

Impacts of Coronavirus on 2019 Corn Revenue

Report prepared for National Corn Growers Association

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Coronavirus and the attendant COVID-19 control measures have had large negative impacts on cash corn prices. As a result of these price declines, corn farmers face declines in revenue on stored 2019 crop. This document provides an assessment of this immediate impact on corn farmers. Other impacts, such as reductions in returns from 2020 crop production, are not evaluated in this document. Losses from 2020 revenue likely will be larger than losses estimated here for 2019 production.

Cash Corn Prices in 2019

As a result of COVID-19, cash corn prices have declined. Figure 1 shows cash corn prices in central Illinois from January 2, 2020, to April 15, 2020. These data come from the Agricultural Marketing Service (AMS), an agency of the U.S. Department of Agriculture. A decimation point for COVID-19 impacts used here is March 1. At that point, concerns about Coronavirus became evident and COVID-19 control measures began to be introduced.

As can be seen in Figure 1, cash corn prices have fallen since March. During January and February, cash corn prices averaged \$3.68 per bushel. From April 1 to 15, prices averaged \$3.15 per bushel, a decline of \$.63 from January-February, or a 17% decrease.

Central Illinois is not the only part of the country facing declining corn prices. Table 1 shows average corn prices in January-February and in April for AMS reported sites. All delivery points for which complete data are contained in this table. Prices represent truck delivery. For all the delivery points shown in Table 1, the average decline was \$.60 per bushel, or a 16% decline. Some areas had larger declines. All areas with a decline of 20% or more are bolded in Table 1. Areas with larger declines occur primarily in the western Corn Belt or near ethanol plants (Toledo is an exception to this explanation).

Note that these prices are as of the middle of April. So far, corn prices have been on a steady decline since March. The full impacts of Coronavirus still may not be fully reflected in markets. Hence, 2019 market year losses could be worse than those shown here. Corn will be one of the most impacted crops as its two largest uses – livestock feed and ethanol – are under pressure. Impacts of reduced livestock demand are just beginning to come to bear in the market, as livestock processing plants are beginning to be disrupted.

Revenue Declines on 2019 Crop

Lower prices will result in lower revenue on unsold 2019 crop. Marketing weights published by the National Agricultural Statistical Service (NASS) suggest that 40% of the crop is priced in the months from March through September, the later months of the marketing year. To estimate

revenue declines, Market Year Average (MYA) prices were estimated after the COVID-19 responses.

In February, the Office of Chief Economist of USDA) published estimates of 2019 MYA prices in their World Agricultural Supply and Demand Estimate (WASDE) report. Those February WASDE prices were the same as presented at the U.S. Agricultural Outlook Forum as estimates for the 2019-2020 marketing year. Estimated MYA prices for 2019 were \$3.85 per bushel for corn, \$8.75 per bushel for soybeans, \$4.55 per bushel for wheat, and \$.62 per pound for cotton (see Table 1). These prices serve as good indicators before COVID-19 became a concern.

Post-COVID prices were estimated using Microsoft Excel spreadsheets made available by the Economic Reporting Service (ERS), an agency of the USDA¹. ERS methods begin with estimates of monthly prices. Actual monthly prices were used for months that NASS has published those data. For the 2019-2020 market year, prices currently are available through February. For remaining months in the marketing year, settlement prices on futures contracts were used to estimate monthly prices. These are the months from March to August for corn and soybeans. Monthly marketing weights are used to calculate a weighted average of monthly prices to give an estimate of the MYA price. Futures prices were taken from April 11 in the following estimates.

The post-COVID prices were estimated at \$3.55 per bushel for corn, \$8.55 for soybeans, \$4.64 per bushel for wheat, and \$.5839 per pound for cotton. Corn and soybean prices respectively declined by \$.30 and \$.20 per bushel. Wheat prices increased. Cotton prices decreased by .0351 per pound.

Revenue Declines on 2019 Crop

Price declines will lower revenue associated with the 2019 crop. An estimate of the revenue decline can be found by multiplying the price decline by yield produced in 2019. The national yield was 168 bushels per acre. A \$.30 decline in price would result in a revenue decline of -\$50 per acre. Revenue declines will vary across producers depending on yield and percent of crop remaining to be marketed. This estimate does not include any hedging done with future contracts but would include forward contracting.

