



PURDUE

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Title: Providing Some Perspective on the Corn and Soybean Markets
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Summary: Dr. Mintert reviews the dramatic shifts that occurred in the corn and soybean markets in 2020 and what factors may shape the markets in 2021.

It's not unusual to have the corn and soybean outlook change during the course of the year, but the speed with which conditions changed in 2020 was indeed unusual. This past spring, as the pandemic was unfolding, concerns focused primarily on declining economic activity and the resulting spillover impacts on commodity markets. By late spring and early summer, the focus was on prospects for the combination of a rebound in planted acreage compared to 2019 and good growing conditions leading to record large, or near record large, corn and soybean crops. Combined with soft demand it looked like the U.S. would carryover large ending stocks of both corn and soybeans from the 2020 marketing year into the 2021 marketing year. But as the year progressed, it became clear that was increasingly unlikely.

To see more clearly how much the outlook changed during 2020, we can review how USDA's forecasts changed throughout the growing season. Each month USDA's *World Agricultural Outlook Board* releases an updated [World Agricultural Supply and Demand Estimates](#) report, commonly referred to as the WASDE report. The report includes crop production estimates as well as USDA's estimates for various usage categories for each crop. The key variable in each set of supply and demand forecasts is USDA's estimate of the quantity of corn and soybeans that will be carried over from the current marketing year into the subsequent marketing year, in this case from the 2020 marketing year, which ends on August 31, 2021, into the 2021 marketing year, which begins on September 1, 2021.

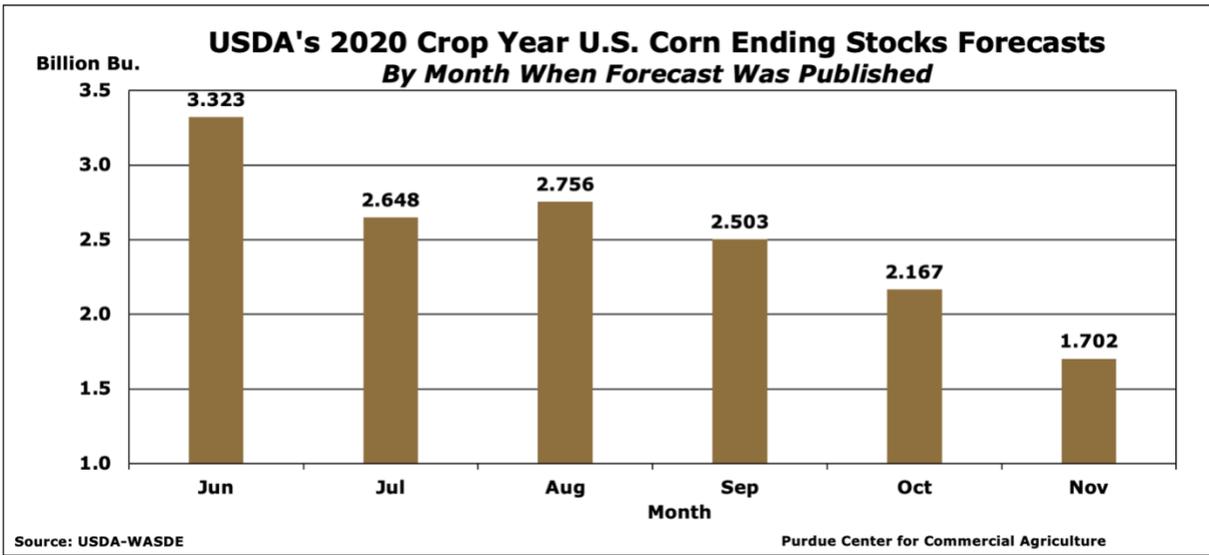


Figure 1: USDA’s 2020 Crop Year U.S. Corn Ending Stocks Forecasts, by month when forecast was published.

In mid-June, USDA’s forecast for corn to be carried over from the 2020 marketing year into the 2021 marketing year was 3.3 billion bushels which, if realized, would have been the largest corn ending stocks since the late 1980s. USDA’s forecast for 2020 marketing year ending stocks were pulled back in July and August to about 2.7 billion bushels and then began to decline sharply as we entered the fall. September’s ending stocks estimate was 2.5 billion bushels, October’s was 2.2 billion bushels and the most recent estimate available when this report went to press from the November WASDE was just 1.7 billion bushels, equivalent to approximately 11 percent of total usage. That’s a reduction in the ending stocks estimate of 49 percent from June to November! This is not intended as a criticism of the World Board’s forecasts, but rather it indicates just how much the corn outlook picture changed in a short period of time.

