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Western Kentucky corn and soybean storage returns and risk management potential

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Background:

- Managing storage provides another way to improve profitability by avoiding sales at harvest.
- Returns to storage is a challenge given limited appreciation and cost of on-farm and commercial storage

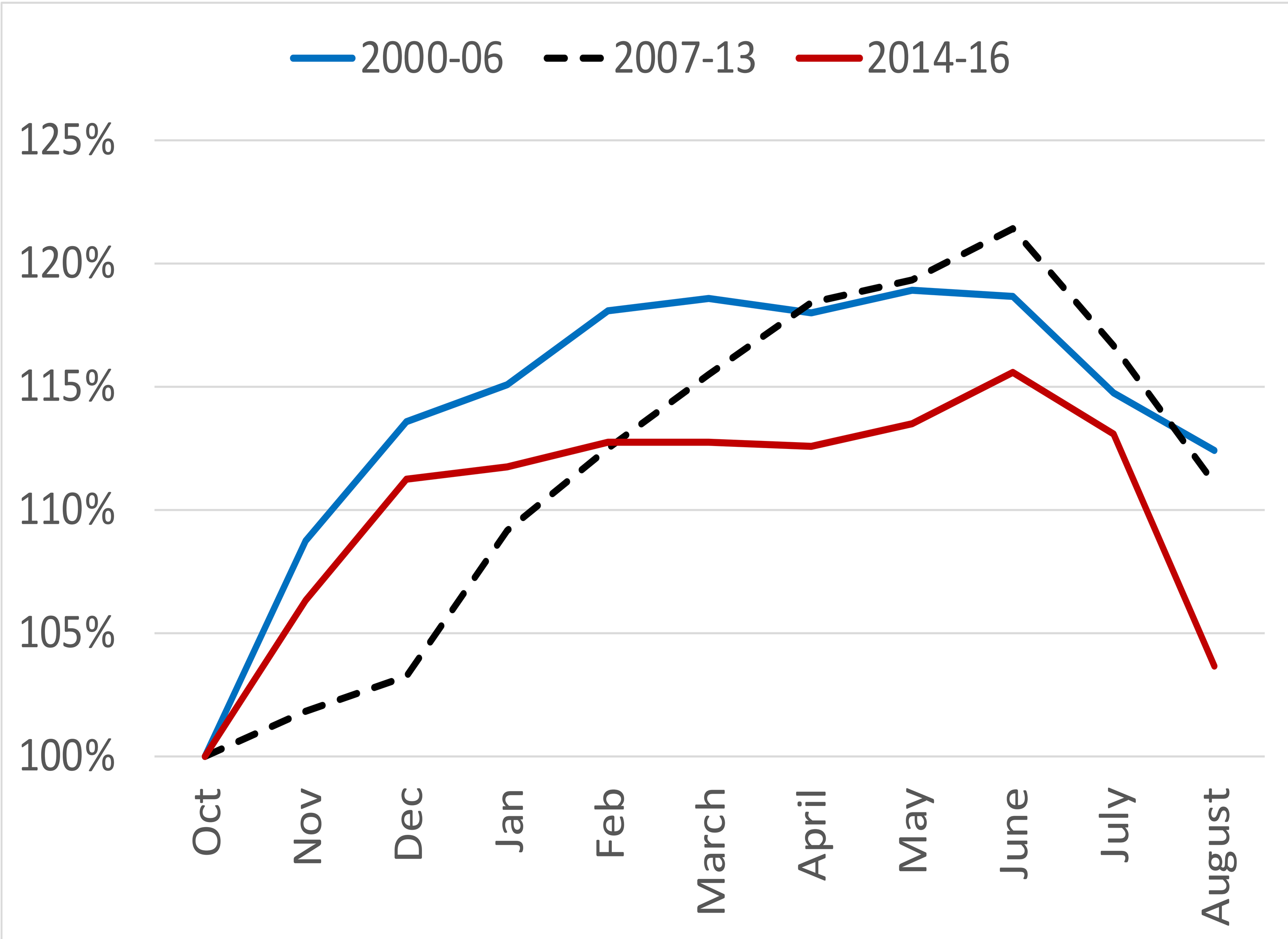
Assumptions:

- Opportunity cost of corn and soybeans is the prime interest rate for each year + ½% (Dhuyvetter, 1999).
- Cost of shrink for corn stored on-farm is 1.25% of harvest price. Commercial shrink charged 1.4% of harvest price (Edwards).
- Monthly on-farm storage charged $0.02/bushel/month and commercial storage charged $0.05/bushel/month (Knorr).

