

Has the recent dry and hot weather affected soybean yields?

Gregg Ibendahl

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Introduction¹

The latest USDA Crop Production report on August 11, 2023, predicted an average soybean yield of 50.9 bu/ac. Since then, there has been some extremely hot and dry weather in parts of the U.S. This article shows that yields have likely declined since the August crop report, but based on the modeling approach discussed here, current yields are still in line with the USDA August estimate. The soybean results show a similar pattern to Ibendahl's corn analysis from September 8th.

Ibendahl has been developing yield forecasts for the last several years using the USDA crop condition reports. These reports, which are released every Monday at the state level, can be used as a forecast for state yields. The exact procedure is described in Kansas Wheat Yield Outlook for 2018. To develop a national yield estimate, the 18 leading soybean states are estimated individually and then scaled upward to produce a national yield estimate. Unlike the USDA estimate, the model used here provides a confidence interval and can be run every week.

Discussion

Figure 1 shows the estimated national soybean yields on a per-week basis. When the USDA estimate came out, the model used by Ibendahl was predicting a national yield of 51.7. Since then, the estimate yield from Ibendahl has declined to 50.7. This is a 1.0 bu/acre decline, or a decrease of 2 percent. The confidence interval from the 9/3/23 estimate is from 49.3 bu/ac to 52.0 bu/ac.

¹Kansas State University - Department of Agricultural Economics
AgManager.info
email: ibendahl@ksu.edu

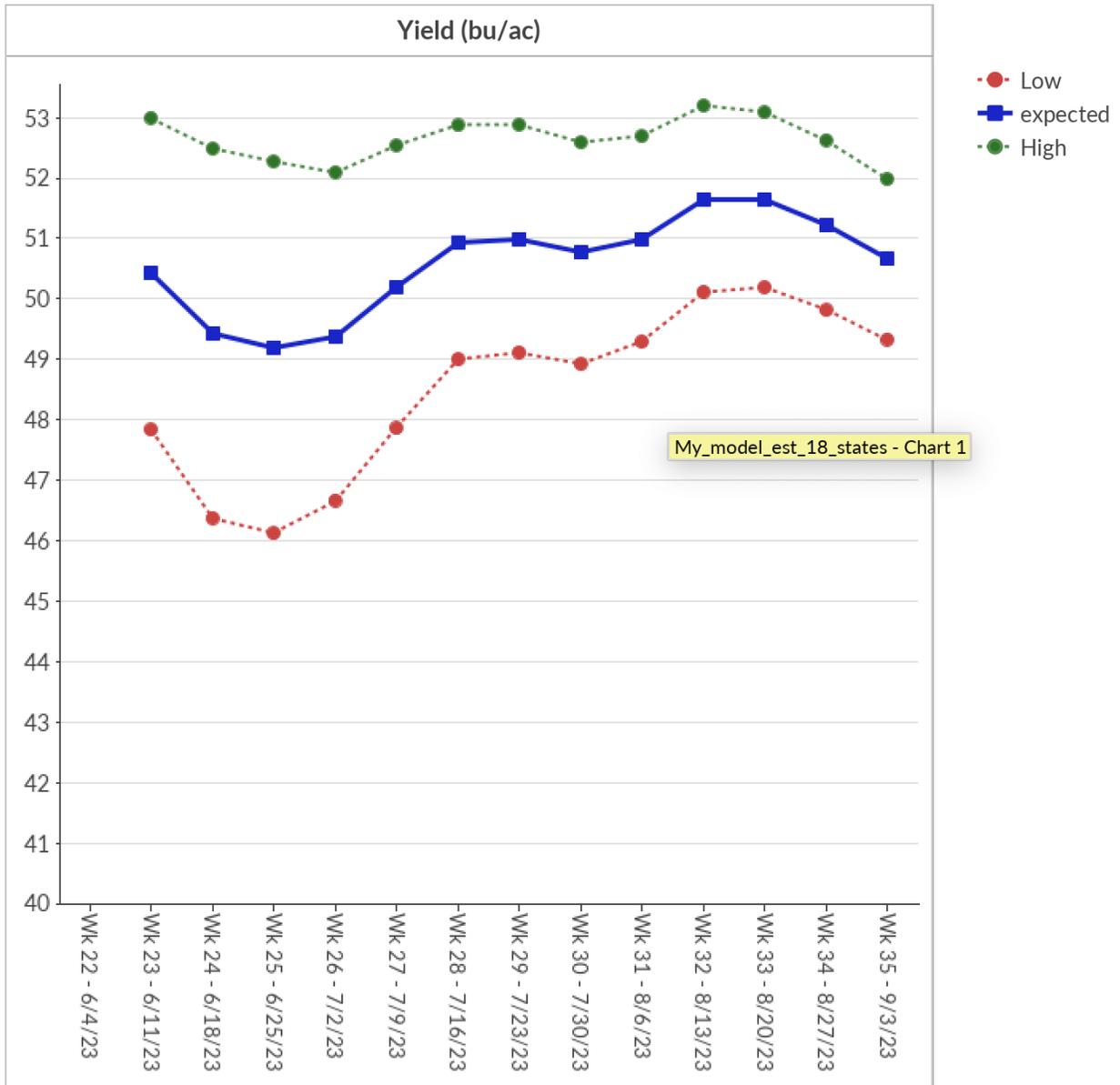


Figure 1. U.S. National Soybean Yield Estimates (bu/ac)