



Range in Revenues and Returns Possible for Corn in 2014

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The U.S. Department of Agriculture released a revised World Agricultural Supply and Demand Estimates (WASDE) report on July 11, 2014. In this report, the 2014 Market Year Average (MYA) price for corn is projected to fall between \$3.65 per bushel and \$4.35 per bushel. Revenues and farmer returns are estimated for prices in this range given an average and high yield. Crop insurance and commodity title payments are included in estimates. Given this price range, there is about a \$100 per acre range in which per acre returns can fall. Farmer returns likely are negative for cash rented farmland, given that costs are near average. Farmer returns for share rented farmland likely will be low.

Price and Yield Scenarios

Returns from an acre of corn production are calculated for three price scenarios:

- The low price in the WASDE range for the 2014 marketing year: \$3.65 per bushel
- The mid price in the range: \$4.00 per bushel.
- The high price in the range: \$4.35 per bushel.

For each Market Year Average (MYA) price, a harvest price is needed so that crop insurance payments can be calculated. Based on the average difference from 1972 through 2013, the harvest price is set \$.10 per bushel lower than the MYA price. There is variability in the relationship between the harvest price and the MYA price over time, with extremes occurring in 1974 (harvest price was \$.78 above the MYA price) and 2007 (the MYA price was \$.62 above the harvest price). As a result of this variability, there can be variations in the relationship between crop revenue and crop insurance payments from those shown in this article.

Two yield scenarios are presented. The first is 197 bushels per acre, representing the average yield for central Illinois farmland with high productivity. Returns also are estimated for a high yield of 220 bushels per acre. These yields are selected based on expectations of above average yields for 2014. Similar to all years, yield experiences in 2014 will range across farms, with some farms having yields above 220 bushels per acre and some farms having below average yields. Generally, lower yield scenarios will result in lower returns and higher yield scenarios will result in higher returns, given the same price and costs.

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Revenue

Revenues from crop revenue, insurance payments, and Agricultural Risk Coverage (ARC) are included in return calculations (see Table 1). Crop revenue equals the MYA price times the yield. For a \$3.65 MYA price and a 197 bushel yield, crop revenue is \$719 per acre (see Table 1). Across the price and yield scenarios, the lowest crop revenue is \$719 per acre at the \$3.65 MYA price and 197 bushel per acre yield. The highest revenue is \$957 per acre with a \$4.35 MYA price and a 220 bushel per acre yield.

Table 1. Estimates of Farmer Returns for 2014 Corn Production in Central Illinois Given Different Yields and Prices.

	Avg. Yield (197 bu/acre)			High Yield (220 bu/acre)		
	Low Price	Mid Price	High Price	Low Price	Mid Price	High Price
MYA price ¹	\$3.65	\$4.00	\$4.35	\$3.65	\$4.00	\$4.35
Harvest price ²	\$3.55	\$3.90	\$4.25	\$3.55	\$3.90	\$4.25
Yield	197	197	197	220	220	220
	\$/acre	\$/acre	\$/acre	\$/acre	\$/acre	\$/acre
Crop revenue ³	719	788	857	803	880	957
Crop insurance ⁴	67	0	0	0	0	0
ARC/PLC payment ⁵	<u>77</u>	<u>62</u>	<u>10</u>	<u>45</u>	<u>0</u>	<u>0</u>
Total revenue	863	850	867	848	880	957
Non-land costs ⁶	588	588	588	588	588	588
Cash rent ⁶	<u>293</u>	<u>293</u>	<u>293</u>	<u>293</u>	<u>293</u>	<u>293</u>
Total costs	881	881	881	881	881	881
Farmer return (cash rent) ⁷	-18	-31	-14	-33	-1	76
Farmer return (share rent) ⁸	17	11	19	10	26	64

¹ Market year average price with range projected by WASDE (July 11, 2014).

² Harvest price for crop insurance calculation, set at \$.10 lower than MYA price based on historical relationships.

³ Equals MYA price times yield.

⁴ Based on a Revenue Protection policy with a 195 bushel guarantee yield and \$4.62 projected price.

⁵ Estimated ARC payments. Estimated for 2014 in McLean County using a 177 bushel county yield for the 197 bushel farm yield and 200 bushel county yield for the 220 bushel farm yield.

⁶ Taken from 2014 Illinois crop budgets.

