

Impact of Rising Input Costs on Equitable Crop Share and Cash Leases and Land Values

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Purpose of land talks

- Develop an understanding of the underlying economic principles and management aspects of land ownership and leasing
- Trying to reduce decisions to numbers
- Two decision tools:
 - *KSU-Lease.xls*
 - *KSU-Landbuy.xls*

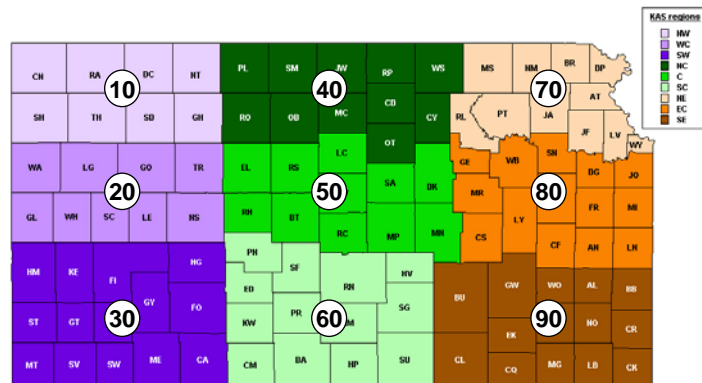
Decision tools and related papers are found at
www.agmanager.info

Market established rates...


- Land Use Value Project of the KSU Ag Econ Dept annually conducts one of four surveys (irrigated, non-irrigated, pasture, input costs)
- Kansas Agricultural Statistics (KAS) annually surveys landowners and producers regarding land values and cash rents
- Local and regional surveys of leasing practices
- With surveys there is often a trade-off between statistical validity and level of aggregation

Market going rate ...

- Kansas Agricultural Statistics (KAS) reports average cash rent values for non-irrigated, irrigated, and pasture land at the crop reporting district (CRD) level



KAS surveyed market rates ...



AGRICULTURAL LAND VALUES

Released: August 17, 2005

Kansas Farmland Values and Rents, 2005

Kansas' average value of all farmland and buildings for 2005 is estimated to be \$200 per acre. This compares with \$175 in 2004 and \$85 in 2003. Kansas' average value of all farmland and buildings increased by 11.9 percent from 2004 to 2005. The increase of 85 percent from 1979 to 2005, when the average value increased by \$88 per acre. Irrigated cropland value rose 8 percent, non-irrigated was up 14 percent, and pasture land values increased 10 percent.

Rental rates for both types of cropland increased \$1.00 per acre, while pasture rents rose \$.50 per acre.

Year	Cropland			Pasture and Rangeland		All Farmland and Buildings (1)		
	Value Per Acre	Rent Per Acre	Value Per Acre	Rent Per Acre	Value Per Acre	Total Value		
1994	87.3	54.9	89.30	32.60	341	12.30	953	
1995	92.0	59.5	92	35.50	343	11.70	935	
1996	96.6	60.7	93.8	36.30	32.70	361	11.90	953
1997	99.0	61.5	94.0	36.50	36.5	11.60	965	
1998	1,010	620	655	37.00	35.50	367	13.00	977
1999	1,020	625	660	37.00	37.0	13.30	980	
2000	1,040	630	666	37.00	35.00	340	12.80	925
2001	1,060	635	673	37.00	36.00	350	12.80	945
2002	1,080	640	679	37.00	36.00	400	12.60	965
2003	1,080	645	684	37.00	36.00	410	12.80	985
2004	1,110	665	705	37.50	430	13.30	715	33,748
2005	1,200	760	800	37.50	500	13.40	800	37,760

1) Values per acre are for land and buildings. Rental rates are for land only. 2) Insufficient data to publish.

The Land Values Survey-Background

The Agricultural Land Values Survey was conducted during May/June 2005. Survey respondents were asked to provide information on the value of the land they operate and the rental rates for any land they rented. Additional land value and rent data were collected in the June Agricultural Survey.

The Census provides the official base for estimates of all farmland values. However, the Census occurs once every five years and only estimates the value of all agricultural land and buildings. The Land Values Survey and Agricultural Survey provide data to make annual estimates of both market values and rental rates for different categories of farmland.

