

2025 Kansas County-Level Cash Rental Rates for Non-Irrigated Cropland

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Purpose of these KSU Non-Irrigated Cash Rent Estimates¹

Determining cash rental rates is an important decision for nearly every farmer in the state since over 90 percent of Kansas farmers rent at least some of their farmland. Cash leases are often determined by competitive local markets, which may or may not reflect the ability of the land to support “going” market rental rates. This publication provides non-irrigated cash lease breakeven estimates that incorporate land productivity to provide renters and landowners another perspective when negotiating lease rates.

A **tenant's residual method** is used to *estimate non-irrigated county breakeven cash rents for 2025* – incorporating county yield histories, recent grain prices, and KFMA farm expenses. These breakeven cash rent estimates can help farmland renters and owners determine equitable cash rentals rates for specific farms.

These Kansas State University estimates for 2025 county-level non-irrigated breakeven cash rental rates are found in Figures 5, 6, 7, 8, and 9 at the end of this publication. These estimates incorporate the September 2024 NASS county non-irrigated cash rental rate estimates into the model. *Based on the modeling approach used here, non-irrigated cash rents for newly rented ground are expected to: decrease by 19% in Eastern Kansas, decrease by 16% in Central Kansas, and by 9% in Western Kansas.*

Intended Use of Breakeven Cash Rental Rate Estimates

The rental rate estimates provided in this publication are intended for the *2025 crop year*. These estimates include an expectation of 2024 and 2025 farm profitability. Because the estimate is based on average yields for the county, actual lease rates could be higher or lower depending on actual yield history. Estimates are also a function of USDA-NASS cash rental rate surveys from 2024 to help smooth out the estimate – anchoring the numbers to recent cash rental rate history.

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These breakeven cash rent estimates are intended to cover all expenses and not only the cash or direct cost of crop production. As such, these non-irrigated cash rental rate estimates represent what farm operators can pay and cover *full economic cost* of production with no extra profits. If a crop producer's crop yields, production costs or selling prices vary from these crop budget assumptions, then the full economic cost breakeven cash rental rate that can be paid in 2025 will vary from these estimates.

Given the assumptions involved in calculating them, it holds true that **these non-irrigated cash rental rate estimates are also NOT an endorsement for what a tenant should actually pay to a landlord.** Instead, they are provided to give a starting point in lease negotiations, with care and attention given to the yield, production cost, and price estimates that these breakeven cash rental rate estimates have used.

Any lease that a tenant and landlord willingly agree to in which they have both utilized the best information they have available to them in making a decision, is considered here to be a "fair" and/or "equitable" lease.

Changes in the Model from Last Year's 2024 Estimates.

The model is essentially unchanged from last year

Background – Estimating Farmland Cash Rental Rates

Farmers across the U.S. make extensive use of farmland leasing to provide a base of farmland for their operations. As shown in Figure 1, the median percentage of land rented is about 75% of the total cropland base on a farm (the red dashed line on the figure). There are very few crop and livestock producing farming operations in the United States that are not using at least some rented cropland and/or pasture. Note that the green line in Figure 1 shows that less than 10% of farms have no rented land. The data for Figure 1 comes from an analysis of Kansas Farm Management Association (KFMA) farm records for the last 50 years. KFMA data is also used in the estimates of expenses that help determine the county level cash rents.

Part of the reason that so many farmers lease at least a portion of their farmland is the non-depreciable nature of farmland. Not only is land not depreciable but it typically appreciates in price. It is not unusual for half or more of a farm's real net returns to occur as land appreciation. These characteristics of farmland result in an asset that will very seldom ever cash flow (Oltmans, 1995). That is, when a farmer purchases farmland, the income provided from that land will not cover the principle and interest payments. Thus, in order for a farmer to cash flow any new farmland purchase, the income from other land is needed to cover the cash flow needs.

There are at least two main approaches of estimating cash lease rates. The first approach is based on either formal or informal surveys of what others are paying. Discussions with neighboring farmers would be a type of an informal approach. A more formal approach is a survey like the type USDA-NASS uses to estimate cash lease rates each year. The main issues with the survey approach are whether responses are accurately reported, the delay in time to collect a survey (resulting in outdated lease rates), and whether the stated lease rate is actually something a tenant can pay and still cover all cash and non-cash expenses.

A secondary issue with the USDA-NASS surveys is missing data in some counties. The USDA is required to have a certain number of responses before they can publish the data. While most counties do have publishable non-irrigated rents, there has been a trend of these underrepresented counties increasing. The situation is even worse for the reported irrigated cash rents as there are many counties with cash leased irrigated acres but no reported rental rate from the USDA.

