

Net Farm Income Outlook

2024 and 2025 Estimates

Gregg Ibendahl - K-State

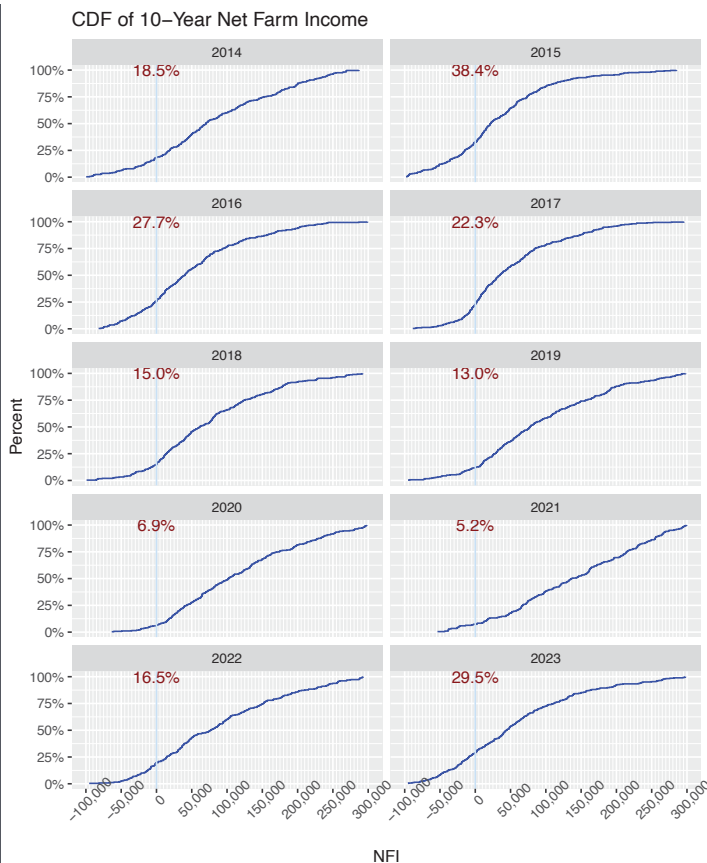
2024-06

Outline for today

- Review of last 10 years
 - Specifically the distribution of returns
- Forecast for this year and next
- Where are inputs headed

First, an overview of KFMA farm financials

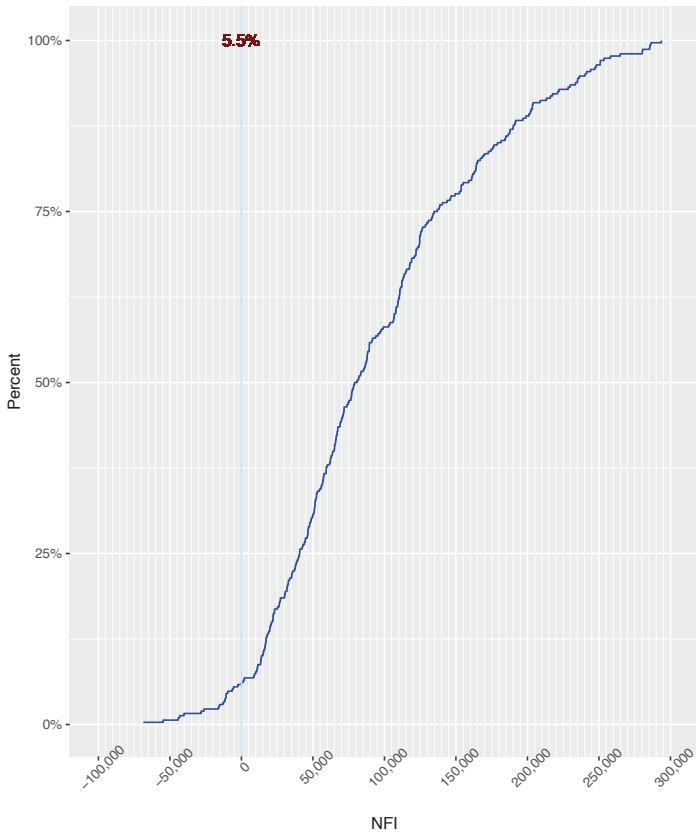
- Debt levels
- Interest costs
- Net Farm Income
- Balance sheet situation



Distribution of NFI by Year

- How a CDF works
 - A point on the blue line represents the % of farmers earning that NFI or lower
 - The more horizontal the line the greater the range of NFI
 - Lines to the right are better
- Last year 30% of farmers had negative NFI
- 2nd worse year in 10
- on the positive side, 70% of farmers had positive NFI

