

Farmland Market Update

ALLEN M. FEATHERSTONE
KANSAS STATE UNIVERSITY



KANSAS STATE UNIVERSITY | Agricultural Economics

Introduction

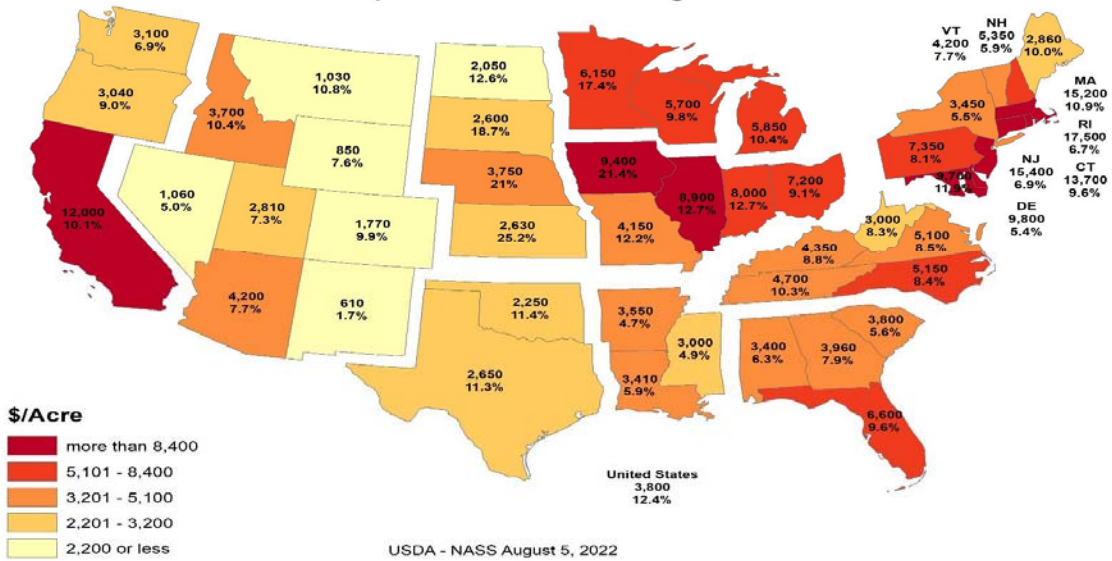
- Land Value Markets
 - USDA Data
- Factors Affecting Land Values
- The Numerator
- The Denominator



KANSAS STATE UNIVERSITY | Agricultural Economics

2022 Farm Real Estate Value by State

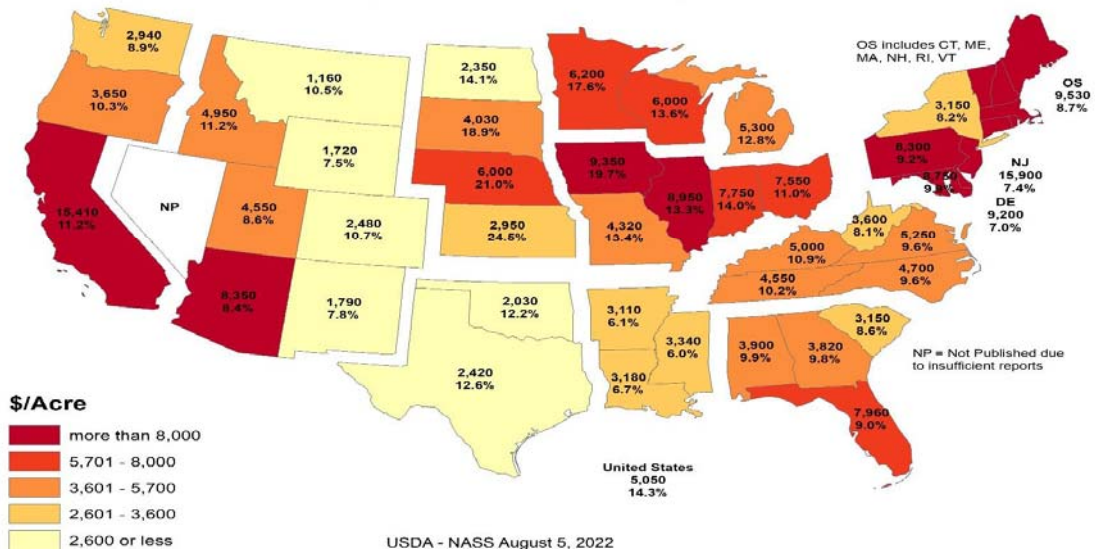
Dollars per Acre and Percent Change from 2021