The second approach is to estimate breakeven cash lease rates based on soil productivity and market prices. These estimation methods have the advantage of looking forward rather than just using past experience. Also, a tenant can be more certain of covering all expenses if the calculations are developed correctly. The major disadvantage is that any forward projections are uncertain, and much more information is needed in order to develop an accurate cash lease estimate.

There are at least six methods of estimating a cash lease using the productivity approach. These are: 1) Average yields; 2) Corn suitability rating; 3) Share of gross crop value or revenue; 4) Return on investment; 5) Crop share equivalent; and 6) Tenant's residual. Iowa State University Extension has a publication detailing all of these methods and approaches (Plastina and Edwards, File C2-20).

NASS has been performing surveys of producers for cash rent expenses at the state level since 1994. They also have cash rent survey for individual counties but for a much shorter timeframe. Figure 2 plots this state rental data for both irrigated and non-irrigated cropland.

Cash rental rates are correlated with farm profitability to some extent as shown by the net farm income per crop acre for western, central, and eastern Kansas. These net farm income numbers per crop acre are shown in Figure 3. Net farm income increased from 2005 until about 2013 before starting to decline. Net farm income reached a low point in 2015 but has increased every year until last year (2022). Even though NFI decreased in 2022, it was still above historical norms for KFMA farms. A visual inspection of cash rents from NASS also show an increase in rates although there is some apparent delay and the rental rates are stickier, not increasing nor decreasing as quickly as net farm income changes.

Approach

In this paper, the tenant's residual approach is used to estimate how much income the tenant has available for rent payments after subtracting all the tenant's costs associated with producing the crop. These costs include variable costs of production along with fixed costs of depreciation and interest, a charge to operator labor, and a management fee. Also needed is the expected revenue for the farm. Once all the costs have been accounted for, the remaining amount that is available is assumed to be allocated for the payment of cash rent.

All of these calculations are taken down to the per acre basis for both irrigated and non-irrigated estimates. This paper estimates the breakeven non-irrigated cash rental amount using the tenant's residual approach method on a county basis for Kansas. A future companion paper will examine irrigated cropland breakeven cash rental rates on a county basis in Kansas.

Income

To calculate gross revenue an estimate is needed of crop yields and crop prices for the county as well as an estimate of the government payments per acre. Because estimates are developed for both

irrigated and non-irrigated cropland, yields need to be specified for both irrigated and non-irrigated crops. NASS used to provide this information but for the last several years, they only provide a single yield estimate per crop per county. Fortunately, the FSA does have this information by irrigated and non-irrigated crop per county. FSA also has the number of crops acres in a county.

Yields and prices and acres

Because yields are expected to generally follow a trend-line over time, the last five years of FSA yields were used to estimate the average yield per crop per year. With only 5 years of data, a true trend could not be estimated but the trend-line yield over time should not vary much from the simple average for the most recent 5-year period.

Acres and crop prices do not follow a discernible trend pattern over the last 5 years. Thus, while the last 5 years of data were used, a weighted average approach was incorporated so that more recent years had more weight. Once the gross crop revenue was calculated, the revenue per acre was calculated based on the number of crop acres. For this analysis of Kansas non-irrigated cropland, only corn, soybeans, wheat, and grain sorghum were used in the calculation.

Expenses

KFMA (Kansas Farm Management Association) crop enterprise data was used to estimate crop production expenses in this approach. Crop production expenses per crop were estimated at the Crop Reporting District (CRD) level. While KFMA has detailed whole farm numbers, the enterprise level data is limited. To get around this limitation, a similar approach to the estimate of net farm income was used (see <https://www.agmanager.info/farm-management/farm-profitability/may-2021-estimate-2021-kansas-net-farm-income-and-projection-2022>).

An entire farm's expense data from the KFMA database was used. However, these expenses were allocated to a specific crop by using the ratios of the KFMA state level enterprise summaries. This procedure not only gave an expense item per crop, but it also allows for the calculation of total non-irrigated crop expenses. Any "extra" crop acres that were not part of the four major crops were rolled into extra soybean acres when calculating a cost per acre per crop per farm.

The next step was to calculate a representative cost per crop per Kansas CRD. With nearly 1,000 KFMA farms in the KFMA database, there are adequate numbers of crop farms by CRD for these calculations to be credible. At this point the median expense per crop is calculated from those farms within that CRD. Government payments were estimated in a similar manner. As discussed above in revision section, counties along a CRD border had their crop expenses and government payment per acre blended with the neighboring CRD by using a ratio of two-thirds weight from a county's home CRD and one-third weight from the neighboring county's CRD. This last change helped to smooth the crop expenses per acre when moving from one CRD to a neighboring CRD.

