

A Preliminary Estimate of 2024 Kansas Net Farm Income and a Projection for 2025

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June 25, 2024

Abstract¹

Kansas Farm Management Association (KFMA) farms are used to estimate 2024 and 2025 net farm income (NFI) for grain farms in Kansas. While 2024 NFI is expected to increase, it will still be below recent years. Crop insurance was a key contributor to NFI in 2023 but the use of crop insurance in recent years will likely result in higher crop insurance premiums for 2024 and 2025. Other farm expenses seem to have stabilized but at higher levels than they were five years ago. As always in Kansas, much of predicted NFI will depend on rainfall. The estimates for 2024 and 2025 assume normal yields except for 2024 wheat which is based on the latest NASS estimated yield.

Introduction

This particular article discusses both the expected net farm income for Kansas grain farms for 2024 and then projects net farm income for 2025 based on current grain future prices and normal yields. KFMA released 2023 results earlier and these results are incorporated into this model for predicting NFI. Predicting net farm income for 2024 is a much simpler process than trying to predict 2025 NFI as there is some indication of 2024 wheat yields and many farm expenses were purchased earlier in the year or in late 2023. Also the government payouts for 2024 are known. Net farm income predictions for 2025 are much less certain as the only guide to prices is crop futures and both yields and prices are influenced by weather variability.

One of the big unknowns for this and any Kansas forecast is the effect of drought conditions. NASS has a 2024 wheat yield estimate but this is only at the state level. Assuming normal yields for the summer crops and for all the crops in 2025 is always a factor that could greatly change these estimates.

A compounding factor for these estimates is fertilizer and fuel prices for 2025. Fertilizer is the second largest expense category after machinery and fertilizer prices have exhibited large variability the last several years. Although anhydrous ammonia prices have settled in the \$700 range, changes in the Russia/Ukraine war, and higher inflation have the potential to lead to another price spike.

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Methods

In this particular article a general overview of the net farm income projection procedure is provided. Like the analyses from previous years, KFMA farms are used as a baseline. In order to ensure a farm's production history is incorporated into the analysis, only grain farms with a minimum of three years of history are included in the analysis. This requirement reduced the number of farms that were analyzed but there were still 493 grain farms that provided data.

There were six major areas that were addressed in the forecast model: yields, prices, crop acres, expenses, crop insurance, and government payments from the farm bill. Each of these areas was projected down to the farm level to estimate net farm income for each of the 493 KFMA grain farms for 2024 and 2025.

Yields - State yields are projected down to the farm level based on the historical relationships between state yields, crop reporting district yields, county yields, and farm yields. As of June 2024, only an estimate of the state wheat yield is available. For the other crops and for 2025, average yields are assumed.

Prices - Monthly grain prices are used if available, otherwise the futures prices are used. Like the yields, relationships between national, state, and farm prices are used to estimate the farm level price. For 2024, monthly grain prices are available for Kansas through the month of April. For the rest of 2024 and all of 2025, future prices are used to estimate farm prices.

Crop acres - State crop acre estimates for 2024 are available from NASS. Acreage allocation for 2025 is based on the assumption there will only be minor changes in crop acres.

Expenses - KFMA provides detailed expenses but only at the farm level. Because expenses vary by crop grown, a change in the acreage mix means that farm expenses need to be allocated at the enterprise level in order to better estimate the overall expense change. KFMA does provide detailed enterprise reports for the state and these were used to allocate the total expense item back to the farm enterprise level. The last five years of KFMA state crop enterprise reports were averaged by crop to determine the item expense ratio relative to that expense item of soybeans. For example, based on the KFMA enterprise reports, the corn fertilizer expense is five times the soybean fertilizer expense. These ratios were then used to calculate a farm's expense item at the farm enterprise expense level. Because a farm's own expenses were used, the total farm expense didn't change but some farms had higher specific costs than other farms. The ratio of the specific expense among crops was consistent among farms though.

Crop insurance - Crop insurance was estimated under the assumption of farmers choosing Crop Revenue Coverage (CRC) with the Harvest Price Option. Not all farmers chose this option and the level of coverage varies by farm so this calculation was adjusted based on the three years of known data. For example, first the potential crop insurance payout was calculated using a 70 percent coverage level and then the payout was adjusted downward by a discounting factor to reflect what farms actually received. The discounting factor that best fit the three years of known data was then applied to the estimates of 2024 and 2025.

