



Weekly Farm Economics: Corn and Soybean Yields in 2022

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Illinois had above trends in both corn and soybeans in 2022. However, a drought impacted yields in other states, and soybean yields were lackluster in many states. As a result, corn and soybean yields were below the trend in the U.S.

Corn Yields

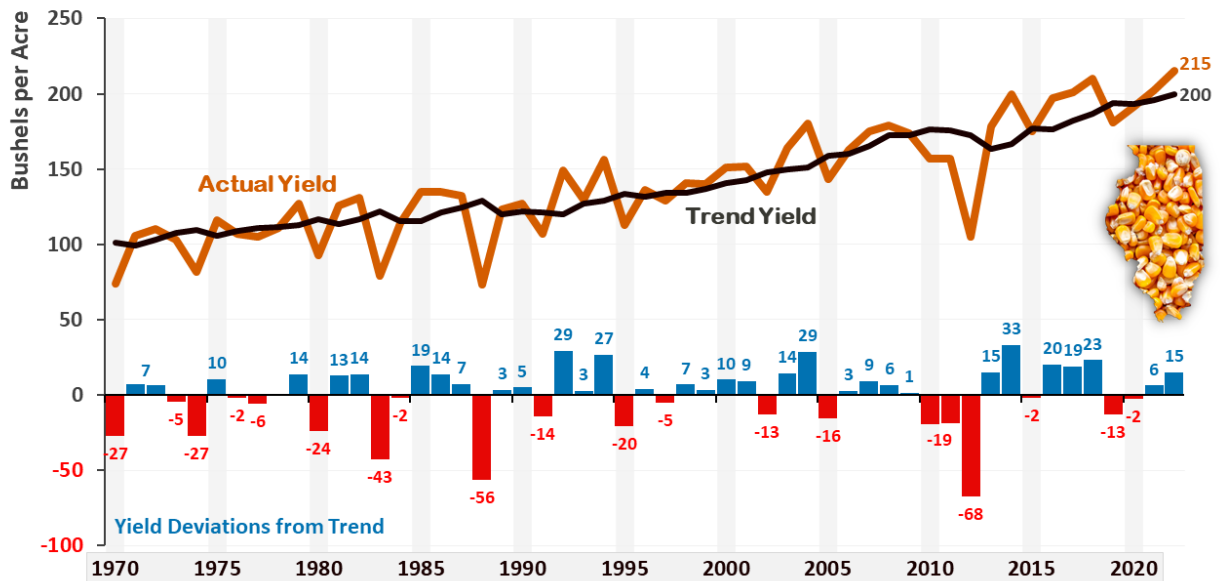
The National Agriculture Statistics Service (NASS) estimates state yields for the nation's major corn and soybean states. Most recent estimates are contained in the December 2022 [Crop Production](#) report. Final estimates will be released in January. Those final estimates likely will be close to current estimates.

The 2022 state yield for Illinois was 215 bushels per acre, an all-time high, exceeding the previous high of 210 bushels per acre set in 2018 (see Figure 1). The 2022 trend yield — a projected yield based on a linear trend fit through the most recent 20 years from 2002 to 2021 — was 200 bushels per acre. The 2022 actual yield was 15 bushels above trend (see Figure 1), indicating that corn yields in Illinois exceeded expectations. Overall, 2022 was a good production year, although several recent years were above trend by more than 15 bushels including 2014 (33 bushels per acre above trend), 2016 (20 bushels), 2017 (19 bushels), and 2018 (23 bushels).

Good weather contributed to the above trend yield in 2022. Much of Illinois had minimal drought exposure in July, the critical month for the pollination of corn. Only the east-central part of Illinois persisted in drought each week of July, as illustrated in Figure 2. Figure 2 shows the weekly [U.S. Drought Monitor](#) released for July and August released by the National Drought Mitigation Center at the University of Nebraska-Lincoln.

