USDA and OECD Baseline Projections

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Every year, the United States Department of Agriculture (USDA) and the Organization for Economic Co-operation and Development (OECD) release their annual projections for agricultural commodity markets (USDA ERS (2021),OECD/FAO (2021)). These reports are useful for forward-looking policy analysis as well as planning. This marketing year, both agencies have made their projections assuming that the economy will begin recovering from the pandemic. However, the OECD baseline projections seem to be significantly more optimistic than the USDA projections for two major crops grown in Ohio: corn and soybeans. OECD projects that corn and soybean prices will increase more sharply over the next decade than USDA expects despite similar projected trends in yields.

USDA and OECD baseline projections

USDA provides 10 year baseline projections for agricultural commodities, agricultural trade, and aggregate indicators for the US farm sector and global trade. OECD is an international organization that works with the governments of 38 member countries to measure and analyze the factors driving global economic change. In collaboration with the Food and Agriculture Organization (FAO) of the United Nations, OECD publishes their annual agricultural outlook reports containing baselines projections for ten years in the future, much like the baseline reports of USDA. The major difference in OECD projections comes from the direct involvement of the governments of member countries. Moreover, these projections are developed using a model that links all commodity sectors and countries and ensures a global equilibrium. On the other hand, the USDA projections for the United States consider the international variables to be exogenous to the model.

Trends in corn and soybean yields, prices, and harvested areas

OECD corn farm price projections for 2021-30 start much higher at $4.23/bushel than USDA corn farm price projections which begin at $3.65/bushel as shown in Figures 1 and 2. Following a decrease for the next couple of years, the OECD projects corn price to rise sharply, while USDA expects the corn farm price to remain stable throughout the period. Similar differences can be observed for soybean farm prices: in the most recent reported year, OECD projects the soybean price to be $10.52/bushel in 2021/22 while USDA projects it to be $10/bushel. OECD expects the soybean price to rise consistently over the next decade while USDA expects it to be stable. Historical trends in figures 1 and 2 also show that OECD price projections had consistently started higher, and had steeper upward (i.e. more optimistic) trends for the last five marketing years (except 2019 where USDA price projections start higher than OECD). Research by the Farm Income Enhancement Program at The Ohio State University shows that price projections for USDA lose their informativeness after 2 years (Bora, Katchova, and Kuethe 2021), indicating flat trends by the USDA. More research needs to be conducted to study whether the optimistic, upward trends predicted by OECD remain informative farther into the future.