Prevented planting payouts were also incorporated into the analysis of crop insurance. The FSA provides this information at the county level and it is updated multiple times during the year. Prevented plantings have not been a large factor the last couple of years.

Farm bill government payments - The current estimate of government payments for 2024 and 2025 is based on actual FSA data for ARC and PLC. Given the year delay of data used in the calculation and the payout to farmers, this reported number should be very close to the actual farm bill government payment for 2024. The 2025 government payment estimation is more complicated as county yields are not known yet and could easily change.

PLC payments are estimated based on county base acres, county yield history, and estimated payments per bushel that the Department of Agricultural Economics provides. Since the FSA provides crop base acres at the county level, an average PLC payment can be estimated for the county for an average acre of land in the county. Thus the model used in this analysis assumes that a farm within a particular county has similar characteristics of the county average. That is, the base acreage mix of the individual farm matches the county average of base acres and farm yields are the same as county yields.

Specific expense adjustments - These were based on the price indexes provided by NASS and Ibendahl's forecasts for oil and fertilizer. Most expenses are estimated to be 3% to 5% higher in 2024, reflecting current inflation levels. However, fertilizer and crop insurance are different. Fertilizer prices for anhydrous ammonia were over \$1,000/ton in 2022 and started declining into 2023. However, many farms in 2023 paid higher than the current nitrogen prices. Thus, while anhydrous is still relatively high priced in the \$700 range, it does represent a decrease from 2023. For 2024, Ibendahl is estimating a 5% decrease in fertilizer prices. Going forward, Ibendahl is estimating higher inflation for 2025 resulting in higher fertilizer prices. 2025 fertilizer is thus estimated to be 8% above 2024 predictions.

Crop insurance will likely see higher increases based on the heavy use of crop insurance the last several years. For the average farm used in this model, the crop insurance revenue in 2022 and 2023 was \$153K and \$124K, respectively. These higher payouts come at a cost of higher premiums. Thus, crop insurance are expected to increase by 15% in 2024 and 5% in 2025.

Results

Figure 1 shows the average actual revenues and expenses for 493 KFMA grain farms for 2022 and 2023. The table also shows the estimated 2024 revenues and expenses and the predicted 2025 revenues and expenses. Net farm income is expected to increase by 32% in 2024, from \$90,000 to \$118,000. Net farm income then is forecast to decrease by 13% in 2025 to \$115,000. While 2024 may see a large percentage increase in NFI, the estimate is starting from a very low base. The actual dollar amount of predicted NFI in 2024 is still below recent years. Both of these estimates are still very uncertain as the estimate includes normal rainfall and the government payment number is very uncertain until county yields are reported.

Figure 2 shows the estimated 2024 net farm income for east, central, and western Kansas. The regional differences reflect the bigger farms in western Kansas.

Figure 3 shows the average and median as well as the 25th and 75th percentile of net farm income for 2021 through the estimated 2025 values. The average is higher than the median as some of the larger farms help to raise the overall average. As forecast, 2024 projections still show an average farm earning positive NFI and above last year's NFI. However, the median, or the farms in the middle, will essentially have flat NFI for the next two years.

Figure 2 shows a cumulative distribution for the 2023 actual net farm income and the 2024 and 2025 estimated net farm incomes. 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 this figure shows, 35% of the farms in 2024 and 2025 could have a negative net farm income. This is an increase from the 30% of farms with a negative NFI in 2023.

Conclusions

While most grain farms in Kansas should have profitable years in 2024 and 2025 (weather permitting), the level of profitability is lower than the recent past. Expense estimates for fuel and fertilizer are based on best cases on no supply disruption from the Russia/Ukraine war. Any hiccups in world oil supply would lead to higher fertilizer prices than used here. The major worry going into 2024 is that 35% of Kansas grain farms could have negative net farm income, even if average NFI is slightly higher.

