WEEKLY OUTLOOK

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WHAT SIZE CROPS ARE THE CORN AND SOYBEAN MARKETS TRADING?

December 2004 corn futures traded to a contract low of $2.25 on July 30, $1.165 below the contract high reached on April 8, 2004. November 2004 soybean futures traded to $5.68, $2.34 below the contract high reached on March 25, 2004. The favorable development of the 2004 U.S. crops is one of the factors contributing to the sharp decline in prices.

In trying to judge future price direction, it is important to determine what size U.S. crops are reflected by current prices. There is no direct way to answer that question, but some perspective can be provided by analyzing the level of 2004-05 marketing year ending stocks implied by the current price level.

First, current futures prices need to be translated into an average marketing year farm price for the 2004-05 marketing year. We do that by adjusting futures prices by the three-year average basis in each month from September 2004 through August 2005. This adjustment produces an average monthly cash price for the marketing year, which we weight by the 5-year average percentage of the crop that producers have marketed in each of those months. That process suggests that the market currently reflects a 2004-05 marketing year average farm price of $2.20 for corn and $5.64 for soybeans. Recognizing that a portion of the 2004 crops have already been priced by farmers at higher prices, the marketing year average price reflected by current futures are actually slightly higher than these calculations. Those prices may be closer to $2.25 for corn and $5.75 for soybeans.

Next, we can calculate the level of year ending stocks implied by these prices based on historic relationships between the ratio of year ending stocks- to- use and the marketing year average price. This process, however, should be used with caution for a variety of reasons. The relationship between the ratio of stocks-to-use and price is less than perfect; the relationship appears to have shifted over time; and, at best, the procedure is a shortcut for analyzing market supply and demand fundamentals. The results are a starting point in judging prices and potential price changes. Being aware of the shortcomings, we can proceed.

Based on the relationship between the ratio of year ending stocks-to-use and marketing year average farm price from 1998-99 through 2003-04, a corn price of $2.25 implies a 2004-05 marketing year ending stocks-to- use ratio of 11 percent. Assuming that use of corn during the

2004-05 marketing year will be near the 10.555 billion bushels projected by the USDA, the market apparently expects year ending stocks to be near 1.16 billion bushels (11 percent of 10.555 billion). If stocks at the beginning of the year (September 1, 2004) are near the current USDA projection of 896 million bushels, and imports are at 5 million bushels, the market is reflecting a crop of 10.8 billion bushels. Using USDA's projection of harvested acreage, a crop of that magnitude would require a U.S. average yield of 147.3 bushels per acre, 5.1 bushels above last year's record yield.

Following the same process for soybeans, the market appears to be expecting 2004-05 marketing year ending stocks of 380 million bushels, or about 13.4 percent of USDA's projected use of 2.84 billion bushels. With beginning stocks of 105 million bushels and imports of 5 million bushels, a crop of 3.11 billion bushels is implied. Again using the current USDA estimate of harvested acreage, a crop of that size would require a U.S. average yield of 42.2 bushels, 0.8 bushels above the 1994 record. The relationship between stocks of soybeans and marketing year average price has been less stable than for corn over the past 6 years, so we have less confidence in the results for soybeans.

While the above analysis has shortcomings, it is clear that the corn and soybean markets are expecting very large U.S. crops in 2004. Are yields near the calculated levels possible? That is, is a repeat of 1994 type yields in the making. Over the past 18 years, there has been a fairly strong correlation between the percentage of the crop rated good or excellent in the USDA's final crop condition report of the season and the U.S. average yield. If condition ratings as of July 25 (77 percent good or excellent for corn and 69 percent for soybeans) hold up through the rest of the season, the model projects U.S. average yields for 2004 at 150.2 bushels for corn and 42.1 bushels for soybeans. In 1994, ratings at this time of year were 86 percent good or excellent for corn and 83 percent for soybeans. By the end of the 1994 growing season, 86 percent of the corn crop and 79 percent of the soybean crop were rated good or excellent. In recent years, crop ratings have tended to decline from mid-July through the end of the season. Based on a number of weather, disease, and insect problems now being reported, that pattern of decline may be experienced again this year. This year, then, does not seem to be a repeat of 1994. Perhaps the pendulum has swung too far from spring worries about crop size to an over-estimate of production potential. If so, corn prices may be nearing a seasonal low. Soybean prices may have more downside risk, however, if production rebounds in South America.

Issued by Darrel Good
Extension Economist
University of Illinois