

# A Preliminary Estimate of 2020 Kansas Net Farm Income

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## Abstract

Kansas Farm Management Association (KFMA) farms are used to estimate Kansas net farm income for 2020. Using 2019 as a baseline, net farm income (NFI) is expected to fall in 2020 from an average of \$110,380 to \$14,358; a reduction of 87%. Without considering the MFP in 2019, the drop is 71%. Farms with a substantial contribution to income from livestock production are expected to fare the worst with the average NFI falling from \$35,552 (without the MFP payment) to a negative \$14,934; a decline of 142%.

## Introduction

The Kansas Farm Management Association (KFMA) released its 2019 state summary of income and expenses. This past year, there were 970 farms with useable records for analysis. Although the KFMA farms are not representative of every Kansas farm, these farms do provide good insight into the profitability and financial structure of Kansas agriculture producers.

The COVID-19 virus has impacted nearly every aspect of life and Kansas agriculture has not been exempt. At the start of the year, Kansas farmers were coming off a year that had seen net farm income rise for four straight years. Producers were hopeful that 2020, with the trade agreement with China in place, could at least match the profitability of 2019. However, the coronavirus has drastically altered those expectations. To provide producers some guidance about how the virus may affect their 2020 net farm income, this article provides an analysis of projected income and expenses for Kansas.

This particular article discusses projected 2020 net farm income and examines the change from 2019. A future article will examine the impacts at the enterprise level for corn, soybeans, wheat, and grain sorghum. A companion article by Glynn Tonsor examines 2020 income expectations for the livestock sector in Kansas.

## Methods

The 2019 KFMA state summary is used for a baseline in this analysis and then adjusted to provide an estimate of 2020 revenues and expenses. The resulting 2020 average NFI is then compared to the 2019 result to show the percentage change in NFI. As might be expected, most revenue items are estimated to be lower. Offsetting the lower revenue are higher government payments and some lower expenses, especially fertilizer and diesel fuel. Specific revenue and expense items are discussed below.

*Beef revenue* - The KFMA beef revenue is adjusted by using revenue numbers per animal from the KFMA beef enterprise studies. KFMA provides several beef enterprise analyses. In particular, the “Beef Cows – Feeders”, the “Beef Cows – Calves” and the “Beef Background” studies are used as the 2019 animal values for the baseline. Tonsor, in his 2020 livestock analysis, provides an estimate of per head damage. This percentage change between the baseline and the 2020 estimate is used to adjust the beef revenue line item. It is estimated that beef revenue may fall by 20% in 2020.



*Milk revenue* – Milk prices rose toward the end of 2019 and the price for Class III milk was in the low \$16 range to end the year. Future prices have dropped because of the virus but future prices starting in the summer have moved back into the \$16 range again. Thus, with no clear trend for milk prices, a 2% revenue reduction is assumed.

*Swine revenue* – The Iowa State Center for Agricultural and Rural Development is forecasting a 30% drop in revenue for 2020. However, their analysis is also based on higher hog prices for 2020 that were forecast in January. Because the average monthly price in 2019 from the USDA was \$52/cwt, the actual reduction in swine revenue from 2019 to 2020 will not be as large. Thus, total swine revenue is forecast to be 20% lower in 2020 from 2019.

*Corn, soybeans, wheat, and grain sorghum revenue* – 2020 price estimates are provided by Dan O’Brien. The baseline 2019 grain prices are from the KFMA state enterprise summary. Corn prices are expected to decline by 16%, soybeans by 12%, wheat by 1%, and grain sorghum by 2%. One additional change to the analysis is a yield adjustment to match the average of the last five years crop yields for a farm’s Crop Reporting District (CRD). In this adjustment, 2019 CRD district yield is compared to the 5-year average and that percentage difference is used to adjust each individual farm’s yield. Another assumption is that the crop mix is assumed to stay the same as in 2019.

*Government payments* – The 2019 government payment number is reported both with and without the Market Facilitation Program (MFP) payments. The 2020 NFI income estimate does not include MFP payments. Without the MFP payment, the government payment averaged nearly \$20,000 per farm in 2019, while the 2019 MFP payment averaged around \$60,000 per farm.