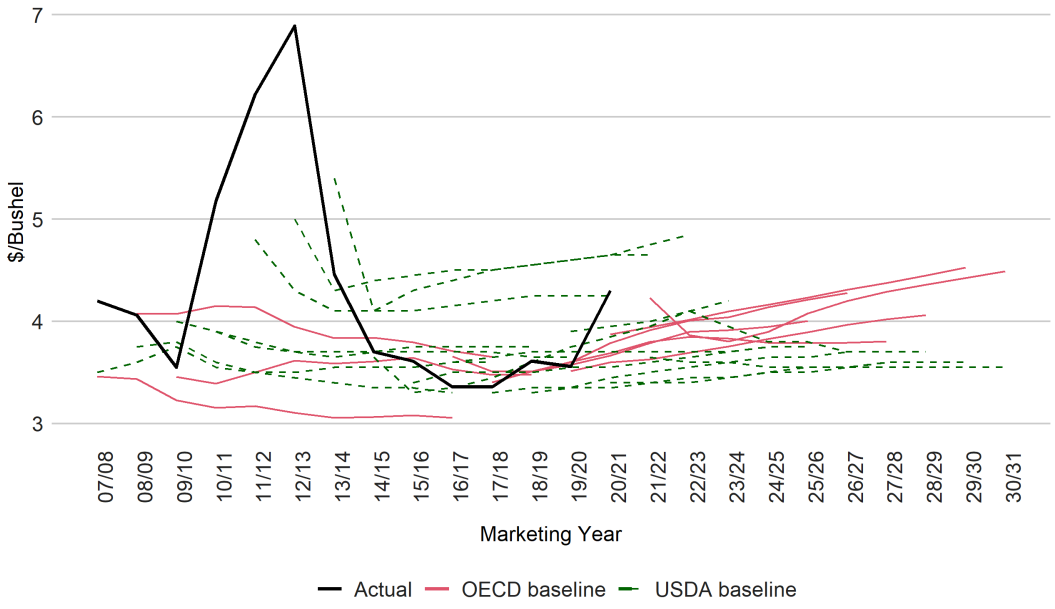

Figure 1: Corn Price Projections

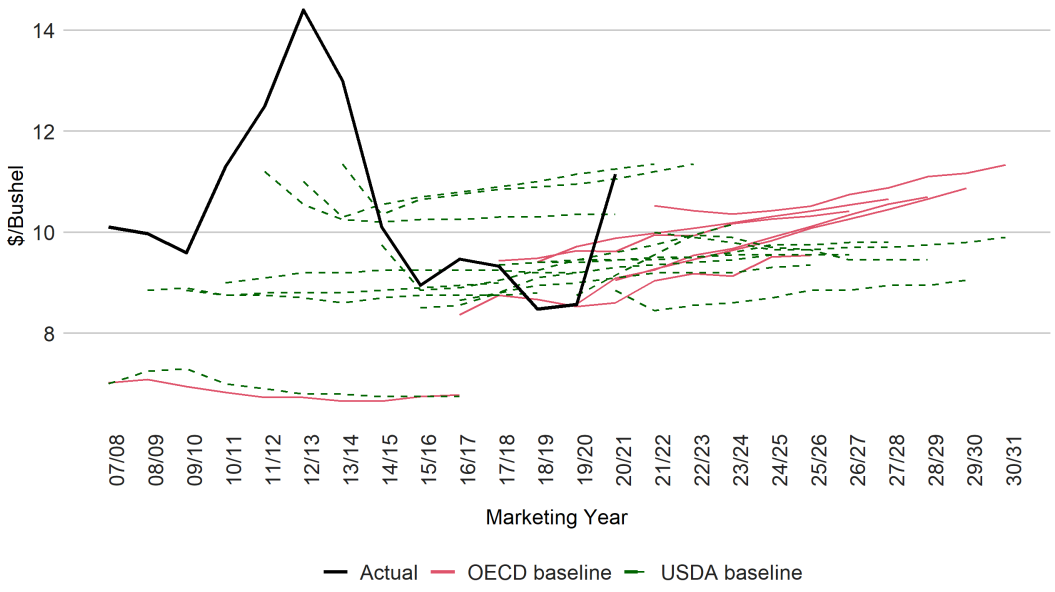

Figure 2: Soybean Price Projections

Both agencies forecast linear and upward trends in yields for corn and soybeans over the next decade (see figures 3 and 4). The OECD trends are driven by the macroeconomic assumption of increases in global corn and soybeans consumption and a higher US per capita income driving up local demand. USDA also projects steady increases in the corn and soybean yields and accounts for the increases to be proportionally utilized for increased domestic use and exports. It is interesting to note, though, that the USDA expects the productivity of corn and soybean farmers to be higher than the OECD projections. Since research shows that USDA yield projections remain informative for up to nine years into the projection period, the expected higher

productivity by corn and soybean farmers most likely should hold (Bora, Katchova, and Kuethe 2021). Both agencies appear to be extending the trend line from their previous year's projections for yields. Therefore, neither OECD nor USDA yield projections captured the non-linear trends of actual changes in the yields (compare the "Actual" line to "OECD baseline" and "USDA baseline" in the figures 3 and 4).