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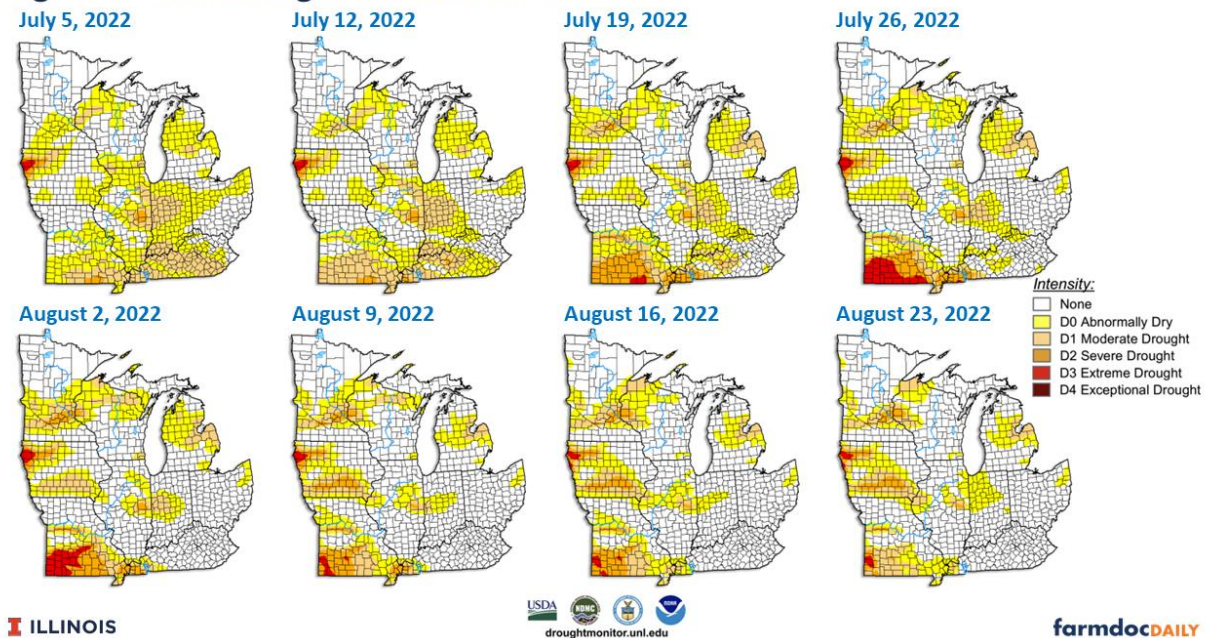
Figure 1. Illinois Corn Yields, 1970 to 2022



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Figure 2. U.S. Drought Monitor for Midwest



