Kansas Corn Yield Outlook for 2025 (Week 32)
using Drought Monitor Data

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Week 32 prediction[1]

Kansas corn estimate for 8/14/25 Using Drought Monitor Data
Yield range from 133 to 148
Predicted yield of 140

Introduction

This paper uses data from the U.S. drought monitor website (https://droughtmonitor.unl.edu[2]) to predict yields on a crop reporting district (CRD) level for Kansas. These CRD level numbers are aggregated upward to get a state average yield. The individual CRD estimates are shown in Figure 1. This estimate should be compared with Ibendahl's estimates using NASS crop condition report (See AgManager.info)

Data

The model developed here follows a similar procedure that Ibendahl used to estimate crop yields based on the USDA crop conditions report. Instead of the growing conditions report, the Drought Severity and Coverage Index (DSCI) is used to estimate corn yields. The DSCI (Akyuz[3]) shares many similarities to the Crop Condition Index (CCI) (Bain and Fortenbery[4]). Where the CCIndex weights the best condition with the most points, the DSCI weights the worst condition with the most points.

The U.S. Drought Monitor labels droughts by the level of severity. There are 5 levels of drought ranging from D0 (least severe) to D4 (most severe). The DSCI is a computed by the formula:

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    DSCI = (% acreage in D0) * 1    +
           (% acreage in D1) * 2    +
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         (% acreage in D2) * 3    +
         (% acreage in D3) * 4    +
         (% acreage in D4) * 5
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The index ranges from [0, 500]. An index value of 500 corresponds to 100 percent of the crop acreage in the most extreme drought (D4), and a value of 0 indicates 100 percent of the crop acreage is not in any drought state. The U.S. Drought Monitor computes these values for various sized areas including at the county level. The site has weekly data back to the year 2000.

Model

The model used in this paper first computes the trend line yield on a crop reporting district basis from 2000 to 2024. Most CRDs have a small positive trend line increase in yields. Next, the deviation from trend line is calculated for each year. This deviation from trend is what the DSCI is used to estimate. Because NASS no longer reports CRD yields, Ibendahl generated the CRD yields by aggregating individual counties within a CRD.

A linear regression model is used to estimate the deviation from trend for a specific week using the data from 2000 to 2024. There is a separate regression model for each CRD. The regression model is unique to a specific week. For this paper, the lastest DSCI report for 2025 is week 32 (8/13/25). To estimate the linear model, the DSCI data is filtered to provide only the historical week 32 DSCI numbers and these are used as the independent variable to predict the final yield. Once the linear model is developed at the CRD level, the DSCI reading for 2025 and week 32 is plugged into the equation to estimate the deviation from trend for this year's CRD yield.

To generate the state yield estimate, Ibendahl weighted each of the individual CRD yields by the number of planted acres last year. NASS has not yet reported planted acres on a county level for 2024. Because NASS is not able to report on all counties, aggregating upward to a state yield is not fully complete. However as long as the missing county data is representative of the reported county data, results should not change very much.

Results

The CRD level results are shown in Figure 1. The second column in each of the tables is the trend line yield. This is the expected yield for a CRD in a “normal” year. The next three columns are the predicted yields based on the linear model using the DSCI to predict the yield deviation for this year. The yield deviation from the linear model is subtracted from the trend yield to get the predicted yields shown. While the most likely yield column is the point estimate of the model, the upper and lower range values should not be ignored. At this point, there is a wide range of yields that could occur and the confidence interval reflects this uncertainty.

The final column is the r-squared value and it tells how well the linear regression model fits the yield data. Values can range from -1 to 1 with a 0 value indicating the model doesn’t predict yields at all. As Figure 1 shows, there is a wide variation in how well CRD level data works. While some CRDs show the model has no explanatory power, there are other CRDs with a strong fit. Those CRDs with an r-squared value close to zero will show a predicted yield close to trend line in most cases. In these CRDs more attention should be focused on the possible yield range. Figure 2 shows the drought conditions for the current week back to 2000.

Discussion

These yield predictions using the Drought Monitor data should be considered less reliable than the estimate using the NASS crop conditions. First, this model is still being developed and a better model may be found. Second, the drought monitor provides no information about the soil situation when there is a surplus of moisture. There is either no drought or various levels of drought in the Drought Monitor data. A better model to predict yields would likely have some information about surplus moisture. Still, developing a model using the DSCI index allows for a finer grained model than using the state moisture conditions from NASS. The Dought Monitor data is available at the CRD level and also at the county level.