The 2020 government payment is estimated on the PLC potential payment. Most farms in Kansas have chosen the PLC option on all crops but soybeans. Farms in the southeast part of the state chose ARC on their soybean base. Soybeans, under PLC are unlikely to provide a payment but in some southeast counties the possibility of a soybean payment is higher under ARC. Estimates of per bushel payment under PLC come from the April 30 update by Rich Llewelyn and Art Barnaby (<https://www.agmanager.info/crop-insurance/risk-management-strategies/mya-price-estimates-updated-arc-and-plc-commodity-0>). Current estimates of PLC payments are \$0.88 for wheat, \$0.77 for grain sorghum, and \$0.07 for corn.

The expected payment per KFMA farm crop acre is calculated using FSA spreadsheets to find the crop base for the county and then multiplying each base acre by the expected payment and the average 5-year yield. These are summed, divided by the total base acres, and multiplied by 0.85 to find the expected government payment per county crop acre. It is assumed that an individual farm has a base mix similar to the county average. When averaged across all KFMA farms, the expected government payment is about twice the 2019 payment.

*Crop insurance revenue* – The most popular crop insurance product is Crop Revenue Coverage that provides both a price and yield component. The price used in this policy was set earlier in the year before the effects of the coronavirus took hold. Thus, what may have looked like a poor price at the start is now looking more attractive. A higher crop insurance contract price relative to the current price could increase the payout to farmers. However, offsetting this was a record of prevented plantings in 2019. Across the US, the number of prevent plantings was 20 million acres, nearly double the previous record. As prevent plantings are expected to



be lower in 2020, crop insurance payments from this source will decline as well. When factoring in these two offsetting changes to crop insurance for 2020, a 10% increase for crop insurance revenue was used in the analysis.

*Cash rent* – Cash rental rates are assumed to be similar to 2019. There is likely to be little renegotiation of existing rental contracts. However, any new rental contracts, especially between new landlords and tenants could well be lower. Thus, a 2% reduction in cash rent expenses is used in the analysis.

*Fertilizer expenses* – Fertilizer expenses are expected to decline significantly during 2020. Following the fertilizer price model developed by Ibendahl (<https://www.agmanager.info/events/risk-and-profit-conference/previous-conference-proceedings/2019-risk-and-profit-conference/17>) which uses lagged oil prices and the futures prices of corn, anhydrous ammonia is expected to decline from \$560 to \$424 by fall (national price projection). This would be a 24% decline in fertilizer prices during 2020. However, farmers likely purchased much of their 2020 fertilizer needs either last fall or early in 2020. Thus, the fertilizer cost reduction used in this paper is half of the 24% or 12% for 2020. Farmers will see much of the benefit of lower fertilizer prices for the 2021 crop.

*Diesel and fuel expenses* – Like fertilizer, fuel prices have decreased significantly during the spring of 2020. Diesel prices should be 20% lower in 2020 compared to 2019. However, farmers likely purchased at least some of their fuel before the price decline started so this analysis used half of the expected decline of 20% (i.e., a 10% decline is used in the NFI calculation).

*Interest expense* – Currently, KFMA farms pay an effective interest rate of 4.5% on all their debt capital. In 2019, KFMA farms increased their debt levels by 4%. Assuming, this level of debt increase remains the same in 2020 and that interest rates stay the same as well, farmers can expect to have a 4% higher interest expense in 2020.

All of these percentage declines or increases are applied to each of the 970 individual farms to calculate a distribution of net farm incomes.

## Results

Table 1 shows the average expected revenue and expenses for 2020 as well as the baseline of 2019. Net farm income is expected to decline from \$110,380 to \$14,358; a decline of 87%. A better comparison though might be to compare 2019 NFI without the MFP payment to the estimated 2020 NFI, as MFP payments in 2020 are uncertain. The 2019 NFI without the MFP payment was \$49,963 so the decline from this level would still be a 71% decline.