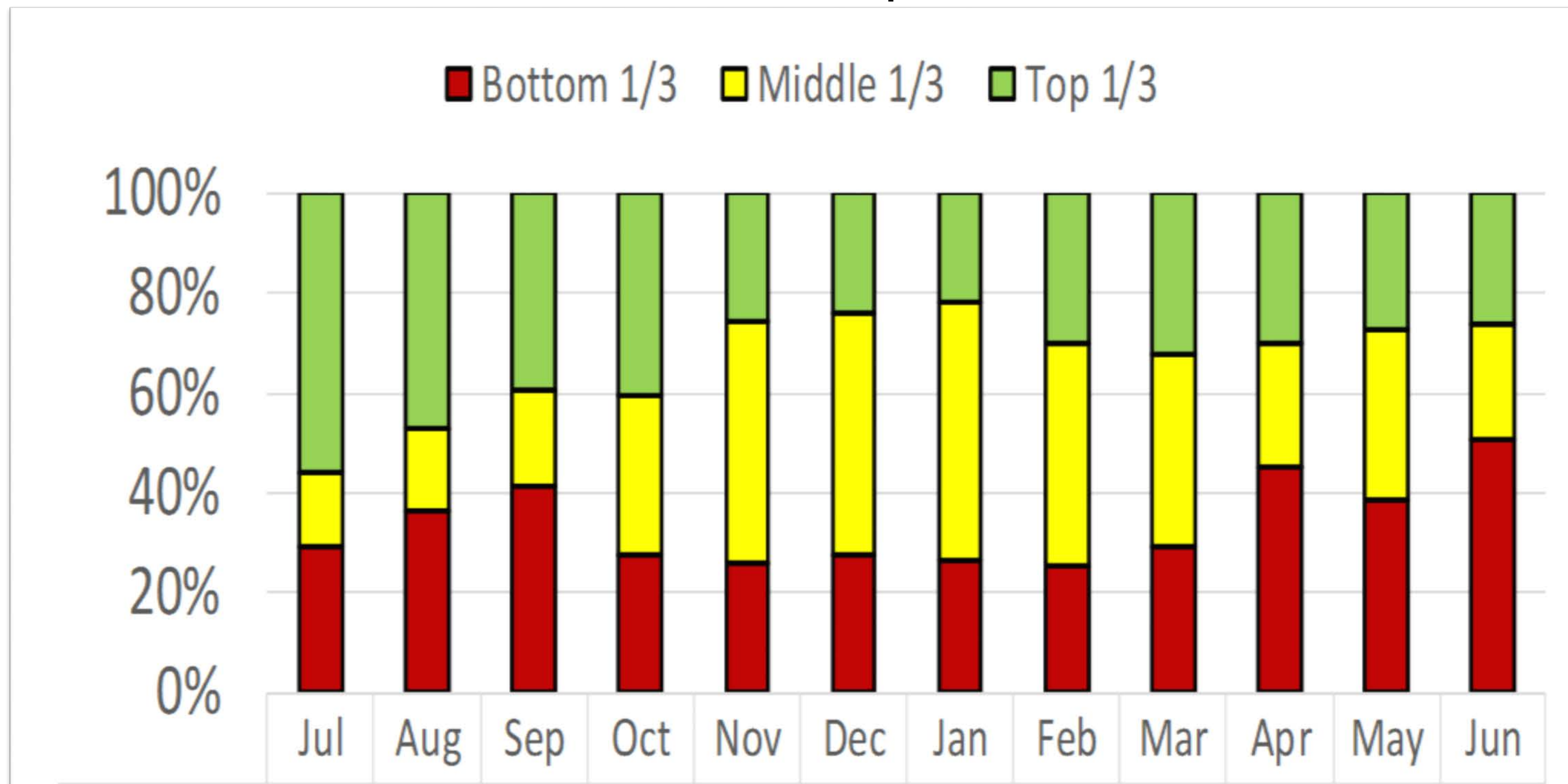
Conclusions

- Cash corn price had an average appreciation of 18% from October to May for the 2000 to 2006 crop years with appreciation of 21% from 2007 to 2013.
- Soybean appreciation from October to June/July averaged 21% for 2000 – 2006 and 2007-13 periods.
- The 2014-16 average corn appreciation was 15% from October to June.
- Soybean appreciation for 2014-16 also muted with maximum average appreciation of 10% from October to July.