Predicted CRD Yields

week - 32

CRD	Trend Yield	Predicted Yields: Lower Bounds	Predicted Yields: Most Likely Yield	Predicted Yields: Upper Bounds	R squared
NORTHWEST	104.9	107.0	113.1	119.2	0.50
NORTH CENTRAL	132.8	132.9	140.1	147.4	0.45
NORTHEAST	176.0	176.5	183.3	190.2	0.60
WEST CENTRAL	92.8	94.6	103.3	111.9	0.36
CENTRAL	114.1	114.1	123.6	133.1	0.25
EAST CENTRAL	128.3	132.1	140.6	149.1	0.51
SOUTHWEST	181.1	175.5	184.5	193.4	0.02
SOUTH CENTRAL	144.4	141.8	149.8	157.7	0.11
SOUTHEAST	105.3	106.4	117.1	127.8	0.34

Figure 1. Kansas Crop Reporting Districts - Estimated Yields

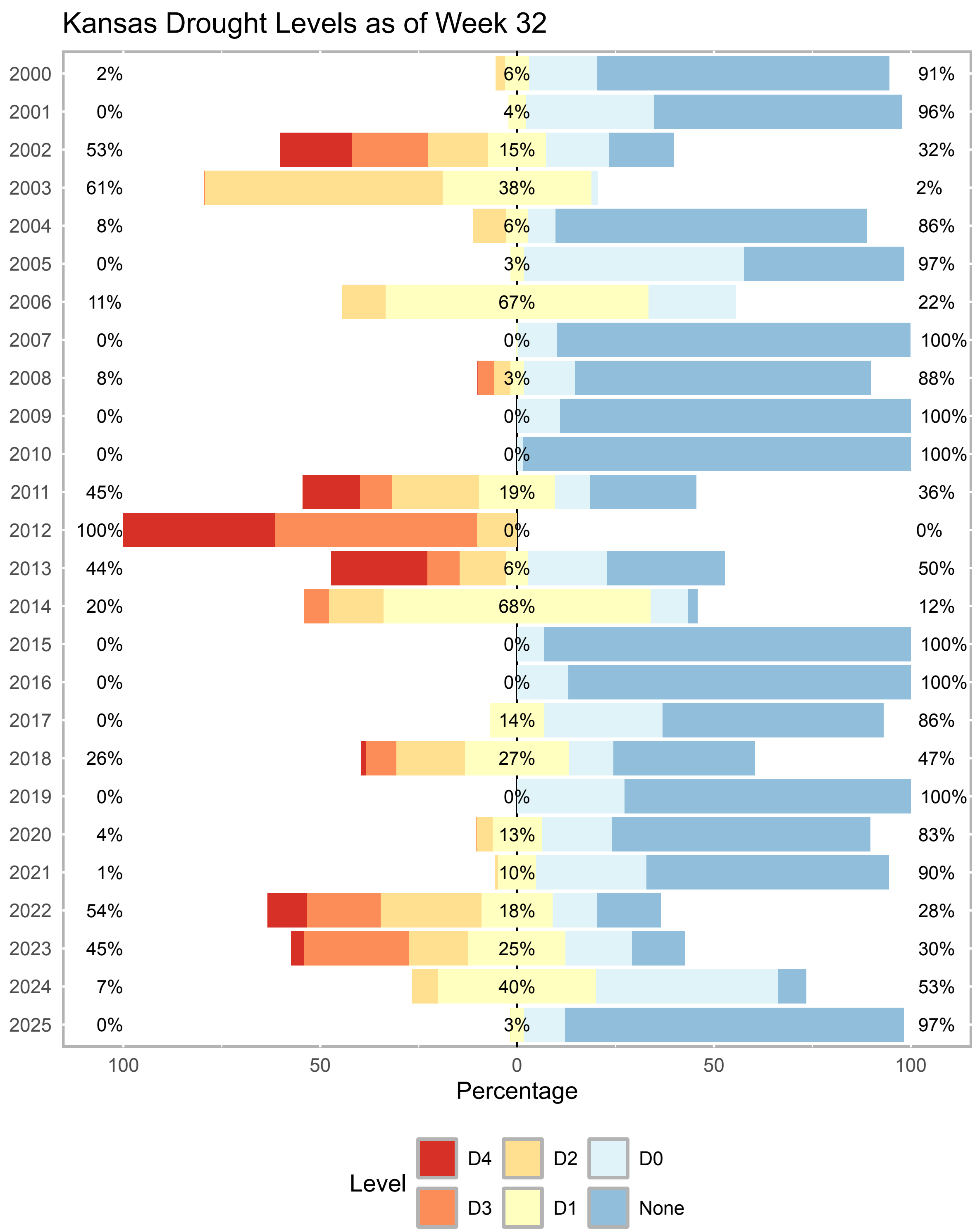

Figure 2. Historical Drought Conditions in Kansas

1. Kansas State University - Department of Agricultural Economics
AgManager.info
email: ibendahl@ksu.edu
YouTube: https://www.youtube.com/\@little_pond_farm
Substack: https://agricultural.substack.com
2. U.S. Drought Monitor. (https://droughtmonitor.unl.edu).
3. Akyuz, F. A. 2017. Drought Severity and Cover- age Index. United States Drought Monitor. (http://droughtmonitor.unl.edu/About/AbouttheData/DSCI.aspx)
4. Bain, R. and T. R. Fortenbery. 2013. “Impacts of Crop Conditions Reports on National and Local Wheat Markets.” Proceedings of the NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management. St. Louis, MO. (http://www.farmdoc.illinois.edu/nccc134)