Figure 1 shows a cumulative distribution for the 2019 NFI both with and without the MFP payment. It also shows the estimated 2020 NFI. At any given NFI amount, the graph shows the percentage of farms that have that particular level of NFI or lower. The 50-percentile point is the median level of NFI. Normally a cumulative distribution shows a line from 0 to 100 percent to represent the entire distribution of farms. However, because there is such a wide variation in NFI, the tails have been trimmed to highlight the main area of the graph.

As Figure 1 shows, even with the MFP payment, 18% of KFMA farms lost money in 2019. In 2020, it is estimated that over 40% of farms will lose money. Nearly 70% of farms will earn a net income below \$50,000. This is a level far below the typical family living needs.



Figures 2 and 3 break out KFMA farms into grain farms and non-grain farms. Nearly two-thirds of farms are grain farms. The non-grain farms are livestock farms or grain farms with a large livestock presence. The difference between these two farm types should be readily apparent. Grain farms in 2020 are expected to earn a lower net income than in 2019 but still similar to the 2019 without the MFP payment. Crop insurance and government program payments help to make up for the shortfall in grain prices.

Livestock farms will have a very difficult year. The number of farms earning negative profits is expected to increase from 40% to nearly 60%. Twenty percent of livestock farms will lose over \$75,000.

### **Conclusion**

This is expected to be a difficult year for nearly every Kansas producer. Fortunately, the above analysis is not the end of the story. The USDA recently finalized the Coronavirus Food Assistance Program. The CARES Act and CCC Charter Act have collectively committed to providing \$16 billion in direct assistance to producers of non-specialty crops, livestock, dairy, and specialty crops that have experienced a significant price loss between mid-January and mid-May and/or face significant additional marketing costs. Additional analysis will be added later in the year as government programs are finalized.

