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Weekly Farm Economics: Profitability and Acreage Shifts between Corn and Soybeans in Illinois

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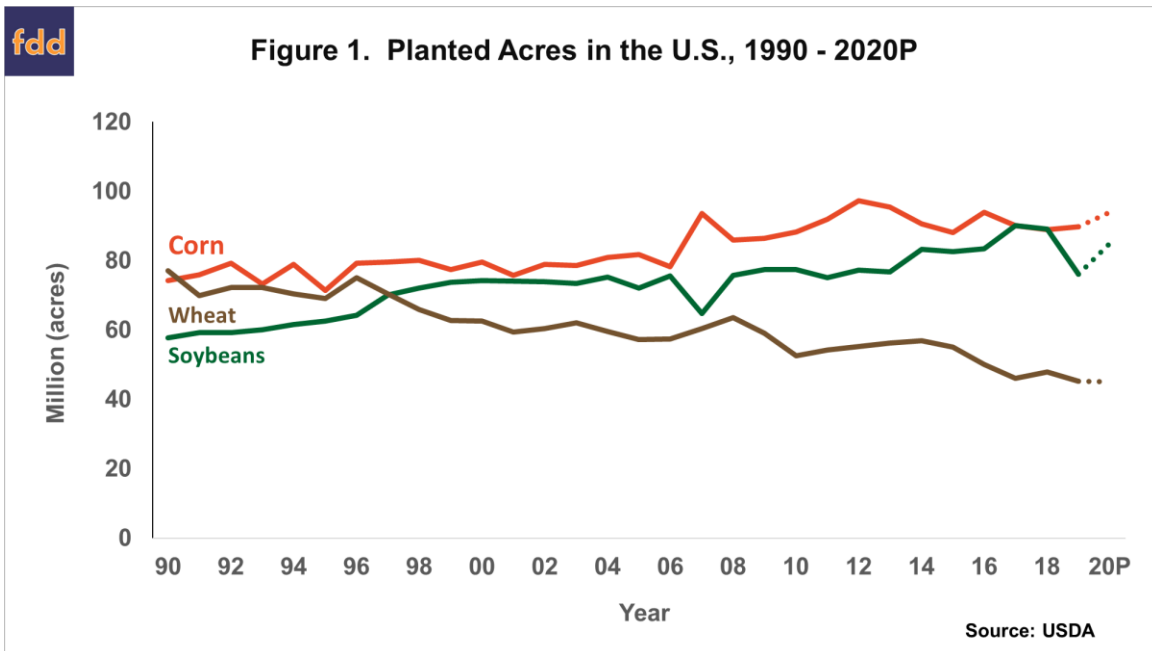
At its recent [Agricultural Outlook Forum](#), the U.S. Department of Agriculture (USDA) released estimates of 2020 planted acres in the United States, with both corn and soybean acres increasing from 2019 levels (see [Grain and Oilseed Outlook, February 21, 2020](#)). When compared to 2018 plantings, USDA is projecting a 2020 shift to more corn acres and fewer soybean acres across the United States. Projecting this shift across the U.S. seems reasonable. However, most of those shifts likely will occur outside of the corn belt. Estimated 2020 profitability in Illinois suggests relatively even acres of corn and soybeans in Illinois.

Projected Acreage Shifts in the U.S.

For corn and soybeans, USDA is projecting higher acreages in 2020, partly because 2019 acres were reduced because of prevented plantings (see Figure 1). Corn acres are expected to increase 4 million acres from 90 million acres in 2019 to 94 million acres in 2020. Soybean acres are projected to increase by 9 million acres from 76 million in 2019 to 85 million in 2020. Wheat acres are projected to remain the same in 2019 and 2020 at 45 million acres.

Given the prevalence of prevented planting acres in 2019, comparing acreage shifts from 2018 to 2020 provide a better illustration of recent trade difficulties impacts on expected acreage. These trade difficulties lowered soybean prices while corn prices remained roughly the same. National Market Year Average (MYA) prices for soybeans reported by the National Agricultural Statistical Service (NASS) were \$9.47 per bushel in 2016 and \$9.33 per bushel in 2017, the two years immediately preceding trade difficulties. Soybean prices are not projected to average above \$9.00 from 2018 through 2020: \$8.66 per bushel in 2018, a projected \$8.70 in 2019, and a projected \$8.80 in 2020. While soybean prices decreased, corn prices increased. MYA prices for corn were \$3.36 per bushel in both 2016 and 2017. MYA price averaged \$3.55 in 2018 and are projected at \$3.80 in 2019 and \$3.60 in 2020. These price changes caused corn returns to increase relative to soybean, leading to incentives to plant more corn acres. Between 2018 and 2020, corn acres are projected to grow 5 million from 89 million in 2018 to 94 million in 2020. Soybean acres are projected to decrease 4 million from 89 million acres in 2018 to 85 million acres in 2020.