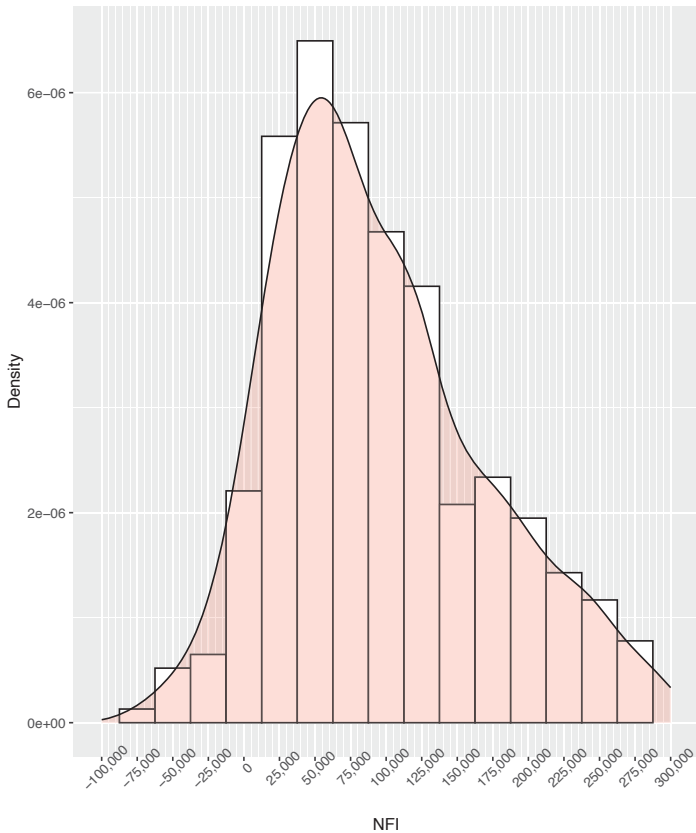
CDF of 10-Year Average of NFI by Farm



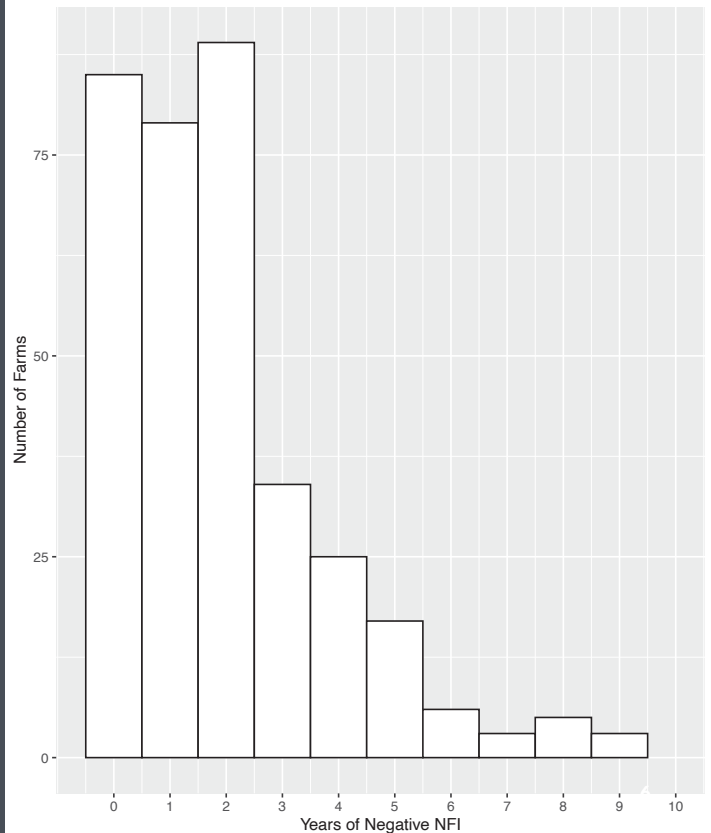
Distribution of NFI - 10 yr combined

- When averaged across 10 years, most farms are doing OK
- Based on a panel dataset (consistent set of farms)
- There may be motives other than profit contributing to the 6% of farms with a negative 10-yr NFI
- The median NFI over 10-years was about \$75,000 per year

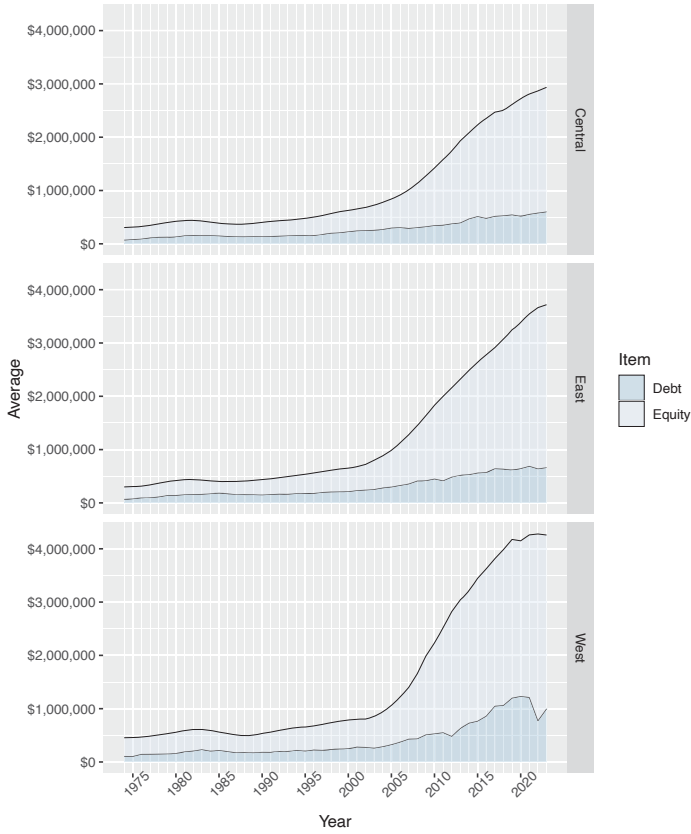
Histogram of 10-Year Average of NFI by Farm