Revenue declines are estimated at -\$11 per acre for soybeans. Wheat revenue increased by \$5. Cotton declined by \$29 per acre. Compared to the other crops, corn has a much larger revenue decline of \$54 per acre. Ethanol and livestock use predominate as uses for corn, both of which are having great difficulties in the current environment. These difficulties then lead to corn having the highest price and revenue decline.

ARC and PLC Payments for 2019

In many cases, lower MYA prices will result in higher 2019 commodity title payments. Payments were re-estimated using the post-COVID prices shown in Table 1. While data currently is not available from the Farm Service Agency, PLC is believed to be elected by most farmers for corn. The \$3.55 MYA price is below the \$3.70 effective reference price for corn and will result in a PLC payment. The PLC payment will equal

$$.85 \times \text{PLC yield} \times (\$3.70 \text{ effective reference price} - \$3.55 \text{ MYA estimate}).$$

¹ Spreadsheets are available for corn, soybeans, wheat, and cotton. These can be downloaded from the ERS website at <https://www.ers.usda.gov/data-products/season-average-price-forecasts/>.

where the PLC yield varies from farm to farm. The above estimate does not include any reductions due to sequestration, which equaled 6.2% for 2014 Farm Bill payments. Based on national yields from 2013 to 2018, an estimate of the PLC yield across all Illinois farms is 137 bushel per acre. This estimate results in an average 2019 PLC payment of \$17 per base acre.

Summary and Commentary

Nationally, revenue declines are projected at \$50 per acre for corn. Some areas will have larger losses. For corn, an average PLC payment of \$17 per base is projected for corn. Note that commodity title payments will be made on base acres, not on planted acres. Hence, adding the \$17 to the \$50 loss for corn is not strictly correct. Still, the increase in corn PLC payment will not cover 2019 revenue losses. Even accounting for a PLC payment, corn will have larger losses than soybeans, wheat, and cotton. Further note that no increases in payments for commodity title programs have been included for soybeans, wheat, and cotton.

Revenue projections are made in the middle of April. So far, corn prices have been on a steady decline since March. The full impacts of Coronavirus still may not have been fully reflected in markets. Hence, 2019 market year losses could be worse than those shown here.

Also, 2019 revenue was not exceptional. Only Market Facilitation Program payments caused many farms to have financial stability in 2019. Losses in 2019 revenue are eroding the impact of 2019 MFP payments.

Finally, losses associated with the 2019 crop likely will not be the largest revenue losses felt by corn and soybean farmers. Outlook for 2020 production is bleak. Serious erosions in financial position will occur without significant Federal aid.

Figure 1. Central Illinois Cash Corn Prices, January 2, 2020 to April 6, 2020



Table 1. Cash Prices For Number 2 Yellow Corn for Truck Delivery, 2020.