The average values in this report encompass a wide range of soil types and pastures. These data are more appropriate for studying overall trends and should not be used to establish rental rates or market values.

KAS report

Kansas Land Prices and Cash Rental Rates

Department of Agricultural Economics

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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This Farm Management Service reports Kansas land prices and cash rents for 1995-2004. These data are useful to farm managers in determining cash rental rates, to landowners in determining cash rents for leasing land, and to investors who have expectations of future price increases for farmland. The average price in the guide encompasses parcels of land that vary widely in productivity. Thus, these data are more appropriate for analyzing trends than for establishing market value or rental rates for specific tracts of land.

Kansas Agricultural Statistics

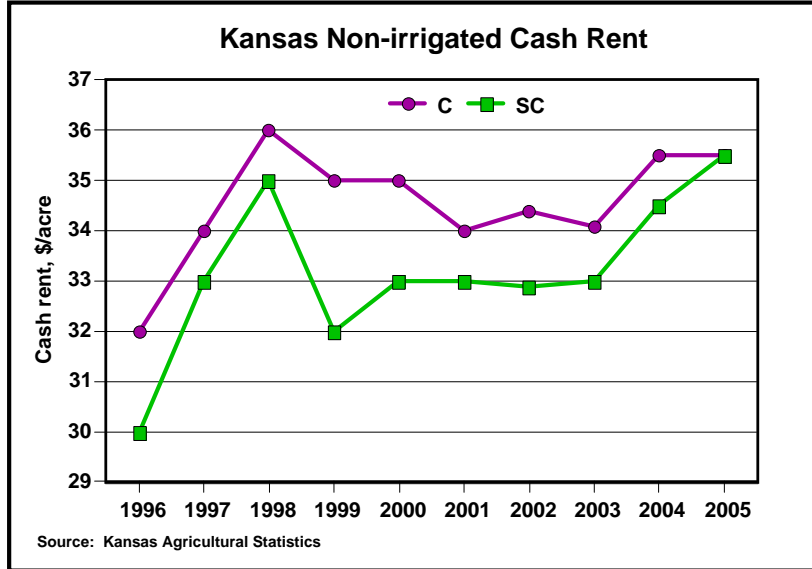
For reporting purposes, Kansas Agricultural Statistics Service has divided the state into nine agricultural statistical districts. The districts are: Northwest (NW), West Central (WC), Southwest (SW), North Central (NC), Central (C), South-Central (SC), Southeast (SE), East-Central (EC), and Southeast (SE). Since 1976, Kansas Agricultural Statistics has collected price information on three types of land: nonirrigated cropland, irrigated cropland, and pasture. The annual data are based on April 1 for 1985 and February 1 for 1995-2004.

Tables 1 through 5 show average prices of land and buildings at each district and an average for the state for the most recent 20 years reported. Data are shown for each of the five land groupings: all land in farms, all cropland, nonirrigated cropland, irrigated cropland, and pasture. The annual data are based on April 1 for 1985 and February 1 for 1995-2004.

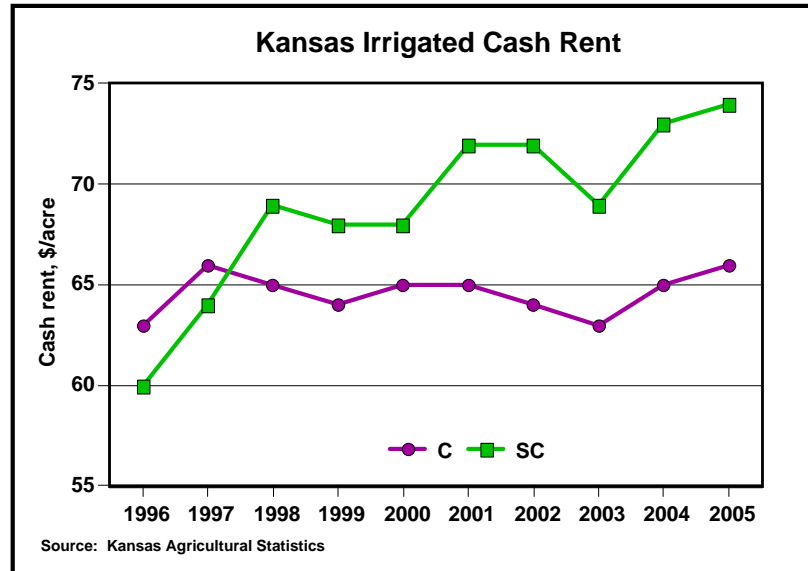
This reporting method does not significantly affect the accuracy of land values reported.