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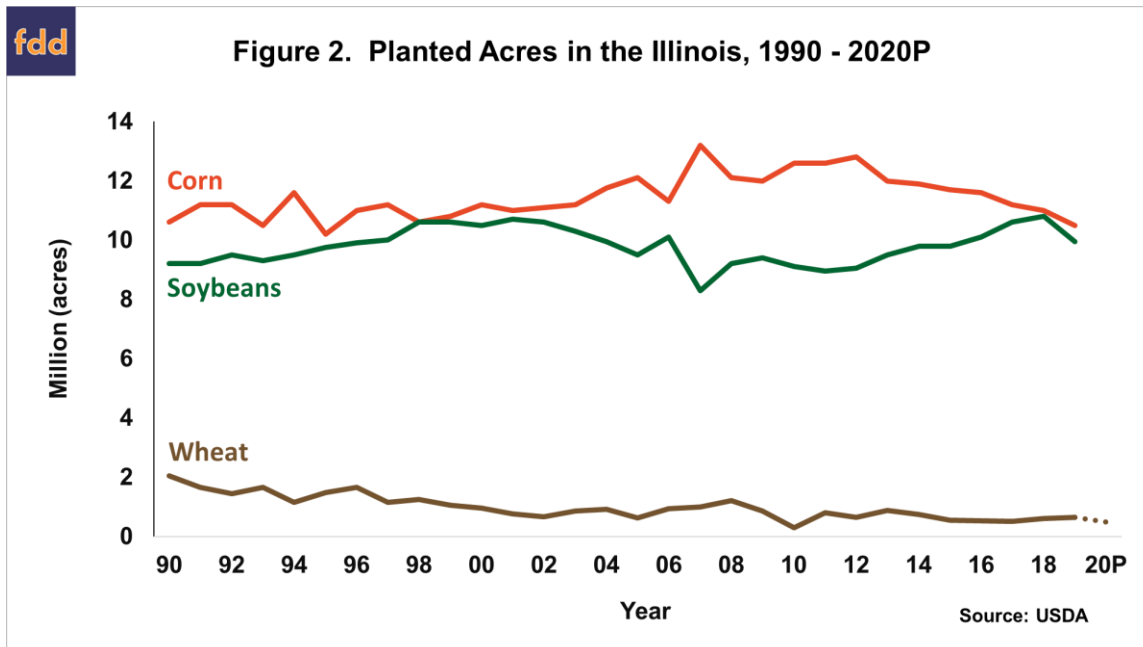


Illinois Corn and Soybean Acres

Because of prevented plantings, both corn and soybean plantings in Illinois were down in 2019 from 2018 levels. Corn plantings were 10.5 million acres in 2019, down from 11.0 million in 2018. Soybean planted were 10.0 million acres in 2019, down from 10.8 million acres in 2018.

Except for 2019, total acres in corn and soybeans in Illinois have remained about the same since 1990 at about 21.7 million acres. Prevented plant acres reduced this total in 2019 by 1.2 million acres. While total acres in corn and soybeans have remained the same, shifts in corn and soybean acres have occurred over time.

