CORN AND SOYBEAN ACREAGE: HOW MUCH IS NEEDED?

A large increase in corn acreage and a large decline in soybean acreage in the U.S. is anticipated in 2007. The USDA will release the results of its survey of planting intentions in the March 30 *Prospective Plantings* report. Until then, speculation about the magnitude of the shift in acreage will continue.

Questions about the acreage shift basically center around how much of an increase in corn acres is “needed” and how much of a decline in soybean acreage is too much. Answers to those questions are complicated and depend on how strong the demand will be for U.S. corn and soybeans during the 2007-08 marketing year and the likely U.S. average yield of the two crops in 2007. The most unasked question, however, is What is the price level that is being pursued for the 2007-08 marketing year? That is, if a $6.00 corn price is desired, little or no increase in acreage is “needed”. If a $2.50 corn price is desired, a large increase is likely needed.

In the case of corn, a price level that provides a good return to producers, is not punitive to livestock producers, and minimize government payments might be a reasonable objective. An average price in the $3.00 to $3.50 range might be a reasonable price objective. To accomplish that objective, the 2007-08 marketing year ending stocks-to-use ratio probably needs to be maintained at least at the 6 percent level. Based on assumptions about the likely level of consumption of U.S. corn during the 2007-08 marketing year with prices in the $3.00 to $.350 range, the size of the 2007 crop needed to maintain a 6 percent stocks-to-use ratio can be calculated.

Expectations about corn demand vary significantly, but consider the following example. A continuation of prices above $3.00 would likely result in a further decline in feed and residual use of corn in the 2007-08 marketing year, to perhaps 5.85 billion bushels. Export demand for U.S. corn will likely be supported by a reduction in Chinese exports, but negatively impacted by a rebound in world wheat production. Exports during the year ahead might be maintained at a relatively high level near 2.1 billion bushels. Domestic processing demand will be supported by ethanol use of corn and could increase another billion bushels to 4.55 billion bushels. Total use, then could be near 12.5 billion bushels, requiring year ending stocks of 750 million bushels for a 6 percent stocks-to-use ratio. With stocks at the start of the 2007-08 marketing year also at 750 million bushels the 2007 crop
would need to total 12.5 billion bushels, nearly 2 billion bushels larger than the 2006 crop. With the 2007 U.S. average yield at a healthy 155 bushels, a 12.5 billion bushel crop would require harvested acreage of corn for grain to be near 80.7 million and planted acreage to be near 87.8 million. That is about 9.5 million more than planted in 2006. The futures market is currently offering a 2007-08 marketing year average farm price near $3.80, which should be a strong motivator for increasing acreage by that amount.

Since soybeans are currently in surplus, the question might be How large does the 2007 crop need to be to keep 2007-08 marketing year ending stocks above a comfortable level of about 250 million bushels. With a trend increase in the size of the domestic soybean crush and exports of U.S. soybeans maintained at the projected level for the current year, reflecting an increase in Chinese consumption but more competition from South American soybeans, use during the 2007-08 marketing year would be near 3.14 billion bushels. With stocks at the beginning of the year at 575 million, imports of 4 million, and 2007-08 year ending stocks of 250 million bushels, the 2007 crop would have to total 2.811 billion bushels. With an U.S. average yield near the level of the past two years, 65.8 million acres would have to be harvested and 66.8 million planted to produce a crop of 2.811 billion bushels. That is 7.8 million less than planted in 2006. The futures market is currently offering a 2007-08 marketing year average farm price near $7.50. That is less than twice the price being offered for corn. If maintained, that price ratio should result in some decline in U.S. acreage. At the same time, if March 2008 soybean futures are maintained at the current level near $7.75, South American producers will likely increase acreage for harvest in 2008.

Issued by Darrel Good
Extension Economist
University of Illinois