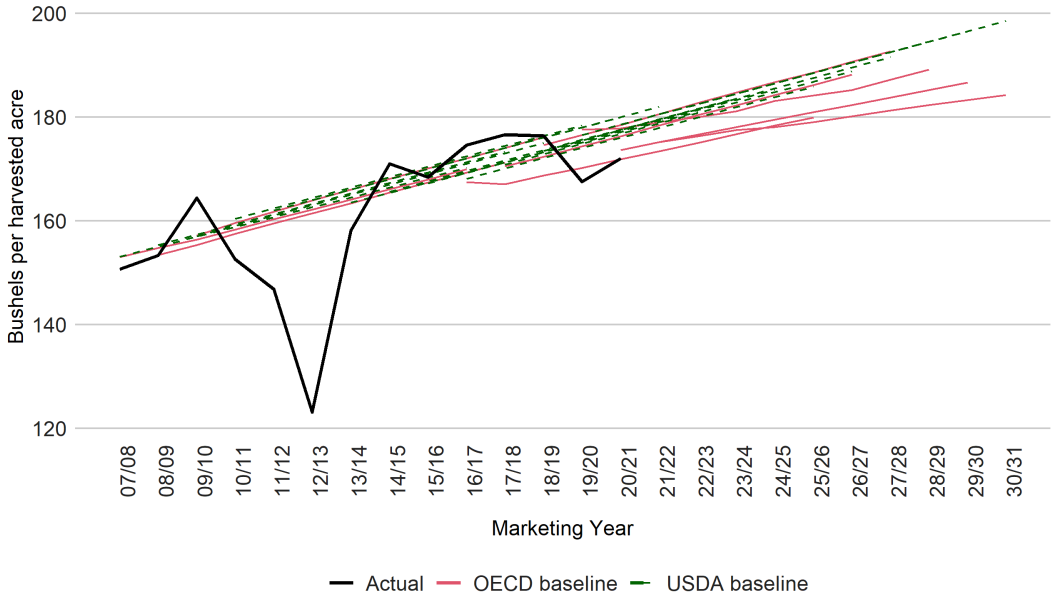

Figure 3: Corn Yield Per Acre Projections

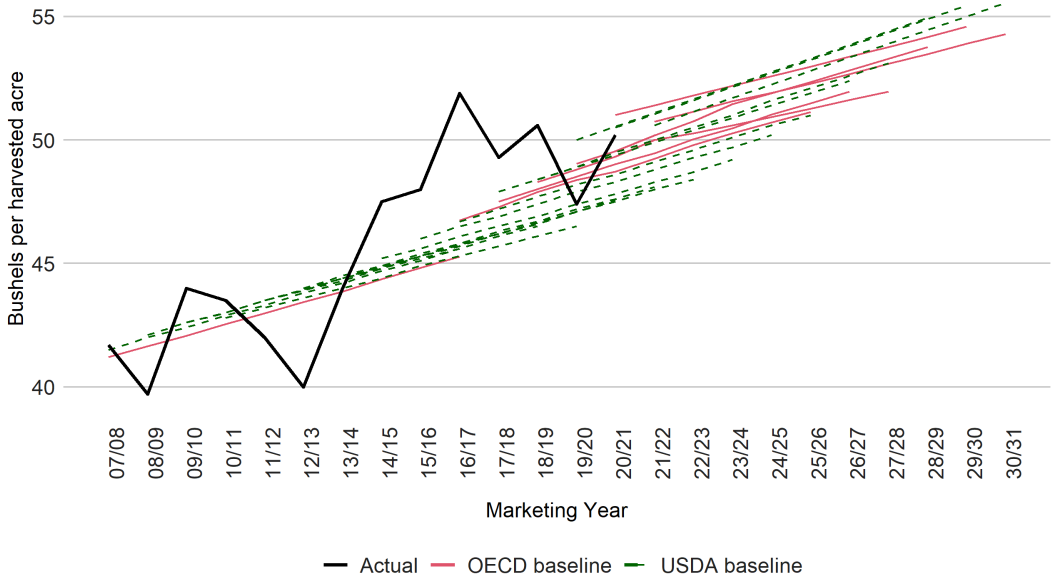

Figure 4: Soybean Yield Per Acre Projections

Both agencies expect the harvested area for corn and soybeans to remain fairly stable over the projection period 2021-30 as shown in figures 5 and 6. However, looking at the last five marketing years, both agencies' projections converge in their gradually downward shift for corn. On the other hand, OECD and USDA were both optimistic about the soybean harvested area until last marketing year, but this year's projections suggest that USDA expects soybeans area harvested to rise while OECD adjusted their projections for a decrease in soybean harvested area. In the year 2030/31, USDA projects approximately two millions lower harvested acres for corn than OECD in 2030/31. Consequently, USDA projects two millions higher harvested acres for soybeans than OECD in 2030/31. In other words, USDA supports a shift from corn to soybeans in the latest projections compared to the previous while OECD assumes no such shift. Since both agencies assume that the trade environment will be less restrictive for the US in the next decade (especially with regards to trade with China), the difference stems from the difference in rates of recovery and expectations about which crops will be favored to be grown in the US. USDA projects domestic use of corn to decline over the next decade and the expectation is that soybean exports will rise to record high along with steady increases in domestic use whereas the corn imports will fall over the projection period. On the other hand, OECD is projecting a scenario with stable increases in both crops leading to the difference in these projections.