KANSAS STATE UNIVERSITY | Agricultural Economics

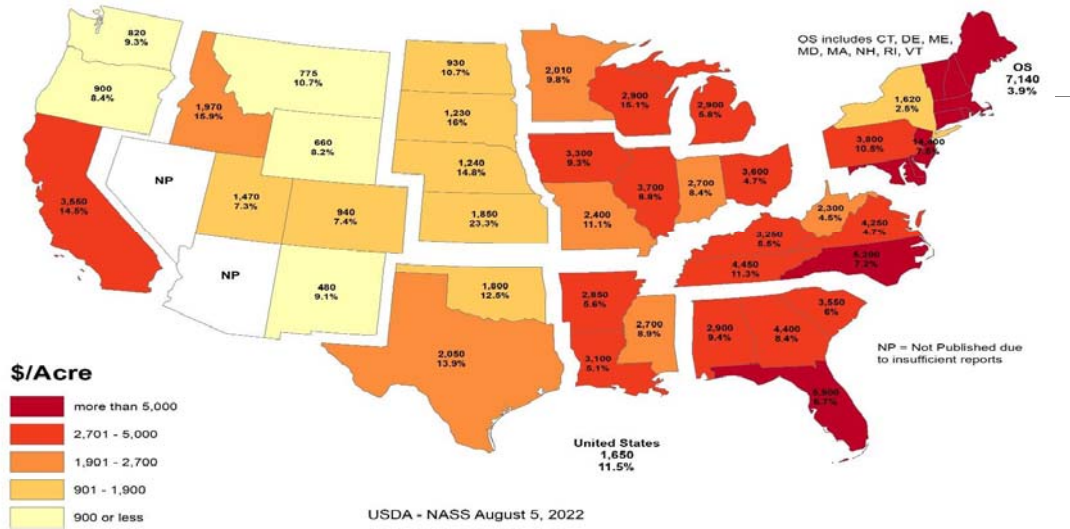
2022 Cropland Value by State

Dollars per Acre and Percent Change from 2021



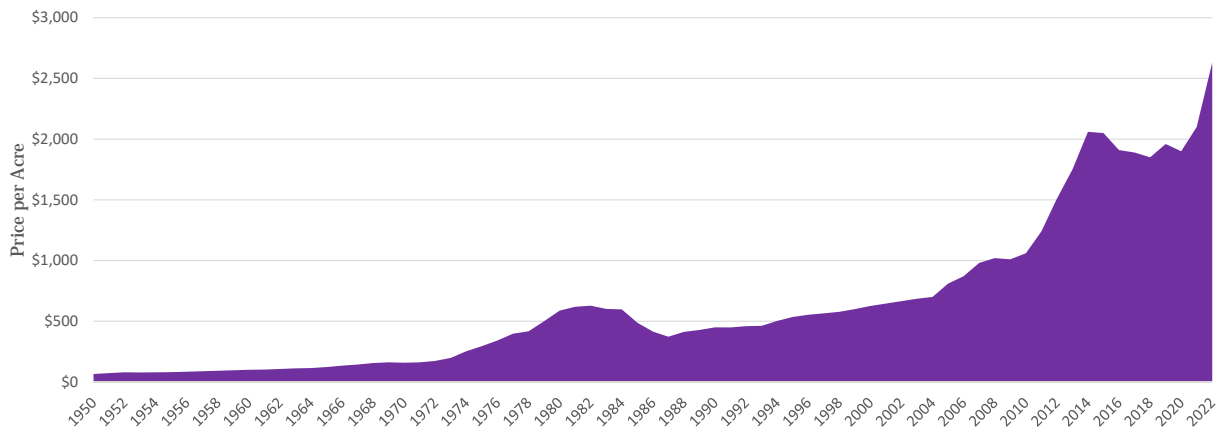
KANSAS STATE UNIVERSITY | Agricultural Economics

2022 Pasture Value by State Dollars per Acre and Percent Change from 2021



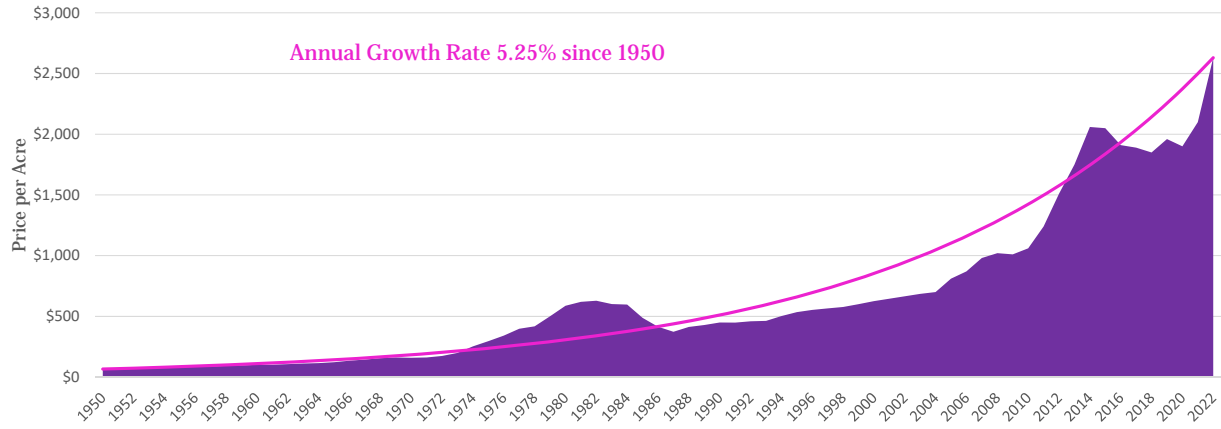
KANSAS STATE UNIVERSITY | Agricultural Economics

Kansas Land Values from 1950



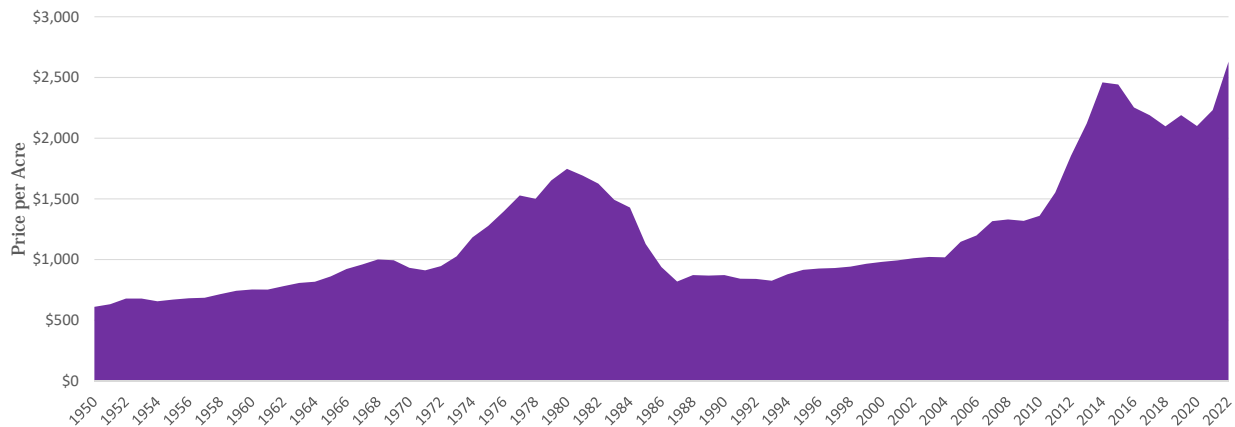
KANSAS STATE UNIVERSITY | Agricultural Economics

