November 2016 – Crop Market Update
Public Policy Department
Budget & Economic Analysis Team

This Big Crop Just Got Bigger

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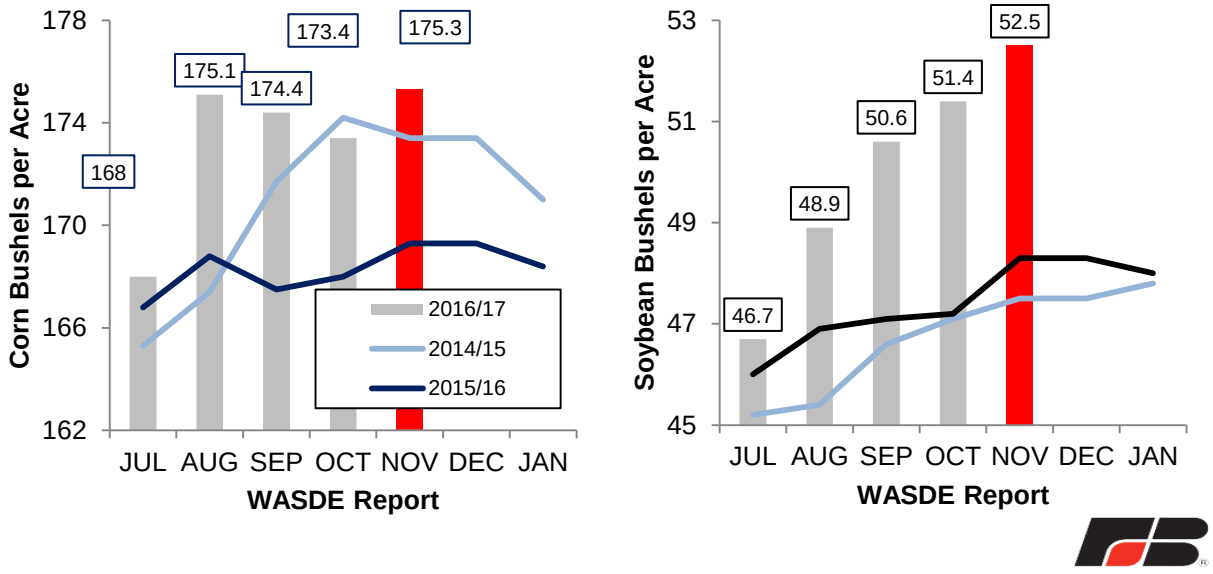
In advance of the November 9, 2016 World Agricultural Supply and Demand Estimates the consensus in the trade was that USDA would reduce projected corn yields by 0.2 bushels to 173.2 bushels per acre and reduce total corn production by 16 million bushels to 15.041 billion bushels (still a record high). For soybeans, the average trade estimate was for an increase in soybean yields by 0.6 bushels to 52 bushels per acre with soybean production up 45 million bushels to 4.314 billion bushels.

There is a saying in the trade that "big crops get bigger," and the most recent production estimates proved the adage true. USDA raised production estimates for both crops to new record highs. The November projection for corn production was for 15.2 billion bushels, up 1 percent from the prior month's projection, and up 12 percent from the prior year. Importantly, the yield projection – after two consecutive downward revisions – was revised up to 175.3 bushels per acre, Figure 1. The current yield projection is 2.1 bushels per acre above the average trade estimate and 11 bushels per acre above the unconditional trend yield. If realized, the 2016/17 corn yield would be 4.3 bushels per acre above the 2014/15 record of 171 bushels per acre.