KSU report

Market going rate ...



Market going rate ...



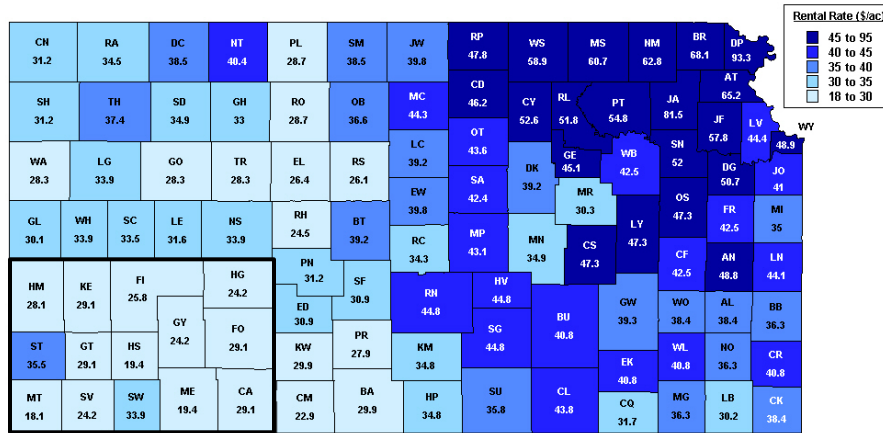
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County-level cash rents ...

- County-level cash rents were estimated for non-irrigated crop and pasture land based upon the KAS reported CRD values
- CRD values prorated to individual counties based on 3-year average of county-level rents from FSA and 2002 census acreage data
- Weighted average county-level cash rents are exactly equal to the KAS reported district value
- Similar procedure was done on land values

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Kansas county-level non-irrigated crop cash rents...



Based on KAS reported values for January 1, 2005

Acreage-weighted average of counties equals \$26.50 (KAS)

Problem:

The market prices we observe (when they are available) often do not reflect individual situations.

That is, they reflect averages, but nobody is average...

... so what can we do to arrive at a price that is acceptable?



Way to find acceptable lease rates (crop shares and cash rents) ...

While landowners and tenants (i.e., the market) ultimately determine terms of crop share and cash leases, we use the equitable concept to arrive at a starting point for negotiations.

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Principles embodied in an equitable lease ...

- Profit maximization ($MR=MC$)
- Economic profits (expected profit = 0)
- Opportunity costs
- Risk across lease types
- Equal rates of return on annual investment (if economic profit = 0, then rate of return = 0)

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A good crop share lease should follow five basic principles ...

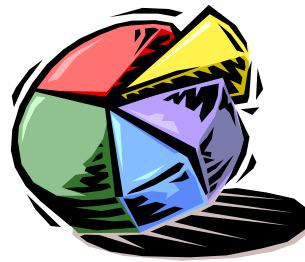
1. Yield increasing inputs should be shared
 2. Share arrangements should be adjusted as technology changes
 3. Total returns divided in same proportion as resources contributed
-
4. Compensation for unused long-term investments at termination
 5. Good landlord/tenant communications

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**Principle #3:
Returns divided in same proportion as resources contributed.**

This requires annual contributions of both parties to be identified (budgeting type approach).

Valuing inputs can depend on whether the lease being developed is a one-year lease versus multiple-year lease.



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Machinery contributions ...

Machinery contribution should be based on average costs. Two methods for estimating the machinery contribution:

- 1. Machinery investment approach - annual contribution is based on depreciation, interest, repairs, fuel and oil, and labor.**
- 2. Custom rates approach - annual contribution is based on reported custom rates and the typical operations.**



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Crop production input contributions ...

The value of contributions for input expenses such as seed, herbicides, insecticides, fertilizer, etc. are generally valued at current market prices and represent “typical” production practices.