Kansas Land Values from 1950



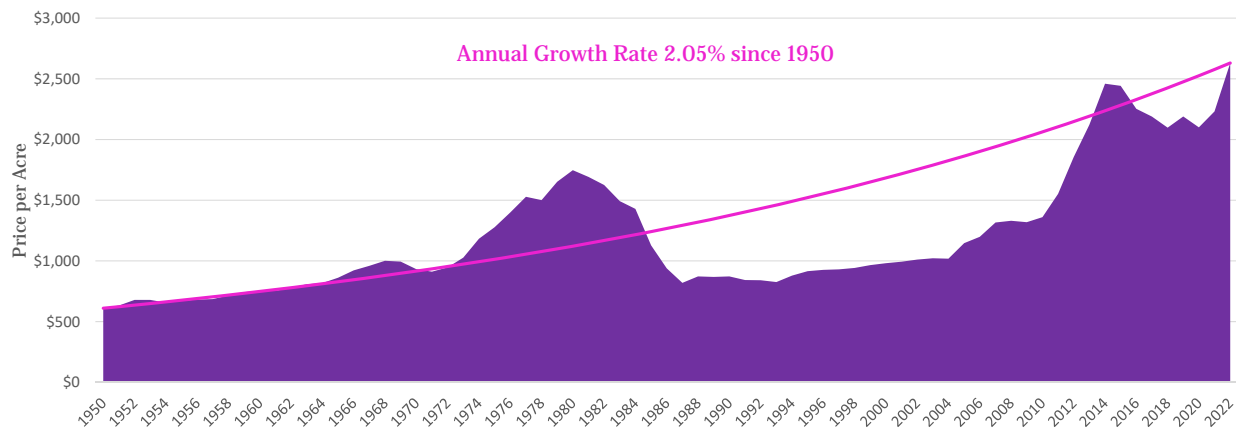
KANSAS STATE UNIVERSITY | Agricultural Economics

Inflation-Adjusted Kansas Land Values



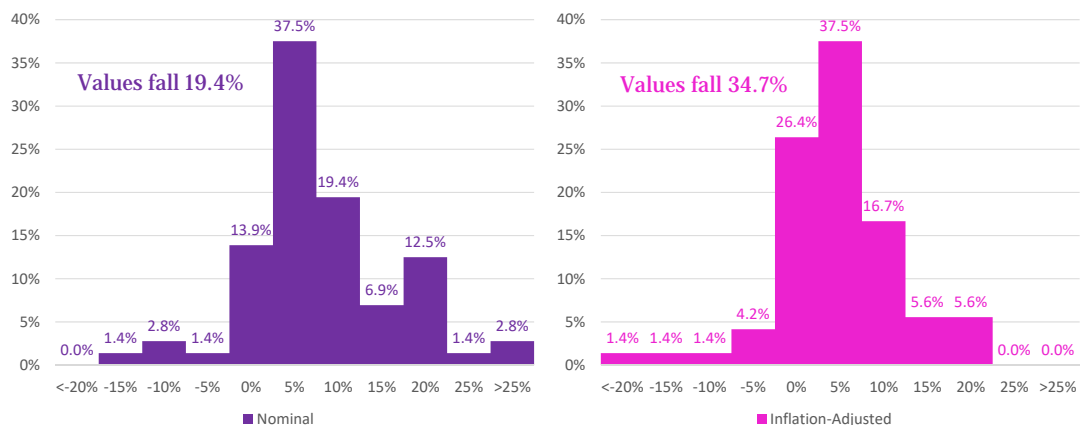
KANSAS STATE UNIVERSITY | Agricultural Economics

Inflation-Adjusted Kansas Land Values



KANSAS STATE UNIVERSITY | Agricultural Economics

Distribution of Kansas Land Price Changes



KANSAS STATE UNIVERSITY | Agricultural Economics

Nominal and Real Growth Rate in Farmland

State	2022 USDA Growth	Nominal Growth since 1950	Real Growth since 1950	Nominal Growth since 1970	Real Growth since 1970
California	10.1%	6.24%	3.00%	6.39%	2.83%
Florida	9.6%	6.82%	3.57%	5.78%	2.24%
Illinois	12.7%	5.62%	2.40%	5.73%	2.20%
Iowa	21.4%	5.81%	2.59%	6.30%	2.75%
Kansas	25.4%	5.25%	2.05%	5.51%	2.06%
Mississippi	4.9%	5.71%	2.49%	5.03%	1.52%
New York	5.5%	5.16%	1.96%	5.00%	1.49%
North Dakota	12.6%	6.09%	2.86%	6.11%	2.56%
Ohio	9.1%	5.67%	2.45%	5.72%	2.19%
Texas	11.3%	5.79%	2.57%	5.71%	2.17%



1970 growth is lower than 1950 growth
1970 growth is higher than 1950 growth

KANSAS STATE UNIVERSITY | Agricultural Economics

Nominal and Real Growth Rate in Farmland

State	2021 USDA Growth	Nominal Growth since 1950	Real Growth since 1950	Nominal Growth since 1970	Real Growth since 1970
Idaho	10.4%	5.67%	2.45%	6.02%	2.47%
Indiana	12.7%	5.81%	2.59%	5.90%	2.36%
Maryland	11.9%	6.23%	3.00%	5.37%	1.84%
Minnesota	17.4%	6.14%	2.91%	6.56%	3.00%
Missouri	12.2%	5.97%	2.74%	5.77%	2.24%
Montana	10.8%	5.87%	2.64%	5.62%	2.09%
Nebraska	21.0%	5.96%	2.74%	6.33%	2.78%
South Dakota	18.7%	6.34%	3.11%	6.80%	3.25%
Washington	6.9%	5.12%	1.92%	5.18%	1.67%
Wisconsin	9.8%	5.95%	2.72%	6.35%	2.79%



1970 growth is lower than 1950 growth
1970 growth is higher than 1950 growth

KANSAS STATE UNIVERSITY | Agricultural Economics

Nominal and Real Growth Rate in Farmland

State	2022 USDA Growth	Nominal Growth since 1950	Real Growth since 1950	Nominal Growth since 1986	Real Growth since 1986
California	10.1%	6.24%	3.00%	5.23%	2.99%
Florida	9.6%	6.82%	3.57%	3.91%	1.70%
Illinois	12.7%	5.62%	2.40%	5.34%	3.10%
Iowa	21.4%	5.81%	2.59%	6.45%	4.19%
Kansas	25.4%	5.25%	2.05%	4.98%	2.75%
Mississippi	4.9%	5.71%	2.49%	3.62%	1.41%
New York	5.5%	5.16%	1.96%	3.78%	1.57%
North Dakota	12.6%	6.09%	2.86%	4.89%	2.66%
Ohio	9.1%	5.67%	2.45%	4.98%	2.75%
Texas	11.3%	5.79%	2.57%	4.01%	1.80%



