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# Exceptional 2018 Corn and Soybean Yields and Budgeting for 2019

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Illinois again will have exceptional yields in 2018, with the National Agricultural Statistical Service (NASS) projecting record high yields for both corn and soybeans. Recent high yields may give overconfidence in setting 2019 yields for budgeting purposes. For most farms, the Trend-Adjusted Actual Production History (TA-APH) yield used to calculate insurance guarantees seems appropriate for arriving at yields for 2019 budgeting.

#### 2019 Yields

In its August *Crop Production* report, the National Agricultural Statistical Service (NASS) estimated the 2018 average yield for the state of Illinois at 207 bushels per acre. The 207 bushels would be an all-time record yield for Illinois, eclipsing the previous high of 201 bushels per acre set in 2017.

The 2018 yield will be well above the trend yield. Panel A of Figure 1 shows actual yields in Illinois from 1970 to 2017 and the projected yield for 2018. Also shown in Figure 1 are trend yields. Each year's trend yield is computed by fitting a straight line through the previous 40 years of yields and then extending that resulting line one year in the future. For example, the 2018 trend yield of 184 bushels per acre is based on data from 1978 to 2017. The projected 2018 yield of 207 bushels per acre is 23 bushels per acre above the 184 trend yield.

In 2012, the year of the major drought, average corn yield in Illinois was 105 bushels per acre, 64 bushels per acre below the 169 trend yield for that year. Since 2012, all Illinois state yields have been above trend: 13 bushels above trend in 2013, 32 in 2014, 3 in 2015, 22 in 2016, 22, 21 in 2017 and 23 in 2018. Having a run of six years above trend has not happened any other time since 1970 (see Panel B of Figure 1).

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Soybean yields are exceptional as well. NASS is projecting a 64 bushel average yield for Illinois in 2018. The 64 bushel yield in 2018 will be the highest state yield in Illinois, surpassing the last record yield of 59 bushels per acre set in 2016. Record yields have been set in Illinois in three of the last five years: 56 bushels in 2014, 59 bushels in 2016, and 64 bushels in 2018. The other two non-record yields since 2014 — 2015 and 2017 — have been good as well: 56 bushels in 2015 and 58 bushels in 2017 (see Figure 2).

Soybean yields have been at least 5.8 bushels above trend since 2014 (see Panel B of Table 2). Between 1970 and 2014, Illinois soybean yields were 5 bushels above trend in only two years, 1985 and 2004. Soybean yields have been truly exceptional in Illinois during the last five years.



## **Expectations for 2019**

A central question is what yields to use in 2019 budgets given the recent high yields. Use of Trend-Adjusted Actual Production History (TA-APH) yields from crop insurance seems like a reasonable way for most farmers to arrive at expectations for the coming year, particularly if that record includes yields from a yield history with close to ten yields. Using a shorter time series could result in higher yields than warranted.

To illustrate, take the state yield series for corn shown in Figure 1. The 2019 trend yield for Illinois is 188 bushels per acre. This 188 bushels per acre would be close to the TA-APH yield calculation if the Risk Management Agency (RMA) calculated an adjustment factor for state yields.

Recent yearly averages of state yields are above that 188 bushel trend yield. The state yields for the last five years from 2014 to 2018 results in an average of 196 bushels per acre. The five-year average is 8 bushels higher than the 188 bushel trend yield. Corn yields were not exceptional in 2013, averaging 178 bushels per acre. A six-year average from 2013 to 2018 is 193 bushels per acre, still 5 bushels higher than the 188 bushel trend yield. Adding the drought year of 2012 to the average gives an average of 180 bushels per acre, 8 bushels below the trend.

The 2019 trend yields for Illinois soybeans is 53 bushels per acre. Again, the 2019 trend would be close to those resulting from a TA-APH yield calculation. The past five-year average is 59 bushels per acre, 7 bushels higher than the 53 bushel trend yield. The six-year average from 2013 to 2018 is 57 bushels per acre, still above the trend by 4 bushels per acre. The inclusion of 2012 in a seven-year average from 2012 to 2018 results in a 55 bushels per acre average, still above the trend by 3 bushels per acre.

### Summary

For many farms, TA-APH yields provide a reasonable estimate of yields for the coming year. Some may suggest that that TA-APH yields may be conservative given recent higher yields. Note that those high yields already are entering into the calculation of the TA-APH averages. A question may still be that "something has changed" and Illinois farmers may have reached new higher yield plateaus. Skepticism of that proposition seems warranted. Overall, weather and other growing conditions have been favorable in the past several years. Other areas of the country have gotten lower yields when faced with less than ideal growing conditions.

Perhaps the opposite should be a concern. The TA-APH yields include relatively high yields in recent years in their calculations. Perhaps a period like the late 1970s and early 1980s could occur again in which yields are close to or below average for several years. In this case, the TA-APH yield would overstate actual yields. Only time will tell.

### Reference

USDA, National Agricultural Statistics Service. *Crop Production* (August 2018). http://usda.mannlib.cornell.edu/usda/nass/CropProd//2010s/2018/CropProd-08-10-2018.pdf