



2011 U.S. Corn and Soybean Yield Expectations

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In posts on [July 19](#) and [August 4](#) we reviewed the Illinois and U.S. average corn and soybean yields in previous years when July temperature was well above average in Illinois, as was the case in 2011. Those analog years included 1977, 1980, 1983, 1999, and 2002.

Here we update the analysis of analog years to include August weather conditions. In August 2011, the average temperature in Illinois was 74.5 degrees, 1.2 degrees above average for the period 1975 through 2010. The average statewide precipitation, 1.9 inches, was 1.7 inches below the 1975-2010 average of 3.6 inches. This weather pattern was very different than in August 1977, a year previously included as an analog year. In 1977, the average temperature in Illinois was only 71.8 degrees and statewide precipitation averaged 6.9 inches. Since cool, wet conditions were experienced in 1977, that year is dropped as an analog year.

July and August weather data for the 4 remaining analog years and for 2011 are presented in Table 1 along with average weather data for the period 1975 through 2010. Calculations of the trend-adjusted Illinois and U.S. average corn and soybean yields are also shown for the 4 analog years. Average July and August weather conditions in the analog years were similar, but not identical to those in 2011. Compared to the 4-year average, July 2011 was warmer and wetter and August was cooler and drier. While average weather in the analog years does not fully match that of 2011, the patterns of corn and soybean crop condition ratings over the 2011 growing season are similar to the average of the analog years (Figures 1 and 2). This similarity provides additional confidence in the selection of analog years.

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Table 1. Summer Weather and Trend-Adjusted Corn and Soybean Yield for Illinois and the U.S. in 2011 Analog Years (1980, 1983, 1999, and 2002)

Year	Illinois July Temperature	Illinois July Precipitation	Illinois August Temperature	Illinois August Precipitation	Trend-Adjusted Illinois Corn Yield	Trend-Adjusted Illinois Soybean Yield	Trend-Adjusted U.S. Corn Yield	Trend-Adjusted U.S. Soybean Yield
1983	79.0	1.9	78.8	2.4	132.2	40.8	135.5	38.9
1980	78.8	3.0	77.2	5.3	151.9	46.1	151.3	40.5
1999	78.4	2.8	71.6	2.7	162.8	46.9	157.1	42.0
2002	78.1	2.6	74.9	4.4	152.1	46.6	146.8	42.1
4-Year Avg.	78.6	2.6	75.6	3.7	149.7	45.1	147.7	40.9
1975-2010 Avg.	75.2	4.0	73.3	3.6	168.7	48.0	158.0	43.5
2011	79.7	4.0	74.5	1.9	?	?	?	?

Note: Average monthly temperature is in degrees Fahrenheit and total monthly precipitation is in inches. Yield is adjusted to 2011 technology based on a linear trend estimate over 1975-2010. July 2011 temperature and precipitation for Illinois are preliminary estimates.

The trend-adjusted Illinois average corn yield in the analog years ranged from 132.2 bushels to 162.8 bushels, with an average of 149.7 bushels. The trend-adjusted Illinois average soybean yield in the analog years ranged from 40.8 bushels to 46.9 bushels, with an average of 45.1 bushels. The trend-adjusted U.S average corn yield in the analog years ranged from 135.5 bushels to 157.1 bushels, with an average of 147.7 bushels. The trend-adjusted U.S average soybean yield in the analog years ranged from 38.9 bushels to 42.1 bushels, with an average of 40.9 bushels. The 4-year average U.S. yields likely represent a reasonable expectation of average yields in 2011.

Figure 1. Comparison of 2011 Crop Conditions for Illinois Corn to Date and Average Condition in 2011 Analog Years (1980, 1983, 1999, and 2002)

