UNIVERSITY OF KENTUCKY College of Agriculture

Trend Adjustment Availability for Wheat in Kentucky
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Trend-Adjusted Actual Production History (TA-APH) yield endorsement is available in a pilot program status for Multiple Peril Crop Insurance (MPCI) policies in select counties throughout the U.S. for corn and soybeans in 2012 and wheat in 2013. For Kentucky, TA-APH was available for corn and soybeans in 2012 but not for wheat in 2013. TA-APH availability is vital for Kentucky producers because it realigns crop insurance expected yield to the producers expected yield in the presence of a positive yield trend. Over the past thirty years, the Kentucky Small Grain Growers have invested nearly 2 million in research dollars aimed at improving Kentucky wheat yields. Consequently, Kentucky producers face a wheat yield trend. The purpose of this short article is to highlight why TA-APH availability for wheat is essential for Kentucky wheat producers. I do this by calculating an approximate value of wheat TA-APH by Kentucky county. Additionally, I provide a list of counties that I believe have the highest probability of being eligible for wheat TA-APH.

Analysis and Data

A couple of observations need to be identified regarding assumptions and inputs used in this analysis. First, I do not have access to the actual data the Risk Management Agency (RMA) uses in determining TA-APH factors, i.e., the yield trend. For data, I use yearly National Agricultural Statistics Service (NASS) county yield level data between 1971 and 2011 or as

much historical data is available. For example, Hickman County had 40 yearly observations (2011 to 1971) where Green County had 31 observations (2011 to 1980). Second, I do not know the exact method the RMA uses in determining TA-APH. As a result, the method I chose for the analysis comes from minimizing error between actual wheat TA-APH factors found in states surrounding Kentucky and various estimation methods, i.e., Ordinary Least Squares (OLS) and LOWESS. I found that OLS estimation results in the smallest error between actual TA-APH values and my TA-APH estimate. I report results within a range, believing there is an extremely high chance that the actual TA-APH number will fall within this range. I base range size upon accuracy of my estimate and actual TA-APH wheat factors in states surrounding Kentucky. On average, I found my estimates to be within 12% up or down of actual TA-APH wheat factors.

For a county to be eligible for TA-APH it must meet certain criteria: a minimum level of historical production and a minimum number of per year acres. I cannot identify either of these requirements without the RMA dataset. Consequently I use the number of NASS observations as the indicator providing the highest probability of TA-APH eligibility. It appears that if yield history exists for 40 years in a county that it will likely be TA-APH eligible. As yield history declines so does the probability of TA-APH eligibility.

Results

Estimated TA-APH values indicate a wheat trend exists in, table 1. On average Kentucky wheat, TA-APH value is 0.85 bushels per acre (bpa). For the nine counties just west of Kentucky in Missouri where TA-APH is available the average value is 0.58 bpa. For twenty five counties from southern Illinois to the north, the average TA-APH value is 0.59 bpa. It appears

that Kentucky has a higher trend than surrounding states, a result likely driven by applied research dollars aimed at higher productivity. Results also indicate that TA-APH will likely be available for 40 Kentucky counties, a result similar for corn and soybeans TA-APH where 39 counties are eligible.

Discussion

Across potentially qualifying wheat TA-APH Kentucky counties, the average trend is 0.85 bpa with an average high and low value of 0.95 bpa and 0.75 bpa, respectively. Estimated Kentucky wheat trend values are as large as or larger in value than wheat TA-APH values found in counties bordering Kentucky. For example, Alexander County IL has a wheat trend of 0.59 where directly across the Ohio River in Ballard County the estimated wheat trend is between 0.61 bpa and 0.78 bpa.

Wheat TA-APH availability appears to be crucial for Kentucky producers due to the apparent positive wheat yield trend. Without wheat, TA-APH Kentucky producers face higher costs through internalizing differences between crop insurance guarantees and expected yields.

Table 1, Estimated Range of TA-APH Factors for Wheat in Kentucky

County	High	Low	County	High	Low
Ballard	0.78	0.61	**Larue**	0.88	0.69
Barren	1.08	0.85	**Lincoln**	0.72	0.56
Bourbon	0.73	0.57	**Logan**	1.28	1.01
Breckinridge	0.69	0.55	**McCracken**	0.80	0.63
Caldwell	1.22	0.96	**McLean**	0.98	0.77
Calloway	0.76	0.60	**Marion**	0.91	0.72
Carlisle	0.88	0.69	**Marshall**	0.80	0.63
Christian	1.25	0.98	**Meade**	1.12	0.88
Crittenden	1.19	0.94	**Muhlenberg**	0.77	0.60
Daviess	1.02	0.80	**Nelson**	0.70	0.55
Fayette	0.66	0.52	**Ohio**	1.01	0.79
Fulton	0.93	0.73	**Oldham**	0.90	0.70
Graves	0.96	0.76	**Shelby**	0.91	0.72
Grayson	0.73	0.57	**Simpson**	1.01	0.79
Hancock	1.26	0.99	**Taylor**	1.08	0.85
Hardin	0.97	0.77	**Todd**	1.15	0.91
Henderson	0.91	0.72	**Trigg**	1.32	1.04
Henry	0.29	0.23	**Union**	1.08	0.85
Hickman	0.94	0.74	**Warren**	1.35	1.06
Hopkins	1.06	0.84	**Washington**	1.02	0.80

Note: Values are bushels per acre per year.