Revenue

At this point, with gross revenue per crop per acre, government payments per acre, and expenses per crop per acre, a net income per acre can be calculated for each year. Because all expenses need to be accounted for, 75% of unpaid operator labor is included as well as a 2% management

charge based on gross revenue. Only 75% of unpaid operator labor is used to account for other farm activities not related to crop production. The 2% management fee is for both management and the interest charge for any machinery equity on the farm.

As discussed above, yields are a 5-year average while the rest of the inputs to the model are a weighted average. 2023 has a weight of 0.25, while the years 2022 through 2020 have weights of 0.20, 0.15 and 0.10 respectively. Although numbers don't exist for 2024 yet, an earlier estimate of 2024 net farm income is predicting a decrease in net farm income. However, the estimate for 2024 is predicting NFI to drop well below 2023 already low levels. Thus, a 40% drop in net farm income was used for the years 2024 and beyond. This current year and future year's estimate is given a 0.30 weight. In theory, cash rents should be based on an expectation of future NFI. Here, we are making the assumption that the past 4 years (plus an estimate of this next year - and the expectations for the following years) are a guide to future NFI.

The tenant's residual per acre calculated is further adjusted by incorporating a relationship to the NASS 2024 reported county cash rent. The final per acre number is 60% of the NASS 2023 estimate and 40% of the calculated value. This residual calculation is further constrained to be no more than a 25 percent increase or decrease from the 2024 KSU estimate. The estimate is also constrained to be no more than a 40 percent increase above the NASS survey and also no less than a 25 percent decrease below the NASS survey.

The final step in estimating a tenant's residual was to adjust for land use intensity. In western Kansas, there are fallow acres and in southeast Kansas there are double crop acres. To adjust for this, all KFMA farms within a CRD are used to calculate a land use percentage by dividing the number of harvested crop acres by the total number of physical crop acres. This fraction is multiplied by the previous tenant's residual to get the final value.

Range for tenant's residual

A range of values was estimated to account for various crop yield differences within a county. Using the same mix of farms by CRD, a net farm income per crop acre was calculated. The 25th and 75th percentiles were calculated in the crop reporting district, which were then compared to the estimated tenant's residual value. These differences were used to calculate a low and high range for each county.

The calculated difference really represents two sources of variation; variation within a county and variation across counties. It was assumed that the two sources of variation were equal and thus the calculated percent difference was divided in two.

Results

Figures 5, 6, 7, and 8 show the results of estimating a potential breakeven cash rent for 2025 using a Tenant's residual method. The 2024 NASS cash rental rate survey estimate is shown along with the predicted KSU value and the potential ranges for cash rents. For comparison, the 2023 NASS estimate is also shown along with the KSU prediction from last year.

Figure 5 shows the estimated KSU cash rent for 2025 on a color-coded state map of Kansas counties. The figure is capped at the ends so any county with a predicted cash rent above \$150 per acre shows the darkest color and any county with a predicted rent below \$40 per acre shows the lightest color.

Figure 4 shows the 2024 reported NASS survey estimates of cash rental rates for the state on a color-coded map similar to Figure 5. Given that KSU values incorporate the NASS survey numbers, producers should be interested in seeing these survey results.

Discussion

Net farm income fell dramatically in 2023 and could very well be even lower in 2024 (based on current modeling which also shows very little improvement for 2025), so it should be expected that cash rents are expected to drop for newly rented land in 2025. While these estimates are calculated with full costs in mind, tenants and landlords sometimes likely also have other economic and some non-economic considerations in mind when negotiating leases.

For example, rented cropland located adjacent to a farmer might have more value to a particular farmer just because of location. Likewise, a landlord may have developed trust in a particular tenant and adjusts rent accordingly.

Communication and full information are needed in any discussion of cropland leases. This publication has been developed to help both tenants and landlords make as fully informed decisions as possible when negotiating cash rental rate agreements for the 2025 year.

References

Oltmans, A W. 1995. Why farmland cannot, will not and should not pay for itself. *Journal of the American Society of Farm Managers and Rural Appraisers*, 59(1): 57–67.

