A May 2021 Estimate of 2021 Kansas Net Farm Income and a Projection for 2022

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Abstract

Kansas Farm Management Association (KFMA) farms are used to estimate 2021 and 2022 net farm income for grain farms in Kansas. These estimates are based on the recently released 2020 KFMA whole farm results. Because of very high grain prices and a third round of pandemic assistance, net farm income is forecast to increase by 24% to $231,758. This 24% increase is on top of a 41% increase in 2020. However, net farm income is forecast to fall by 54% to 106,264 in 2022 due to lower grain prices and no additional pandemic funds. These estimates depend heavily on current future prices and trend-line yields. Because this estimate is being made in May, many things could change before farmers receive net income from their 2021 and 2022 crop production.

Introduction

An earlier AgManger publication (https://www.agmanager.info/news/2021-net-farm-income-projections) examined projections for Kansas net farm income in 2020 and 2021. The estimate back in January was based on whole farm data of 2019 KFMA grain farms. This current estimate now incorporates 2020 data from KFMA grain farms. As in the previous projection, a grain farm is included in the analysis as long as it has the last three years of data available for analysis. Both non-irrigated and irrigated farms are included as part of the grain farm mix. Based on the requirement to have three years of data, there are 588 farms available for this estimate. The KFMA whole farm summary of grain farms uses a slightly different set of farms as KFMA separates irrigated and non-irrigated farms and it uses all farms that have useable data in that particular year. Even though the set of farms is slightly different, the percentage change in net farm income from year to year should make this analysis comparable to the KFMA analysis of grain farms even if the exact amount of predicted net farm income is different.

This article discusses projected net farm income for Kansas grain farms for both 2021 and 2022. At this point, much uncertainty exists so the model used here assumes normal yields and current grain future prices as an estimate of state grain prices. Both yields and prices are likely to change considerably before farmers have a crop to sell and a particular farm may do either better or worse than the average predicted value. Some may consider a prediction of net farm income at this point a pointless exercise but farmers, lenders, and others make decisions under assumptions of yields and prices as

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well. As more information becomes available throughout the year about expected yields and prices, this estimate will be updated.

Methods

As in previous forecasts, there are seven major areas addressed: yields, prices, crop acres, expenses, crop insurance, government payments from the farm bill, and special ad hoc payments. Each of these areas was projected down to the farm level to estimate net farm income for each of the 588 KFMA grain farms for 2021 and 2022.

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. Given the end of May estimates of this report, the best yield estimate is trend-line yields.

Prices - Monthly state grain prices are used if available, otherwise futures prices are used. As of May, state grain prices exist through March of 2021. Like the yields, relationships between national, state, and farm prices are used to estimate the farm level price. The CME Group provides future prices up to 2023.

Crop acres - The Prospective Plantings Report was released on March 31 by the National Agricultural Statistics Service (NASS). This report forecast a 20% increase in grain sorghum acres, an 11% increase in wheat acres, a 5% decrease in corn acres, and a 1% decrease in soybean acres. Acreage allocation for 2022 is assumed to be the same as 2021

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 that 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 of 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 2021 and 2022.

Prevented planting payouts were also incorporated into the analysis of crop insurance in previous estimates. The FSA provides this information at the county level and it is updated multiple times during the year. At the point of this analysis, however, prevented planting acres are unknown and it is possible they may not occur.

Government payments - Government payments are separated by regular government payments that are part of the 2018 farm bill and special government payments like MFP and CFAP payments. Based on current future prices, regular government payments are not anticipated in 2021 and 2022. However, a third round of CFAP payments have already been paid in 2021. There was a $20/acre payment to grain producers as well as additional livestock funds. These have been incorporated into this estimate. Full details about this latest round of pandemic payments can be found at AgManager.info (https://www.agmanager.info/news/recent-videos/usda-pandemic-assistance-producers).

Specific expense adjustments - most of these have increased in the 5% range given the higher expected inflation for this year. The following expenses though fall outside of this range.