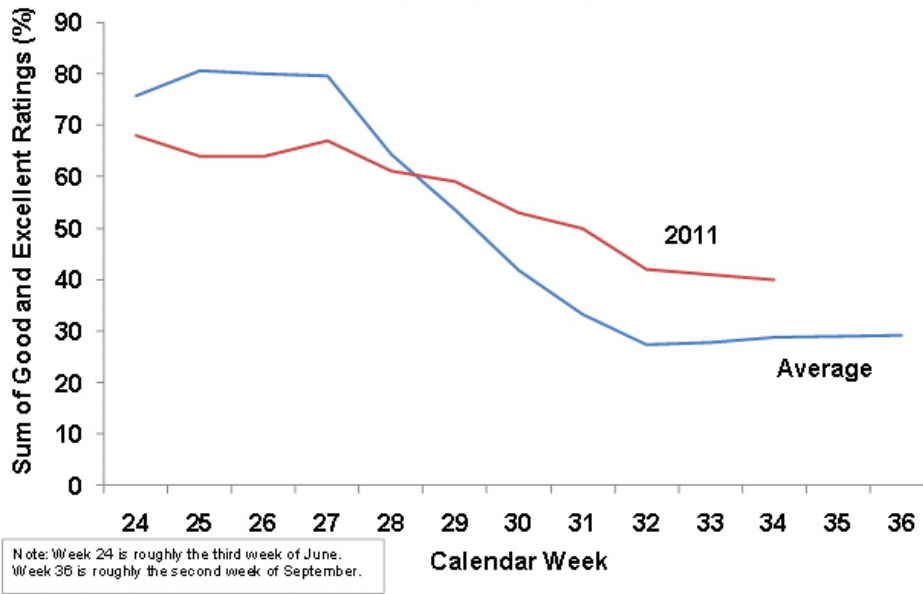
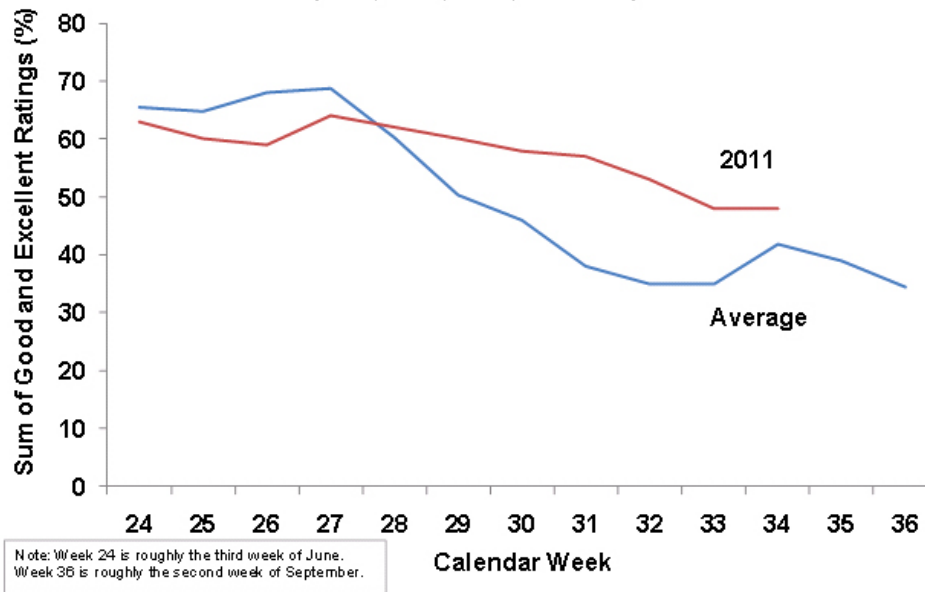


Figure 2. Comparison of 2011 Crop Conditions for Illinois Soybeans to Date and Average Condition in 2011 Analog Years (1980, 1983, 1999, and 2002)



Another avenue for arriving at average yield expectations for 2011 is to examine the path of USDA's forecasts and final estimates of the U.S. average yields in the analog years. Those trend-adjusted forecasts and final estimates are shown in Figures 3 and 4. On average, the final estimate of the U.S. average corn yield was 4.2 bushels below the August forecast and the final estimate of the U.S. average soybean yield was 1.5 bushels below the August forecast. Applying those average changes to the August 2011 yield forecasts of 153 bushels for corn and 41.4 bushels results in yield expectations of 148.8 bushels and 39.9 bushels, respectively. These are similar to the average yields in the 4 analog years.

