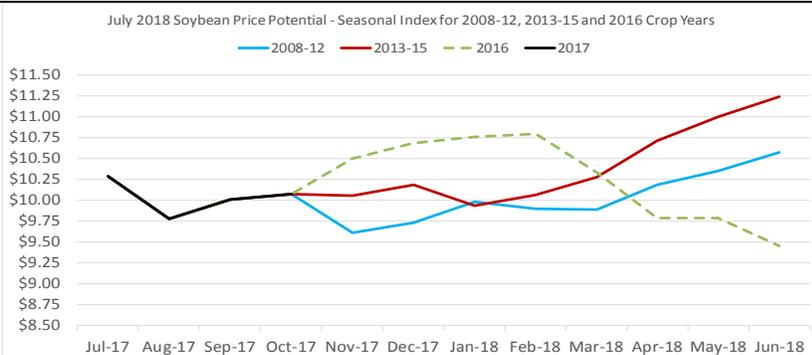


Figure 12. July 2018 Soybean Futures Price Forecast based on Seasonal Change from September to June for the 2008 to 2016 Crop Years.

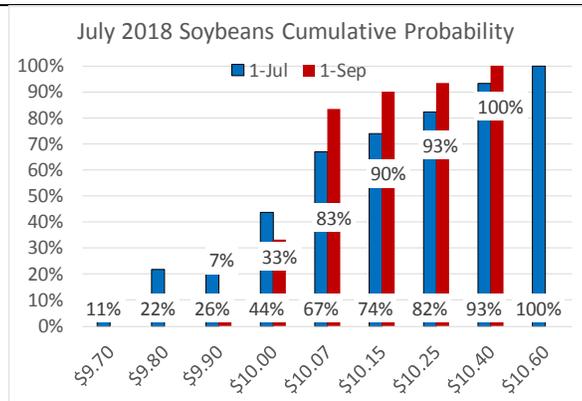


Figure 13. Distribution of July 2018 Soybean Closing Price from July 1 and September 1, 2017, to October 13, 2017.

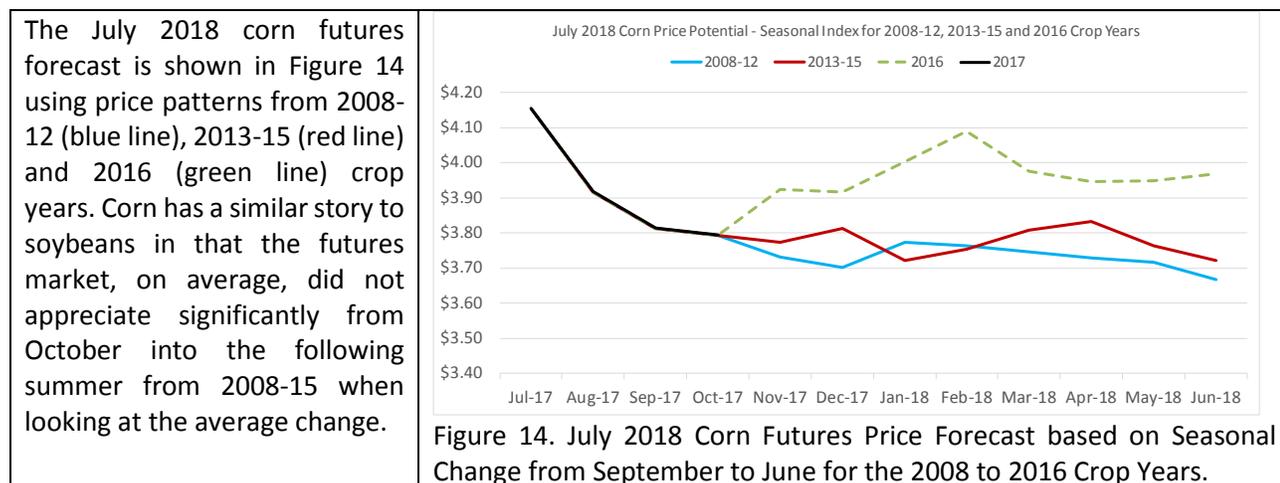
Figure 13 shows the cumulative probability of the July 2018 soybean futures price being at a given price level or lower. The blue columns measures closing prices since July 1, 2017, while the red columns are closing prices since September 1, 2017.

Since September 1, a price greater than \$10.04 would be in the Top 1/3 of the closing prices. The contract has been trading in a range of \$9.90 to \$10.40. Still, the July 2018 soybean futures contract has been trading higher since September 1 and may provide pricing opportunities if a weather market develops in South America or North America.