Histogram of Number of Years of Negative NFI by Farm Count



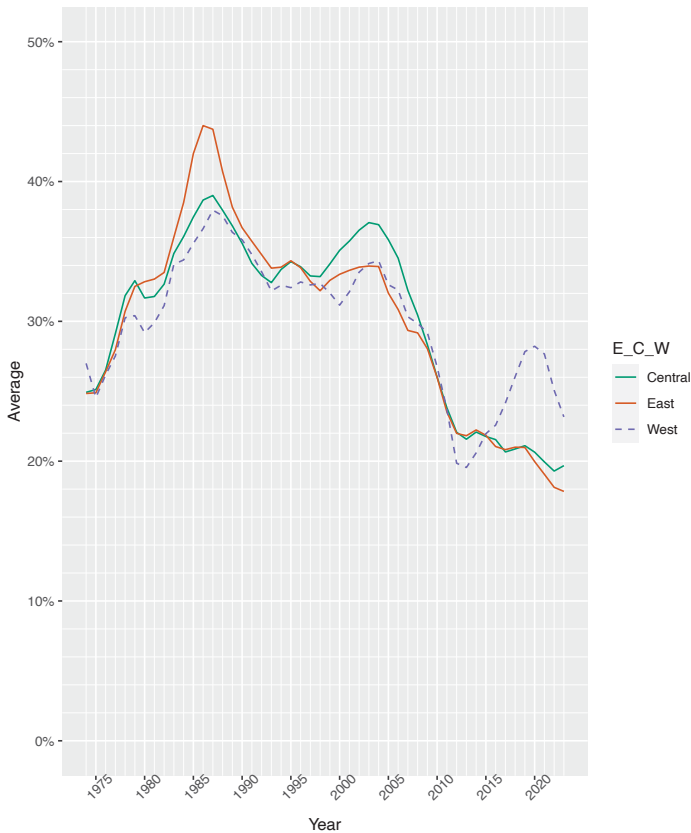
Kansas Balance Sheet by Region



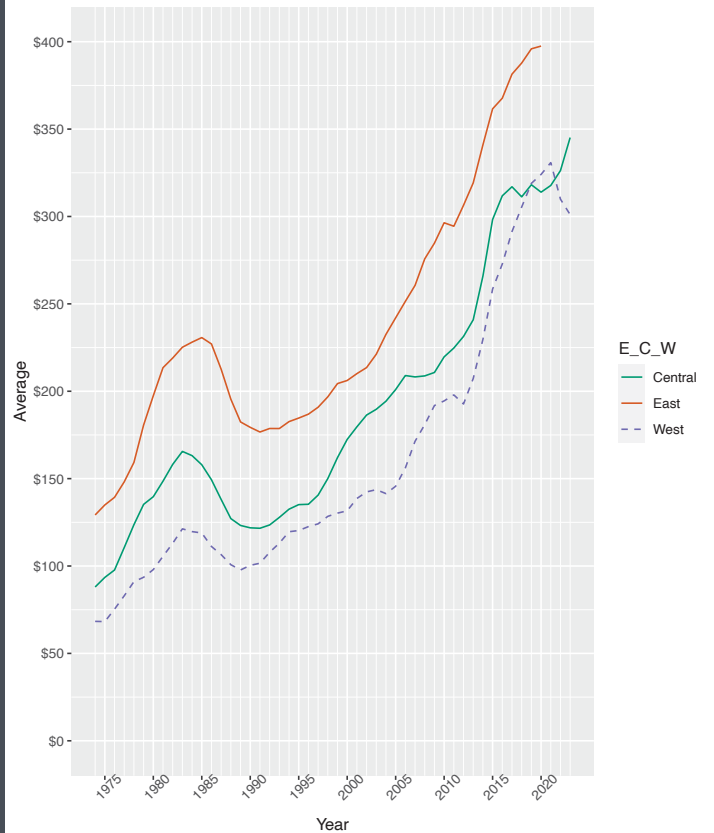
Balance sheets are strong

- Rising land values contribute to higher equity
- D/A ratios are strong
- D/A ratio is a lagging indicator of farm troubles
- Masked in this graph is the increase in debt