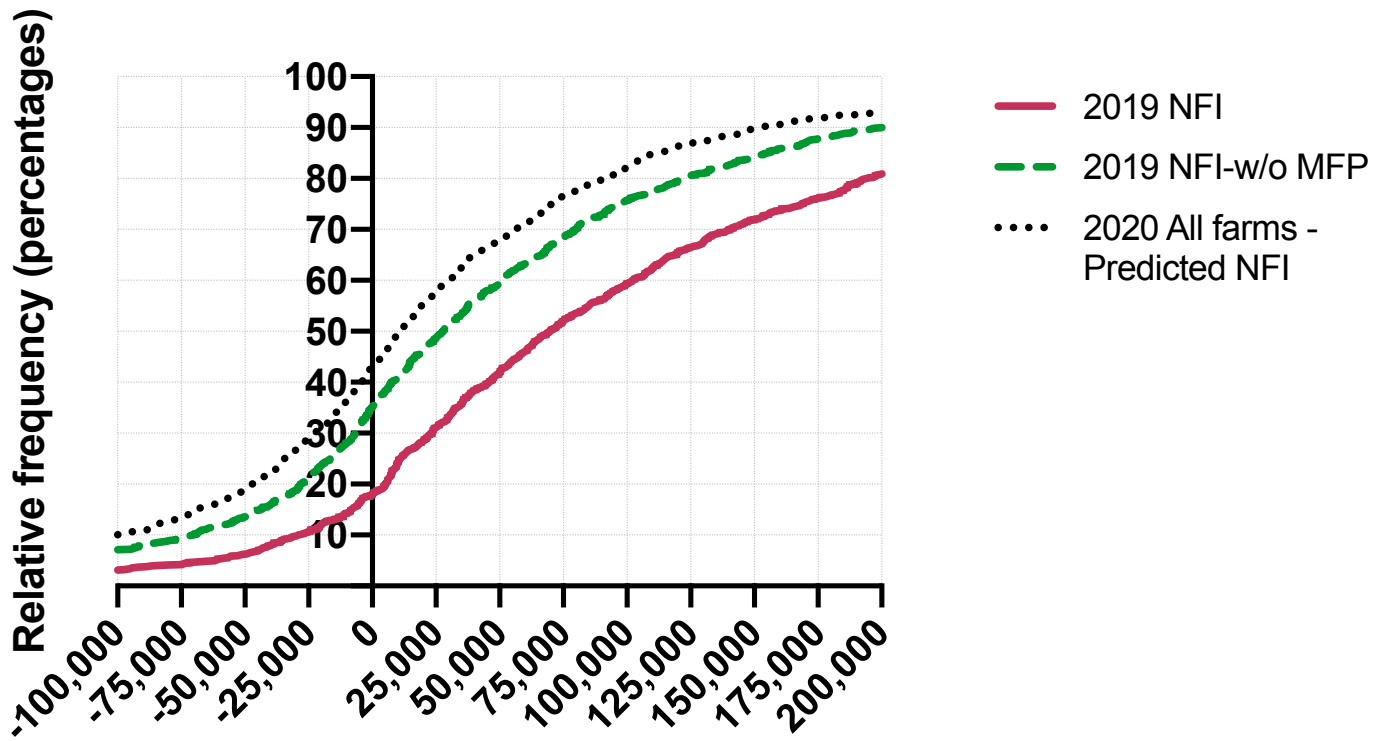


**Table 1. 2019 and Est. 2020 KFMA Net Farm Income**

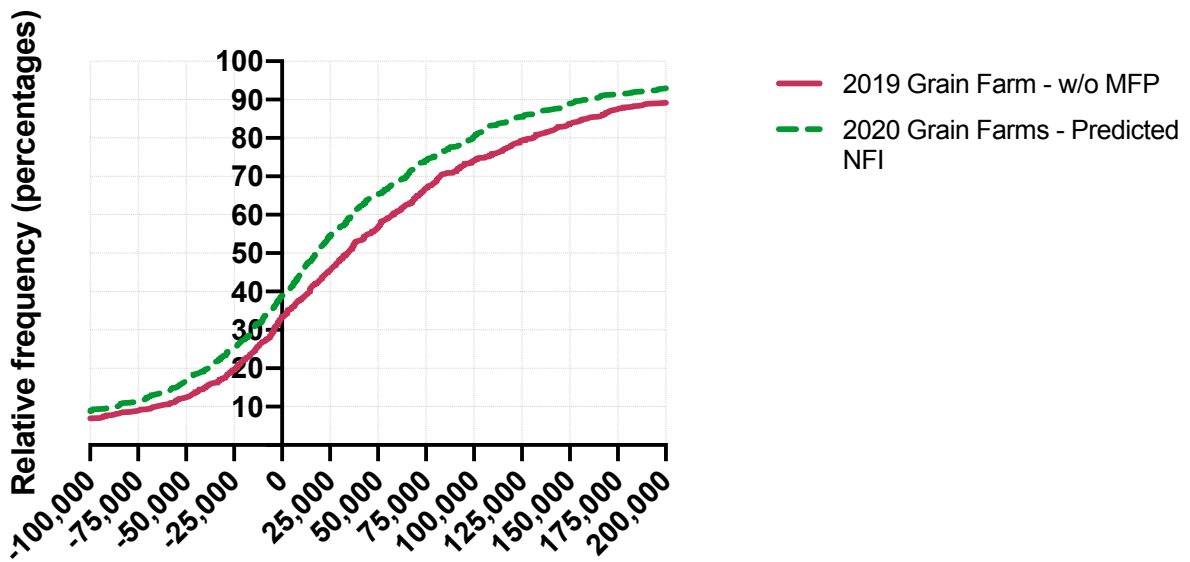
	2019	Est. 2020
<b>Income</b>		
Beef	\$ 115,389	\$ 92,311
Dairy-livestock	1,448	1,158
Dairy-milk	11,838	11,602
Sheep	198	198
Swine	23,878	19,102
Poultry and eggs	1,125	1,125
Other livestock	2,282	2,168
Custom feeding	15,693	14,124
minus Feed purchased	70,406	59,846
<i>Livestock VFP</i>	<i>\$ 101,445</i>	<i>\$ 81,943</i>
Corn	173,501	146,489
Grain sorghum	24,889	23,731
Soybeans	148,140	132,475
Sunflowers	752	662
Wheat	64,777	59,478
Hay and forage	13,813	12,708
Other crop	4,317	4,101
Govt payment - w/o MFP	19,602	39,205
Govt pmt - MFP	60,417	-
Crop ins proceeds	23,107	25,417
Machine work	14,532	14,532
Other income and hedging	23,189	23,189
<i>Crop VFP</i>	<i>\$ 571,037</i>	<i>\$ 481,987</i>
<b>TOTAL VFP</b>	<b>\$ 672,482</b>	<b>\$ 563,930</b>
<b>Expenses</b>		
Hired labor	28,898	28,898
Machinery repairs	47,465	47,465
Irrigation repairs	1,520	1,520
Building repairs	3,312	3,312
Seed	65,476	65,476
Crop ins	17,943	17,943
Fertilizer	76,793	67,578
Machine hire	24,240	24,240
Diesel and gas	25,226	22,703
Irrigation energy	3,178	2,860
RE taxes	10,827	10,827
PP taxes	2,414	2,414
Insurance	13,095	13,095
Utilities	7,492	6,743
Cash rent	49,899	48,901
Pesticides	64,687	64,687
Misc livestock	14,052	14,052
Misc crop	2,785	2,785
Other	7,694	7,694
<i>Total Operating Expenses</i>	<i>\$ 466,997</i>	<i>\$ 453,194</i>
Interest paid	31,826	33,099
Depreciation - machinery	54,986	54,986
Depreciation - buildings	8,293	8,293
<b>Total Farm Expenses</b>	<b>\$ 562,101</b>	<b>\$ 549,572</b>
<b>Net Farm Income</b>	<b>\$ 110,380</b>	<b>\$ 14,358</b>
<b>Net Farm Income w/o MFP</b>	<b>\$ 49,963</b>	<b>\$ 14,358</b>