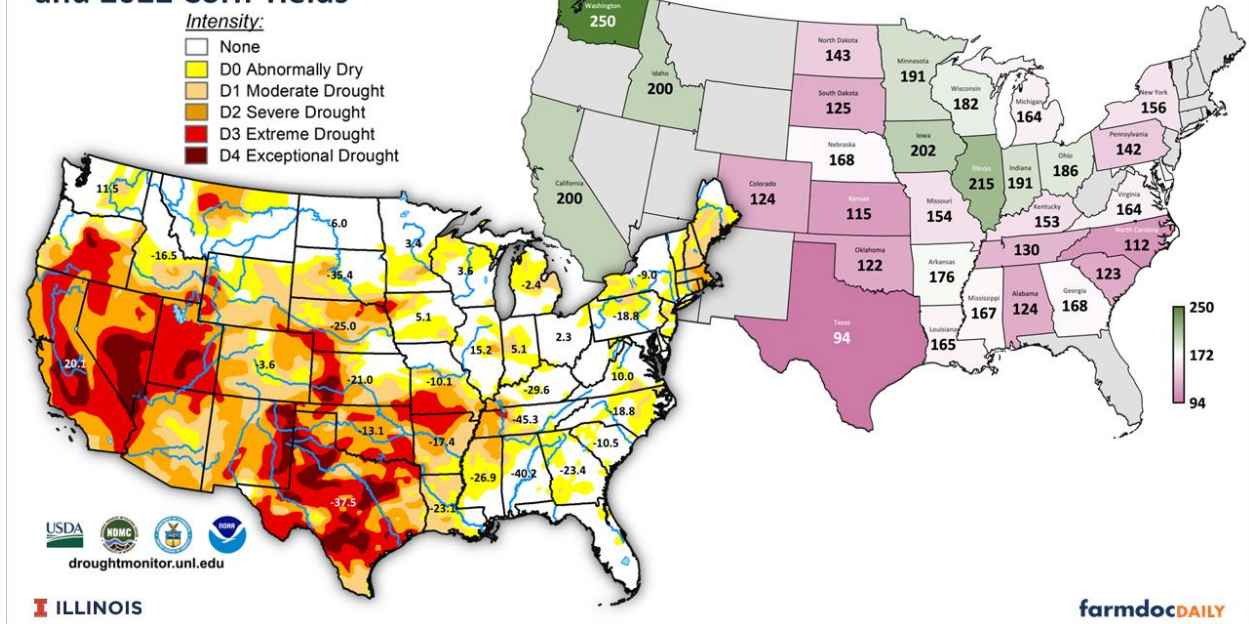
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While drought was not pronounced in Illinois, drought persisted in many corn-growing states (see Figure 3), and many of those states had below trend yields:

- In the Great Plains, South Dakota, Nebraska, Kansas, and Oklahoma state yields were 35, 25, 21, and 31 bushels below trend, respectively.
- Texas state corn yield was 38 bushels below trend.
- Missouri and Arkansas had 10 and 17 bushels below trend, respectively.
- Mississippi, Tennessee, and Kentucky had 27, 45, and 30 bushels below trend.

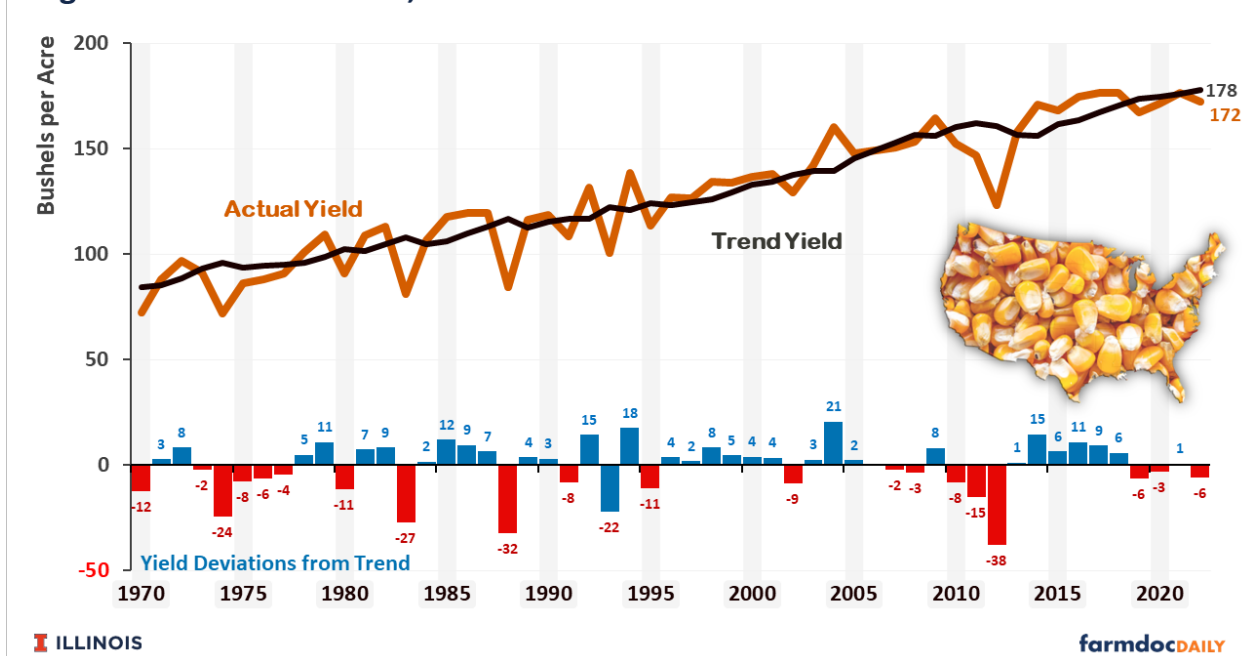
Figure 3. July 26, 2022 Drought Map with Difference from Trend Yield for Corn and 2022 Corn Yields