	2022	2023	2024(p)	Est 2025
Income				
Beef	\$ 92,769	\$ 130,138	\$ 135,344	\$ 135,344
Dairy-livestock	-	-	-	-
Dairy-milk	-	-	-	-
Sheep	93	118	118	118
Swine	3,715	2,886	2,886	2,886
Poultry and eggs	224	225	225	225
Other livestock	1,887	890	899	899
Custom feeding	8,421	6,569	6,241	6,241
Ad hoc pmt - Livestock	-	-	-	-
<i>minus Feed purchased</i>	40,355	41,551	35,319	35,319
<i>Livestock VFP</i>	\$ 66,754	\$ 99,276	\$ 110,394	\$ 110,394
Corn	262,091	222,807	267,999	299,017
Grain sorghum	37,782	31,646	40,653	45,107
Soybeans	201,404	169,391	223,663	230,677
Sunflowers	220	519	-	-
Wheat	149,723	127,271	113,367	134,921
Hay and forage	23,814	20,910	20,910	20,910
Other crop	-	-	-	-
Govt payment (farm bill only)	24,807	24,193	16,757	-
Ad hoc pmt - Crops	-	-	-	-
Crop ins proceeds	153,022	124,182	54,816	37,204
Machine work	14,569	15,792	16,582	16,913
Other income and hedging	40,525	44,710	45,605	46,517
<i>Crop VFP</i>	\$ 907,957	\$ 781,420	\$ 800,350	\$ 831,265
TOTAL VFP	\$ 974,711	\$ 880,695	\$ 910,744	\$ 941,659
Expenses				
Hired Labor	25,774	28,242	29,111	30,567
Machinery Repairs	64,438	69,345	70,829	74,371
Irrigation Repairs	2,723	2,943	3,091	3,183
Building Repairs	3,910	3,768	3,957	4,076
Seed/Other Crop Expenses	83,903	90,995	87,998	87,998
Crop Insurance	32,778	34,063	37,724	39,610
Fertilizer-Lime	161,985	150,578	138,163	149,216
Machine Hire	26,064	27,071	27,155	27,698
Organization Fees, Publications	5,754	6,383	6,212	6,337
Vet-Med-Drugs	4,298	4,398	4,618	4,756
Misc Crop Expense	4,174	4,059	4,137	4,261
Misc Livestock Expense	2,952	3,605	3,785	3,898
Dairy Expense	-	-	-	-
Gas-Fuel-Oil	41,040	36,604	35,078	35,078
Irrigation Energy	6,828	4,378	4,378	4,378
Real Estate Taxes	11,339	11,922	12,279	12,648
Personal Property Taxes	2,723	2,954	2,906	2,993
General Farm Insurance	15,929	17,808	19,631	20,613
Utilities	7,391	7,564	7,580	7,807
Cash Farm Rent	52,444	54,150	56,857	59,700
Herbicide-Insecticide	102,769	104,213	105,255	110,518
Conservation	2,350	1,866	1,798	1,834
Auto Expense	860	896	769	730
Other expenses	63	34	35	36
<i>Total Operating Expenses</i>	\$ 662,490	\$ 667,838	\$ 663,347	\$ 692,307
Interest paid	22,390	27,230	28,592	28,592
Depreciation - machinery	78,256	87,071	91,424	95,995
Depreciation - buildings	8,132	8,889	9,333	9,800
Total Farm Expenses	\$ 771,267	\$ 791,028	\$ 792,696	\$ 826,694
Net Farm Income	\$ 203,445	\$ 89,667	\$ 118,048	\$ 114,965

Figure 1: 2022, 2023, Predicted 2024 and Estimated 2025 Net farm income

2024(p)