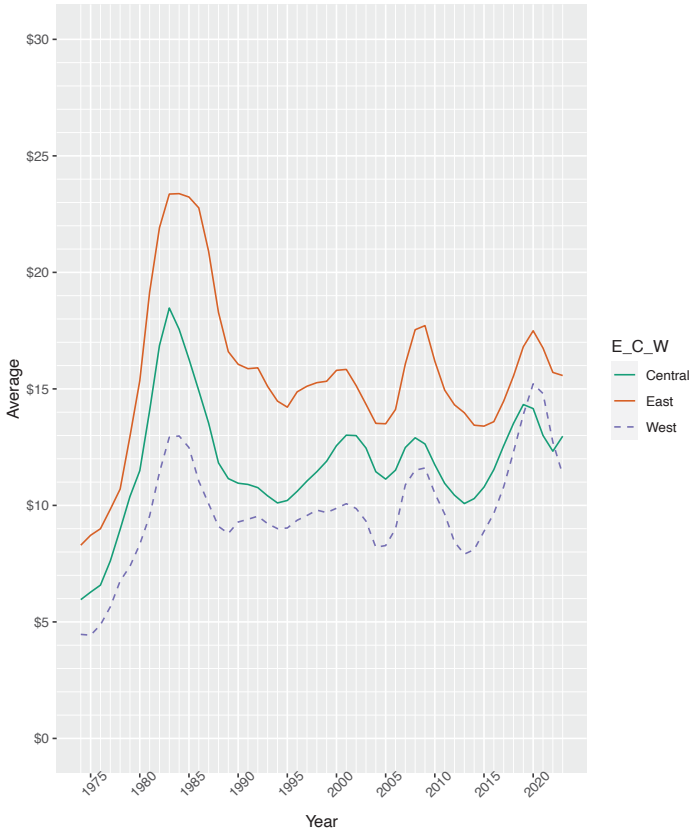
Kansas Debt/Asset Ratio



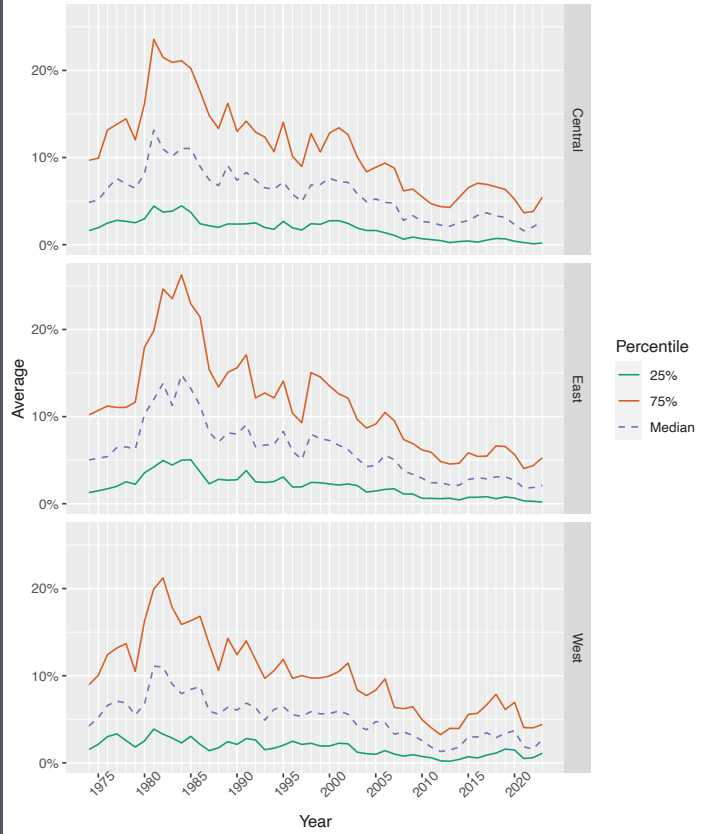
Kansas Farm Debt per Crop Acre



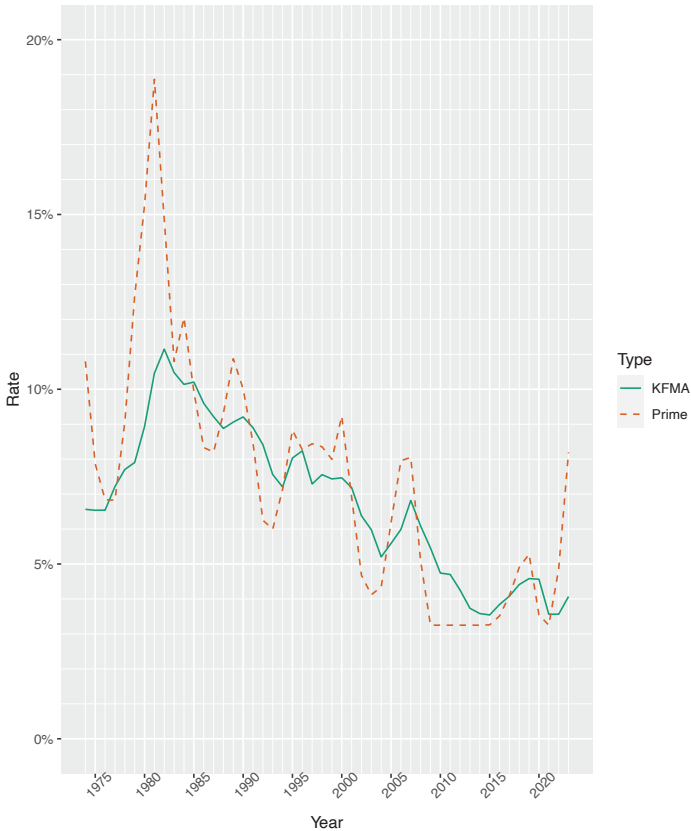
Kansas Farm Interest per Crop Acre



Interest Expense Ratio by Region



Comparison of Interest Rates



Interest rates paid by farmers are relatively low

- This is across all debt
- Increase in overall rate the last 2 years as short-term rates increase
- At what point do rates and interest become a problem?

My estimates as of June 2024

- Based on KFMA grain farms
- Normal yields
 - except for 2024 wheat
- Prices based on futures market

	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	-	-	-	-
minus Feed purchased	40,355	41,551	35,319	35,319
Livestock VFP	\$ 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
Crop VFP	\$ 907,957	\$ 781,420	\$ 800,360	\$ 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	90,595	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
Total Operating Expenses	\$ 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

	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	10
Other livestock	899	1,659	311	156
Custom feeding	6,241	6,549	1,094	26,222
Ad hoc pmt - Livestock	-	-	-	-
minus Feed purchased	35,319	50,149	21,201	31,812
Livestock VFP	\$ 110,394	\$ 137,537	\$ 93,093	\$ 68,704
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
Crop VFP	\$ 800,350	\$ 765,614	\$ 732,408	\$ 1,225,932
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	19,109
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	1,25
Auto Expense	769	598	767	1,492
Other expenses	35	(4)	74	35
Total Operating Expenses	\$ 663,347	\$ 688,775	\$ 564,627	\$ 965,232
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

Summary of NFI

- The next couple of years look challenging based on current prices
- Some bounce back in NFI
 - However 2023 was a low NFI year
- Rainfall (or lack of it) could change these estimates greatly

Net Farm Income - state

	2022	2023	2024(p)	Est 2025
NFI	\$ 203,445	\$ 89,667	\$ 118,048	\$ 114,965
% Change	0	-56%	32%	-3%

Net Farm Income - east

	2022	2023	2024(p)	Est 2025
NFI	\$ 199,177	\$ 105,391	\$ 72,336	\$ 78,195
% Change	0	-47%	-31%	8%