Besides Illinois, many other states in the Corn Belt had above-trend yields (see Figure 3): North Dakota (6 bushels above trend), Minnesota (4), Iowa (5), Wisconsin (4), Indiana (5), and Ohio (2).

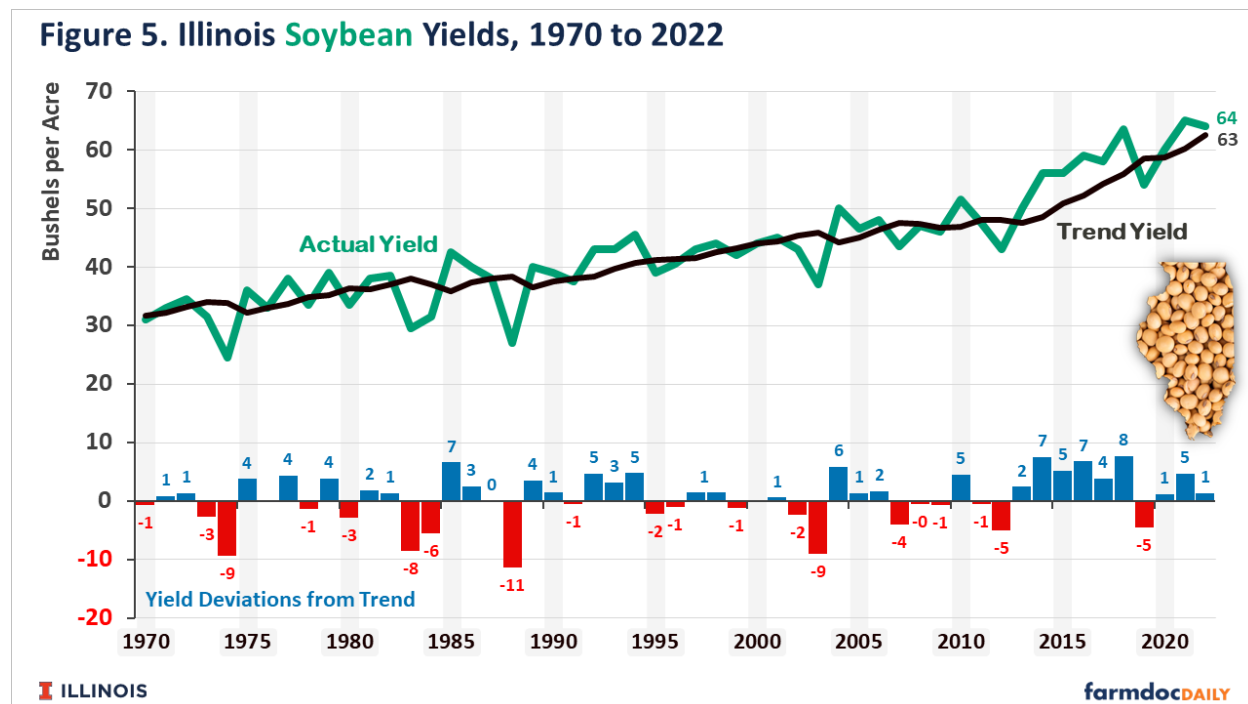
While many states in the Corn Belt had above-trend yields, low yields in other states pulled down the U.S. yield. The U.S. yield averaged 172 bushels per acre, 5 bushels below the trend yield of 178 bushels per acre (see Figure 4). Since 2019, yields have been near or below the trend: 6 bushels below in 2019, 3 bushels below in 2020, 1 bushel above in 2021, and 6 bushels below in 2022. Near or below trend yield contributed to the strength in corn prices in recent years. Still, corn yields are not as bad as in the 2012 drought when corn yields were 38 bushels below trend.