Fuel - Highway diesel prices have increased by 40% since the summer of 2020. Farmers may not see all of that increase this year and perhaps the remainder of the increase will be in 2022. This model uses a 30% increase in 2021 and 10% more in 2022.

Fertilizer - Fertilizer prices track both corn prices and oil prices. The national anhydrous price is over $700 currently and is likely to remain around this level into next year. Thus, fertilizer prices have been modelled to increase 30% this year and 10% more in 2022 like diesel prices.

Seed - Farmers likely booked much of their seed before grain prices started their rise. Thus, for 2021, seed is forecast to increase 5%. Seed is likely to increase an additional 20% or more in 2022. If there are many replant acres of corn this spring, corn especially could go up more than 20% next year.

Depreciation - This expense is forecast to increase by 10% in both 2021 and 2022. This estimate reflects both higher equipment costs as well as farmers adding more machinery investment per acre. The majority of farmers in the U.S. follow a strategy of purchasing equipment based on levels of net farm income. This strategy helps to even out net farm income across time which also helps to reduce big tax bills in a given year. Given the higher

than average net farm income in 2020, farmers purchased more equipment last year. This trend of purchasing more equipment is likely to continue in 2021 if this net farm income prediction holds.

Results

Table 1 shows the average actual revenues and expenses for 588 KFMA grain farms for 2019 and 2020. The table also shows the estimated 2021 revenues and expenses and the predicted 2022 revenues and expenses. Net farm income increased by 41% in 2020, from $133,000 to $187,000. Net farm increase is expected to increase another 24% in 2021 to $237,000. Net farm income is then forecast to decline 54% in 2022 to $106,000 due to lower grain prices and no pandemic payments. However, these last two estimates are still very uncertain as higher future prices have to translate to higher farm prices and rainfall amounts have to be around normal for yields to hold at average values.

Figure 1 shows the average and median as well as the 25th and 75th percentile of net farm income for 2018 through the estimated 2022 values. The average is higher than the median as some of the larger farms help to raise the overall average.

Figure 2 shows a cumulative distribution for the 2020, 2021, and 2022 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.

Conclusions

This estimate of 2021 of net farm income is another big increase from 2020 which was a big increase from 2019. Much of the increase though can be attributed to pandemic ad hoc government payments. The other big factor in higher net farm income is higher grain prices. Both of these factors will be smaller in 2022 so net farm income then is expected to decline.

There are several considerations about the very high average net farm incomes in 2020 and expected in 2021. First, farmers have started to increase their machinery investment to help mitigate tax consequences. This will result in more machinery expenses in future years. Second, many of the inputs used for farming are increasing in price as much as grain prices. Some of these expenses will be slow to decrease in price when grain prices go back down. Both of these factors bear watching in 2022 and beyond.