Western Kentucky Corn Spot Price Appreciation Indexed to October Price for 2000 to 2016 Crops



JULY Corn Futures Price Distribution Thirds by Month for 2000 to 2016 Crop Years



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Top 1/3	56%	47%	39%	40%	26%	24%	22%	30%	32%	30%	27%	26%
Middle 1/3	15%	17%	20%	32%	48%	49%	51%	45%	38%	25%	34%	23%
Bottom 1/3	29%	36%	41%	28%	26%	28%	26%	25%	29%	45%	39%	51%

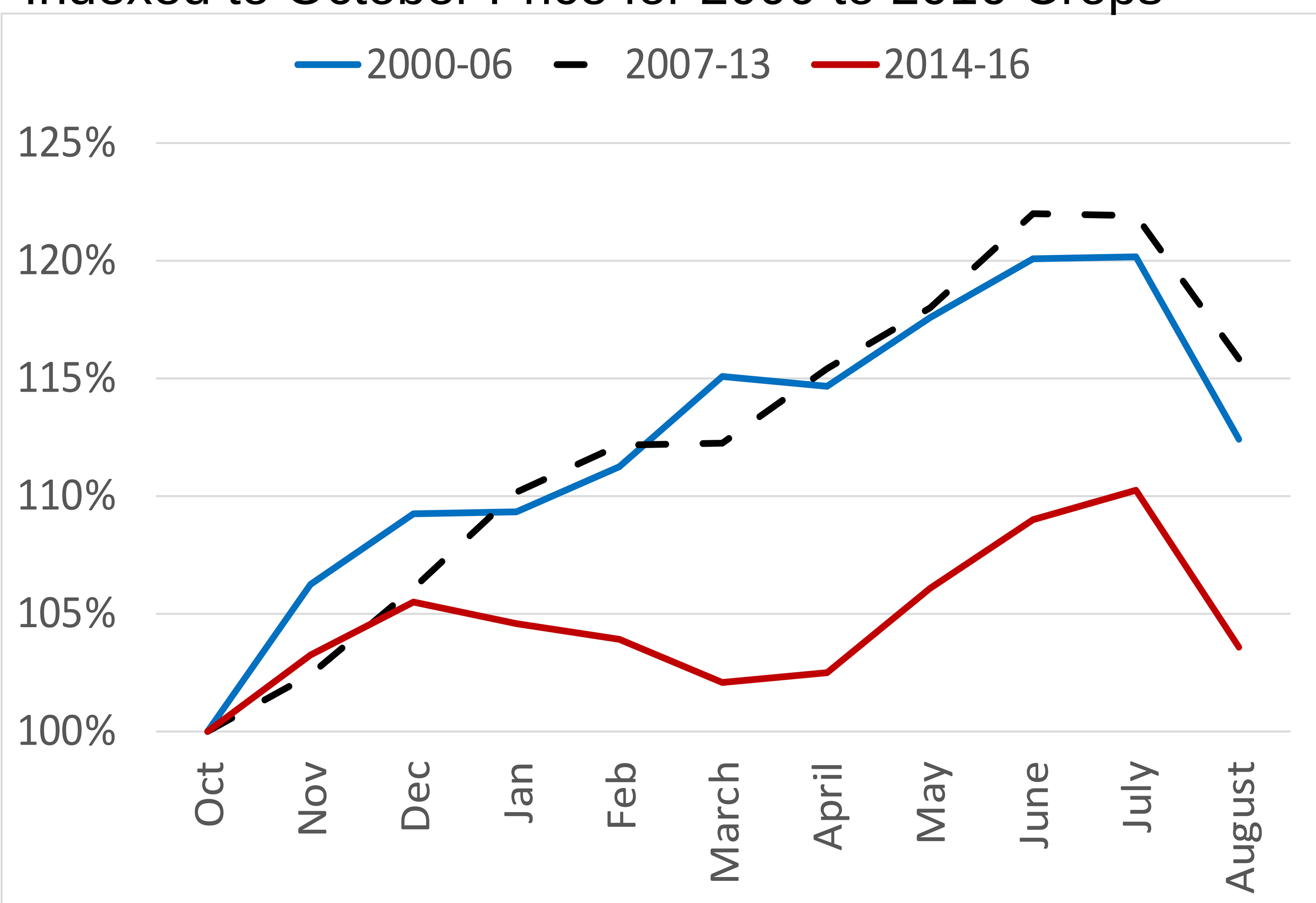
Corn Storage Returns

Return to On-Farm Corn Storage - Without Hedging	Nov	Dec	Jan	Feb	March	April	May	June	July	August
2000-16 Avg.	+$0.05	+$0.10	+$0.18	+$0.25	+$0.27	+$0.26	+$0.26	+$0.27	+$0.10	-$0.12
2000-06 Avg.	+$0.12	+$0.18	+$0.18	+$0.23	+$0.20	+$0.14	+$0.14	+$0.10	-$0.05	-$0.14
2007-13 Avg.	-$0.04	-$0.05	+$0.17	+$0.29	+$0.38	+$0.42	+$0.42	+$0.46	+$0.27	-$0.03
2014-16 Avg.	+$0.11	+$0.23	+$0.22	+$0.22	+$0.19	+$0.16	+$0.16	+$0.21	+$0.07	-$0.27