1986 growth is lower than 1970 growth
1986 growth is higher than 1970 growth

KANSAS STATE UNIVERSITY | Agricultural Economics

Nominal and Real Growth Rate in Farmland

State	2021 USDA Growth	Nominal Growth since 1950	Real Growth since 1950	Nominal Growth since 1986	Real Growth since 1986
Idaho	10.4%	5.67%	2.45%	4.76%	2.54%
Indiana	12.7%	5.81%	2.59%	5.20%	2.96%
Maryland	11.9%	6.23%	3.00%	4.21%	2.00%
Minnesota	17.4%	6.14%	2.91%	5.91%	3.66%
Missouri	12.2%	5.97%	2.74%	5.01%	2.78%
Montana	10.8%	5.87%	2.64%	3.99%	1.78%
Nebraska	21.0%	5.96%	2.74%	5.96%	3.70%
South Dakota	18.7%	6.34%	3.11%	6.17%	3.92%
Washington	6.9%	5.12%	1.92%	3.50%	1.30%
Wisconsin	9.8%	5.95%	2.72%	5.18%	2.94%



1986 growth is lower than 1970 growth
1986 growth is higher than 1970 growth

KANSAS STATE UNIVERSITY | Agricultural Economics

Distribution of Annual Price Changes

State	Percent Negative Nominal Growth	Percent Negative Real Growth	Nominal Growth between -5% and 10%	Real Growth between -5% and 10%
California	11.1%	26.4%	75.0%	81.9%
Florida	11.1%	33.3%	70.8%	79.2%
Illinois	15.3%	30.6%	68.1%	80.6%
Iowa	23.6%	31.9%	58.3%	69.4%
Kansas	19.4%	34.7%	70.8%	80.6%
Mississippi	11.1%	22.2%	69.4%	83.3%
New York	11.1%	34.7%	88.9%	91.7%
North Dakota	18.1%	33.3%	66.7%	77.8%
Ohio	15.3%	26.4%	73.6%	81.9%
Texas	13.9%	29.2%	72.2%	83.3%



Distribution of Annual Price Changes

State	Percent Negative Nominal Growth	Percent Negative Real Growth	Nominal Growth between -5% and 10%	Real Growth between -5% and 10%
Idaho	13.9%	20.8%	72.2%	83.3%
Indiana	15.3%	29.2%	69.4%	80.6%
Maryland	15.3%	27.8%	61.1%	75.0%
Minnesota	16.7%	27.8%	62.5%	73.6%
Missouri	13.9%	25.0%	72.2%	84.7%
Montana	12.5%	26.4%	73.6%	80.6%
Nebraska	22.2%	31.9%	62.5%	76.4%
South Dakota	18.1%	31.9%	63.9%	72.2%
Washington	11.1%	25.0%	83.3%	90.3%
Wisconsin	19.4%	27.8%	66.7%	80.6%



Land Value Summary

- ❖ Agricultural land value growth rates in 20 studied states varied in 2022 from 4.9% (Mississippi) to 25.4% (Kansas) according to USDA
 - ❖ Year by year numbers are very variable
- ❖ The annual increase in Agricultural Land Values for 20 selected states since 1950 ranged from 5.12% to 6.82% (5.00% to 6.80% since 1970) (3.62% to 6.45% since 1986)
- ❖ The annual inflation-adjusted increase in Agricultural Land Values for 20 selected states since 1950 ranged from 1.92% to 3.57% (1.49% to 3.25% since 1970) (1.30% to 4.19% since 1986)
- ❖ Agricultural land values since 1950 in 20 selected states have fallen from 11.1% to 23.6% of the time
- ❖ Inflation-Adjusted Land Values since 1950 in 20 selected states have have fallen from 20.8% to 34.7% of the time
- ❖ Between 58.3% and 88.9% of the years for 20 selected states land values have been between -5% and 10%
- ❖ Between 69.4% and 91.7% of the years for 20 selected states inflation-adjusted land values have been between -5% and 10%



Factors Affecting Kansas Land Value (NASS)

$$\text{Land Value} = \frac{\text{Cash Rent}}{\text{Capitalization Rate}}$$

Non-irrigated Crop Land Value \$2,850, Non-irrigated Cash Rent \$61.5, Capitalization Rate 2.16%, PE Ratio 46.3

Irrigated Crop Land Value \$4,000, Irrigated Cash Rent \$143, Capitalization Rate 3.58%, PE Ratio 28.0

Pasture Value \$1,850, Pasture Cash Rent \$21, Capitalization Rate 1.14%, PE Ratio 88.1

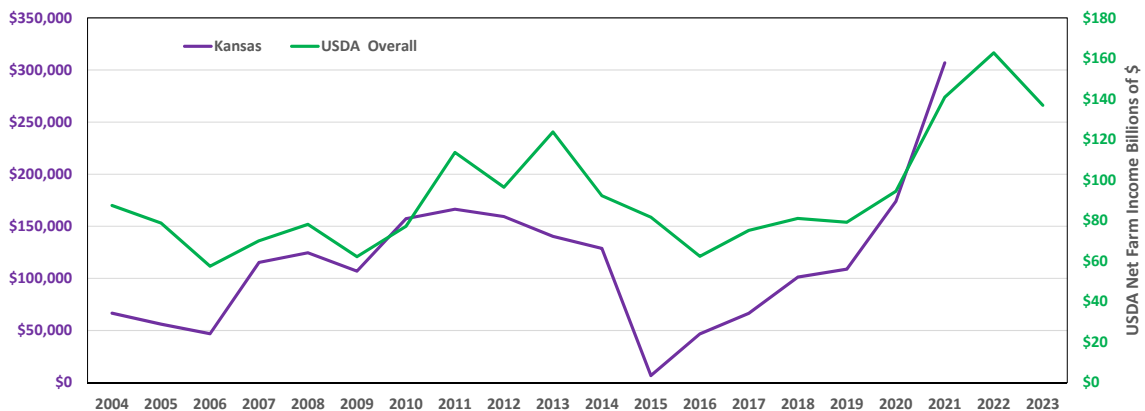


The Numerator

- Revenue
 - Market Prices
 - Government Payments
 - Yields
- Costs
 - Input prices
 - Input quantities



Net Farm Income – Kansas Farm Management and Aggregate U.S.