⁷ Farmer return for cash rent land equals total revenue minus cash rent.

⁸ The share rent arrangement is a 50-50 crop share with a \$25 per acre supplemental payment.

Crop insurance payments are estimated for a Revenue Protection policy at the 85% coverage level. The guarantee yield is 195 bushels per acre and the projected price is the 2014 price of \$4.62 per bushel. For a 197 bushel yield, crop insurance payments are \$67 per acre at the \$3.55 harvest price (see Table 1). No other crop insurance payments occur in the scenarios shown in Table 1.

Agricultural Risk Coverage (ARC) is a county revenue program for receiving commodity title payments contained in the 2014 Farm Bill. ARC payments are calculated using a McLean County situation given a 177 bushel per acre county yield when the farm has a 197 bushel yield, and a 200 bushel county yield when the farm has a 220 bushel yield. For the average yield scenario, ARC payments are estimated at \$77 per acre at a \$3.65 MYA price, \$62 per acre at a \$4.00 MYA price, and \$10 per acre at a \$4.35 MYA price (see Table 1). At the high yield scenario, ARC would make payments at a \$3.65 MYA price: \$45 per acre. If ARC payments occur, they will be made after October 1, 2015, the year after harvest.

Rather than ARC, farmers could choose to receive commodity title payments from Price Loss Coverage (PLC), a target price program that makes payments when the MYA price is below \$3.70 per bushel. For prices in Table 1, PLC would make payments only at the \$3.65 MYA price. For a typical farm in central Illinois, PLC payments are estimated at \$6 per acre at the \$3.65 price. Given the WASDE price range, ARC likely will make larger payments than PLC when commodity title payments occur. Like ARC, PLC payments will be made after October 1, 2015.

For the scenarios shown in Table 1, the range in revenue is from \$848 per acre to \$957 per acre

Costs

Non-land cost and cash rents are the same across all price and yield scenarios. Non-land costs are at \$588, as estimated in *2014 Illinois Crop Budgets*. Cash rent is set at \$293 per acre, the average cash rent for high-productivity farmland in central Illinois.

Farmer Returns under Cash Rent

For average yields, farmer returns are negative at all prices: -\$18 per acre for the \$3.65 price, -\$31 per acre at a \$4.00 MYA price, and -\$14 per acre at a \$4.35 MYA price (see Table 1). Given the WASDE range, negative returns seem likely given average yields and average costs.

For high yields, returns are -\$33 per acre at a \$3.65 MYA price, -\$1 per acre at a \$4.00 MYA price, and \$76 per acre at a \$4.35 price. Positive returns are possible at high yields and at prices near the high of the WASDE range. Given growing conditions to date, yields of 220 bushel are possible on many farms in central Illinois. As more farms have higher yields, however, the chance of prices in the upper end of the WASDE range decreases, as higher yields result in more supply which typically has a dampening effect on prices.

Farmer Returns under Share Rent

Table 1 also shows estimates of returns from a share rental arrangement. In Table 1, this arrangement has a 50% land owner share and a 50% farmer share for revenues and direct costs (fertilizer, seed, chemicals, drying, storage, crop insurance). There also is a \$25 cash payment paid by the farmer to the land owner.

Under average yields, farmer returns under share rent are positive, but low. Farmer returns are \$17 per acre for a \$3.65 MYA price, \$11 per acre for a \$4.00 MYA price, and \$19 per acre for a \$4.35 MYA price (see Table 1). Under high yields, farmer returns are \$10 per acre for a \$3.65 MYA price, \$26 per acre for a \$4.00 MYA price, and \$64 per acre at a \$4.35 MYA price.

Except at the high price/high yield scenario, farmer returns under share rent are above returns under cash rent. Sharing revenue causes rental payments to adjust downward in the face of lower prices and lower yields. As a result, land owner returns under share rental arrangements will be lower than under cash rental arrangements for all but the high price/high yield scenario shown in Table 1.

Summary

There is a considerable range of revenues and returns that can occur for the 2014 cropping year. A range of roughly \$100 is possible at this time point. However, the range is relatively low, particularly when compared to returns in recent years. For cash rental situations, farmer returns likely will be negative, except if yields are well above average and prices are near the high of the WASDE range. Share rent returns are low at the yields and prices illustrated in this article.