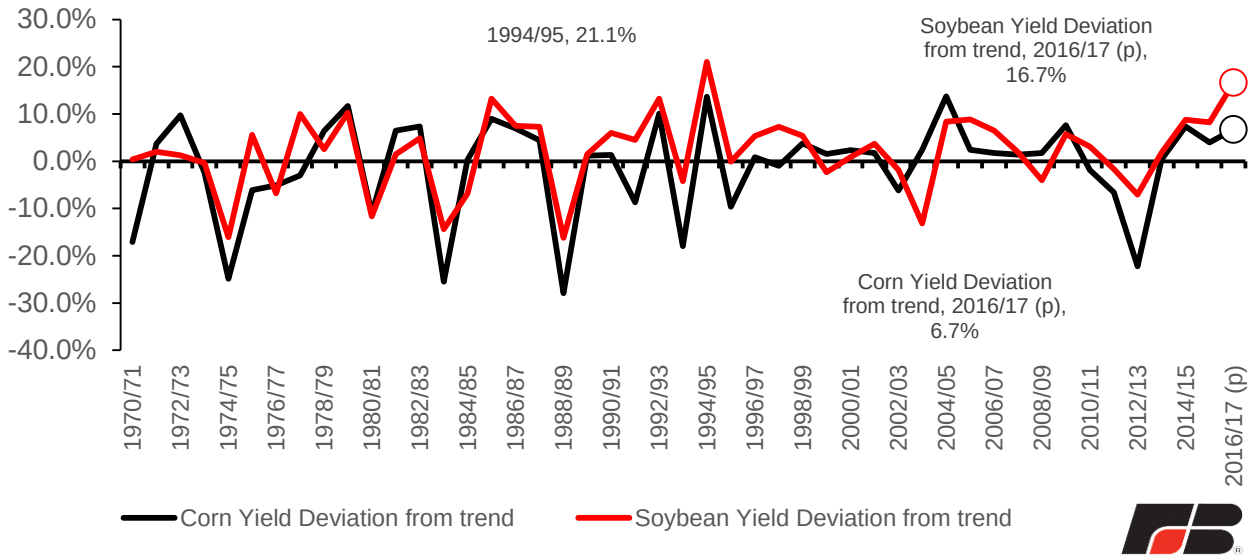
Figure 1. USDA Monthly Crop Yield Projections for Corn and Soybeans 2014/15 to 2016/17 Marketing Years
Source: USDA NASS



Partially offsetting the additional 169 million bushels of corn produced, USDA increased projections on food seed and industrial use by 85 million bushels but left unchanged feed and residual use and exports. The net effect was an increase in projected carryout stocks by 83 million bushels to 2.403 billion bushels. Despite higher ending stocks, USDA revised the marketing year average price projection by a nickel on both the high- and low-end for a midpoint of $3.30 per bushel.

The USDA projection on soybean production was mostly in line with the average trade estimate. The November projection for soybean production was for 4.36 billion bushels, up 2 percent from the prior month's projection, and up 11 percent from the prior year. Soybean yields were raised 1.1 bushels to 52.5 bushels per acre. The current soybean yield projection is 0.5 bushels per acre above the average trade estimate and is 7.5 bushels above the unconditional trend yield. If realized, the 2016/17 soybean yield would be 4.5 bushels per acre above the 2015/16 record of 48 bushels per acre and would be the second highest positive deviation from trend since the 1994/95 crop year, Figure 2.

Figure 2. Actual and Projected U.S. Corn and Soybean Yield Deviations from Linear Trend 1970/71 To 2016/17
Source: USDA NASS and AFBF calculations



Higher soybean yield projections resulted in an increase in total soybean production by 92 million bushels. However, much of the additional production coming online was projected to end up in storage. USDA left projections for soybean consumption mostly unchanged. Exports were raised by 25 million bushels and crush was reduced by 20 million bushels. The net effect of higher production and a modest improvement in consumption was an increase in projected carryout to 480 million bushels. Despite higher carry out projections USDA revised the marketing year average price projection by 15¢ per bushel on both the high- and low-end for an average of $9.20 per bushel.

Implications
With both corn and soybean crop sizes firmly in record setting territory, attention now turns to the pace of consumption, harvest progress and growing conditions in South America, and ultimately domestic and global ending stocks for the 2016/17 marketing year.