KFMA Average Net Farm Income and Government Payments

	2014	2015	2016	2017	2018	2019	2020	2021
Net Farm Income	\$136,127	\$11,134	\$63,941	\$75,687	\$112,501	\$126,441	\$178,246	\$341,384
Government Payments	\$26,144	\$21,575	\$26,247	\$27,886	\$42,209	\$91,677	\$129,106	\$66,029
Government Payments as a Percent of Income	19.2%	193.8%	41.0%	36.8%	37.5%	72.5%	72.4%	19.3%

Sample size is 416 farms with 2014 to 2021 continuous data

Government Payments are important as a percentage of income for farms



Distribution of KFMA Net Farm Income

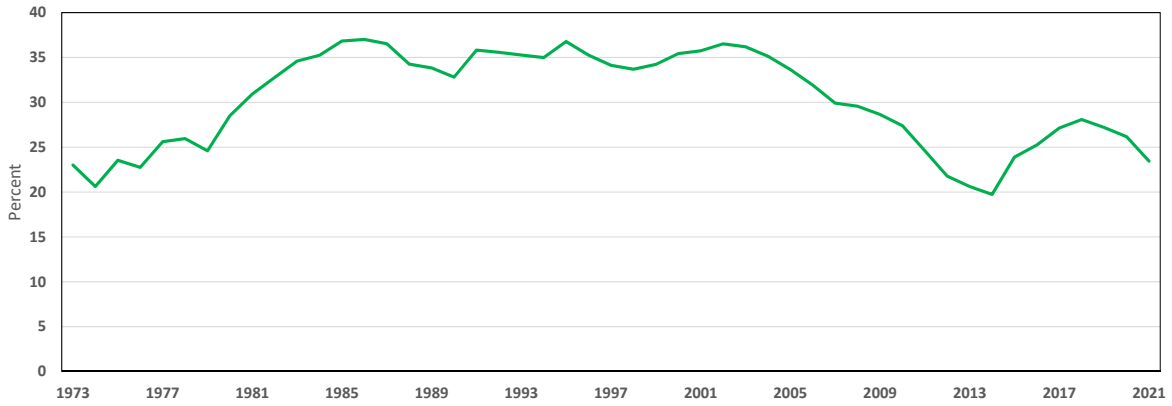
Farms with	2014	2015	2016	2017	2018	2019	2020	2021
Negative Net Farm Income	17.3%	40.1%	30.5%	23.3%	16.6%	12.7%	8.2%	4.6%
Net Farm Income Less than \$50,000	35.6%	67.5%	55.8%	56.3%	42.8%	36.1%	24.5%	12.5%

Farms with negative income each year from 2014 – 0.0%

Farms with positive income each year from 2014 – 30.3%

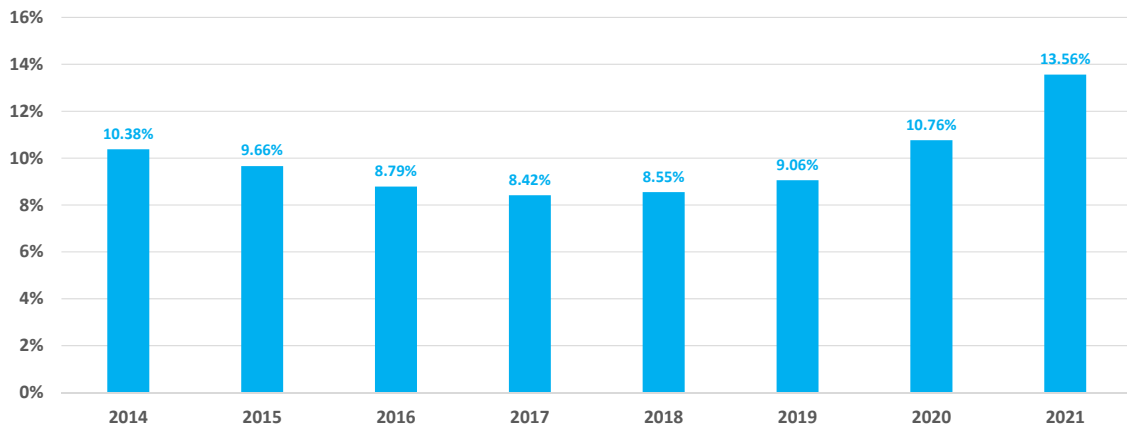


KFMA Farms Debt to Asset Ratio



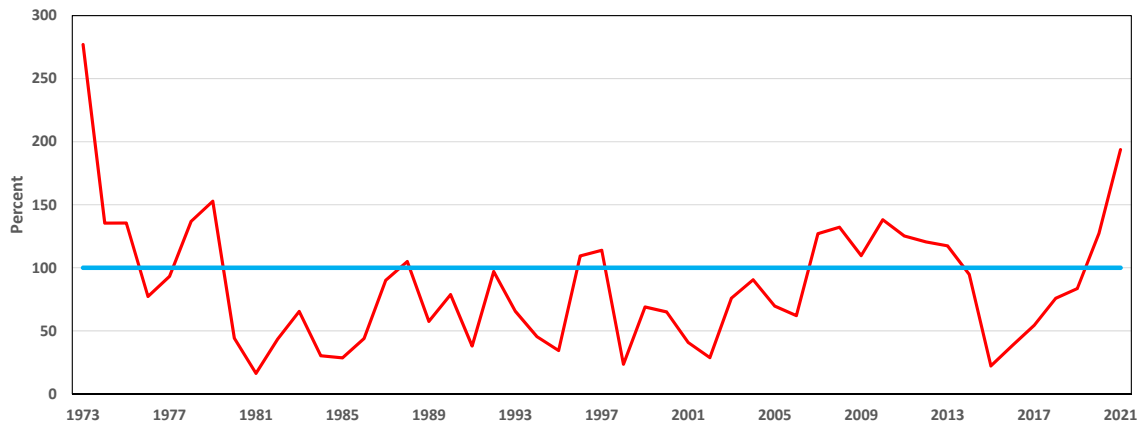
KANSAS STATE UNIVERSITY | Agricultural Economics