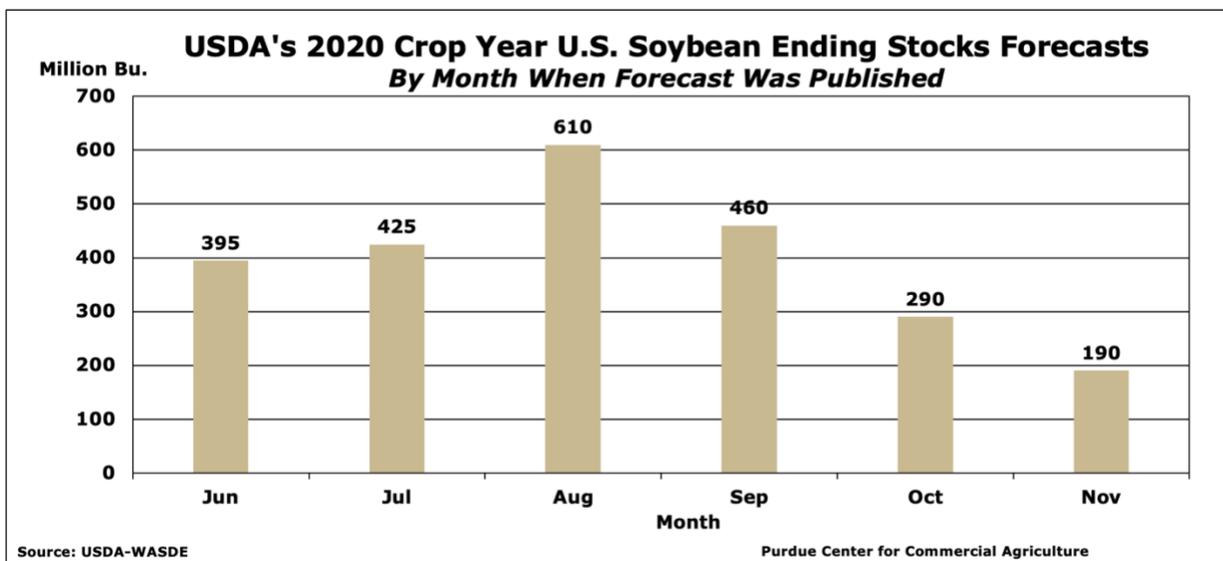


Figure 2: USDA’s 2020 Crop Year U.S. Soybean Ending Stocks Forecasts, by month when forecast was published.

An even more dramatic shift in the soybean outlook occurred this year. USDA's peak estimate of soybean carryover stocks from the 2020 marketing year into the 2021 marketing year occurred in August when they forecast ending stocks of 610 million bushels. USDA's projection of ending stocks declined 150 million bushels in September to 460 million bushels before declining again in October to 290 million bushels and the forecast issued in November was for a soybean carryover of just 190 million bushels, which is just 4 percent of total usage.

Underlying Causes

What was behind the dramatic shift in ending stocks estimates? In the case of corn, it was primarily attributable to smaller estimates of 2020 corn production, combined with a reduction in the carryover from 2019 into the 2020 marketing year. In June, USDA forecast that 2020 corn production would total nearly 16 billion bushels. However, planted corn acreage turned out to be 91 million acres, instead of the 97 million acres estimate found in USDA's *Prospective Plantings* report released at the end of March and that, combined with a 3 bushel per acre reduction in the forecast national average yield from June to November, pushed the corn production estimate down by nearly 1.5 billion bushels to 14.5 billion bushels.

In the case of soybeans, it was attributable to much higher usage rates both within the 2019 crop marketing year, resulting in a smaller carryover from the 2019 marketing year into the 2020 marketing year, and from expectations of higher usage during the 2020 marketing year. The single biggest change was an expectation for stronger soybean exports, with the bulk of the soybean export increase going to China.