Net Farm Income - central

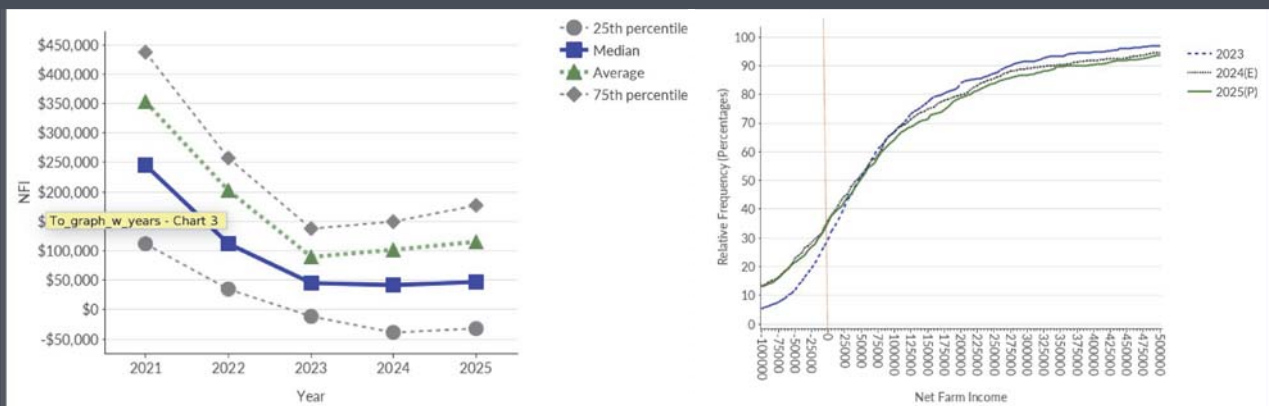
	2022	2023	2024(p)	Est 2025
NFI	\$ 160,143	\$ 61,311	\$ 156,569	\$ 142,589
% Change	0	-62%	155%	-9%

Net Farm Income - west

	2022	2023	2024(p)	Est 2025
NFI	\$ 400,164	\$ 141,271	\$ 149,488	\$ 154,147
% Change	0	-65%	6%	3%

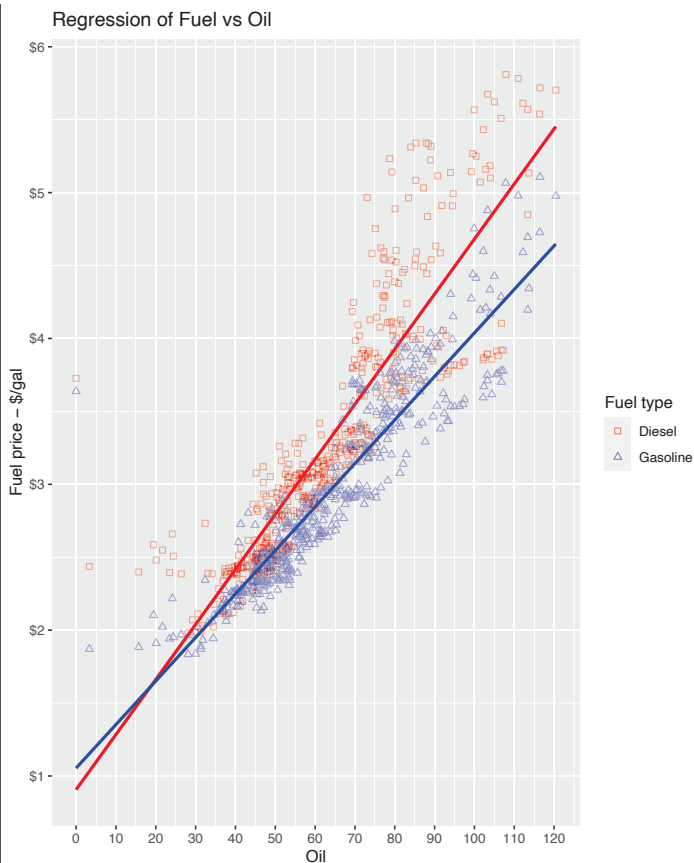
What is happening at the margins

- 35% of farms could have negative NFI this year and next



Input prices for the next year

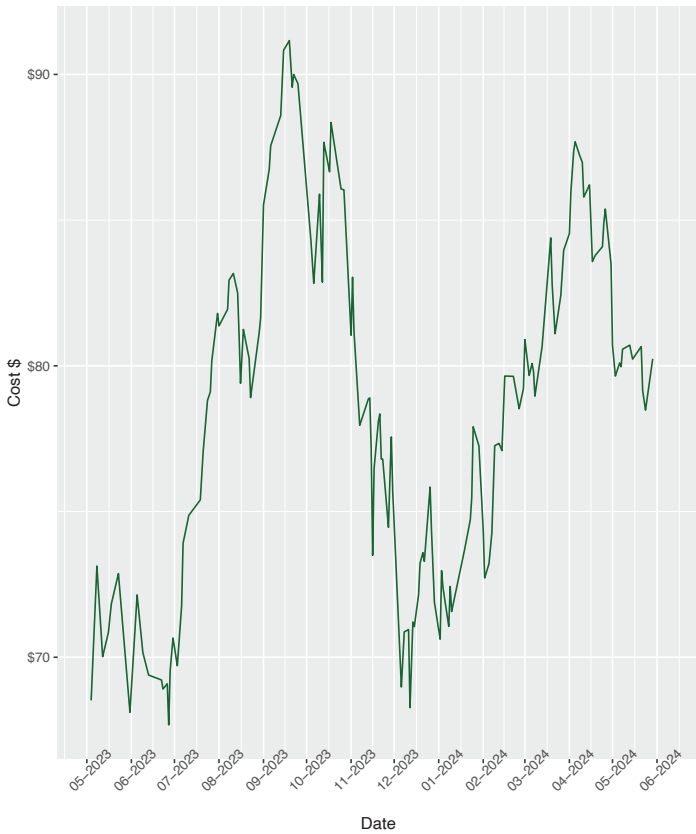
- oil and diesel
- fertilizer



Predicting oil prices is the key to diesel prices

- High correlation between oil and diesel
 - Not as strong as oil and gas though
- This regression line is not as accurate as it once was
 - Diesel seems to have more price variability
 - More of a recent issue