KFMA Farms Working Capital to Asset Ratio



KANSAS STATE UNIVERSITY | Agricultural Economics

KFMA Farms Repayment Capacity

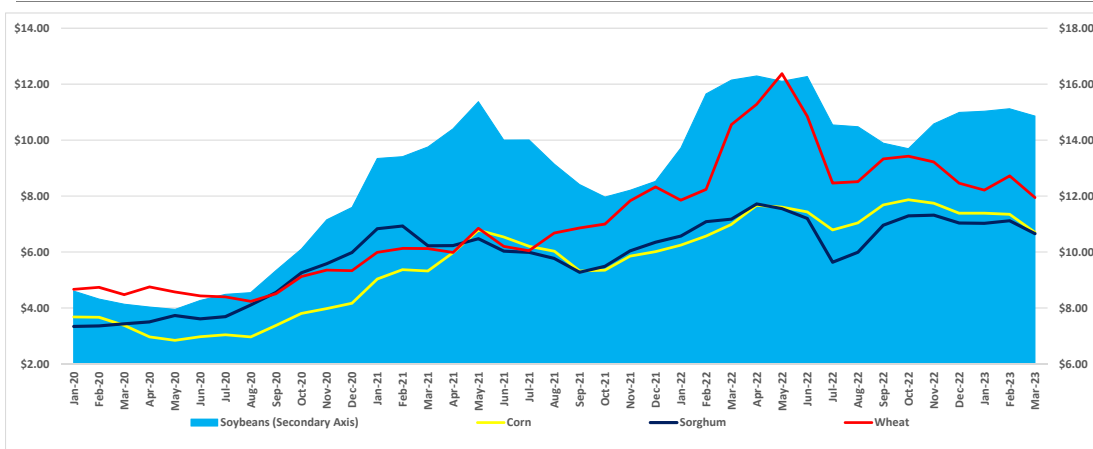


Summary

- At the end of 2021, Kansas has experienced 6 years of increasing average net farm income
 - Farms with negative net income fell from 40.1% of farms in 2015 to 4.6% of farms in 2021
 - Much of that improvement was due to increasing government payments until 2021
- The debt to asset ratio improved in 2021
 - 13.0% of KFMA farms had a debt to asset ratio of greater than 40%, down from 21.2% in 2018
 - 1.4% of KFMA farms had a debt to asset ratio of greater than 70%, down from 3.8% in 2018
- The working capital to asset ratio increased for the 4th year in a row in 2021
- The capital debt repayment capacity increased for the 6th year in a row in 2021
- Excellent financial condition going into 2022 and extending into 2023



Soybean, Corn, Sorghum, and Wheat Salina Cash Prices



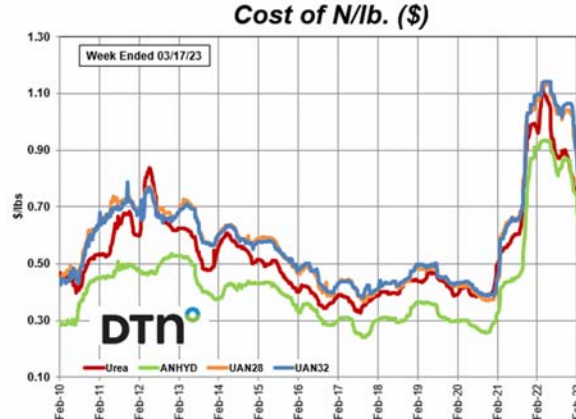
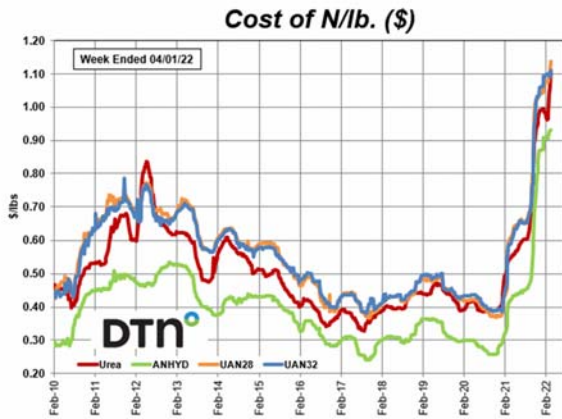
2023 Price Outlook

Commodity	Cash Bid (3/22)	Forward Bid (2023 Crop)	Difference
Wheat	\$7.80	\$7.72	\$0.08
Corn	\$6.69	\$5.37	\$1.32
Sorghum	\$6.64	\$5.26	\$1.38
Soybean	\$14.39	\$12.34	\$2.05

March 22, 2023, Bid at Salina Kansas



Cost of Nitrogen per pound (4/1/22 and 3/17/23)



2023 Non-Irrigated Crop Income Estimates

Crop (5-yr yield)	2022 Estimated Total Expenses	Net Income (2023 Average Yield)
Corn (110)	\$518	\$73
Sorghum (90)	\$378	\$95
Soybean (45)	\$410	\$145
Wheat (50)	\$335	\$51



Summary

- Crop Farmers income will be up in 2023
- Government Payments will be down in 2023
- 2023 prospects have weakened since the Ukraine Russian Conflict
- Crop expenses will be up
 - Supply disruptions are concerning to the agricultural sector

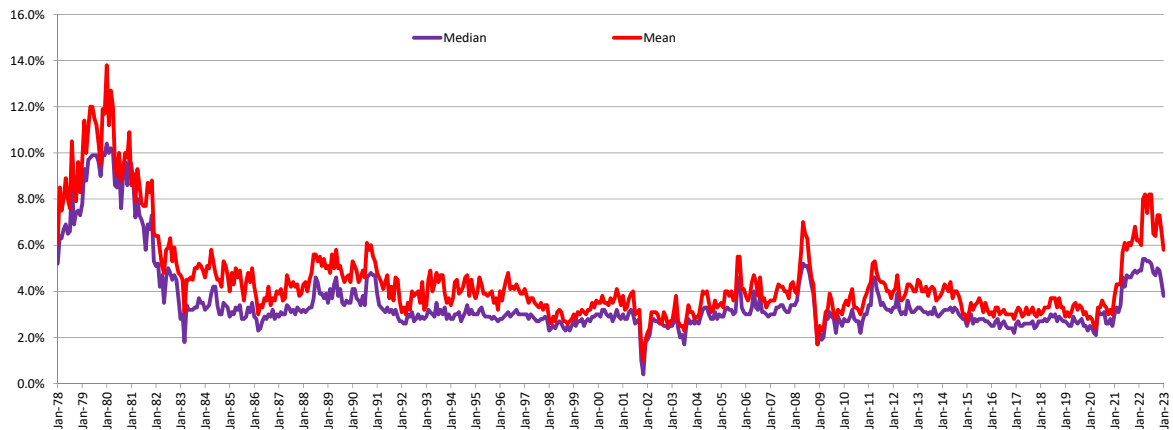


The Denominator

- Interest Rates
- Inflation
- Expected Growth in Cash Rents?



