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Who's Right about Corn Prices?

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There is considerable difference of opinion about the prospects for corn prices beyond the current marketing year. Those differences are illustrated by the contrast in price expectations reflected in the USDA's baseline projections released last week and the current price structure in the corn futures market.

While somewhat dated, the USDA baseline projections suggest that the average farm price of corn will be near $3.50 for the next five years. In contrast, the current futures market points to an average farm price between $4.40 and $4.50 over the next four years. Other price projections are even more extreme than these two examples, particularly on the low side. The USDA projections will be updated at this week's Agricultural Outlook Forum. The forecast of the average farm price for the 2014-15 marketing year will likely be increased from the projection of $3.65 in the baseline projections due to smaller supply projections. Projected stocks at the start of next year will be smaller than in the baseline projections and the forecast of planted acreage may also be smaller. The smaller supply projection, then, would point to smaller year-ending stocks and a higher average price.

Differences of opinion about the level of corn prices in the more distant future seem to reflect differences of opinion about a number of fundamental supply and demand factors. There are two issues on the supply side. One is the expected level of corn yields and the other is the expected response of corn acreage to changing corn prices. Corn yield expectations are generally based on an analysis of trend yields. It might be expected that trend yield analysis would result in very similar estimates of the magnitude of the trend yield for the current year and the rate of increase in that trend. That is not the case for at least two reasons. First, the calculation of trend yield depends in part on the time period over which the trend is calculated. For example, we use the period starting in 1960 to calculate the trend in U.S. average corn yields. Using a longer or shorter time period could result in a different calculation of the rate of increase in corn yields over time and therefore different projections of the magnitude of the trend yield over the next few years. Second, the calculation of trend yield depends on whether the trend is calculated using actual (unconditional) historical yields or whether the trend is calculated using conditional yields. In the latter case, the trend yield is calculated after adjusting historical yields for factors such as variations in growing season weather conditions from year to year. The USDA baseline yields reflected a trend yield of 165.6 bushels per acre in 2014 and an increase of two bushels per acre per year going forward. In contrast, our forecast of the trend yield for 2014 is about 2.5 bushels less than

the USDA projection. With harvested acreage of 85 million acres, for example, the difference in yield expectation represents a difference in expected production of about 212 million bushels.

The second corn supply issue is the likely responsiveness of corn acreage to the level of corn prices, and more generally, the responsiveness of total crop acreage to the level of crop prices. Both corn acreage and total crop acreage increased with the higher level of crop prices beginning in 2007. The higher crop prices were generated by rapidly growing ethanol demand for corn, increasing export demand for soybeans, and periodic yield shortfalls. With lower prices being offered for 2014 crops, the questions are: Will total acreage of spring planted crops decline from that of 2013? and What share of the acreage will be planted to corn? Most seem to believe that both corn acreage and total crop acreage will decline this year. Beyond 2014, the acreage response to the level of and mix of crop prices will continue to be important. The USDA baseline projections reflect expectations of declining acreage in response to a relatively long period of low prices.

From the demand side, differences of opinions about future corn price prospects basically reflect a difference of opinion about the responsiveness of corn consumption to the price of corn, that is, the price elasticity of corn demand. Corn demand is generally thought be fairly price inelastic, requiring a relatively large price change to alter consumption. With large crops, then, it is argued that prices will have to be "low" in order to stimulate sufficient consumption to prevent a build-up in stocks to unacceptably high levels. However, the responsiveness of corn consumption to lower prices during the current marketing year, particularly in the export sector, is very encouraging. If corn demand is more price elastic than generally believed, large crops would result in less price weakness than reflected in some of the very low projections being offered.

While a return to the high corn prices of the past three years is not expected any time soon, a combination of more modest trend yields and more responsive consumption suggest that larger crops would not be as bearish as reflected in some of the more extreme price forecasts.

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