	State	East	Central	West
Income				
Beef	\$ 135,344	\$ 173,850	\$ 111,389	\$ 73,765
Dairy-livestock	-	-	-	-
Dairy-milk	-	-	-	-
Sheep	118	1	179	358
Swine	2,886	5,129	1,321	5
Poultry and eggs	225	500	-	10
Other livestock	899	1,659	311	156
Custom feeding	6,241	6,549	1,094	26,222
Ad hoc pmt - Livestock	-	-	-	-
<i>minus Feed purchased</i>	<u>35,319</u>	<u>50,149</u>	<u>21,201</u>	<u>31,812</u>
<i>Livestock VFP</i>	\$ <u>110,394</u>	\$ <u>137,537</u>	\$ <u>93,093</u>	\$ <u>68,704</u>
Corn	267,999	279,708	169,214	627,365
Grain sorghum	40,653	5,946	53,534	132,147
Soybeans	223,663	259,389	228,216	55,875
Sunflowers	-	-	-	-
Wheat	113,367	82,659	130,629	170,083
Hay and forage	20,910	14,146	25,584	29,800
Other crop	-	-	-	-
Govt payment (farm bill only)	16,757	11,871	17,787	32,875
Ad hoc pmt - Crops	-	-	-	-
Crop ins proceeds	54,816	50,177	52,417	84,072
Machine work	16,582	16,456	14,008	27,737
Other income and hedging	45,605	45,263	41,019	65,980
<i>Crop VFP</i>	\$ <u>800,350</u>	\$ <u>765,614</u>	\$ <u>732,408</u>	\$ <u>1,225,932</u>
TOTAL VFP	\$ 910,744	\$ 903,151	\$ 825,501	\$ 1,294,636
Expenses				
Hired Labor	29,111	36,072	19,446	40,025
Machinery Repairs	70,829	70,617	68,566	81,068
Irrigation Repairs	3,091	476	3,474	12,406
Building Repairs	3,957	4,216	2,957	7,009
Seed/Other Crop Expenses	87,998	102,805	69,810	101,410
Crop Insurance	37,724	32,423	29,548	93,608
Fertilizer-Lime	138,163	145,059	120,832	181,025
Machine Hire	27,155	27,075	23,472	42,711
Organization Fees, Publications	6,212	6,406	5,440	8,596
Vet-Med-Drugs	4,618	4,740	4,175	5,937
Misc Crop Expense	4,137	4,765	3,084	5,875
Misc Livestock Expense	3,785	4,449	3,163	3,583
Dairy Expense	-	-	-	-
Gas-Fuel-Oil	35,078	39,277	29,535	40,473
Irrigation Energy	4,378	533	4,678	19,169
Real Estate Taxes	12,279	12,503	11,368	15,112
Personal Property Taxes	2,906	3,324	2,349	3,467
General Farm Insurance	19,631	21,036	17,009	24,607
Utilities	7,580	8,515	6,738	7,160
Cash Farm Rent	56,857	61,122	44,399	90,551
Herbicide-Insecticide	105,255	99,689	92,834	179,788
Conservation	1,798	3,079	911	125
Auto Expense	769	598	767	1,492
Other expenses	35	(4)	74	35
<i>Total Operating Expenses</i>	\$ <u>663,347</u>	\$ <u>688,775</u>	\$ <u>564,627</u>	\$ <u>965,232</u>
Interest paid	28,592	28,076	25,763	42,437
Depreciation - machinery	91,424	102,485	72,732	122,537
Depreciation - buildings	9,333	11,479	5,810	14,942
Total Farm Expenses	\$ 792,696	\$ 830,816	\$ 668,932	\$ 1,145,148
Net Farm Income	\$ 118,048	\$ 72,336	\$ 156,569	\$ 149,488