University of Michigan Inflation Expectations



KANSAS STATE UNIVERSITY | Agricultural Economics

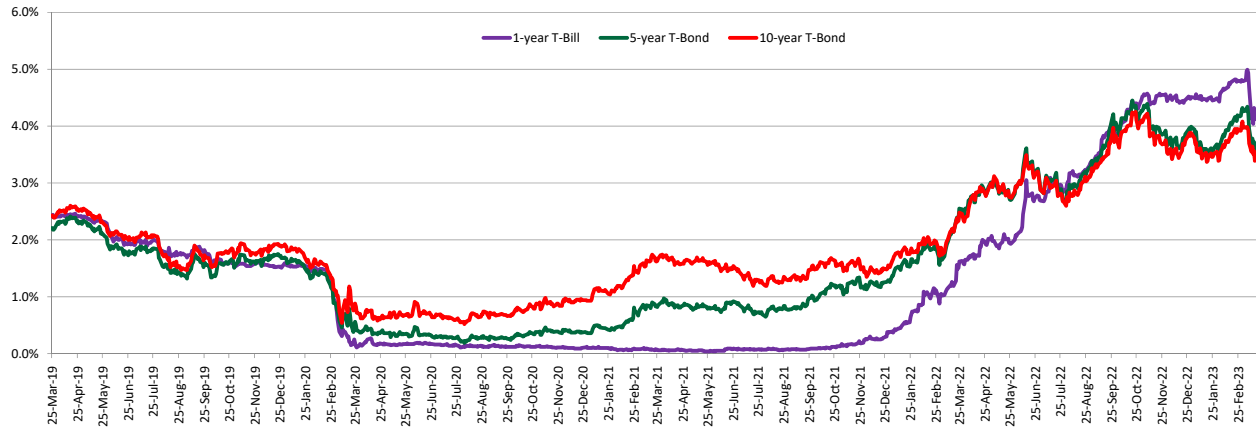
University of Michigan 1-Year Inflation Projections

- Median increased from 2.5% in December 2020 to 3.9% in January 2023
- Mean increased from 3.0% in December 2020 to 5.8% in January 2023
- January median dropped below 4% and mean dropped below 6%
- Highest:
 - Median was 10.4% in January 1980
 - Mean was 13.8% in January 1980
- Last time:
 - Median was above 4% was May 2011
 - Mean was above 6% was July 2008



KANSAS STATE UNIVERSITY | Agricultural Economics

Daily T-Bill/Bond Rates

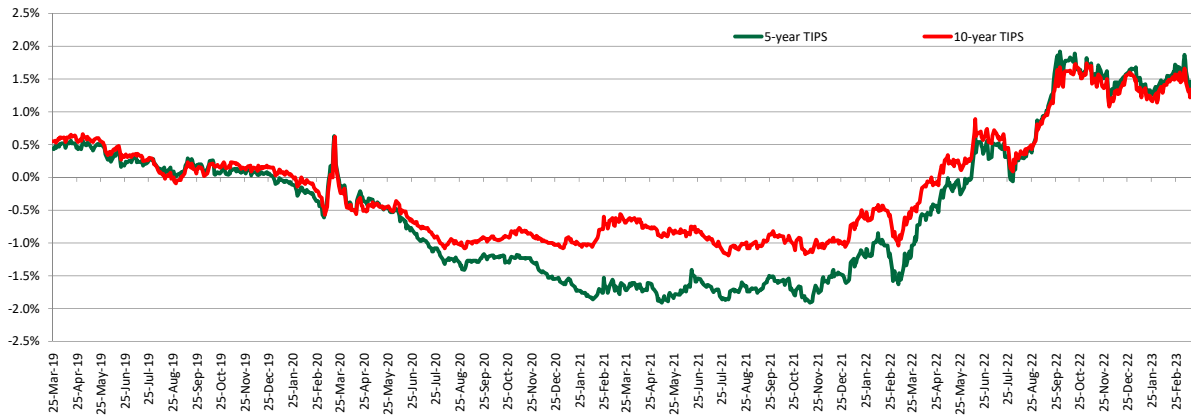


Interest Rate Summary

- Drastic decrease in all rates after February 2020 with COVID-19
- Have seen some increase in the 1-, 5-, and 10-year T-Bond rates since November 2021
 - 5- and 10- year rates are about 3.5%
 - Recently an inversion between 5- and 10-year rates
 - 1-year rates dropped from close to 5% to 4%
 - Also inverted
- Highest 1-year T-Bill rates since October 2007
- Highest 5-year T-Bond rates since November 2007
- Highest 10-year T-Bond rates since November 2007



