



Possible 2016 Harvest Prices for Corn

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Historical changes between projected and harvest prices are used to derive a distribution of possible harvest prices for corn in 2016. This analysis suggests about a 20% chance of harvest prices less than \$3.00 per bushel. Given the chance of low prices, farmers should maintain high coverage levels when purchasing crop insurance.

Arriving at a Possible 2016 Harvest Prices

Historical projected and harvest prices for corn are shown in Table 1 for the years from 1972 to 2015. Projected prices are used to set crop insurance guarantees. For Midwest states, the projected price is the average of settlement prices of the December CME corn contract during the month of February. An indicator of the projected price in 2016 is the current price level of the December 2016 contract. In this first part week of January, the price of the December corn contract is near \$3.80 per bushel.

Harvest prices are used to calculate crop insurance payments. The harvest price for corn in Midwest states is the average of the settlement prices of the December contract during the month of October.

If futures markets are efficient, over time the average of harvest prices should equal the average of projected prices. Between 1972 and 2015, the average of projected prices is \$3.02 per bushel. The average of the harvest prices is \$2.94 per bushel, only \$.08 per bushel lower than the average of the projected price, suggesting that the projected price is a good indicator of the harvest price. Stated alternatively, if you could repeat 2016 many times, the average of the resulting harvest prices would be near the projected price.

Of course, the harvest price will differ from the projected price in any given year, with the difference being large in some years. In this article, historical variability is used to provide a range of possible 2016 harvest prices. To do this, the percent change between the projected and harvest price are calculated for each year (see the fourth column of Table 1). The largest positive change is 77.0%, occurring in 1973 (a \$1.39 projected price and a \$2.46 harvest price). The largest negative change is -27.6%, occurring in 2004 (\$2.83 projected price and \$2.05 harvest price).

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Table 1. Historical Projected and Harvest Prices, Percent Changes and Possible 2016 Harvest Prices.

year	Historical Outcomes		Percent Change ²	Possible 2016 Harvest Price
	Projected Price ¹	Harvest Price ¹		
	\$/bu.	\$/bu.		
1972	\$1.24	\$1.35	8.9%	\$4.14
1973	\$1.39	\$2.46	77.0%	\$6.73
1974	\$2.91	\$3.80	30.6%	\$4.96
1975	\$2.70	\$2.90	7.4%	\$4.08
1976	\$2.72	\$2.65	-2.6%	\$3.70
1977	\$2.73	\$2.09	-23.4%	\$2.91
1978	\$2.27	\$2.31	1.8%	\$3.87
1979	\$2.59	\$2.78	7.3%	\$4.08
1980	\$3.12	\$3.61	15.7%	\$4.40
1981	\$3.76	\$2.91	-22.6%	\$2.94
1982	\$3.00	\$2.20	-26.7%	\$2.79
1983	\$2.88	\$3.48	20.8%	\$4.59
1984	\$2.86	\$2.78	-2.8%	\$3.69
1985	\$2.66	\$2.23	-16.2%	\$3.18
1986	\$2.10	\$1.69	-19.5%	\$3.06
1987	\$1.69	\$1.83	8.3%	\$4.12
1988	\$2.17	\$2.89	33.2%	\$5.06
1989	\$2.71	\$2.39	-11.8%	\$3.35
1990	\$2.47	\$2.30	-6.9%	\$3.54
1991	\$2.59	\$2.51	-3.1%	\$3.68
1992	\$2.70	\$2.09	-22.6%	\$2.94
1993	\$2.40	\$2.49	3.8%	\$3.94
1994	\$2.68	\$2.16	-19.4%	\$3.06
1995	\$2.57	\$3.23	25.7%	\$4.78
1996	\$3.08	\$2.84	-7.8%	\$3.50
1997	\$2.73	\$2.81	2.9%	\$3.91
1998	\$2.84	\$2.19	-22.9%	\$2.93
1999	\$2.40	\$2.01	-16.3%	\$3.18
2000	\$2.51	\$2.04	-18.7%	\$3.09
2001	\$2.46	\$2.08	-15.4%	\$3.21
2002	\$2.32	\$2.52	8.6%	\$4.13
2003	\$2.42	\$2.26	-6.6%	\$3.55
2004	\$2.83	\$2.05	-27.6%	\$2.75
2005	\$2.32	\$2.02	-12.9%	\$3.31
2006	\$2.50	\$3.03	21.2%	\$4.61
2007	\$4.06	\$3.58	-11.8%	\$3.35
2008	\$5.40	\$4.13	-23.5%	\$2.91
2009	\$4.13	\$3.72	-9.9%	\$3.42
2010	\$3.99	\$5.46	36.8%	\$5.20
2011	\$6.01	\$6.32	5.2%	\$4.00
2012	\$5.68	\$7.50	32.0%	\$5.02
2013	\$5.65	\$4.39	-22.3%	\$2.95
2014	\$4.62	\$3.49	-24.5%	\$2.87
2015	\$4.15	\$3.83	-7.7%	\$3.51

¹ Projected and harvest prices used for crop insurance in Midwest states.