Plastina, A, and W. Edwards. 2021. “Computing a Cropland Cash Rental Rate.” File C2-20. <https://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-20.pdf>

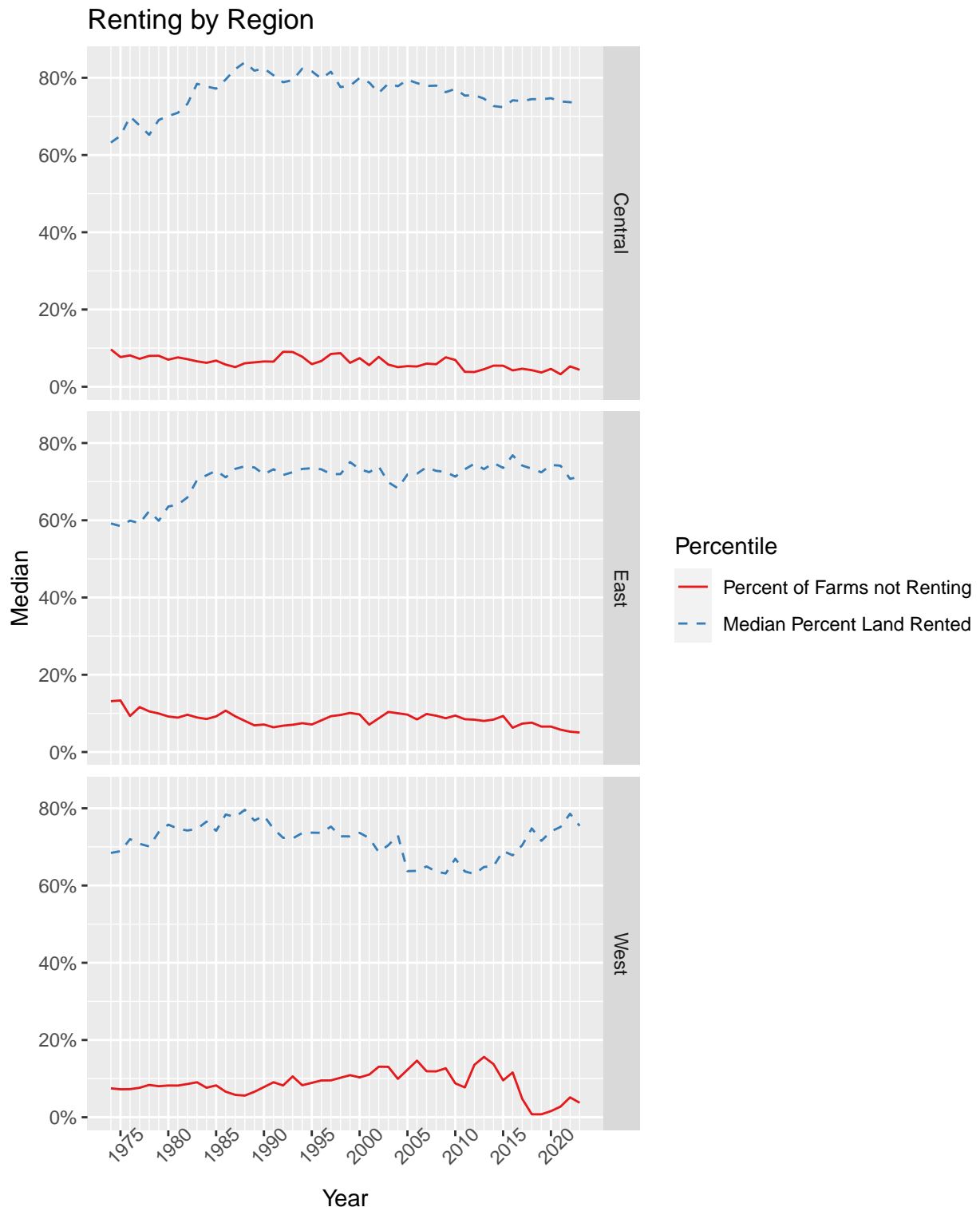


Figure 1: Percentage of Land Rented by Farm and the Percentage of Farms with no Rented Land