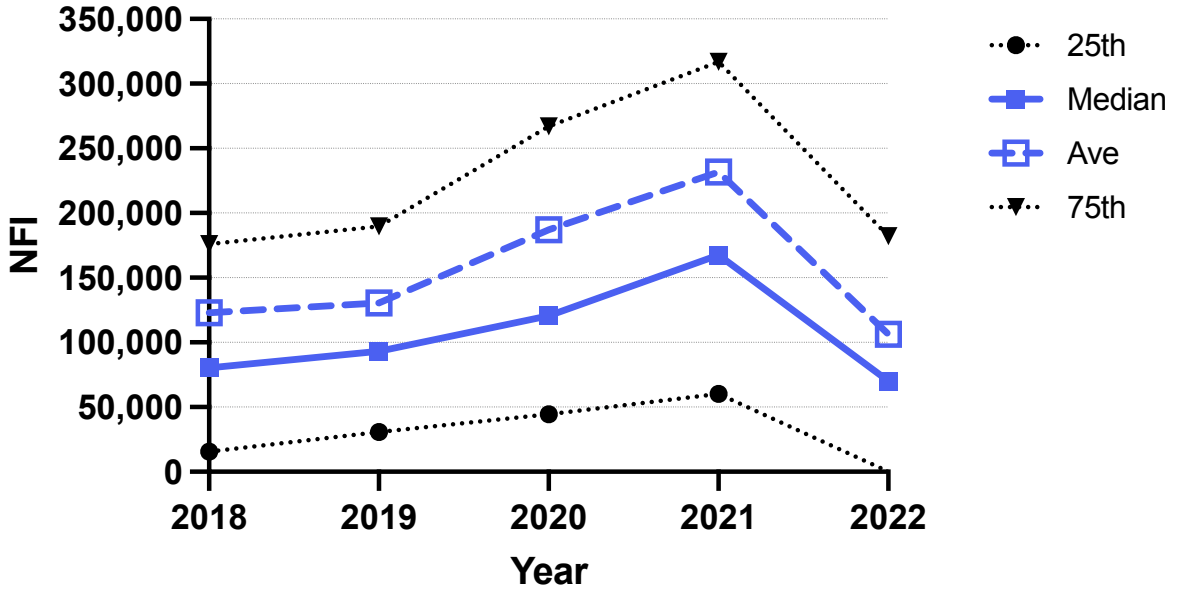

Figure 1. The 25th Percentile, the Median, the Average, and the 75th Percentile of Net Farm Income From 588 KFMA Grain Farms

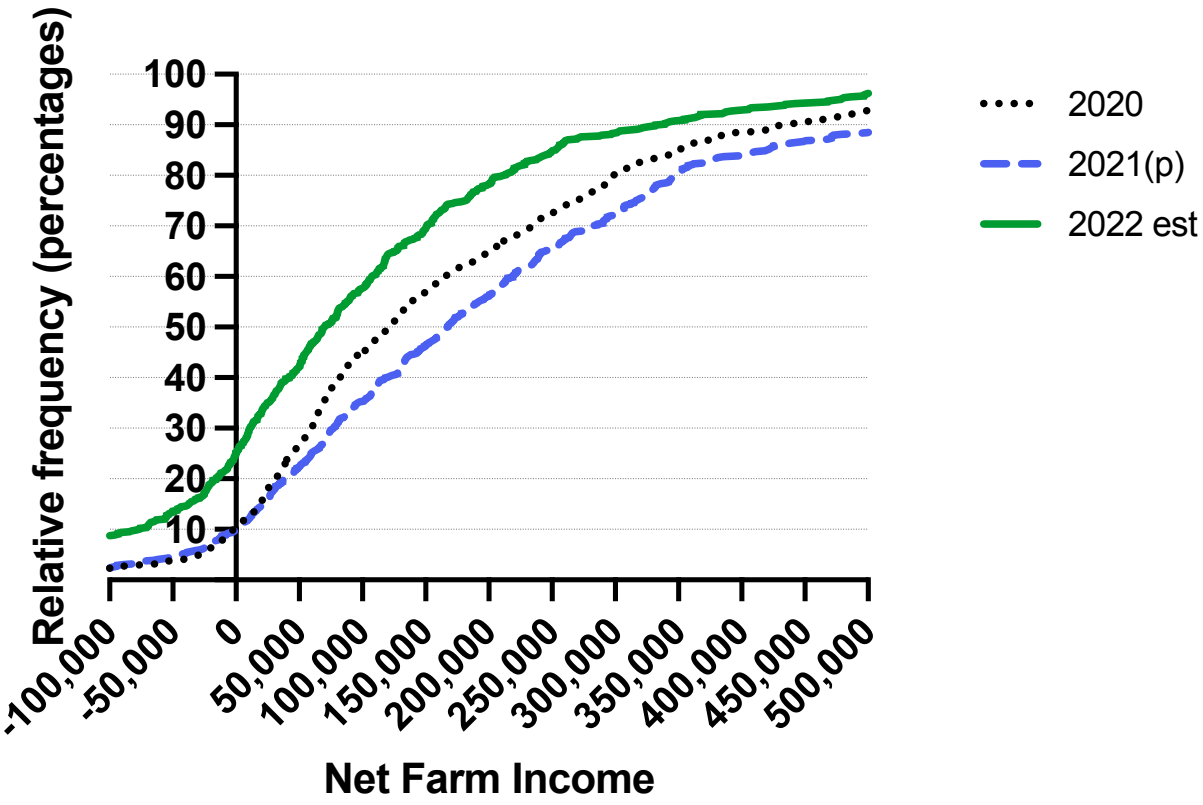

Figure 2. Comparison of 2020 NFI and Predicted 2021 and 2022 NFI for KFMA Grain Farms