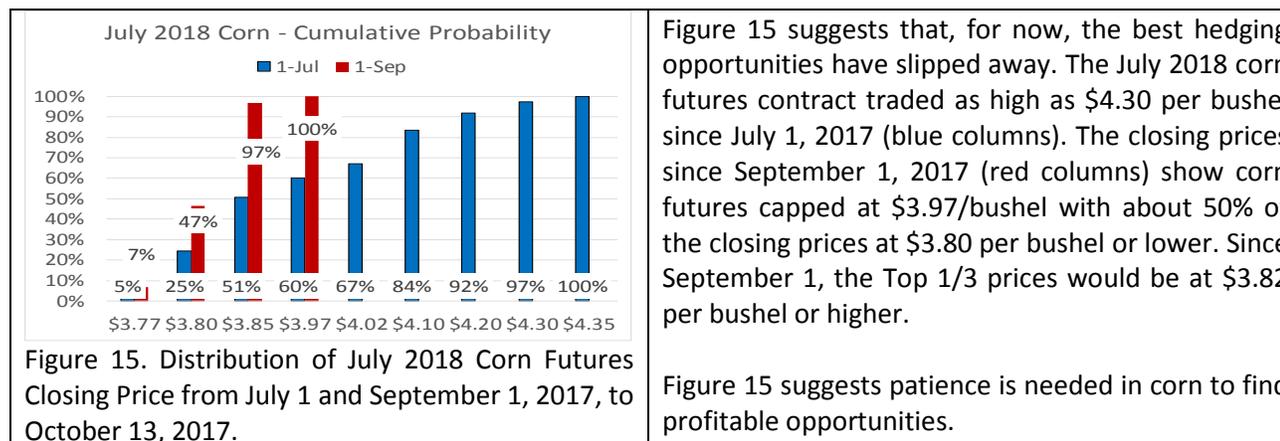
The post-harvest soybean risk plan assumes 16.5 BPA were marketed prior to harvest at an average price of \$9.85/bushel for revenue of \$163/acre (Topic 9 above). The remaining 39.5 BPA will be priced at the following targets and timeframe (Table 14). Using July Futures to establish HTA contracts for May 2018 delivery, the expected post-harvest hedged price is \$10.80 per bushel and assumes that the July 2018 futures follow a similar appreciation pattern as the July 2017 contract. The plan is to use HTA contracts on 25% of stored soybeans at \$10.50, \$10.70, \$10.85 and \$11.15 per bushel, respectively. The plan assumes a post-harvest rally into the spring, which requires by South American weather concerns (Table 14).

Stored Soybeans Risk Management Game Plan -- October Update			Projected Returns from Stored Soybeans Grain Risk Plan -- October Update			
July Futures HTA Price	% Sold	Timeframe	Bushels	\$/bushel	\$/Acre	
\$10.50	25%	Nov to Jan	Pre-Harvest Risk Plan	16.5	9.85	\$163
\$10.70	25%	Jan to Mar	Stored Soybeans Risk Plan	39.5	\$10.80	\$427
\$10.85	25%	April to June	<b>Total Revenue</b>			<b>\$589</b>
<u>\$11.15</u>	25%	May to June	<b>Return over Total Economic Costs</b>			<b>\$54</b>
\$10.80			<b>Return over Storage Costs</b>			<b>\$34</b>
			<b>Return over Family Living</b>			<b>-\$0.35</b>
						<b>-\$14</b>

If the pricing objectives are achieved, total family living costs would not be covered by **-\$0.35/bushel** which is **-\$14/acre** (Table 14). For this example farm, this amounts to a loss of **\$15,400** (assuming 1100 acres of soybeans planted in 2017).



The expectation is that the July 2018 contract has a similar pattern as last year. If realized, the futures contract may provide hedging opportunities at \$4 and \$4.10 per bushel (Figure 14). The corn market has sufficient stocks, which may dampen any need for a risk premium for corn barring a significant weather event in either hemisphere.



The post-harvest corn risk management plan is to use HTA contracts on July Futures for May 2018 delivery with 25% priced each at \$4, \$4.10, \$4.20, and \$4.30 per bushel for a weighted price of \$4.15 (Table 15). This plan may be too conservative by using \$0.10/bushel pricing intervals. However, the July contract would have to show greater upside potential to justify a wider pricing interval. The plan assumes a typical May basis of +\$0.09 per bushel resulting in a net price of \$4.24 per bushel. Given the historically wide basis, the assumption of a typical May basis may be absurd.

**Table 15. Risk Management Game Plan and Projected Profitability for Stored 2017 Corn.**

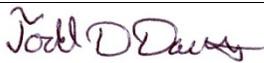
Stored Corn Risk Management Game Plan -- October Update			Projected Returns from Stored Corn Grain Risk Plan -- October Update			
July Futures HTA Price	% Sold	Timeframe	Bushels	\$/bushel	\$/Acre	
\$4.00	25%	Nov to Jan	Pre-Harvest Risk Plan	52.5	\$3.79	\$199
\$4.10	25%	Jan to Mar	Stored Soybeans Risk Plan	122.5	\$4.24	<u>\$519</u>
\$4.20	25%	April to June	<b>Total Revenue</b>			<b>\$718</b>
<u>\$4.30</u>	25%	May to June	<b>Return over Total Economic Costs</b>			<b>\$15</b>
\$4.15			<b>Return over Storage Costs</b>		<b>-\$0.39</b>	<b>-\$48</b>
			<b>Return over Family Living</b>		<b>-\$0.78</b>	<b>-\$96</b>

Table 15 reflects the challenge in marketing stored corn and finding prices that will fully cover storage and family living expense. This example assumes an average yield of 175 BPA and is projected to lose \$48/acre (\$0.39/bushel) from storage and a total loss of \$96/acre when including family living expense. Both the futures and basis will be monitored for opportunities; however, any opportunity will arise from a pollination problem in South America or delayed U.S. corn planting in 2018.

This is a work in progress with updates throughout the winter and spring. Regardless, managers should monitor the futures market and basis for opportunities. Given the significant corn inventories and building soybean stocks, the opportunity to price from storage may be fleeting with the marketing window closing in February and March when Southern Hemisphere harvest begins.

### Topic 11. How Do I Get on the Email Distribution List to Receive this Newsletter?

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