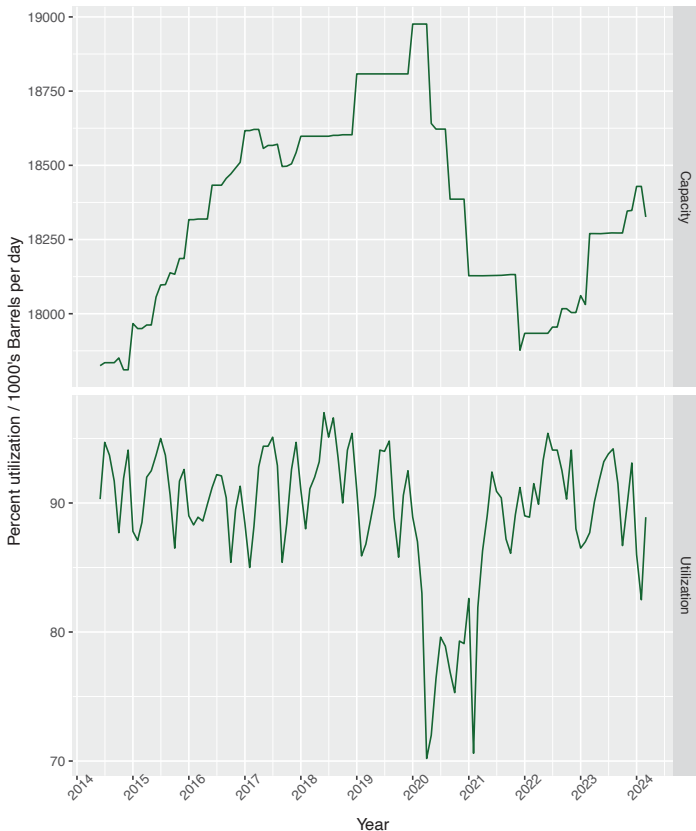
OK WTI Daily Spot Prices



Oil prices for the last year

- \$68 to \$90 range
- Russian/Ukraine war premium seems to have vanished
 - At the start of war, oil was at \$130
 - Maybe there should be more of a war premium
 - Ukraine is now targeting Russian oil refineries
- Oil futures provide little information
- High \$70 range for the foreseeable future

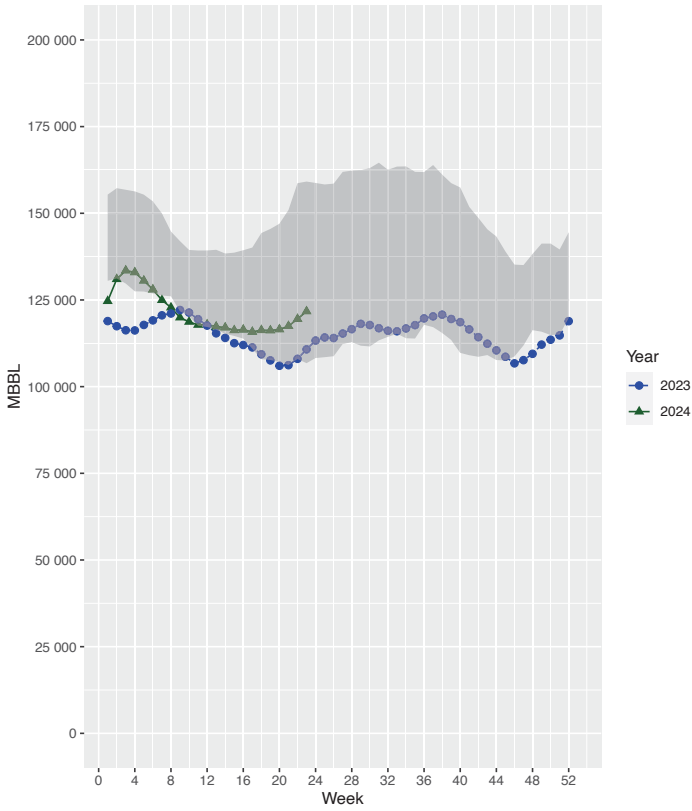
Refinery Capacity and Utilization



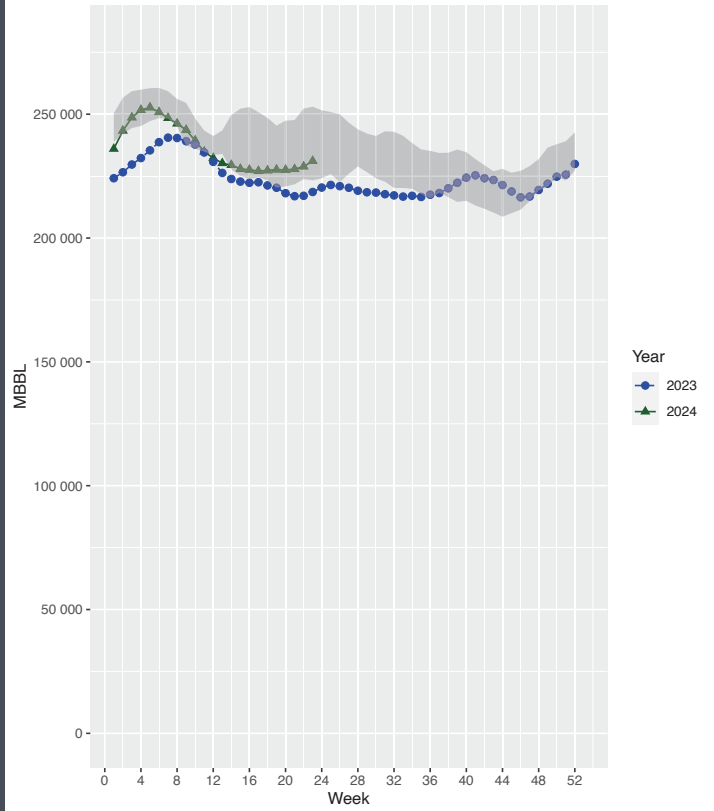
Refinery issues still a concern

- We are one hurricane or refinery fire away from a major price shock
- Major reason why gas and diesel stock remain relatively low