Table 1. 2019, 2020, Predicted 2021, and Estimated 2022 KFMA Net Farm Income

	2019	2020	2021(p)	Est 2022
Income				
Beef	$ 61,453	$ 58,806	$ 64,687	$ 64,687
Dairy-livestock	113	143	143	143
Dairy-milk	-	-	-	-
Sheep	63	67	67	67
Swine	2,428	1,598	2,077	2,077
Poultry and eggs	244	212	212	212
Other livestock	1,427	1,820	1,838	1,838
Custom feeding	5,118	5,580	5,971	5,971
Ad hoc pmt - Livestock	-	-	3,621	-
minus Feed purchased	21,307	25,058	30,069	30,671
Livestock VFP	*$ 49,540*	*$ 43,169*	*$ 48,547*	*$ 44,324*
Corn	228,823	241,000	317,934	309,415
Grain sorghum	30,408	50,869	60,801	54,779
Soybeans	183,768	229,655	266,614	255,344
Sunflowers	1,028	2,321	-	-
Wheat	77,459	73,158	111,506	113,783
Hay and forage	16,791	12,164	12,408	12,408
Other crop	-	-	-	-
Govt payment (farm bill only)	25,025	94,160	-	-
Ad hoc pmt - Crops	70,738	-	44,389	-
Crop ins proceeds	27,630	22,514	18,428	17,276
Machine work	15,570	15,261	15,414	15,568
Other income and hedging	31,090	42,673	44,807	45,703
Crop VFP	*$ 708,331*	*$ 783,776*	*$ 892,301*	*$ 824,275*
TOTAL VFP	**$ 757,870**	**$ 826,944**	**$ 940,848**	**$ 868,599**
Expenses				
Hired Labor	27,346	28,025	29,930	30,828
Machinery Repairs	50,938	56,614	61,090	62,923
Irrigation Repairs	1,938	2,398	2,518	2,593
Building Repairs	2,999	3,562	3,740	3,852
Seed/Other Crop Expenses	80,705	84,273	88,169	105,803
Crop Insurance	22,330	20,879	22,516	22,967
Fertilizer-Lime	93,146	92,842	123,883	136,272
Machine Hire	25,652	26,330	27,522	28,072
Organization Fees, Publications	5,392	5,495	5,617	5,617
Vet-Med-Drugs	4,013	4,133	4,257	4,385
Misc Crop Expense	3,540	4,990	5,264	5,369
Misc Livestock Expense	2,387	2,400	2,520	2,595
Dairy Expense	-	-	-	-
Gas-Fuel-Oil	28,134	23,306	31,053	34,158
Irrigation Energy	4,303	5,788	6,367	7,003
Real Estate Taxes	11,837	12,638	12,638	12,764
Personal Property Taxes	2,589	2,613	2,669	2,669
General Farm Insurance	14,193	14,564	14,862	14,862
Utilities	6,708	6,680	6,843	6,980
Cash Farm Rent	52,382	53,026	55,678	58,462
Herbicide-Insecticide	78,194	79,930	84,287	88,501
Conservation	779	2,025	1,998	1,998
Auto Expense	905	793	836	852
Other expenses	(9)	(147)	(147)	(147)
Total Operating Expenses	*$ 520,399*	*$ 533,158*	*$ 594,109*	*$ 639,379*
Interest paid	31,999	31,973	33,572	34,243
Depreciation - machinery	64,388	66,404	73,044	80,349
Depreciation - buildings	8,072	8,201	8,365	8,365
Total Farm Expenses	***$ 624,858***	***$ 639,735***	***$ 709,090***	***$ 762,336***
Net Farm Income	***$ 133,012***	***$ 187,209***	***$ 231,758***	***$ 106,264***