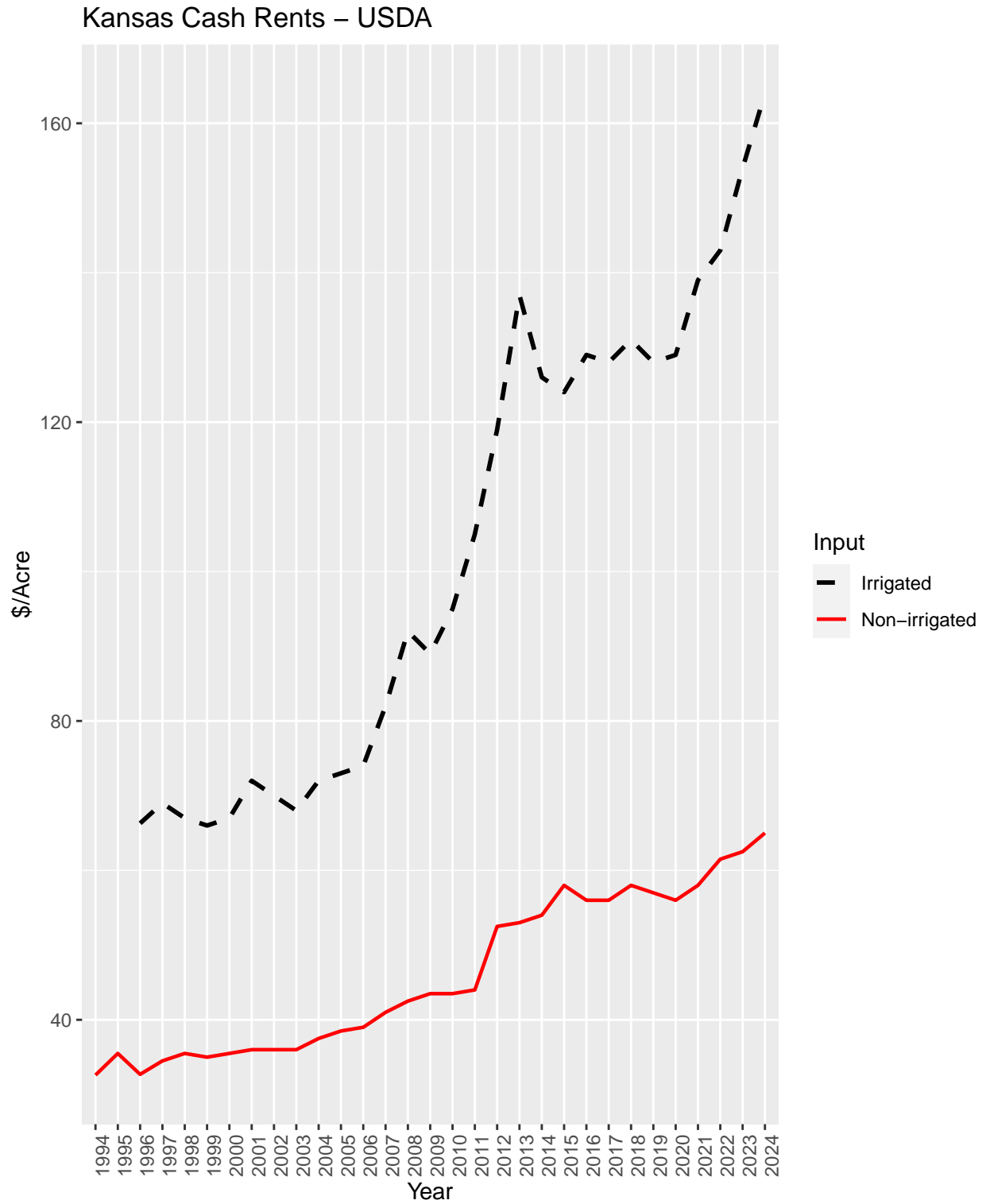


Figure 2: USDA-NASS Estimate of Kansas Irrigated and Non-Irrigated Cash Lease Rates

