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Using Longer Olympic Averages for the ARC-CO Benchmark Revenue

BACKGROUND

Payments rates under ARC-CO depend on national average crop prices, county average crop yields, and five-year Olympic moving average smoothing of these variables. Five-year smoothing of prices and yields excludes the highest and lowest values, leaving an average of the remaining three price and yield variables. This helps remove the effect that abnormally high and low values can have on the sample average. This is different than using a long-run average (e.g. ten years) but can be subject to two or more events that positively or negatively impact crop revenue in the five-year period.

OPTION

Increase the number of years used for Olympic Average (OA) "smoothing" of prices and yields.

The 2014 Farm Bill requires the use of a five-year Olympic average yield and revenue factors. A smoothing based on only five years of yield and price data can result in above- or below-average estimates of benchmark revenue. When a county experiences two or more events that positively or negatively impact crop revenue over a five-year period (relative to the long run average), then the OA revenue calculation may be biased relative to a longer sample period or trend line estimates. For the 2014 ARC-CO benchmark, there were a number of counties where two or three plug yields were used in the benchmark revenue calculation. This indicates that the five year Olympic average may need to be lengthened to a seven to ten year OA with plug yields. This may provide a more accurate and uniform pattern for benchmark revenues and reduce the county-to-county variations.

However, lengthening the time period for the yield calculation would reduce the responsiveness of the yield component of the benchmark revenue calculation. For areas experiencing a strong or consistent uptrend in yields would result in the benchmark revenue calculation lagging behind current yield and revenue expectations.

It is possible for the OA crop yield to be below the ten-year long run average crop yield if multiple negative yield shocks are experienced during the five-year OA period used for ARC-CO assistance calculations. Under such a scenario commodity support may oversample the negative yield or price shocks relative to their true probability and, as a result, may not accurately reflect the risk environment in a particular county or for a particular crop. By oversampling of rare events (positive or negative) commodity program payments may over- or under-compensate revenue shortfalls relative to the long run risk environment.
For example, the county average corn yield in Calhoun County, Iowa was 132 and 130 bushels per acre in 2012 and 2013, respectively. These values were approximately 40 bushels per acre below the ten-year average crop yield for the county. However, only one of the multi-year yield declines was dropped from the OA five-year calculation resulting in a yield guarantee of 158 bushels per acre crop yield for the county. This OA yield was 12 bushels below the ten-year average and 21 bushels per acre below the OA calculated using 2008 to 2012 county yields from NASS.

In the same way, a five-year OA price may result in positively biased estimates of crop revenue such that program payments are made even when revenue is in line with the long run average or trend projections. For example, in 2014, the ARC-CO OA price included prices from the period of record high grain prices observed during 2010 to 2012. As a result, the benchmark revenue uses crop prices of $5.29 for corn, $12.27 for soybeans, and $6.60 for wheat. These prices correspond to 192 percent, 177 percent, and 159 percent (respectively) of the ten-year average commodity prices observed prior to 2010. Over time OA smoothing is designed to adjust the crop revenue to reflect updated production and marketing conditions. However, in the case of ARC-CO OA yields, and not considering price effects, the revenue guarantee in counties with multi-year losses experienced during 2012 or 2013 will not improve until 2017 - one year before the Farm Bill is set to expire.