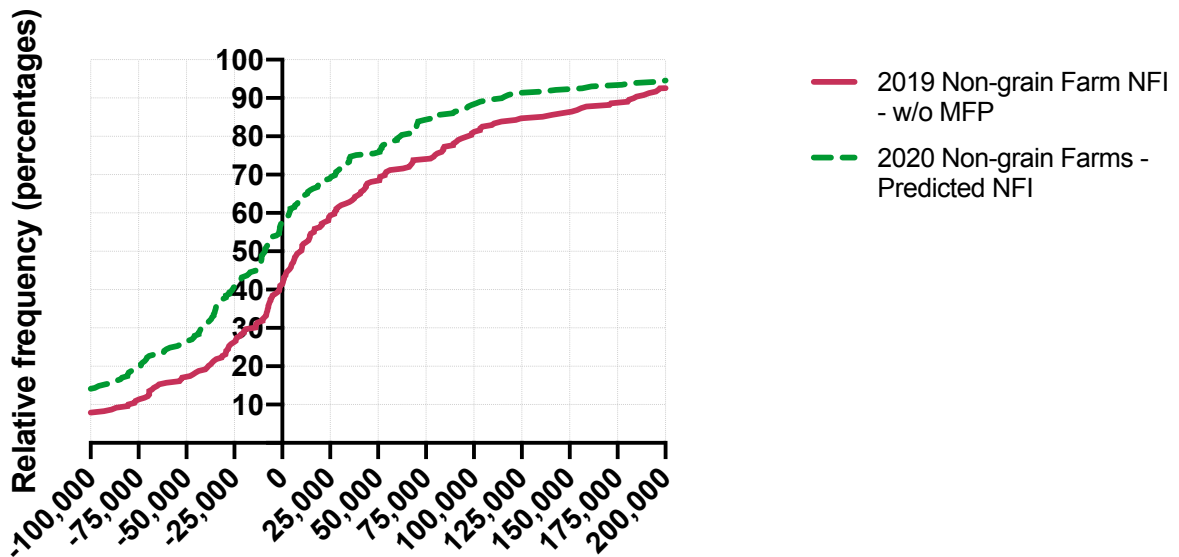
**Figure 1. 2019 and Estimated 2020 KFMA NFI**



**Figure 2. Comparison of Grain Farms NFI from 2019 to 2020**



**Figure 3. Comparison of Non-Grain Farms NFI from 2019 to 2020**



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