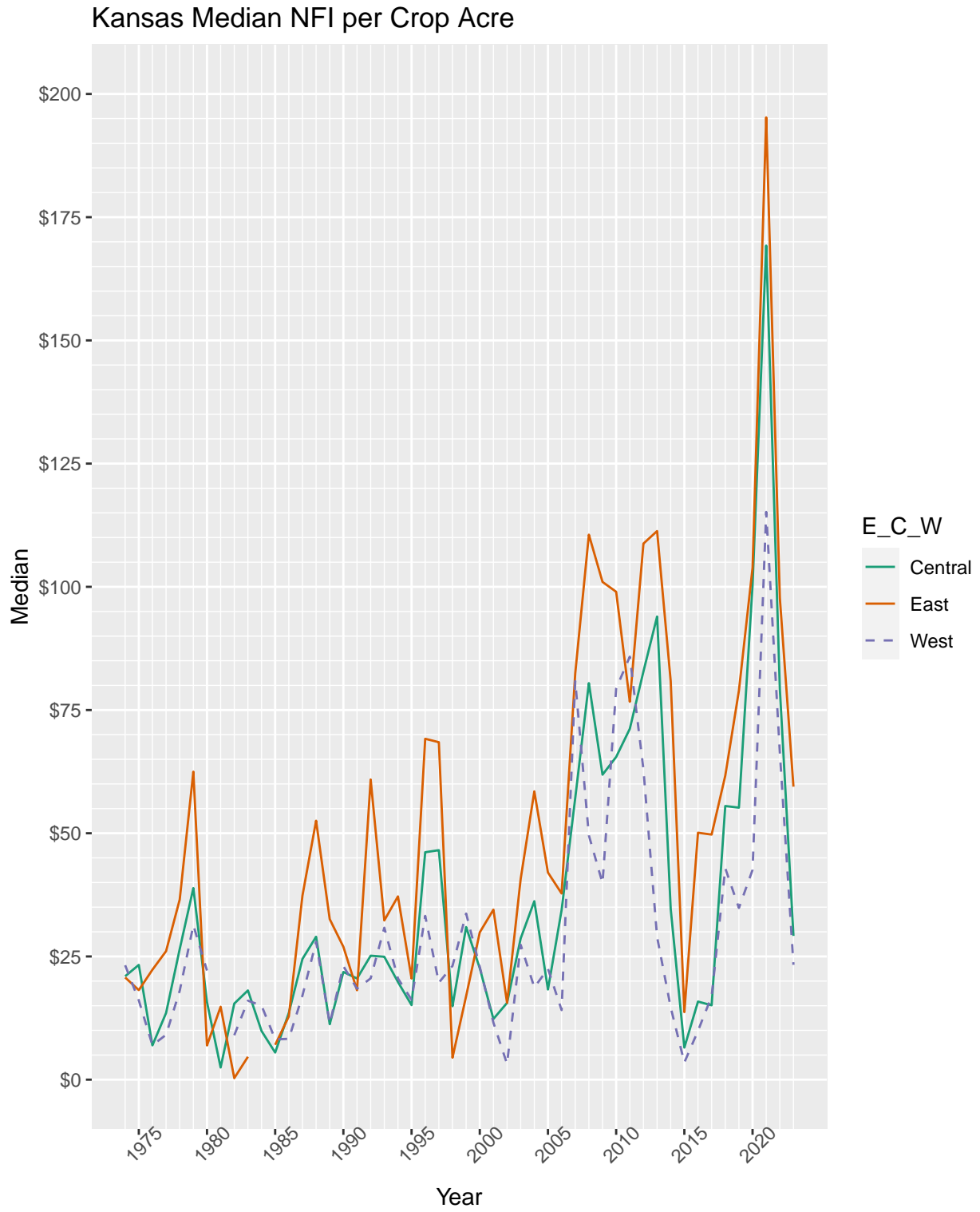


Figure 3: Median Kansas Net Farm Income per Crop Acre by Region

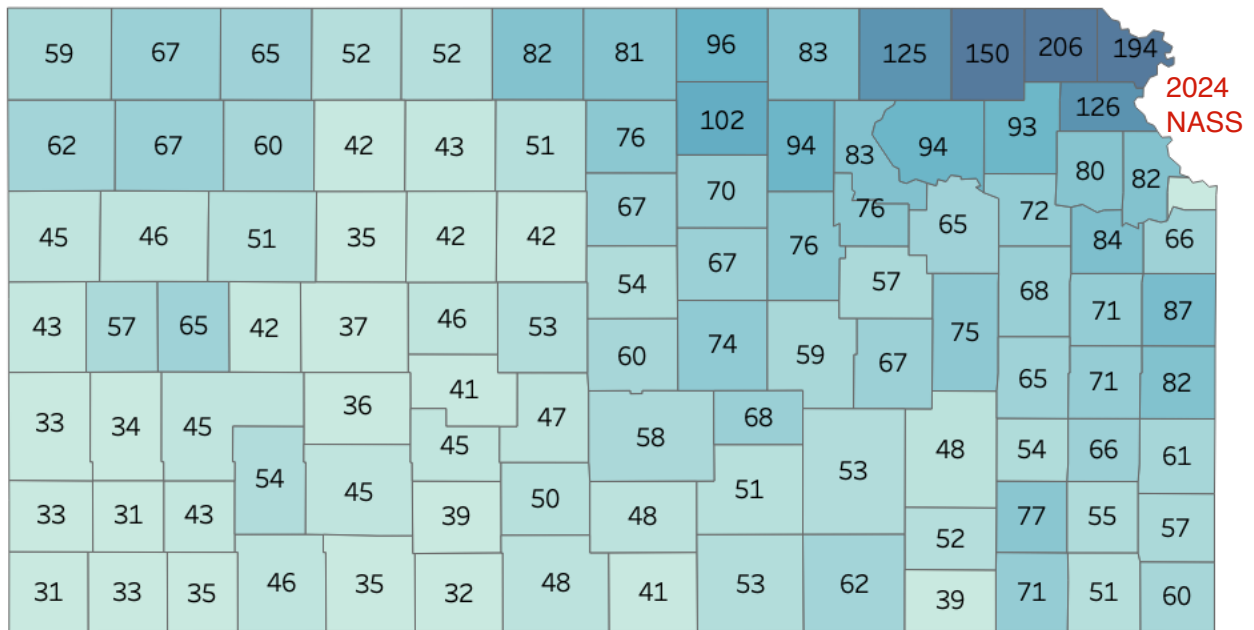


Figure 4: 2024 USDA-NASS Cash Lease Survey Results for Non-Irrigated Crop Land in Kansas. Color Code by (\$/ac).