Figure 4. U.S. Corn Yields, 1970 to 2022



Soybean Yields

The 2022 state yield in Illinois was 64 bushels per acre, above the 63-bushel trend yield by one bushel (see Figure 5). However, Illinois yields did not set a record in 2022 being one bushel below the record 65 yield set last year in 2021.



In some senses, the 64 bushels per acre yield was disappointing as corn yield set a record. Moreover, drought conditions were not widespread across Illinois in August (see Figure 2 above), a critical month in soybean development. Many factors could contribute to lackluster yield, including a relatively late planting of soybeans in 2022. Few soybeans got planted in April, and the 50% completion rate was not met till mid-May, a much slower pace than occurred in 2021 (see [Illinois 2022 Crop Process and Conditions map](#)). Compared to the five-year average, few soybeans were planted in April during 2022.

Many states in the Midwest had yields at or near trends (see Figure 6). Iowa was at the trend, and Indiana was 1 bushel above the trend. Several states had poor yields. In the Great Plains, South Dakota, Nebraska, Kansas, and Oklahoma were adversely impacted by the drought and, respectively had yields 8,13,14, and 10 bushels below trend. Kentucky and Tennessee had yields of 3 bushels and 4 bushels below trend, respectively.

The U.S. yield was 50 bushels per acre. The 2022 yield was 2 bushels below trend. Drought and lackluster yields in non-drought states contributed to the U.S. yield being below trend. Like corn, U.S. soybean yields have been near or below trend since 2019: 3 bushels below trend in 2019, one bushel above in 2020, and at the trend in 2021. Near or below trend yields contributed to the strength in soybean prices in recent years.