Figure 2: Predicted 2024 Net farm income for Regions of the State

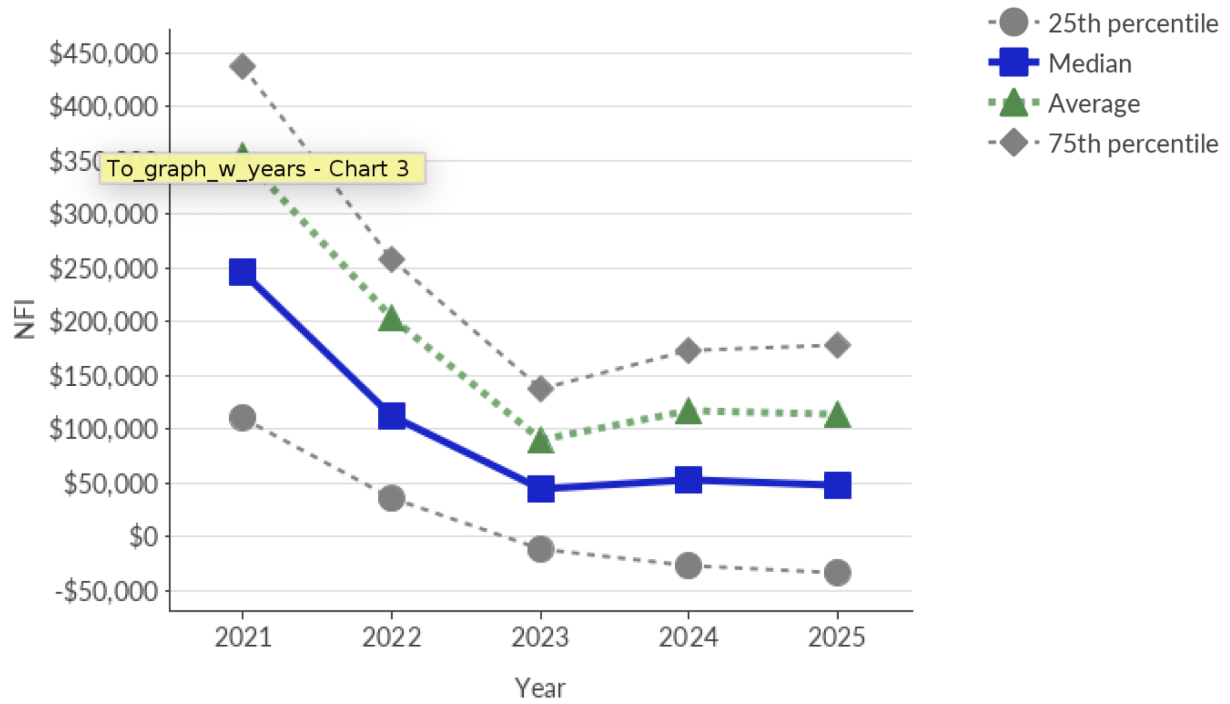


Figure 3: The 25th Percentile, the Median, the Average, and the 75th Percentile of Net Farm Income From 493 KFMA Grain Farms

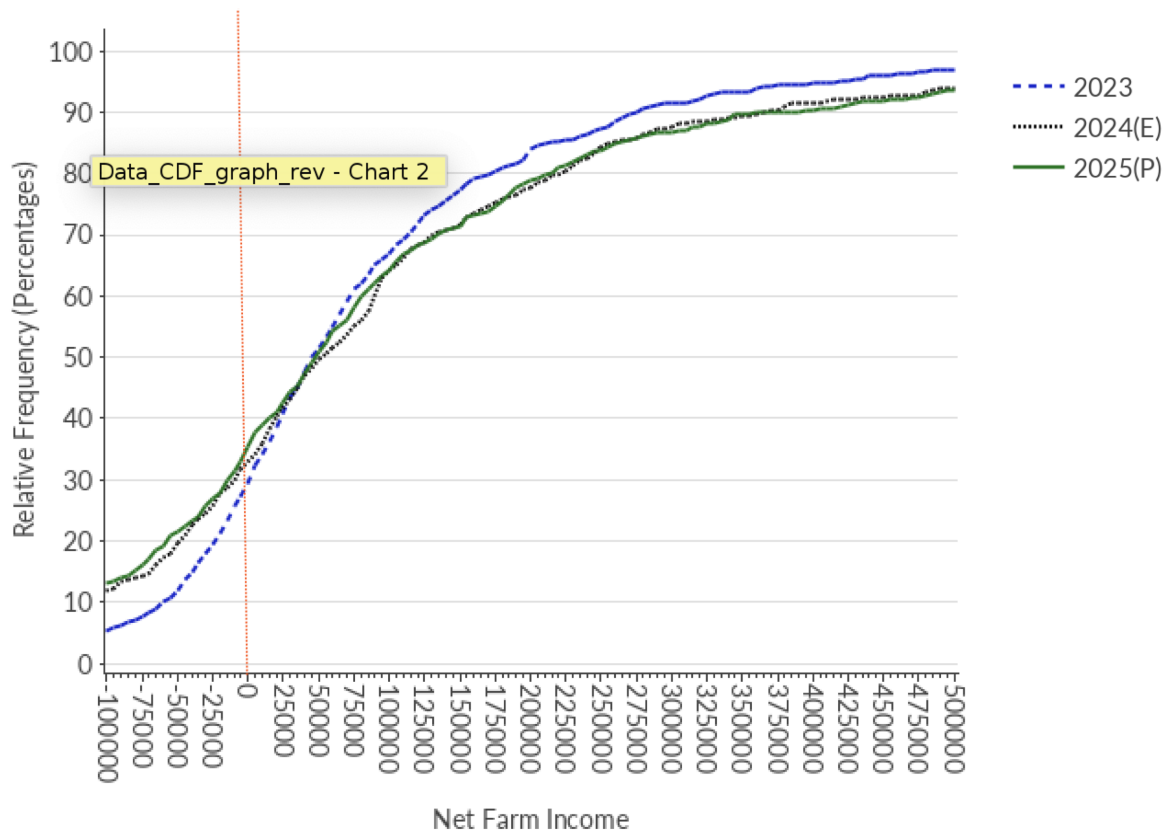


Figure 4: Comparison of 2023 NFI and Predicted 2024 and 2025 NFI for KFMA Grain Farms