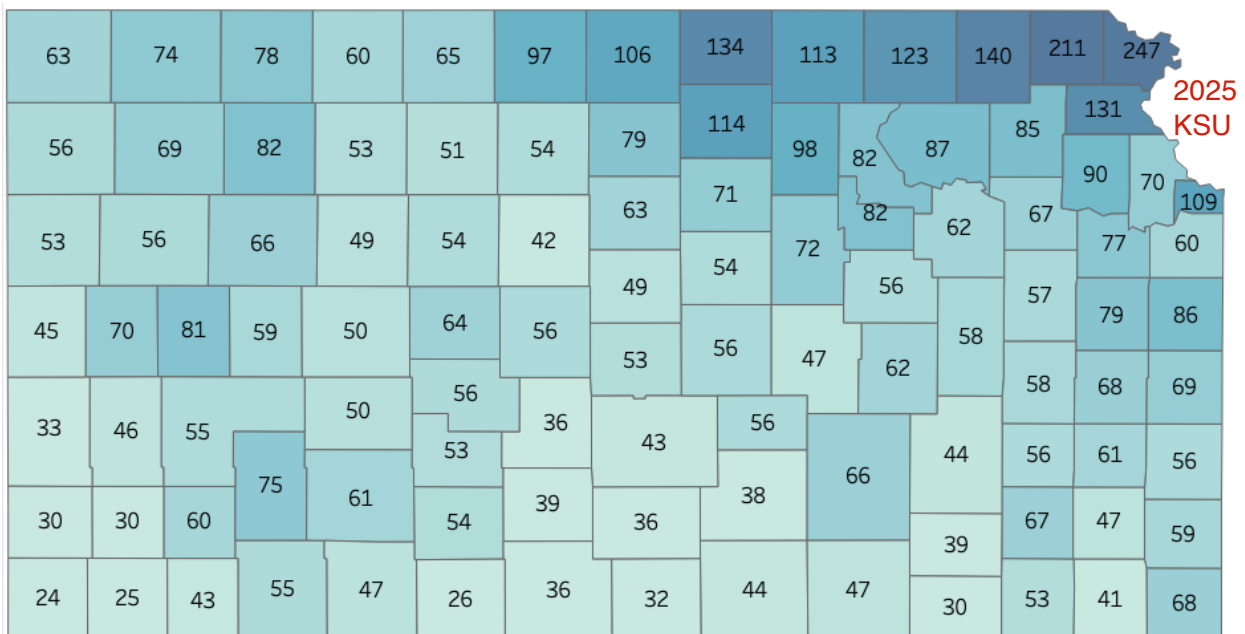


Figure 5: 2025 KSU Cash Lease Estimates for Non-Irrigated Crop Land in Kansas Using Tenant's Residual Approach. Color Coded by (\$/ac).

Region	County	2023 NASS	2024 KSU	2024 NASS	2025 KSU	25th Percentile	75th Percentile
Northwest	Cheyenne	52	73	59	63	40	90
	Decatur	58	81	65	78	49	110
	Graham	41	57	42	53	33	76
	Norton	54	76	52	60	38	85
	Rawlins	62	86	67	74	47	106
	Sheridan	59	82	60	82	51	116
	Sherman	55	75	62	56	35	80
	Thomas	59	82	67	69	43	98
West Central	Gove	45	62	51	66	43	90
	Greeley	43	60	43	45	29	61
	Lane	39	55	42	59	37	79
	Logan	51	71	46	56	36	76
	Ness	39	54	37	50	32	67
	Scott	64	90	65	81	52	110
	Trego	35	48	35	49	31	67
	Wallace	50	70	45	53	34	71
	Wichita	58	81	57	70	45	96
Southwest	Clark	30	41	35	47	34	58
	Finney	41	57	45	55	39	67
	Ford	38	53	45	61	44	75
	Grant	32	40	31	30	22	37
	Gray	47	65	54	75	54	91
	Hamilton	29	41	33	33	23	40
	Haskell	43	60	43	60	43	73
	Hodgeman	32	45	36	50	36	61
	Kearny	32	45	34	46	33	56
	Meade	41	57	46	55	40	67
	Morton	32	32	31	24	20	29
	Seward	32	45	35	43	31	53
	Stanton	29	41	33	30	22	37
	Stevens	31	33	33	25	20	31