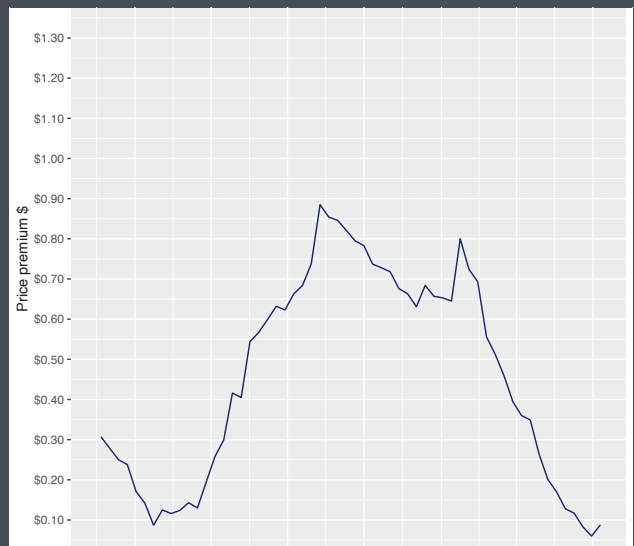
U.S. Diesel Stocks by Week for 2023 and 2024
Plus/minus one Std Dev of previous 5 years in gray



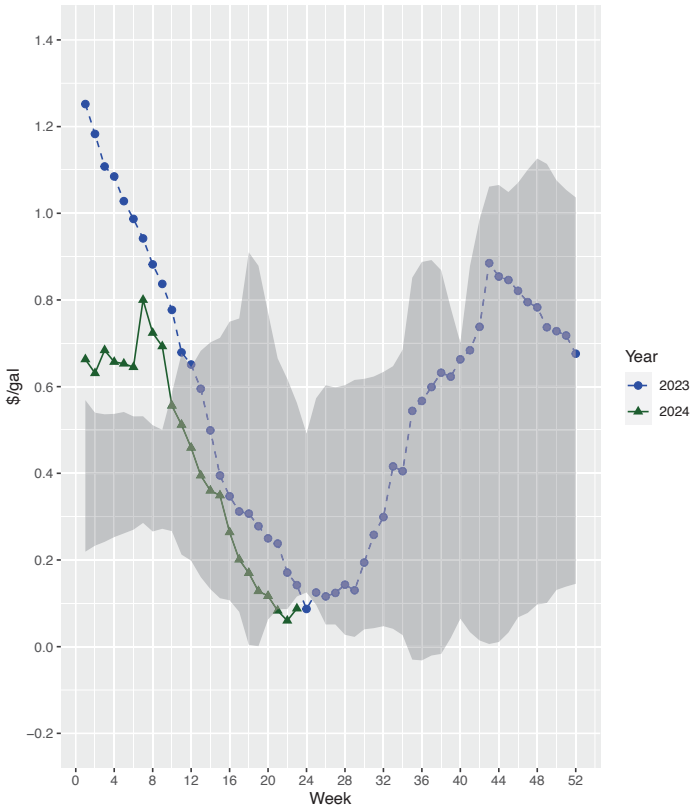
U.S. Gasoline Stocks by Week for 2023 and 2024
Plus/minus one Std Dev of previous 5 years in gray



Price premium of diesel for last 12 months



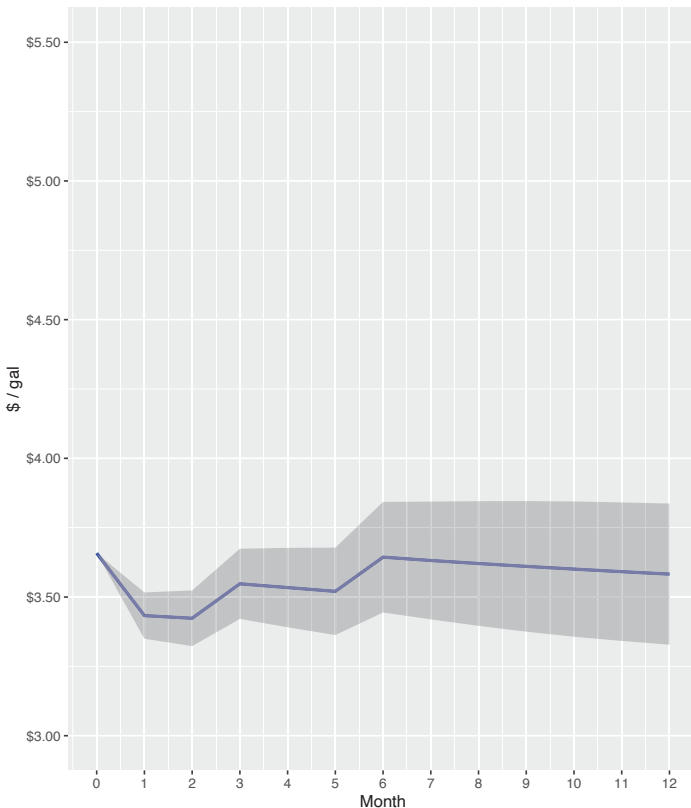
U.S. Diesel Price Premium by Week for 2023 and 2024
 Plus/minus one Std Dev of previous 5 years in gray



The price premium of diesel has behaved differently the last 2 years

- In past years the premium has been more consistent
- In the distant past, the premium was consistently smaller
- \$0.50 seems to be the more recent premium

Predicted U.S. Highway Diesel Price for Next 12 Months
 confidence interval in gray