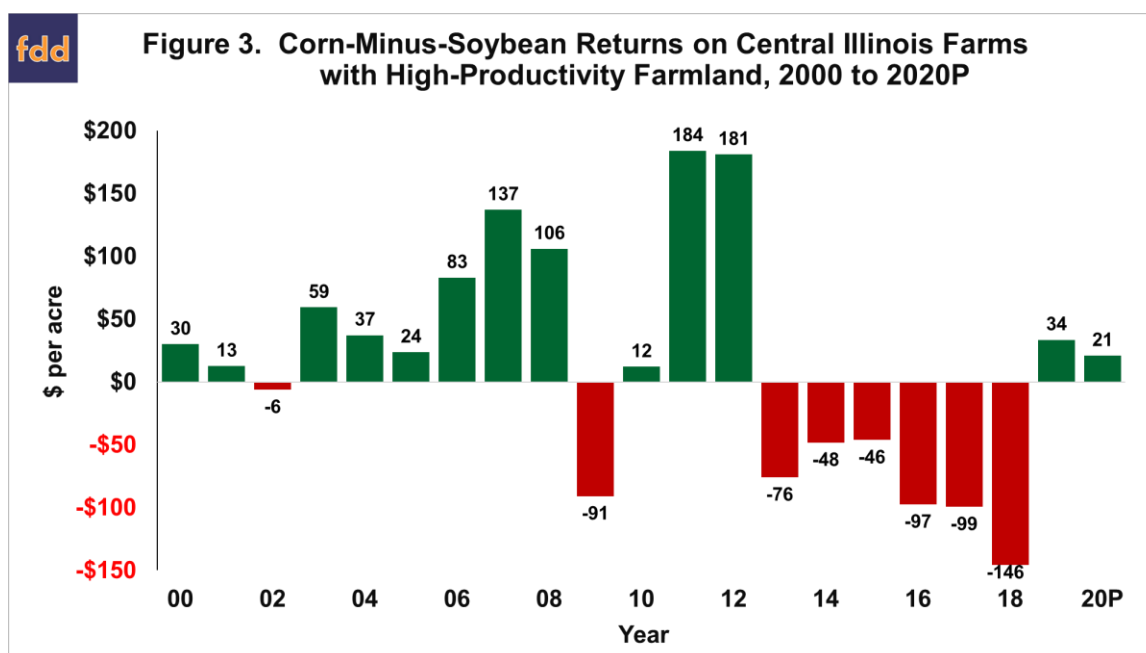
From 1998 to 2003, corn and soybean acres were relatively near one another, with corn acres exceeding soybean acres by less than 1 million acres (see Figure 2). During the 2007-2014 period, corn use in ethanol increased, resulting in higher corn prices relative to soybean prices, increasing the profitability of corn relative to soybeans, leading to more corn acres and fewer soybean acres. From 2007 to 2012, corn acres exceeded soybean acres by at least 2.0 million acres, with the largest difference of 4.9 million acres occurring in 2007. The build of ethanol capacity ended in the mid-2010s, while Chinese demand for soybeans continued to grow until 2018. Corn profitability fell relative to soybeans, and farmers switched acres from corn to soybeans. In 2018, 11.0 million corn acres were planted in Illinois, only 200,000 acres more than 10.8 million acres of soybean plantings. In 2019, corn acres were 10.5 million, 500,000 more than the 10.0 million of soybean planting. USDA has not projected state levels of corn and soybean production for 2020.



Profitability of Corn and Soybean in Illinois

Historical shifts in corn and soybean acres in Illinois have been related to the relative profitability of corn and soybeans. Figure 3 shows corn returns minus soybean returns from Central Illinois farms having high-productivity farmland enrolled in Illinois Farm Business Farm Management (FBFM). Positive values indicate that corn was more profitable than soybeans. Conversely, negative values indicate that soybeans are more profitable than corn.

From 2000 to 2002, corn and soybean returns were roughly the same (see Figure 3). Corn-minus-soybean returns were \$30 per acre in 2000, \$13 in 2001, and -\$6 in 2002. During this period, corn and soybean acres were relatively near one another.



From 2003 to 2012, corn returns exceeded soybean returns in all years, except 2009 (see Figure 3). Corn returns were over \$50 higher than soybean returns in 2006, 2007, 2008, 2011, and 2012. During this period, corn acres in Illinois grew while soybean acres declined.

From 2013 to 2018, soybeans were more profitable than corn (see Figure 3). Soybean returns exceeded corn returns by more than \$50 per acre in 2016, 2017, and 2018. During these years, farmers switched acres back to soybeans.

In 2019, corn was more profitable than soybeans by \$34 per acre. Responses to 2019 profitability differences are somewhat clouded because of late and prevented planting. Both corn and soybean acres were down in 2019. In a late planting year, one expects soybean acres to increase relative to corn acres because soybeans traditionally have lower yield declines than corn in a late planting year. In 2019, corn acres may have declined more had not there been expectations of higher corn prices in June.

In 2020, corn is projected to be \$21 per acre higher than soybeans. This difference between corn and soybean profitability is not large, suggesting that large acreage shifts will not occur. The \$20 per acre projected difference in 2020 is roughly the same as realized differences from 2000 to 2002. During those years, corn acres exceeded soybean acres by only a small margin. Given 21.7 million acres of corn and soybean plantings in Illinois, having 11.0 million acres of corn and 10.7 acres of soybeans seems reasonable.

Summary

At this point, corn is projected to be more profitable than soybeans in Illinois. However, historical relationships do not suggest large acreage shifts in Illinois. Corn and soybean acres in Illinois likely will be near one another. Major shifts in acres to corn from soybeans across the United States likely will come from outside the corn belt.

Reference

U.S. Department of Agriculture. "Grains and Oilseeds Outlook." Agricultural Outlook Forum 2020. Released February 21, 2020. https://www.usda.gov/oce/forum/2020/outlooks/Grains_and_Oilseeds.pdf