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Weekly Outlook: How Large Does the Corn Crop Need to Be?

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Based on corn planting intentions of nearly 97.3 million acres (implied harvested acres for grain near 90.2 million) and a trend yield of 161.5 bushels, the 2013 season started with expectations of a record U.S. crop near 14.6 billion bushels. A crop of that size would be 1.5 billion bushels larger than the previous record crop of 2009 and the record large consumption during the 2009-10 and 2010-11 marketing years.

Production prospects are now being called into question due to the late start to the planting season in most of the major corn production states. Increasingly, the late start to the season and prospects for further delays in many areas due to upcoming weather suggest that a larger than average percentage of the 2013 crop will be planted "late". All other factors equal, late planting poses some yield threat relative to trend value. In addition, continued delays to planting, particularly in northern areas, might reduce the acreage planted to corn relative to intentions reported last month. The magnitude of potential yield and acreage reduction, if any, is very difficult to assess at this time since the planting season extends for another month. Instead, it is useful to calculate the size of crop needed to meet likely consumption during the 2013-14 marketing year. That calculation can be used to gauge any reductions in production potential as the planting and growing season progresses.

Assessing consumption potential for the upcoming marketing year is not straight-forward since consumption depends on the strength of demand in each of the major consumption categories as well as the price of corn. The price of corn, in turn, will be influenced by the size of the U.S. crop. Domestic non-feed use of corn is the least complicated category of consumption to forecast since demand is relatively stable and consumption is least sensitive to the price of corn. Use in that category is dominated by corn consumed for ethanol production. Domestic ethanol consumption increased rapidly from 2006 through 2010 as a result of the Renewable Fuels Standards. Consumption, however, stagnated near 13 billion gallons in 2011 and 2012 as the E10 blend wall was reached. The blend wall is expected to expand only slowly during the 2013-14 corn marketing year due to limited market penetration of both E15 and E85 and lack of growth in motor fuel consumption. Assuming a small positive trade balance and slow growth in domestic ethanol consumption, about 13.3 billion gallons of ethanol could be produced during the 2013-14 corn marketing year, requiring about 4.84 billion bushels of corn. Corn used for other industrial and food products has been very stable in recent years near 1.4 billion bushels. Use at that level next year, would point to total domestic non-feed use of corn near 6.24 billion bushels.

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Domestic feed and residual use of corn peaked at 6.15 billion bushels in 2005-06 and then trended lower as distillers' grains from the ethanol industry replaced corn in livestock feed rations. Use was estimated at 4.545 billion bushels last year and is projected at 4.4 billion bushels for the current year. Use in that category is thought to be the most price sensitive so that consumption during the 2013-14 marketing year will depend more heavily on the size of the crop. Assuming the 2013 corn crop is larger than that of 2012, that there is some modest expansion in pork and broiler production, and that there is some modest increase in production of distillers' grains, feed and residual use of corn might recover to about 4.8 billion bushels during the upcoming marketing year.

From 2003-04 through 2009-10, annual U.S. corn exports ranged from 1.8 to 2.4 billion bushels. Forecasting exports near the average of two billion bushels represented a reasonable expectation. Exports, however, declined to 1.54 billion bushels last year and are projected at only 800 million bushels for the current marketing year. Another large crop in Brazil and a rebound in Argentine production this year may limit the rebound in U.S. exports during the year ahead. A key demand uncertainty is the likely size of the Chinese market. Exports can be forecast with very little confidence. A very modest 110 million bushels of U.S. corn have been sold for export next year. As a starting point, we use a projection of 1.2 billion bushels.

Based on current conditions, an expectation of a market for 12.2 to 12.3 billion bushels of U.S. corn in 2013-14 seems reasonable. A crop of 12.5 billion bushels, then, would be large enough to supply the market and add a small amount to year ending stocks. A crop of that size would be 2.1 billion bushels, or 14 percent, smaller than production prospects based on planting intentions and trend yield. Prospects have not yet been reduced by that amount.

The USDA will provide an assessment of potential supply, consumption, and price prospects for the 2013-14 corn marketing year in the May 10 WASDE report.