

August 2018 Corn Forecast Report

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It's hard to believe it is already August. In a few more weeks many kids will be preparing to head back to school, football isn't too far around the corner, and hopefully a pleasant fall with a hassle-free harvest is ahead for those of you producing our nation's food. Given that it is early August, many of you are no doubt making estimates of your corn yield and what the markets are going to look like in October and December. While there will be no attempt to estimate forward prices in this report, we hope to provide some useful information as to what is possible for final national corn yield numbers (as determined by the USDA's National Agricultural Statistics Service) in 2018 and to give some insight into which parts of the U.S. Corn Belt are likely to finish above or below trend line. Based on how the growing season has progressed thus far and what is expected from now until harvest (based on AER's seasonal forecast), we are prepared to make the following projection for corn yield:

AER Projected Yield: 177 bu/ac; 4.0% above trendline

AER Most Likely Range: 174-181 bu/ac; 2% to 6% above trendline

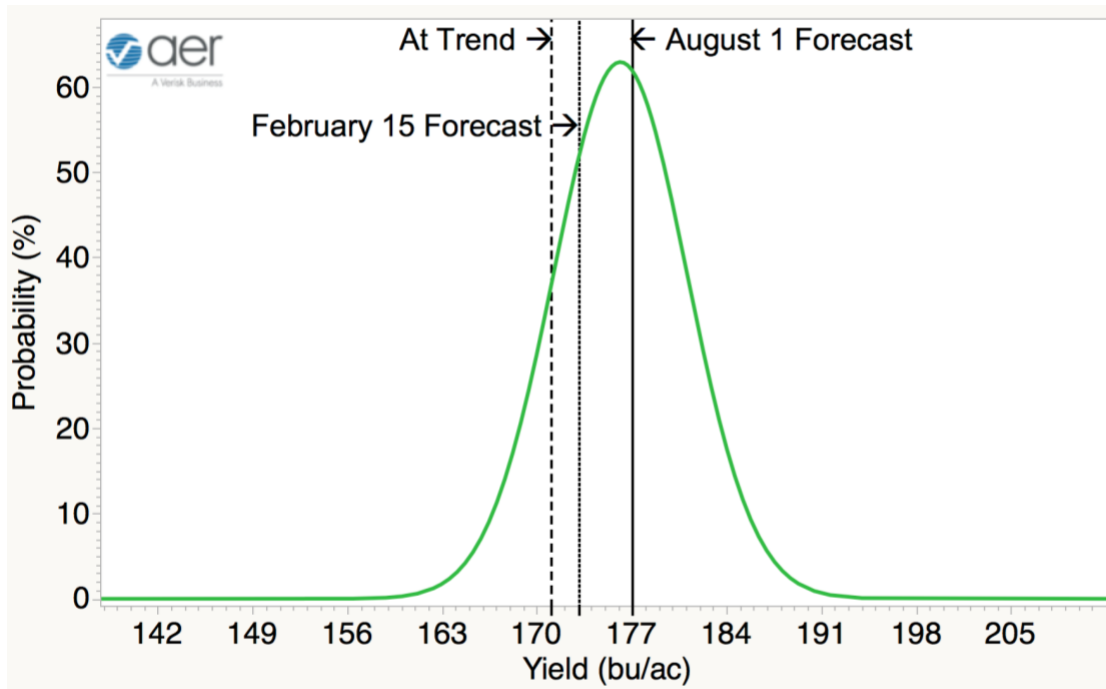


Figure 1. Yield curve for 2018. The curve (green line) is based on the final de-trended yields of 15 previous seasons that have had corn condition reports within the range (66-83% combined good to excellent) it has been in the three weeks following silking this season. The dashed line represents the yield at trend for 2018 (~171 bu/ac), the dotted line represents our analog based projection back in February (~173 bu/ac), and the solid line represents our forecast of 177 bu/ac based on conditions to this point and the conditions we expect going forward.

As of August 1st, our projected yield is 177 bu/ac, which translates to roughly 4% above trend. We arrived at this forecasted number based on the following factors:

- 1) Season-to-date conditions
- 2) AER forecast for August and September
- 3) Historical precedent

For the first factor, the favorable planting conditions, lack of widespread drought, and cooler temperatures across much of the Corn Belt over the past three weeks suggest above trend conditions.

For the second factor, we are expecting *slightly above average temperatures* overall for much of Corn Belt the next two months, but not significantly or historically above, and precipitation to be around average overall. Thus, we expect the corn development to be a bit more accelerated than average starting this weekend and is why we are less bullish on the prospects of an historically high yielding season like 1992, 1994, 2004, or 2009.

Regarding the third factor, we think it is important to take historical precedent (i.e., past final yields) into account. Years without significant drought and cooler temperatures in the weeks after pollination usually end up being above trend, sometimes significantly so. The yield curve in Figure 1 is based on 15 seasons (between 1987-2017) where crop condition ratings in the weeks after pollination were comparable to this year. Of those 15 years, only 3 finished below trendline and those years had far less favorable conditions in weeks after silking than this year.

