

Economic & Policy Update

E-newsletter Volume 24, Issue 2

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Department of Agricultural Economics
University of Kentucky



**FEB
2024**

Old Crop Balance Sheets and New Crop Projections: What would it take to get \$6.00 Corn and \$14.00 Soybeans?

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Published: February 28th, 2024

The first projections for the 2024/25 crop year were released on February 15th at the Ag Outlook Forum (AOF). These estimates indicate a more bearish situation in the 2024/25 marketing year than we are currently experiencing in 2023/24. As we came out of COVID/Russia-Ukraine-induced highs, prices have fallen rapidly. The season average price for corn in 2022/23 was \$6.54/bu and is projected to decrease to \$4.80 in 2023/24 and \$4.40 in 2024/25. Similarly, soybeans, which still had high futures prices at harvest, fell from a season average price of \$14.30 in 2022/23 to a projected season average of \$12.65 in 2023/24 and are projected to decline further to a season average of \$11.20 in 2024/25. Farmers will likely experience lower commodity prices until another economic shake-up or drought-induced supply shock occurs. Prices returning to \$6.00/bu for corn and \$14.00/bu for soybeans seem unrealistic in the current environment.

The crop balance sheets from the AOF are depicted in Figure 1 and Figure 2 and give specific insight into supply and demand changes causing the fall of commodity prices. Looking at Figure 1, large corn production in 2021/22 was offset by abnormally high export numbers, where supply dropped in 2022/23, causing a low stocks-to-use (stocks/use) ratio. A similar story can be told for soybeans in Figure 2. Overall, as production has increased and demand has fallen, ending stocks have grown, and prices have declined.

The stock/use ratio is likely the most important number in the crop balance sheet and can be calculated by dividing the ending stocks by the total use. In both the case of soybeans and corn, we can see that higher prices occurred when the ratio was closer to zero. The ratio is projected to increase in both 2023/24 and 2024/25, indicating a bearish market. The stocks/use ratio provides a simple but accurate way to predict price environments. Using this ratio, I estimate how large of a shock would need to occur in supply or demand to induce prices near \$6.00/bu in corn and \$14.00/bu in soybeans in 2024/25.

On the supply side, if we held all else constant, corn supply would have to fall by 5.87 million acres or 12.79 bu/acre to near \$6.00/bu. Soybean supply would have to drop by 3.25 million acres or 1.95 bu/acre to near \$14.00/bu. On the demand side, total use (exports and domestic use) would have to increase by nearly 950 million bushels in corn and 159 million bushels in soybeans, respectively. Changes for upside potential seem more realistic in beans; however, beans are typically the hardier

crop, and yield changes are less probable. Additionally, soybeans are lower yielding; thus, a smaller shift in yield indicates a larger percentage change and induces a larger price swing, which is reflected in the volatility of soybean markets.

The sad fact is that corn and soybean prices are likely to remain depressed for the foreseeable future, at least until a large supply or demand shock occurs. The push for renewable/sustainable energy in both crops shows some promise and could have long-term upside potential; however, large changes are unlikely to happen in the short term. Returns to expansion in biodiesel and ethanol/sustainable aviation fuel are further on the horizon. Until these changes occur, producers should think about how to sustain their operations in lower-price environments.

Figure 1: AOF Corn Balance Sheet

U.S. Corn Supply and Use					
Marketing Year (2022 = 9/1/22 to 8/31/23)		2021/22	2022/23	2023/24 (WASDE)	2024/25 (AOF)
Area Planted	(mil. acres)	92.9	88.2	94.6	91.0
Area Harvested	(mil. acres)	85.0	78.7	86.5	83.1
Yield	(bu./acre)	176.7	173.4	177.3	181.0
Production	(mil. bu.)	15,018	13,651	15,342	15,040
Beg. Stocks	(mil. bu.)	1,235	1,377	1,360	2,172
Imports	(mil. bu.)	24	39	25	25
Total Supply	(mil. bu.)	16,277	15,066	16,727	17,237
Feed & Residual	(mil. bu.)	5,671	5,487	5,675	5,750
Food, Seed, and Industrial	(mil. bu.)	6,757	6,558	6,780	6,805
<i>Ethanol</i>	(mil. bu.)	5,320	5,176	5,375	5,400
Exports	(mil. bu.)	2,472	1,661	2,100	2,150
Total Use	(mil. bu.)	14,900	13,706	14,555	14,705
Ending Stocks	(mil. bu.)	1,377	1,360	2,172	2,532
Stocks/use	(percent)	9.24	9.92	14.92	17.22
Season-Average Price	(\$/bu.)	6.00	6.54	4.80	4.40

Figure 2: AOF Soybean Balance Sheet

U.S. Soybean Supply and Use					
Marketing Year (2022 = 9/1/22 to 8/31/23)		2021/22	2022/23	2023/24 (WASDE)	2024/25 (AOF)
Area Planted	(mil. acres)	87.2	87.5	83.6	87.5
Area Harvested	(mil. acres)	86.3	86.2	82.4	86.6
Yield	(bu./acre)	51.7	49.6	50.6	52.0
Production	(mil. bu.)	4,464	4,270	4,165	4,505
Beg. Stocks	(mil. bu.)	257	274	264	315
Imports	(mil. bu.)	16	25	30	15
Total Supply	(mil. bu.)	4,737	4,569	4,459	4,835
Crush	(mil. bu.)	2,204	2,212	2,300	2,400
Seed and Residual	(mil. bu.)	107	101	124	125
Exports	(mil. bu.)	2,152	1,992	1,720	1,875
Total Use	(mil. bu.)	4,463	4,305	4,144	4,400
Ending Stocks	(mil. bu.)	274	264	315	435
Stocks/use	(percent)	6.10	6.13	7.60	9.89
Season-Average Price	(\$/bu.)	13.30	14.30	12.65	11.20

Recommended Citation Format:

Gardner, G. "[Old Crop Balance Sheets and New Crop Projections: What would it take to get \\$6.00 Corn and \\$14.00 Soybeans?](#)" *Economic and Policy Update* (24):2, Department of Agricultural Economics, University of Kentucky, February 28th, 2024.

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