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Calculations for March 1 Corn Stocks Estimate

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The USDA will release an estimate of March 1, 2014 corn stocks on March 31 with potentially important implications for old crop corn prices. It has been difficult to correctly anticipate quarterly stocks estimates in recent years, with large surprises reflected in some estimates. The estimate of December 1, 2013 stocks, for example, was surprisingly small and implied a record 2.426 billion bushels of feed and residual use of corn during the first quarter of the 2013-14 marketing year. That estimate started a price rally that was subsequently augmented by surprisingly large export sales of corn. March 2014 corn futures increased about \$0.70 from January 9 through March 7.

While it has become difficult to anticipate the quarterly stocks estimate, it is useful to calculate the magnitude of stocks that might be considered neutral for corn prices. A large deviation from that calculation, then, would be expected to trigger a price response. A stocks estimate that would be neutral for corn prices is one that implied that feed and residual use of corn during the first half of the marketing year supported the USDA's forecast of 5.3 billion bushels of feed and residual use for the entire marketing year. Even that calculation is difficult to make, however. The difficulty stems from the change in the seasonal pattern of feed and residual use that has occurred over the past seven years. For the 10 years from 1996-97 through 2005-06, feed and residual use of corn during the first half of the marketing year averaged 64 percent of the marketing year total use, in a range of 62 to 66 percent. For the four year period from 2006-07 through 2009-10, use during the first half of the marketing year averaged 68 percent of the total, in a range of 66 to 70 percent. During the three year period from 2010-11 through 2012-13, use during the first half of the year averaged 74 percent of the marketing year total, in a range of 73 to 76 percent.

The increase in feed and residual use of corn during the first half of the marketing year and the sharp decline in use during the last half of the year are difficult to explain. Most of the shift has been from the fourth (summer) quarter to the first (fall) quarter. From 1996-97 through 2006-07, first quarter use ranged from 35 to 39 percent of the marketing year total and fourth quarter use ranged from 11 to 17 percent. From 2007-08 through 2012-13 first quarter use ranged from 38 to 48 percent and fourth quarter use ranged from 6 to 13 percent. For the four most recent years, fourth quarter use averaged only eight percent of the marketing year total, and declined to six percent in 2012-13.

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Some of the seasonal shift in feed and residual use of corn may be associated with high corn prices and increased feeding of other grains, particularly wheat, during the summer quarter. The shift in some years, particularly 2011-12, may also be associated with early harvest and the resulting shift in calculated feed and residual use from the summer quarter into the fall quarter. If those factors do explain some of the shift, feed and residual use during the fourth quarter of the current marketing year might be larger than in recent years. Corn prices are low relative to other feed ingredients, particularly wheat, and it appears that the 2014 crop will not be planted and harvested particularly early in the Midwest. The percentage of feed and residual use of corn during the first half of the current marketing year, then, might be expected to be smaller than the 74 percent in recent years. The impact of PED-V on the number of hogs fed during the last half of the year, however, could also impact the seasonal pattern of corn feeding.

If the USDA's 5.3 billion bushel projection of feed and residual use of corn for the year is correct, and 70 percent was used during the first half of the year, use during the second quarter of the year would have totaled 1.284 billion bushels. Based on Census Bureau estimates for December 2013 and January 2014 and USDA export inspection estimates through February 2014, corn exports during the quarter were likely near 396 million bushels. Based on estimates of ethanol production during the quarter, corn used for ethanol production was likely near 1.265 billion bushels. Corn used in other domestic food and industrial processing should have been near 340 million bushels, resulting in total use of 3.285 billion bushels. With December 1 stocks of 10.426 billion bushels and imports during the quarter of about six million bushels, these calculations point to March 1 stocks of 7.147 billion bushels.

Given the large amount of uncertainty about the potential seasonal pattern of feed and residual use of corn, a stocks estimate that varied from the calculation presented here could still support the USDA projection of 5.3 billion bushels of use for the year. The market will have to decide if the magnitude of use during the first half of the year is a reasonable percentage of the USDA projection for the year or if the projection will need to be changed.

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