² Harvest price / projected price - 1.

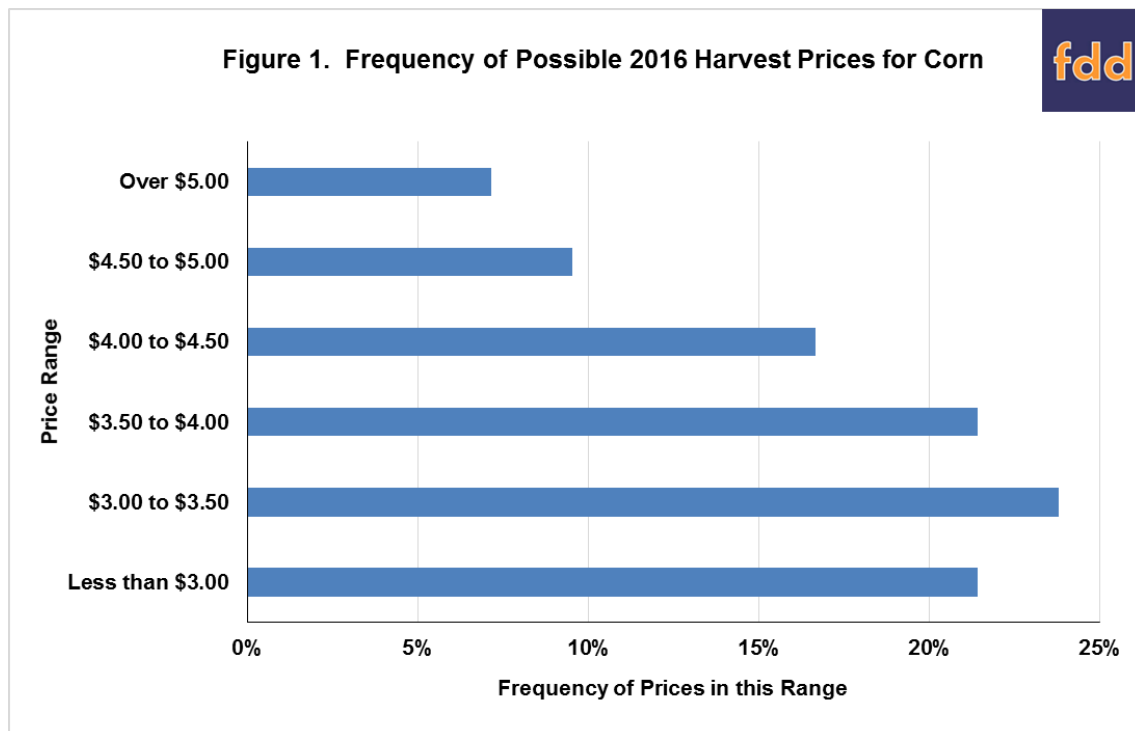
³ Equals the estimate of 2016 projected price (\$3.80 per bushel) times 1 plus historical price change. The possible 2016 harvest price resulting from the 1972 change is \$4.14 (= 3.80 x (1 + .09))

The percentage changes then are applied to the likely projected price for 2016. A \$3.80 per bushel is used, close to the current price of the 2016 December CME corn contract. To illustrate, in 1972 the projected and harvest prices are \$1.24 and \$1.35, respectively (see Table 1). The harvest price is 8.9% higher than the projected price ($.089 = 1.35 / 1.24 - 1$). And the possible harvest price associated with 1972 is \$4.14 ($\$3.80 \times (1 + .089)$). Possible harvest prices resulting from the above procedure to all years from 1972 through 2015 are shown in the final column of Table 1.

Possible 2016 Harvest Prices

While centered near \$3.80, historical changes suggest a large range of possible harvest prices in 2016. The highest resulting price is \$6.73 per bushel coming from the 77.0% change occurring in 1973. The lowest resulting price is \$2.75 per bushel coming from the -27.6% change occurring in 2004.

Figure 1 further summarized the 2016 possible prices by showing a histogram of possible price ranges. As can be seen in Figure 1, 21% of the possible prices fall below \$3.00 per bushel. These historical price changes suggest that there is roughly a 20% chance of prices being below \$3.00.



Similarly, there is a chance of higher harvest prices. Four of the historical price changes resulting in 2016 harvest price being above \$5.00, suggesting a roughly 7% chance of prices higher than \$5.00 per bushel. Two of those years are 1988 and 2012, both years of much lower yields due to drought. The other two years with a price over \$5.00 are 2010 and 1973.

Commentary

History suggests a wide range of possible prices, with a significant chance of the harvest price being below \$3.00. Some farmers may be considering lowering coverage levels on crop insurance in order to lower premium costs. This may not be prudent as history suggests there still is a large risk of low prices.