Figure 3. USDA Forecasts of U.S. Corn Yield in 2011 Analog Years (1980, 1983, 1999, and 2002)

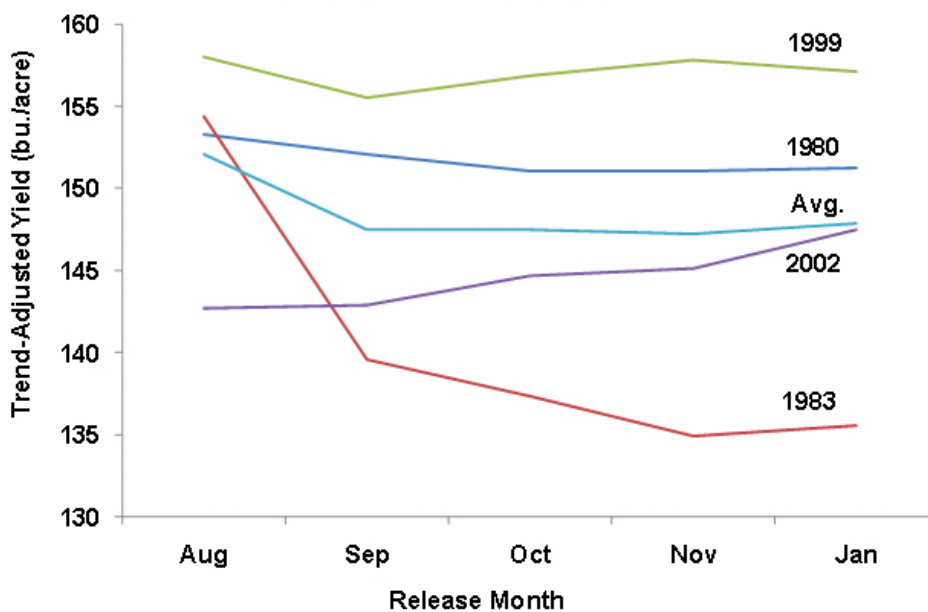
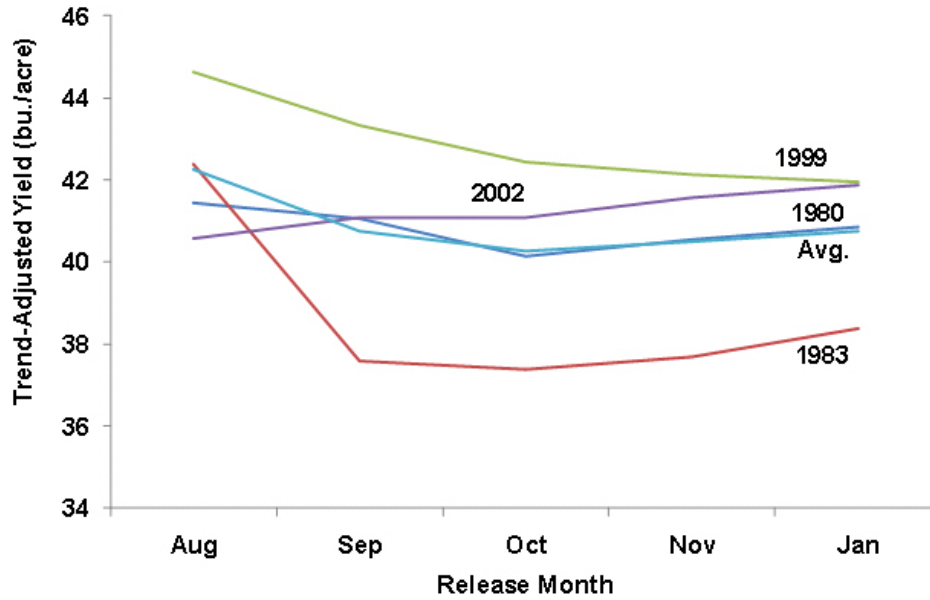


Figure 4. USDA Forecasts of U.S. Soybean Yield in 2011 Analog Years (1980, 1983, 1999, and 2002)



Conclusion

The analysis of the U.S. average trend-adjusted yields in previous years with Illinois summer weather conditions similar to those of 2011 leads to expectations for a 2011 U.S. average corn yield of about 148 bushels and a soybean yield of about 40.5 bushels. The USDA will release new yield forecasts on September 12, October 12, and November 9. The final yield estimate will be released in the second week of January 2012.