Corn and Soybean Outlook 2021

What does all this mean for the outlook as we head into 2021? In corn, the two usage categories to keep a close eye on are exports and corn used for ethanol production. USDA is forecasting record corn exports for the 2020 marketing year, an increase of nearly 50 percent compared to 2019. Weekly export data through late November indicates that corn exports to date have actually been nearly 60 percent larger than in the year ago period with exports to China accounting for over 80 percent of the increase in exports. USDA is forecasting a modest recovery in ethanol usage that would boost corn used for ethanol by about 5 percent compared to 2019. Ethanol usage will be very sensitive to how quickly the U.S. economy recovers from the pandemic and U.S. consumers resume their old driving habits. In soybeans, the key usage category to watch is exports. USDA is forecasting a soybean export increase of over 30 percent compared to 2019. Through late November soybean exports have been 70 percent larger than in 2019 with shipments to China again accounting for over 80 percent of the export increase.

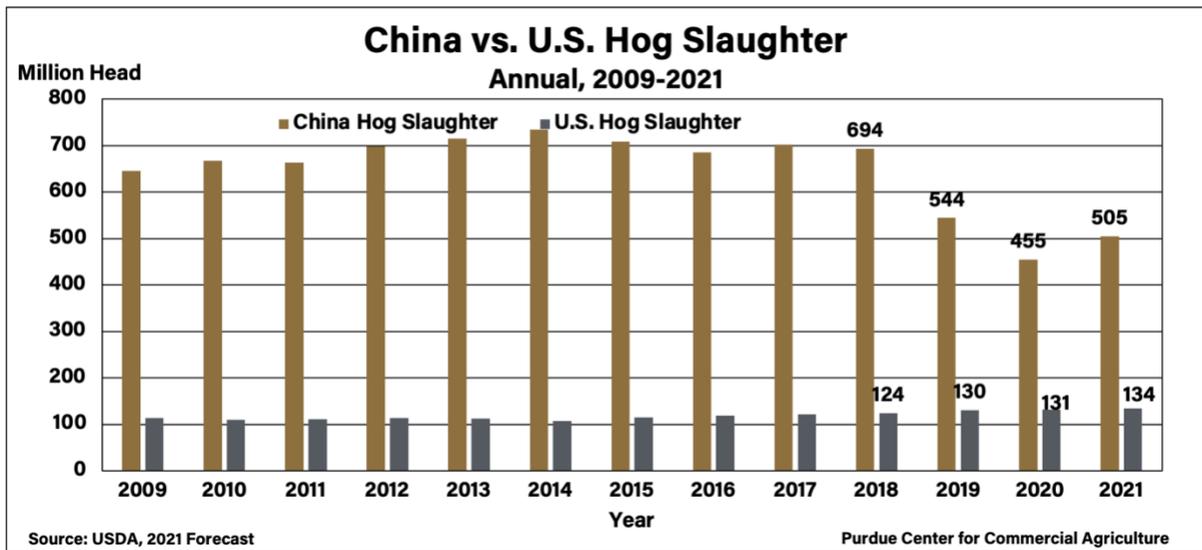


Figure 3: China versus U.S. Hog Slaughter, Annual 2009-2021

What’s driving the increase in exports to China? Setting the trade dispute issue aside, the underlying driver behind increasing demand for corn and soybeans in China is the rebuilding and restructuring of the Chinese hog sector. China is the world’s largest pork consumer and pork producer and African swine fever (ASF) decimated pork production in China. To understand the magnitude of ASF’s impact, consider that annual hog slaughter in China totaled nearly 700 million head in 2018 before ASF hit the Chinese hog herd. Hog slaughter plummeted as a result of ASF by nearly 240 million head to 455 million head in 2020. To put that in perspective, the decline in China’s hog slaughter exceeded the U.S.’s entire 2020 hog slaughter supply. China is in the midst of expanding and restructuring their hog industry and USDA forecasts that hog slaughter in 2021 will total just over 500 million head. Feed required for the hog sector’s expansion, combined with a transition towards a commercial production industry model, is what’s driving the increase in China’s imports of U.S. corn and soybeans.

The other key factor in the outlook, particularly for soybeans, will be growing conditions in South America this winter, especially in Brazil. Brazil and the U.S. are the world’s two largest soybean producers with the U.S. providing an estimated 31 percent of world soybean production in 2020 while Brazil’s share of world production, at 36 percent, was even larger making Brazil a formidable export competitor in the spring and summer. Early reports indicated that Brazil’s key growing regions were unusually dry this fall, hampering planting progress and crop development. Growing conditions during the remainder of 2020 and continuing into early 2021 will dictate the size of the South American crop and, in turn, how much competition in the export market the U.S. will face from the Southern Hemisphere.