Location ¹	Cash Price			Percent Change	Location ¹	Cash Price			Percent Change
	Jan-Feb ²	April ³	Change ⁴			Jan-Feb ²	April ³	Change ⁴	
Anderson-Easley, SC	\$/bu. 4.31	\$/bu. 3.85	-\$0.46	-11%	North Central Colorado, CO	\$/bu. 4.11	\$/bu. 3.49	-\$0.61	-15%
Cassatt, SC	4.52	4.00	-0.52	-12%	North Central Illinois, IL	3.75	3.14	-0.61	-16%
Central Illinois, IL	3.78	3.15	-0.63	-17%	North Central Iowa, IA	3.61	2.89	-0.71	-20%
Central Kansas, KS	3.84	3.21	-0.64	-17%	North East Iowa, IA	3.58	2.93	-0.65	-18%
Central Nebraska Panhandle, WY	3.59	2.95	-0.63	-18%	North West Iowa, IA	3.77	2.94	-0.83	-22%
Cincinnati, OH	3.93	3.46	-0.48	-12%	Northeast Colorado, CO	3.61	3.07	-0.54	-15%
Conway, SC	4.21	3.70	-0.52	-12%	Northern Illinois, IL	3.63	3.06	-0.57	-16%
Decatur-Central Illinois, IL	3.93	3.21	-0.72	-18%	Northern Nebraska Panhandle, WY	3.37	2.76	-0.61	-18%
Denver, CO	4.10	3.41	-0.69	-17%	Omaha-Council Bluffs Grain Bids, NE	3.80	3.10	-0.70	-18%
East Central Colorado, CO	3.58	3.00	-0.58	-16%	Orangeburg, SC	4.57	4.63	0.07	1%
East Iowa, IA	3.77	3.04	-0.72	-19%	Ponca City, OK	3.61	3.15	-0.46	-13%
East River-So. Dakota, SD	3.62	2.81	-0.81	-22%	Rural Nebraska Elevator Grain Bids, NE	3.63	2.91	-0.72	-20%
ECB Ethanol Plant, IL	3.97	3.14	-0.82	-21%	Shattuck, OK	3.92	3.39	-0.52	-13%
Estill, SC	4.21	3.70	-0.52	-12%	South Central Illinois, IL	3.80	3.16	-0.64	-17%
Hamer, SC	4.22	3.70	-0.52	-12%	South Central Iowa, IA	3.62	3.06	-0.56	-15%
Hooker, OK	3.92	3.40	-0.52	-13%	South East Iowa, IA	3.61	3.11	-0.50	-14%
Illinois River North of Peoria, IL	3.80	3.30	-0.50	-13%	South West Iowa, IA	3.64	2.92	-0.72	-20%
Illinois River South of Peoria, IL	3.84	3.34	-0.50	-13%	Southeast Colorado, CO	3.68	3.17	-0.50	-14%
Kansas City, MO	3.93	3.27	-0.66	-17%	Southern Minnesota, MN	3.74	2.96	-0.78	-21%
Kansas, KS	3.98	3.32	-0.67	-17%	Southern Nebraska Panhandle, WY	3.60	2.96	-0.64	-18%
Keyes, OK	3.90	3.45	-0.45	-12%	Southwest Nebraska / Southeast Wyoming, CO	3.58	3.13	-0.45	-13%
Kingstree, SC	4.21	3.70	-0.52	-12%	Sumter, SC	4.96	4.14	-0.82	-17%
L.Egypt, IL	3.77	3.29	-0.48	-13%	Toledo, OH	4.03	3.22	-0.81	-20%
Lynchburg, SC	4.21	3.70	-0.52	-12%	W.S. West, IL	3.82	3.33	-0.49	-13%
Manchester, OK	3.64	3.04	-0.60	-17%	Wabash, IL	3.91	3.16	-0.75	-19%
Medford, OK	3.62	3.15	-0.47	-13%	Weatherford, OK	3.79	3.29	-0.50	-13%
Minnesota, MN	3.66	2.84	-0.82	-22%	West Iowa, IA	3.81	2.97	-0.84	-22%
Missouri, MO	3.81	3.25	-0.56	-15%	Western Illinois, IL	3.63	3.17	-0.46	-13%
Monetta, SC	4.92	4.19	-0.72	-15%	Western Kansas, KS	3.61	3.11	-0.49	-14%
Mt. Vernon - Evansville, IN	3.97	3.52	-0.45	-11%	Wisconsin - Eastern Minnesota, MN	3.67	2.88	-0.79	-22%
Nebraska, NE	3.75	2.99	-0.77	-20%	Wyoming, WY	3.60	3.13	-0.47	-13%
					Average	3.86	3.26	-0.60	-16%

1 Locations for which Agricultural Marketing Service (AMS) reports cash data. Serise in this table had reasonably complete data.

2 Average of prices for January and February, 2020.

3 Average of prices from April 1 to April 15, 2020.

5 April average minus Jan-Feb average.

Source: Agricultural Marketing Service, U.S. Department of Agriculture

Table 2. Change in Revenue Per Acre After Coronavirus, U.S., 2019-2020 Marketing Year

Crop	Unit	Price		Change ³	Percent	2019 Yield ⁴	Change in Revenue ⁵
		Pre-COVID ¹	Post-COVID ²				
						acre	\$/acre
Corn	Bu	3.85	3.55	-0.30	-8%	168.0	-\$50
Soybeans	Bu	8.75	8.55	-0.20	-2%	49.8	-\$10
Wheat	Bu	4.55	4.64	0.09	2%	51.7	\$5
Cotton	Pound	0.6200	0.5849	-0.0351	-6%	817	-\$29

¹ Based on price in February WASDE

² Based on ERS models using futures prices for remaining of the year

³ Pre-COVID price minus post-COVID price

⁴ National yield for 2019

⁵ Change in revenue per acre