Consumption of these record-large corn and soybean crops will play a key role in driving price expectations throughout the marketing year. USDA is currently projecting record use for corn and soybeans at 14.610 and 4.108 billion bushels, respectively. These totals represent a 7 percent and 10 percent year-over-year increase in the use of corn and soybeans. While these growth rates seem lofty it is important to acknowledge that in the last three marketing years USDA's November

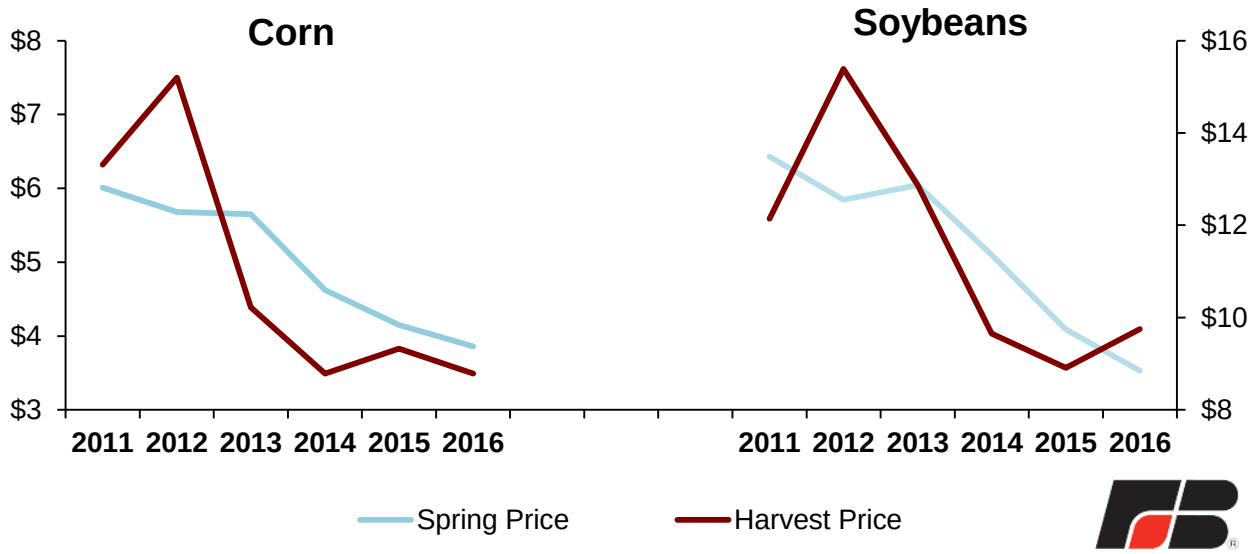
consumption forecast has been well short of realized consumption. More specifically, for soybeans actual consumption has averaged 230 million bushels more than USDA's November projection.

Thus, while we have record crops on hand, we still have more than 40 weeks remaining in the 2016/17 marketing year. Total commitments of corn and soybeans for export are well above prior year levels and year-to-date ethanol production is also running at record levels. These factors bode well for later revisions to consumption projections and ultimately lower stocks and potentially higher prices.

Crop Insurance Update: With 2016/17 Harvest Prices Known, Attention Turns to Crop Yields

At the beginning of November USDA's Risk Management agency announced the harvest prices for corn and soybeans for Midwest states at $3.49 per bushel and $9.75 per bushel, respectively. For corn, the harvest price was 37¢ per bushel below the spring price of $3.86 per bushel and marks the fourth consecutive year that harvest prices have been below the spring prices established in February, Figure 3. For soybeans, the harvest price was 90¢ per bushel above the spring price of $8.85 per bushel and is the first harvest price increase observed in the last four years. Spring and harvest prices are determined by averaging new-crop futures contract settlement prices during a month-long price discovery period.