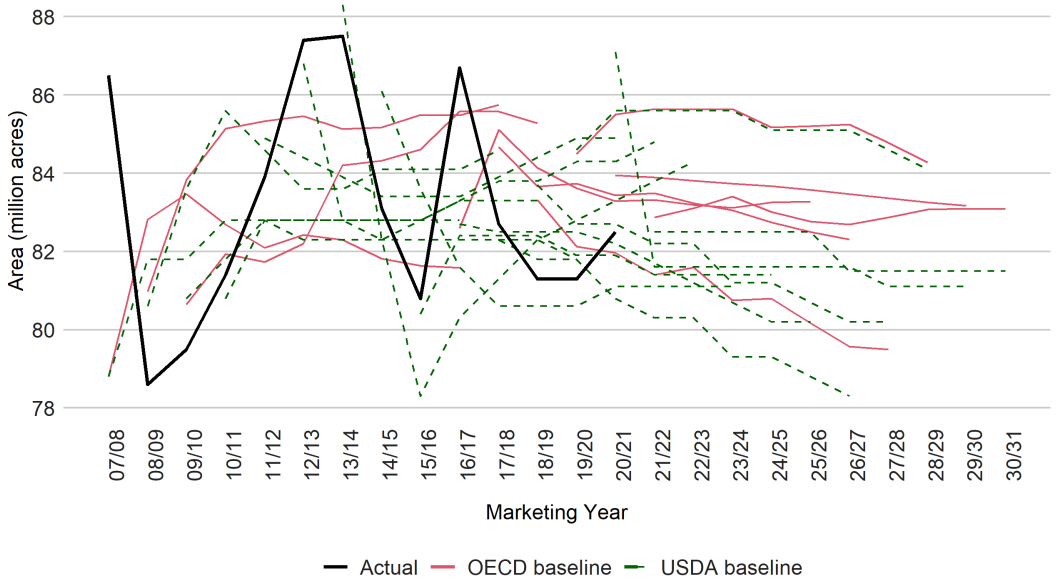

Figure 5: Corn Area Harvested Projections

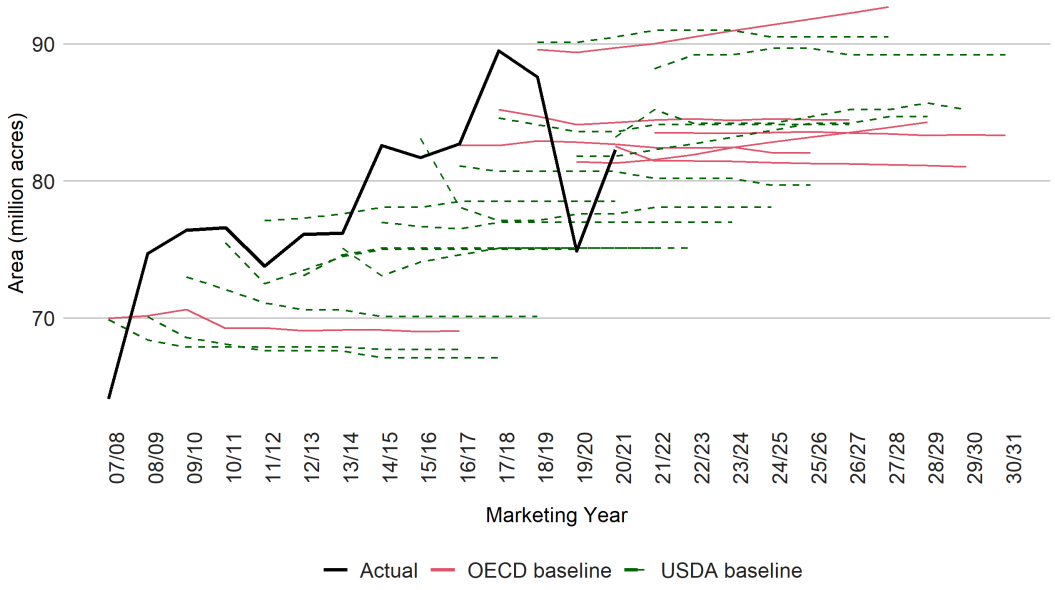

Figure 6: Soybean Area Harvested Projections

References

Bora, Siddhartha S., Ani L. Katchova, and Todd H. Kuethe. 2021. "The Rationality of USDA Forecasts Under Multivariate Asymmetric Loss." *American Journal of Agricultural Economics* 103 (3): 1006–33. https://doi.org/https://doi.org/10.1111/ajae.12142.

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