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Will High Yields Rescue 2014 Crop Returns?

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Expected corn yields are high for many areas of the corn-belt**.** In central Illinois, for example, corn yields may average 220 bushels per acre on many farms. However, a 220 bushel yield will not result in positive returns for corn, given current expected 2014 crop prices and given that farmland is rented near the average cash rent. To have positive returns, yields must be exceptionally high. In this year, those farmers forward contracting a substantial portion of 2014 production likely will have higher returns than farmers who did not contract. Due to difference in yields and marketing decisions, there will be a wide range in revenues across farms.

2014 Corn Yields in Central Illinois

Three publically available yield checks conducted in August provide a reasonable gauge on yields in east central Illinois:

1. Soy Capital is a farm management firm that annually conducts yield checks on farms that it manages in McLean County, Illinois. From 2006 through 2013, yields reported by Soy Capital have been fairly close to county yields reported by National Agricultural Statistical Service (NASS), with Soy Capital's reported yields averaging 1.8 bushel higher than NASS yields. Soy Capital's yield checks suggests a 2014 average yield of 222.6 bushels per acre (See here for the report).

2. Premier Cooperative is a grain and input supply cooperative having facilities in east central Illinois. It conducts an annual yield tour of Champaign County, Illinois. From 2008 through 2013, yields reported by Premier average 7.8 bushels higher than the county average reported by NASS. Premier's 2014 crop tour indicates a 2014 Champaign County average of 221 bushels per acre (see here for the report).

3. Topflight Grain Cooperative has facilities located in east central Illinois. Its crop tour reports yields for locations in Piatt County, Illinois, with scattered reports for Macon, Moultrie and Champaign Counties (see here for the report). While not strictly comparable to Piatt County's average yield, a comparison is made to Piatt County yields reported by NASS to illustrate the validity of TopFlight's yield checks. From 2004 through 2013, Topflight's reported yields

averaged 6 bushels lower than Piatt County's yield. In 2014, Topflight's 2014 expected yield is 210 bushels per acre if 90,000 seeds are assumed per bushel of 236 bushels per acre if 80,000 seeds are assumed per bushel.

These reports point to exceptional, record-breaking yields in east central Illinois. Many counties in east central Illinois will have county average yields over 200 bushels per acre.

Note that exceptionally high yields in central Illinois may be consistent with a 188 bushel estimate of the Illinois state yield reported by NASS in its August Crop Production Report). Central Illinois appears to have had better growing conditions than other areas in Illinois.

Estimating Gross Revenues for High Yield Corn

Gross revenue are estimated for the following five yields:

1. 190 bushels per acre,
2. 205 bushels per acre,
3. 220 bushels per acre (the expected average),
4. 230 bushels per acre, and
5. 245 bushels per acre.

Based on historical variability , the range from 190 bushels per acre to 245 bushels per acre would be expected to contain 80% of the farm yields within a county if all farms taken together average 220 bushels per acre. Note that this range of farm yields point to an even larger range in yields on fields within farms. There likely will be farms having some field with yields approaching or over 300 bushels per acre.

Gross revenue are shown for two prices. The first is a $3.70 per bushel corn price. Futures prices currently suggest an average price of $3.70 for the 2014 crop.

The second price is higher at $4.14. Opportunities existed this year to forward contract for harvest delivery at much higher prices than are currently available. Some farmers took advantage of those opportunities. The $4.14 priced is based on forward contracting 100 bushels at an average price of $4.50 per bushel and pricing the remaining 120 bushels per acre at $3.70 per bushel ($4.14 = $4.50 x (100 / 220) + $3.70 x (120/ 220)).

Including the forward contracting scenario does not suggest that all farmers should have priced grain prior to harvest. It is easier to make marketing decisions after the fact. In several recent years, forward contracting grain in the spring would have reduced overall prices received during the marketing year. This scenario is included to recognize the fact that some farmers have pre-harvest priced a sizable portion of 2014 grain sales.

The following examples include crop revenue (yield times price). Also include is $5 per acre to cover payments expected to be made through the county option of Agricultural Risk Coverage, a commodity program contained in the 2014 Farm Bill. Also include are $10 of crop insurance payments at the 190 bushel per acre yield level.

Gross Revenue Estimates

Given a 220 per acre yield and a $3.70 corn price, gross revenue equals $819 per acre (see Table 1). This $819 revenue includes $814 of crop revenue and $5 of ARC payments. For this type of farmland, non-land costs are estimated at $588 per acre (see high-productivity projections here). The average cash rent for this quality farmland is near $295 per acre. Total costs then are $883 per acre ($588 non-land costs + $295 cash rent). Gross revenue at $819 per acre is below total costs by $14 per acre. A 2014 loss of $14 per acre compares to an average farmer return of $220 per acre from the 2006-2013 time period.

Table 1. Gross Revenues for Corn Given Different Prices and Yields.[1]

Yield per acre	Corn Price ($ per bushel)	
	$3.70	$4.14
	$ per acre	
190	718	802
205	764	854
220	819	916
235	875	978
250	930	1,040

[1] Equals yield times price, plus $5 for ARC payments, plus $10 crop insurance payments at the 190 bushel yield level.

At a $3.70 price, gross revenues from 190 bushels through 235 bushels are below total costs of $883 per acre (see Table 1). At the 235 bushel yield, for example, gross revenue is $875 per acre, $8 lower than total costs. At a 250 bushel per acre yield, gross revenue is $930 per acre, $47 higher than total costs given farms are rented at the average cash rent.

For the $4.14 price, gross revenues exceed total costs when yields are above 220 bushel per acre (see Table 1). At 220 bushels per acre, gross revenue is $916 per acre, $33 above total costs for cash rent farmland at the average cash rent.

Summary

At prices currently offered by the market, yields must be exceptionally high before gross revenue exceeds total costs on cash rented farmland. Many farms will not receive these exceptionally high yields. While high yields will offset losses from lower prices, many farmers still will face losses.

In all years, gross revenues vary across farms due to differences in yields and prices, with marketing decisions impacting prices received for crops. Farmers who priced 2014 grain in the spring likely will higher revenues and returns than farmers who did not price grain. Revenues in Table 1 give a realistic range of farm revenues in central Illinois on high-productivity farmland.

Increases in prices would increase revenues presented in this paper. Of course, lower prices will decrease revenues.

Yields shown in this paper are for east central Illinois, an area likely to have exceptional yields. Other areas will not have as good of yields as those shown in this paper. Revenues in lower yielding areas could be much lower than those illustrated in the paper.

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