

Crop Marketing STRATEGIES

August Price Drops & USDA Crop Yield Estimate Methodology

There's an old saying that "corn crops are made in July and soybean crops in August." So, it should not be unusual to see new crop futures prices decline in August. According to Moore Research, since 2005, November soybean futures prices fell 10 times during August by an average of 53½¢ per bushel. November futures have declined in August the past 6 straight years. The most significant drops were 88¢ in 2005 and 80¢ in 2008. The smallest was a 2½¢ dip in 2009.

During this same 15-year period, December corn futures fell during August in 12 of the past 15 years. The average decline in those 12 years was 18¢ per bushel. December futures have declined in August for the past 5 straight years. However, the summer low for December futures has been coming early. The low tick has been Aug. 31 in 2016, 2017, and 2018, and then Sept. 9 in 2019.

Many producers and market analysts blame the USDA National Ag Statistics Service (NASS) for the August price declines. They claim the release of the August Crop Yield Estimates is the main reason that futures prices decline in August. NASS releases these numbers during the second full week of August that serves as the first objective survey-based corn and soybean yields based on Aug. 1 conditions.

August Crop Yield Estimates

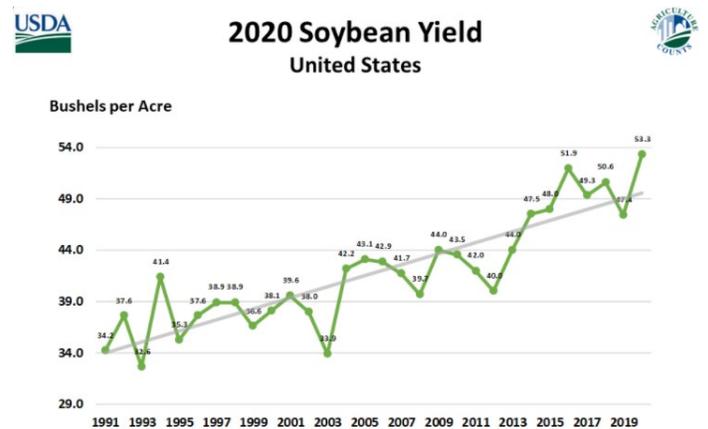
For 2020, the first survey-based forecast for the yield and size of the 2020 U.S. corn crop was released Aug. 12. Updates to crop production will be issued on Sept. 11, Oct 9, Nov. 10, and the final estimate of yield and production will be

released in the second full week of January 2021. The August 2020 corn yield forecast was 181.8 bushels per acre, with a 3.6% margin of error using a root mean square method. If realized, this would be a new record corn yield as well as total U.S. production.



Source: USDA NASS, August 12, 2020

The August 2020 soybean yield forecast was 53.3 bushels per acre with a 6.4% margin of error using a root mean square method. If realized, this would be a new record soybean yield but not total U.S. production.



Source: USDA NASS, August 12, 2020

USDA Crop Yield Estimate Methodology

For this August 2020 forecast, two primary methods were used. The Agricultural Yield Survey (AYS) included 20,800 farm operations nationwide for all crops and was conducted in 32 states for corn. The number of respondents from a state like Iowa is oversampled since they produce larger quantities of both corn and soybeans. These farm operations surveyed were drawn from those who responded to the survey of planted acreage in June. The number of respondents is larger in August and then reduced each month through November.

	August	September	October	November
Iowa	900	500	500	500
U.S.	20,800	10,000	11,000	8,400

Source: USDA NASS, Iowa Field Office, July 15, 2020

The second method used for the monthly crop yield estimates in August is the Satellite-Based Yield Model. USDA uses the time series MODIS satellite data to obtain biomass and temperature estimates throughout the growing season. The Cropland Data Layer gathered in June allows for the isolation of known crop areas across the major producing states.

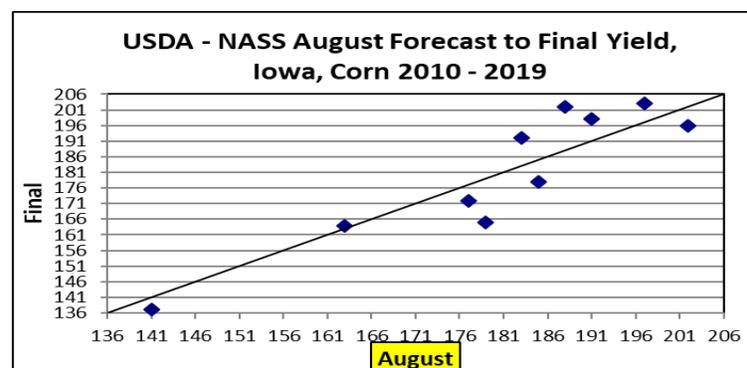
Objective Yield Survey

Monthly NASS also sends enumerators into the field to collect corn and soybean yield information. Fields are selected randomly from the June Agricultural Survey. Enumerators then meet with producers to gain permission to enter their fields and collect yield data from 2 randomly plots per field. While the data was collected in late July, this data has been withheld from the August Crop Yield Estimates effective with the 2019 crop. This is primarily the result of the concern for crops not being mature enough in late July to adequately measure the ears and pods and then weigh them accurately.

This objective yield survey data is gathered monthly from 1,560 cornfields and 1,530 soybean fields across 10-major corn-producing states and 11-major soybean-producing states. Corn ear counts and weights are measured beginning at the Pre-blister stage through maturity. Soybean flowers and pods are counted, and when mature, the pods with beans weighed. Enumerators return to these same fields through harvest and compare any harvest loss to 5-year averages.

Accuracy of the USDA Methods

The most accurate measure of yields will be from the Objective Yield Survey. Each month after August, the yield estimates become more accurate. The greatest error is typically in August, as featured on the scatter plot for Iowa corn yields.



Source: USDA NASS, Iowa Field Office. July 15, 2020

Conclusion

A great deal of emphasis is placed on the ability of USDA NASS to accurately measure corn and soybean yields nationwide, starting with the August report. However, due to the immaturity of corn and soybean crops in late July, the primary method of measuring corn and soybean yields relies on the Agricultural Yield Survey (AYS) and the Satellite-Based Yield Model. On Sept. 11, 2020, the first look at the Objective Yield Survey data will be combined to estimate corn and soybean yields.