Figure 6. Drought Map with Difference from Trend Yield and Soybean Yields

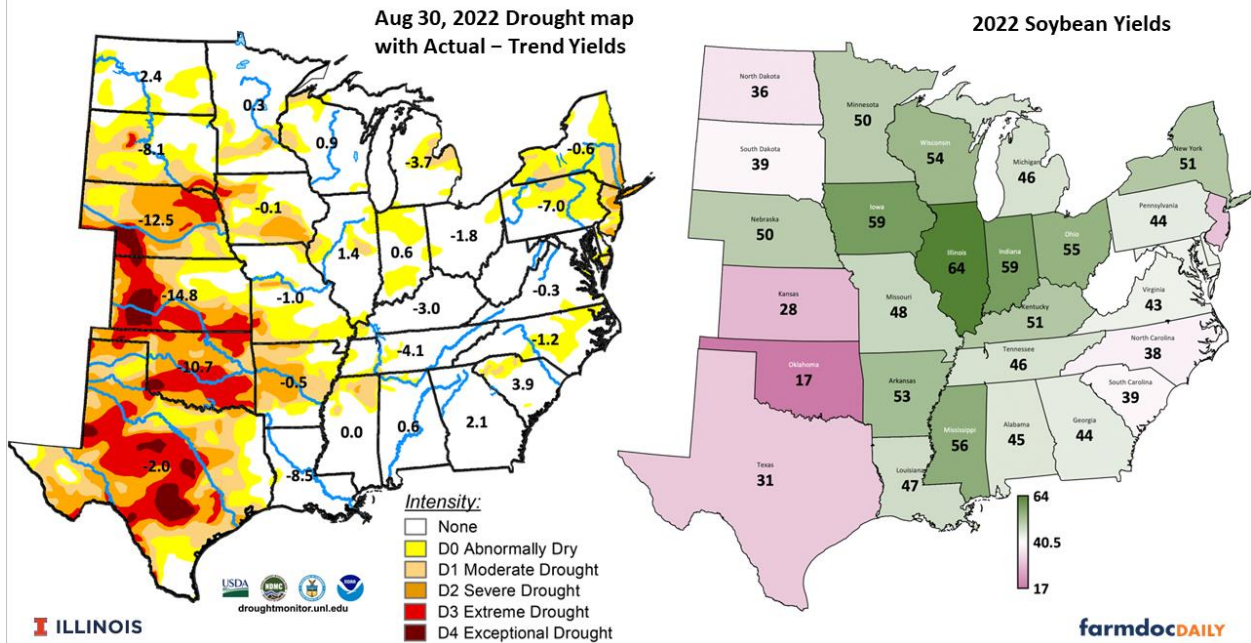
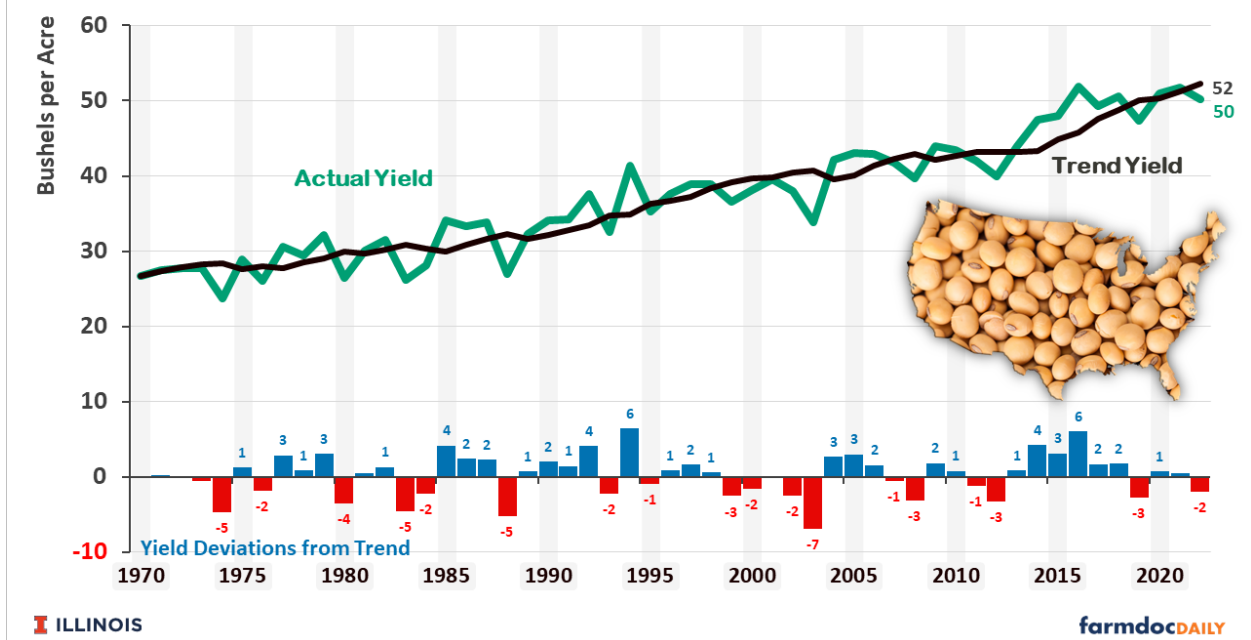


Figure 7. U.S. Soybean Yields, 1970 to 2022



Summary

The state corn yield in Illinois was a record, and soybeans were above trend. Production problems existed around the nation, including droughts outside the center of the corn belt, and slow planting progress across much of the Midwest. U.S. yields were below trend, leading to strength in corn and soybean prices. While below trend, U.S. yields could be much worse. Had the drought been centered in the corn belt, as occurred in 2012, U.S. yields would have been much more adversely impacted.