Daily TIPS Rates

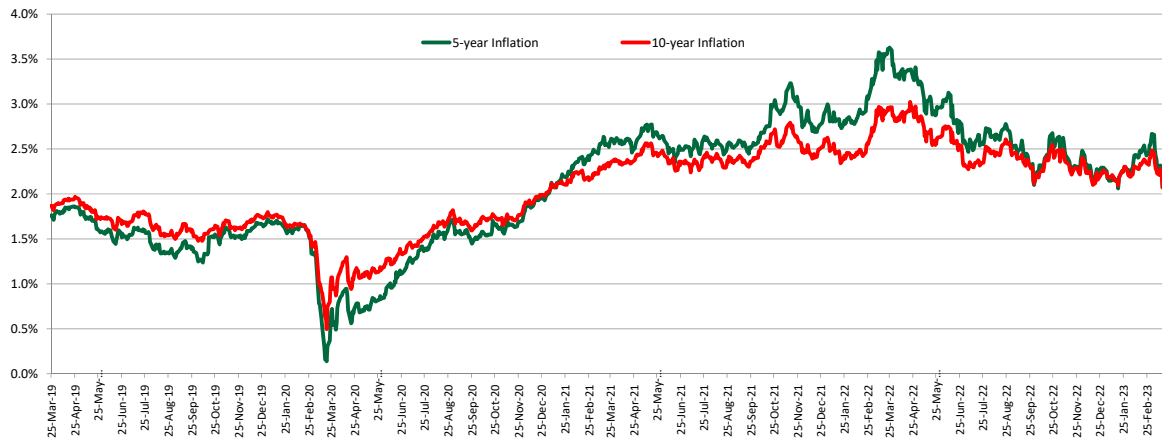


Real Interest Rate Summary

- Initial spike in real interest rates in February 2020 with COVID-19
- Have seen a consistent increase in the 5- and 10-year TIP rates since November 2021 increase
 - Paradigm is shift since then 2021
 - 5-year TIPS at -1%, 10-year TIPS at -0.5%
- TIPS rates are historically closing in on pre 2008 levels
 - Currently in the 1.3% to 1.4% range
 - No longer negative real lending rate
 - Before 2008, they were in the 2% to 3% range
 - Are we moving back to the pre 2008 range?



Daily Inflation Expectations

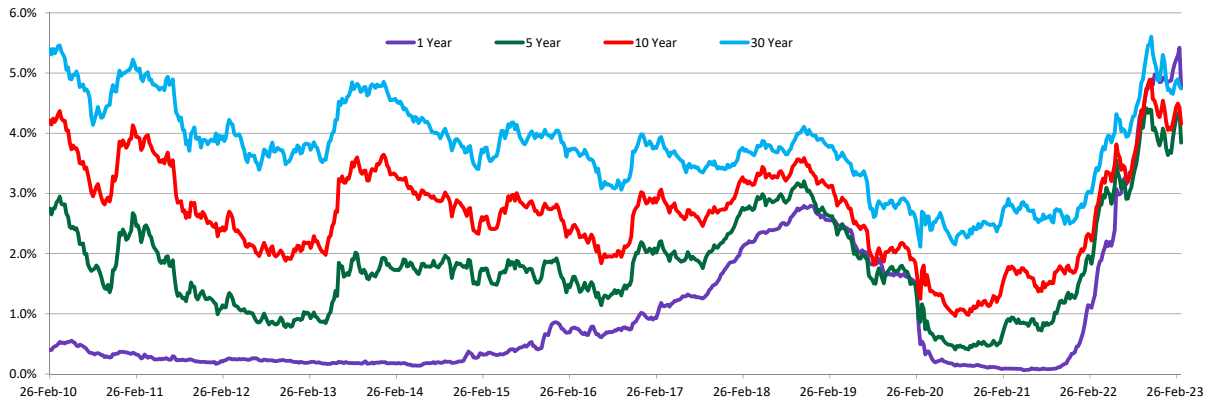


Inflation Rate Summary

- Initial fall in inflation rates in February 2020 with COVID-19
 - Inflation expectations were close to zero
- Have seen a consistent increase in the 5- and 10-year inflation rates since the initial decrease
- Since April 2022, rates have backed off a bit
- Inflation rates are in the 2.0% to 2.5% range for 5- and for 10-year estimates
 - The 5-year and 10-years inflation rates flipped January 14, 2021 and mostly have remained flipped
 - Current expectations that inflation will be roughly the same over the next 10 years as they will be for the next five years
- Before 2008, they were around 2.5% and they are settling back to the range

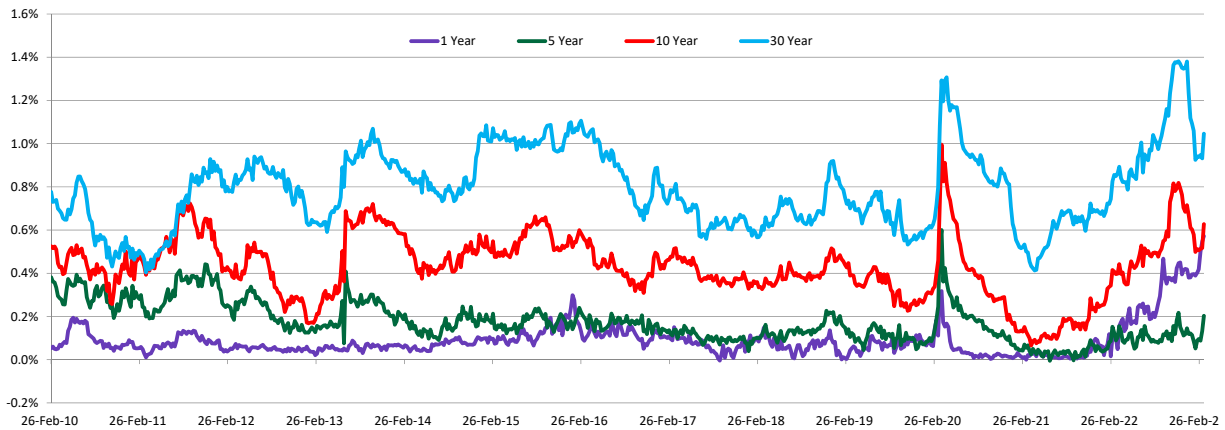


Weekly Farm Credit Acquisition Rates



KANSAS STATE UNIVERSITY | Agricultural Economics

Weekly Farm Credit Spreads



KANSAS STATE UNIVERSITY | Agricultural Economics

Farm Credit – Treasury Spread Summary

- Farm Credit acquisition rates have generally followed treasuries
- Acquisition rates for 30-year money is right at 4.75%
- Acquisition rates for 10-year money has increased to 4.16%
- Acquisition rates for 5-year money has increased to 3.85%
- Acquisition rates for 1-year money has increased to 4.75%
- Farm Credit – Treasury Spreads are low:
 - At 0.57% for 1-year money
 - At 0.20% for 5-year money
 - At 0.63% for 10-year money
 - At 1.05% for 30-year money
- Investor's view lending to the U.S. government and U.S. farmers of very close to equal risk for the next 5 years
 - 10-year and the 30-year spread increased and has come back down
 - 1-year spread has increase to about what the 10-year spread is



Land Value Summary

- Land values are increasing, strong increases on land suitable to corn, soybeans, wheat, and sorghum
- The income picture looks good over the next couple of years
- The capitalization rate may begin to be pressured upwards



Allen Featherstone
afeather@ksu.edu