Diesel price prediction for the next 12 months

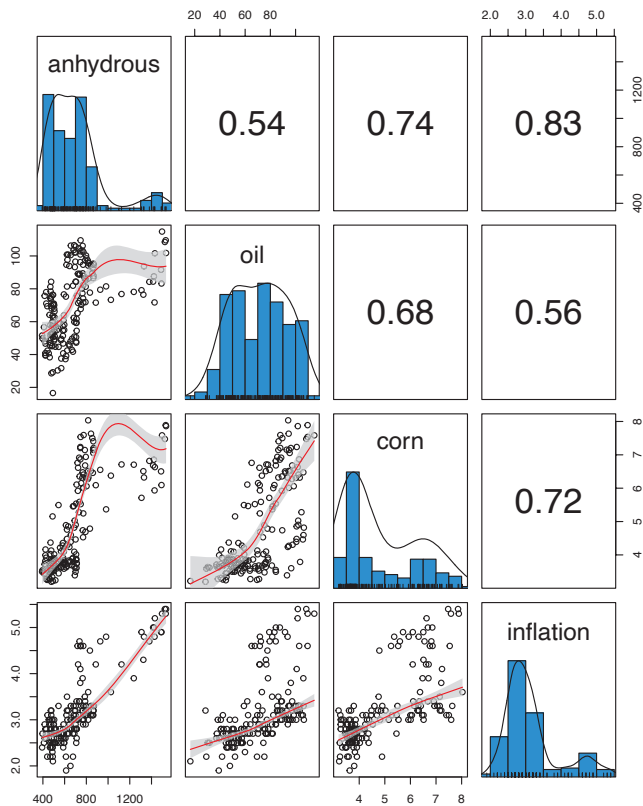
- Based on oil futures market and the diesel premium
- Assumption that the premium is following the same pattern as last year
- Is the oil futures price too low?
 - should there be a bigger confidence interval on estimate?

Latest fertilizer prediction model

Term	Coefficient	P-value
Intercept	-325.22	< 0.001
Oil (lag 6 mo)	2.77	< 0.001
Corn	42.21	< 0.001
Inflation (lead 2 mo)	195.78	< 0.001

- based on corn futures price
- oil price
 - lag 6 months
- inflation expectations
 - 2 month lead

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Adding inflation expectations helped model

- Original model (using corn and oil) didn't predict \$1000 AA
- Model has the highest correlation with inflation
- Model has limited data points for when AA is > \$1,000

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Anhydrous Price – Actual vs Predicted

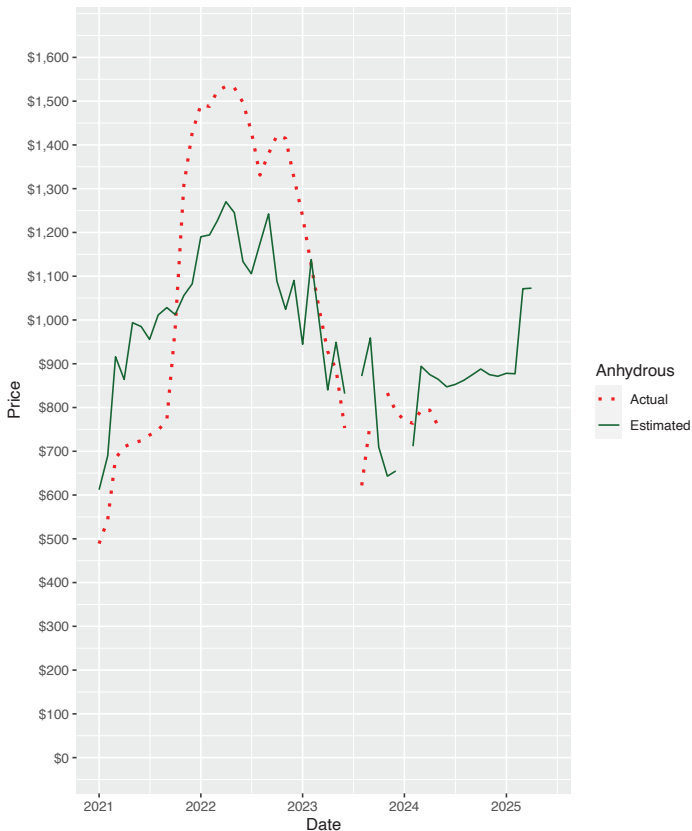


How has model worked in the past

- 0.73 correlation
 - very good
- Overestimating current price at the moment
 - may be due to my estimate of inflation

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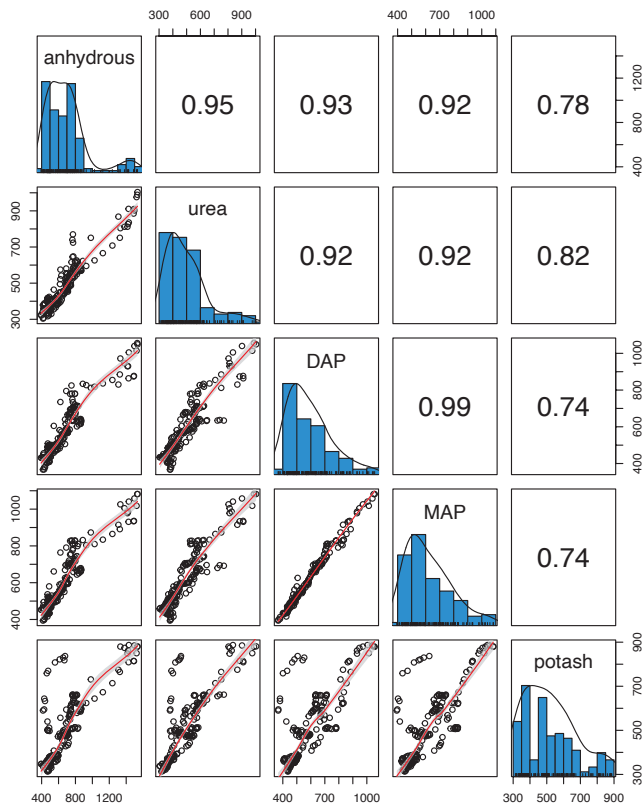
Anhydrous Price – Actual vs Predicted



Prediction for next 12 months

- My current prediction is above current prices
- Expectation of higher AA prices due to my estimate of higher inflation

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High correlation among all fertilizers

- Many wildcards with fertilizer predictions
- Russian/Ukraine war is important
- Russia is one of the biggest oil exporters
- Russia is also a big fertilizer exporter

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Questions?

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