Figure 6: Estimated Cash Rental Rates for Non-Irrigated Cropland in Western Kansas

Region	County	2023 NASS	2024 KSU	2024 NASS	2025 KSU	25th Percentile	75th Percentile
North Central	Clay	95	117	94	98	82	114
	Cloud	97	133	102	114	95	132
	Jewell	76	106	81	106	89	123
	Mitchell	75	101	76	79	66	91
	Osborne	54	73	51	54	46	63
	Ottawa	66	89	70	71	60	82
	Phillips	51	71	52	65	55	75
	Republic	88	123	96	134	112	155
	Rooks	45	62	43	51	43	59
	Smith	74	104	82	97	81	112
	Washington	86	120	83	113	95	131
Central	Barton	54	71	53	56	45	69
	Dickinson	68	88	76	72	58	88
	Ellis	42	58	42	54	44	67
	Ellsworth	47	66	54	49	40	60
	Lincoln	60	83	67	63	50	77
	Marion	53	63	59	47	38	58
	McPherson	68	75	74	56	45	69
	Rice	54	70	60	53	42	64
	Rush	45	62	46	64	52	79
	Russell	42	56	42	42	33	51
	Saline	68	72	67	54	44	67
South Central	Barber	47	47	48	36	29	45
	Comanche	31	35	32	26	21	32
	Edwards	41	55	45	53	44	67
	Harper	43	43	41	32	27	40
	Harvey	62	71	68	56	46	70
	Kingman	44	44	48	36	29	45
	Kiowa	39	54	39	54	44	67
	Pawnee	35	48	41	56	46	69
	Pratt	45	52	50	39	32	49
	Reno	57	58	58	43	36	54
	Sedgwick	50	51	51	38	31	48
	Stafford	44	48	47	36	30	45
	Sumner	58	58	53	44	36	54

Figure 7: Estimated Cash Rental Rates for Non-Irrigated Cropland in Central Kansas

Region	County	2023	2024	2024	2025	25th	75th
		NASS	KSU	NASS	KSU	Percentile	Percentile
Northeast	Atchison	122	155	126	131	101	168
	Brown	193	208	206	211	163	271
	Doniphan	193	253	194	247	191	317
	Jackson	91	108	93	85	66	109
	Jefferson	81	110	80	90	69	115
	Leavenworth	73	90	82	70	54	89
	Marshall	119	143	125	123	95	158
	Nemaha	139	160	150	140	108	179
	Pottawatomie	81	101	94	87	67	111
	Riley	80	98	83	82	63	105
	Wyandotte	0	140	0	109	84	140
East Central	Anderson	65	91	71	68	54	81
	Chase	62	78	67	62	49	74
	Coffey	57	77	65	58	46	69
	Douglas	78	102	84	77	61	91
	Franklin	76	105	71	79	63	94
	Geary	80	103	76	82	66	98
	Johnson	57	80	66	60	48	71
	Linn	71	93	82	69	55	83
	Lyon	78	78	75	58	46	69
	Miami	68	95	87	86	68	102
	Morris	65	74	57	56	44	67
	Osage	51	71	68	57	45	68
	Shawnee	68	90	72	67	54	80
	Wabaunsee	70	82	65	62	49	74
Southeast	Allen	62	81	66	61	44	81
	Bourbon	59	75	61	56	41	74
	Butler	50	69	53	66	49	88
	Chautauqua	41	41	39	30	22	40
	Cherokee	65	90	60	68	50	90
	Cowley	53	62	62	47	34	62
	Crawford	57	79	57	59	43	79
	Elk	46	46	52	39	28	51
	Greenwood	51	59	48	44	32	59
	Labette	54	54	51	41	30	54
	Montgomery	63	63	71	53	39	70
	Neosho	50	63	55	47	34	62
	Wilson	76	89	77	67	49	88
	Woodson	48	67	54	56	41	74

Figure 8: Estimated Cash Rental Rates for Non-Irrigated Cropland in Eastern Kansas

		KSU	NASS
EAST	Northeast	127	123
	East Central	67	72
	Southeast	52	57
CENTRAL	North Central	89	75
	Central	56	58
	South Central	42	47
WEST	Northwest	67	59
	West Central	59	47
	Southwest	45	38

Figure 9: Comparison of KSU and NASS Estimates for Non-Irrigated Cropland by CRD