Our recommendation is to pay attention to temperatures in the next 3 weeks across the Corn Belt. If it ends up being a bit warmer than currently expected, then national yields likely will be closer to 174-175 bu/ac. If it ends up being a bit cooler month across a majority of the region, then yields in excess of 180 bu/ac are possible.

Forecast Yield for Crop Reporting Districts:

While we have a high degree of confidence of an above trend year for corn, this is not the case for every location in the Corn Belt. As shown in Figure 2, we expect all of northern Missouri, most of southern Iowa, and parts of western Illinois to be below trend for the respective districts. Much of this area experienced flash drought conditions earlier in the season and while the cooler weather in the past few weeks has likely prevented an historically below trend year like 2012, it is not likely those districts will be above average this season. We also expect southwest Minnesota to be below trend overall due to excessive moisture. These aforementioned crop reporting districts are depicted in red or orange on the map.

Elsewhere we currently expect near trend or above trend conditions. Crop reporting districts where we are most confident of above trend corn are depicted in green with the letter "A". This includes much of the irrigated and rainfed production in Nebraska, the I-80 corridor in Iowa, much of Wisconsin and Minnesota, and parts southern Indiana and Ohio. Where we are a bit less confident, districts are listed in light green with an "LA", and where the three factors suggest a final yield around trend for an individual district, we have it labeled in gray with "NT". Of

course, it should be noted that these are our expectations for a district in aggregate based on the weather. Yields at an individual field could differ significantly from the district average and thus some level of caution is advised when trying to estimate a final yield.

2018 Projected Corn Trendline by CRD

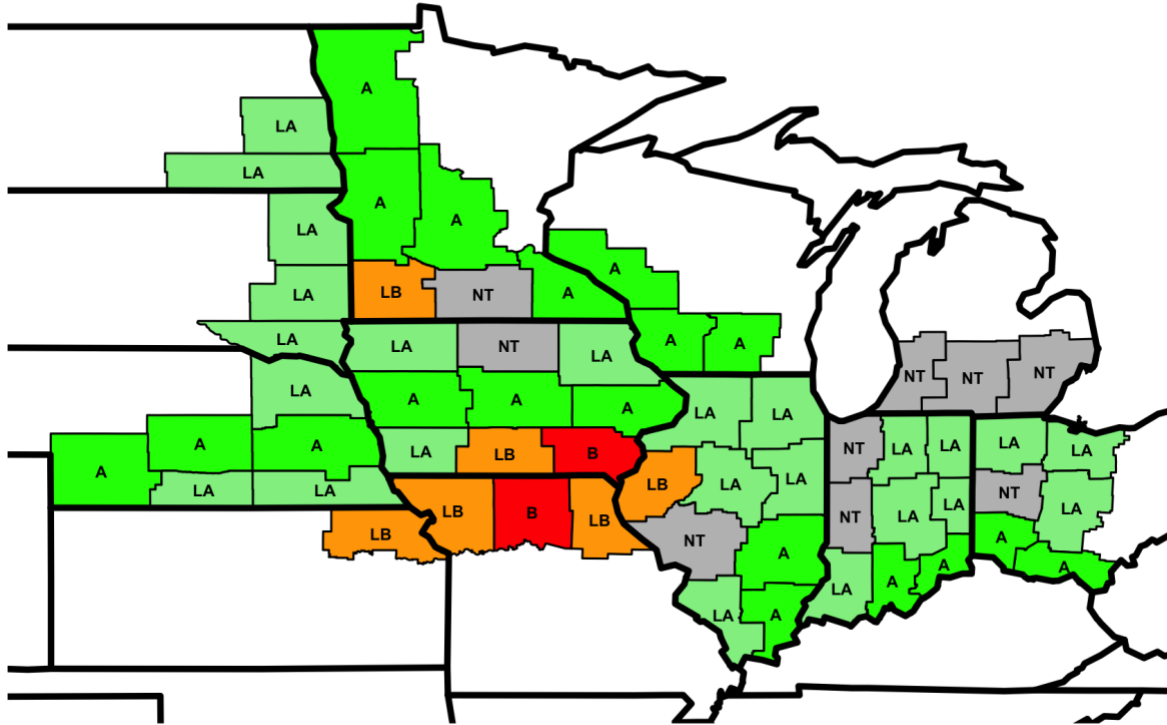


Figure 2. Expectations of yield for each crop reporting district. The legend is as follows:

A- Above trend (green); LA- Likely Above trend (light green); NT- Near Trend (gray); LB- Likely Below trend (orange); B- Below trend (red).

About the authors:



Dr. Eric Hunt is an agricultural climatologist from Lincoln, NE and has several members of his extended family actively farming in both Nebraska and Illinois. Eric has been with AER since 2012 and received his Ph.D. from the University of Nebraska. Among other activities, he is currently working on a NASA funded project to study the evolution of flash drought with another colleague at the University of Wisconsin.



Dr. Judah Cohen is a seasonal forecast specialist at AER's home office in Lexington, MA. Judah has been with AER since 1998 and received his Ph.D. from Columbia University. Judah is perhaps best known for his NSF funded work documenting Arctic-midlatitude connections and the Arctic Oscillation, which he routinely blogs about on AER's website.

About AER:

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