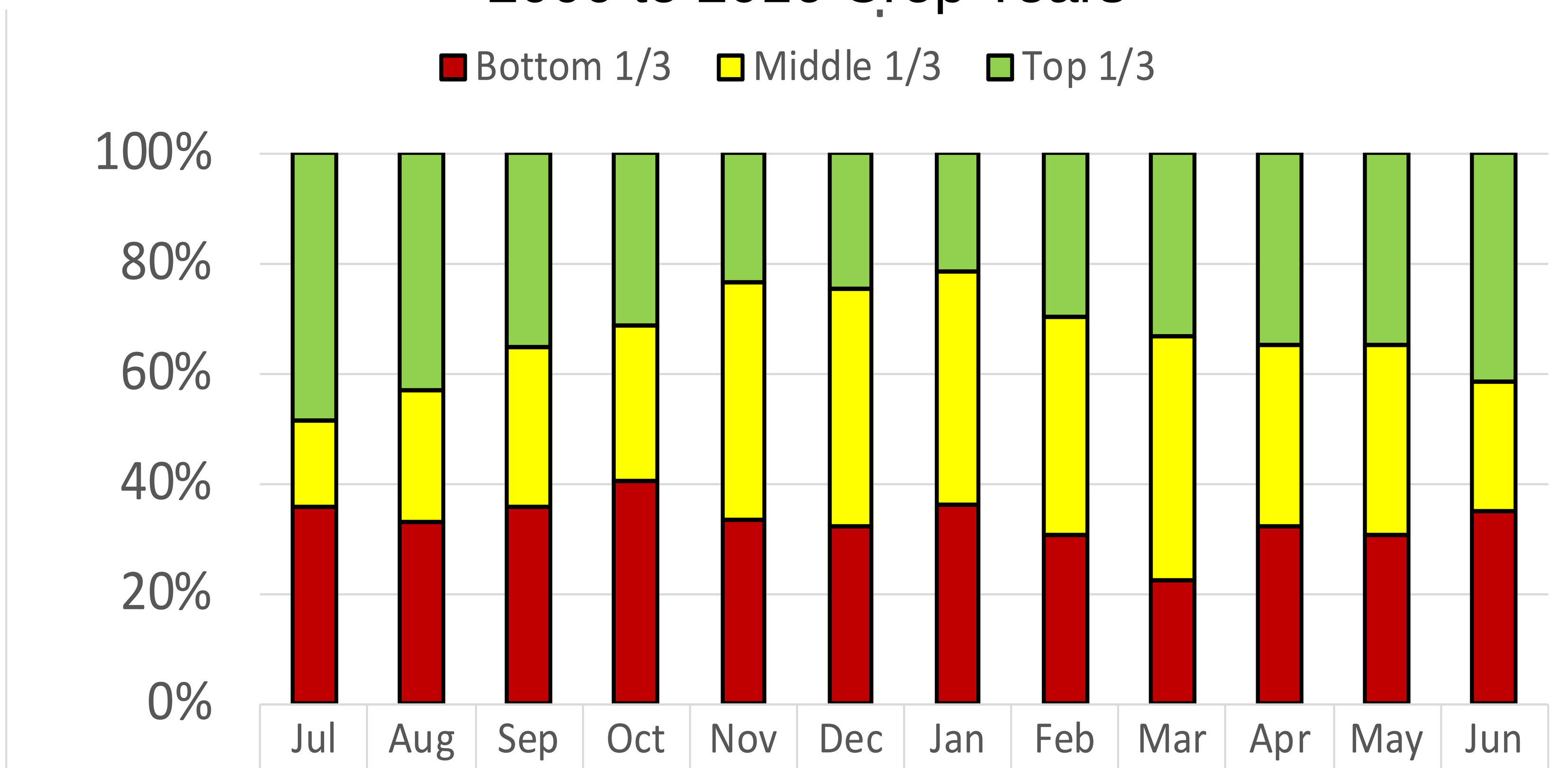
Return to Commercial Corn Storage - Without Hedging	Nov	Dec	Jan	Feb	March	April	May	June	July	August
2000-16 Avg.	-$0.01	+$0.00	+$0.06	+$0.10	+$0.09	+$0.04	+$0.01	-$0.01	-$0.20	-$0.45
2000-06 Avg.	+$0.06	+$0.09	+$0.06	+$0.08	+$0.02	-$0.07	-$0.11	-$0.17	-$0.36	-$0.47
2007-13 Avg.	-$0.11	-$0.15	+$0.04	+$0.13	+$0.19	+$0.20	+$0.18	+$0.18	-$0.03	-$0.37
2014-16 Avg.	+$0.04	+$0.14	+$0.09	+$0.07	+$0.00	-$0.06	-$0.08	-$0.07	-$0.24	-$0.61