Figure 3. Crop Insurance Spring and Harvest Prices for Corn (Left) and Soybeans (Right) In Midwest States, $/Bushel
Source: USDA Risk Management Agency

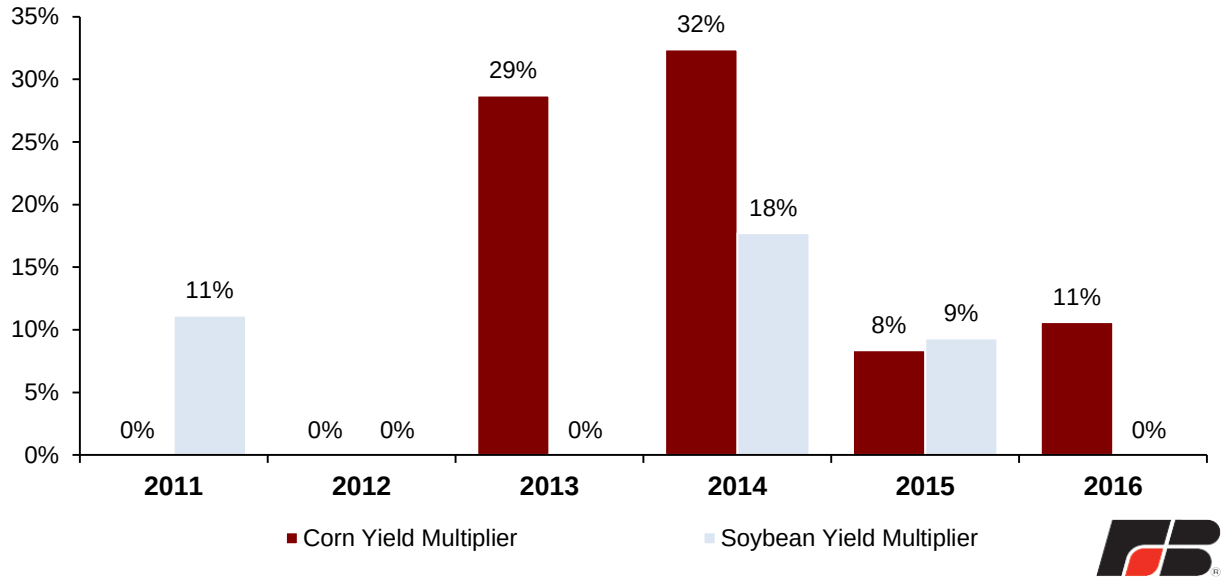


Harvest and spring prices are important for crop insurance revenue protection policies as the guaranteed crop insurance price, for those purchasing the harvest price option, is the maximum of the spring and the harvest prices. For soybean policy holders their crop insurance guarantee will be based on the higher harvest price of $9.75 per bushel, and for corn policy holders their guarantee will be based on the higher spring price of $3.86 per bushel.

With these prices announced it is possible to determine what farm-level yields would be needed to trigger a crop insurance indemnity. Coverage level multipliers, defined as the maximum of the

spring price and the harvest price divided by the harvest price minus one, boost yield coverage when the harvest price is below the spring price. When the harvest price is greater than the spring price, coverage level multipliers equal zero. Coverage level multipliers for Midwest corn and soybean policies are presented in Figure 4.

Figure 4. Revenue Guarantee Coverage Level Multipliers for Midwest Corn And Soybean Crop Insurance Policies
Source: USDA Risk Management Agency and AFBF calculations



Implications
For corn, since the spring price is 11 percent greater than the harvest price, all coverage levels are effectively increased by 11 percent. This means that a revenue protection policy at 85% coverage will trigger an indemnity payment if crop yields are at or below 94 percent of the guaranteed yield (85% x 1.11 = 94%). However, with record yields expected across large portions of the U.S. crop insurance indemnities may be unlikely. In areas of the U.S. with moderately lower yields, such as the Eastern Corn Belt, crop insurance payments are more likely.

Crop insurance indemnities may be even harder to trigger for soybeans due to expectations for record yields and a higher harvest price. Since the harvest price is greater than the spring prices there is no coverage multiplier effect. Thus, for a soybean revenue protection policy to trigger an indemnity soybean yields must be at or below the farmer-selected coverage level (maximum is 85%). Deeper yield losses, relative to the guaranteed level, are thus needed to trigger crop insurance payments for Midwest soybeans.