July Corn Futures Sold in the July Before Harvest and Offset in:	Nov	Dec	Jan	Feb	March	April	May	June
2000-16 Avg.	+$0.11	+$0.10	+$0.03	-$0.02	-$0.04	-$0.02	+$0.01	-$0.01
2000-06 Avg.	-$0.04	-$0.04	-$0.09	-$0.14	-$0.13	-$0.07	-$0.03	-$0.01
2007-13 Avg.	+$0.22	+$0.22	+$0.06	-$0.00	-$0.08	-$0.12	-$0.08	-$0.12
2014-16 Avg.	+$0.21	+$0.17	+$0.22	+$0.21	+$0.27	+$0.30	+$0.32	+$0.24

Western Kentucky Soybean Spot Price Appreciation Indexed to October Price for 2000 to 2016 Crops



JULY Corn Futures Price Distribution Thirds by Month for 2000 to 2016 Crop Years



	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Top 1/3	56%	47%	39%	40%	26%	24%	22%	30%	32%	30%	27%	26%
Middle 1/3	18%	26%	33%	36%	48%	42%	43%	40%	43%	29%	27%	15%
Bottom 1/3	41%	36%	40%	52%	37%	31%	37%	31%	22%	28%	24%	22%

Soybean Storage Returns

Return to On-Farm Soybean Storage - Without Hedging	Nov	Dec	Jan	Feb	March	April	May	June	July	August
2000-16 Avg.	+$0.21	+$0.42	+$0.52	+$0.60	+$0.63	+$0.71	+$0.87	+$1.06	+$1.00	+$0.35
2000-06 Avg.	+$0.27	+$0.38	+$0.36	+$0.44	+$0.63	+$0.56	+$0.65	+$0.69	+$0.58	+$0.05
2007-13 Avg.	+$0.12	+$0.46	+$0.78	+$0.95	+$0.94	+$1.20	+$1.40	+$1.71	+$1.65	+$0.88
2014-16 Avg.	+$0.24	+$0.40	+$0.26	+$0.15	-$0.07	-$0.10	+$0.17	+$0.37	+$0.46	-$0.21

Return to Commercial Soybean Storage - Without Hedging	Nov	Dec	Jan	Feb	March	April	May	June	July	August
2000-16 Avg.	+$0.15	+$0.33	+$0.40	+$0.45	+$0.45	+$0.50	+$0.63	+$0.79	+$0.70	+$0.02
2000-06 Avg.	+$0.21	+$0.29	+$0.24	+$0.29	+$0.45	+$0.35	+$0.41	+$0.42	+$0.28	-$0.28
2007-13 Avg.	+$0.06	+$0.37	+$0.66	+$0.80	+$0.76	+$0.99	+$1.16	+$1.44	+$1.35	+$0.55
2014-16 Avg.	+$0.18	+$0.31	+$0.14	+$0.00	-$0.25	-$0.31	-$0.07	+$0.10	+$0.16	-$0.54

July Soybean Futures Sold in the July Before Harvest and Offset in:	Nov	Dec	Jan	Feb	March	April	May	June
2000-16 Avg.	+$0.20	+$0.03	-$0.10	-$0.24	-$0.37	-$0.48	-$0.63	-$0.87
2000-06 Avg.	-$0.10	-$0.18	-$0.23	-$0.35	-$0.67	-$0.64	-$0.70	-$0.80
2007-13 Avg.	+$0.34	+$0.07	-$0.26	-$0.49	-$0.55	-$0.84	-$1.03	-$1.43
2014-16 Avg.	+$0.55	+$0.44	+$0.57	+$0.60	+$0.74	+$0.72	+$0.49	+$0.27