What is “typical” today? While current prices might not be what we expect long-term, can we afford to ignore them with regard to leases?

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Historical and forecasted diesel prices during principal farming months...

Diesel Prices

Year	Mar-Oct Diesel Price			Year-to-year percent change		
	SW KS	US (EIA)	Average	SW KS	US (EIA)	Average
2000	\$1.09	\$1.04	\$1.07	----	----	----
2001	\$1.09	\$0.98	\$1.04	0.6%	-6.1%	-2.7%
2002	\$0.94	\$0.88	\$0.91	-14.1%	-10.0%	-12.1%
2003	\$1.05	\$1.05	\$1.05	12.1%	18.6%	15.3%
2004	\$1.37	\$1.34	\$1.36	30.0%	28.4%	29.2%
2005	\$2.04	\$2.02	\$2.03	48.5%	49.9%	49.2%
2006 (F)	\$2.04	\$2.10	\$2.07	0.3%	4.1%	2.2%
05 - Avg(00-04)	\$0.93	\$0.96	\$0.94	83.5%	90.2%	86.8%
06 - Avg(00-04)	\$0.93	\$1.04	\$0.98	84.0%	97.9%	90.8%

F = forecast

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Estimated effect diesel price has on machinery costs per acre based on custom rates...

Fuel Consumption and Diesel Price Impact for Various Field Operations

Operation	Custom rate*	Fuel price increase, \$/gallon				
		\$0.04	\$0.50	\$0.71	\$0.75	\$1.00
		Increase in custom rate, \$/acre				
Chiseling	\$7.96	\$0.03	\$0.42	\$0.60	\$0.63	\$0.85
Field cultivation	\$6.27	\$0.03	\$0.33	\$0.47	\$0.50	\$0.67
Disking	\$6.84	\$0.03	\$0.36	\$0.52	\$0.54	\$0.73
Min-till planter	\$10.29	\$0.04	\$0.55	\$0.78	\$0.82	\$1.09
No-till drill	\$10.72	\$0.05	\$0.57	\$0.81	\$0.85	\$1.14
Sprayer	\$4.03	\$0.02	\$0.21	\$0.30	\$0.32	\$0.43
Swather-conditioner	\$8.90	\$0.04	\$0.47	\$0.67	\$0.71	\$0.94
Round baler	\$8.03	\$0.03	\$0.43	\$0.61	\$0.64	\$0.85
Combine--wheat	\$14.48	\$0.06	\$0.77	\$1.09	\$1.15	\$1.54
Combine--soybeans	\$20.06	\$0.09	\$1.06	\$1.51	\$1.60	\$2.13
Combine--corn	\$20.09	\$0.09	\$1.07	\$1.51	\$1.60	\$2.13

* 2004 state average reported by Kansas Agricultural Statistics

Increase from 2004 = \$0.71/gallon, increase from 2000-04 average = \$0.98/gallon.

Increase in custom rate 0.4% 5.3% 7.5% 8.0% 10.6%

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Historical and forecasted natural gas prices during principal farming months...

Natural Gas Prices

Year	Mar-Oct Natural Gas Price			Year-to-year percent change		
	NYMEX	US (EIA)	Average	NYMEX	US (EIA)	Average
2000	\$4.04	\$3.85	\$3.95	----	----	----
2001	\$3.69	\$3.49	\$3.59	-8.6%	-9.3%	-9.0%
2002	\$3.35	\$3.12	\$3.23	-9.2%	-10.7%	-10.0%
2003	\$5.35	\$5.24	\$5.30	59.5%	68.2%	63.7%
2004	\$5.99	\$5.63	\$5.81	11.9%	7.5%	9.7%
2005	\$8.77	\$8.37	\$8.57	46.5%	48.6%	47.5%
2006 (F)	\$9.19	\$8.65	\$8.92	4.8%	3.3%	4.1%
05 - Avg(00-04)	\$4.28	\$4.11	\$4.20	95.5%	96.3%	95.9%
06 - Avg(00-04)	\$4.70	\$4.39	\$4.55	104.9%	102.9%	103.9%

F = forecast

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Historical and forecasted fertilizer prices during principal fertilizing months...

Fertilizer Prices (Corn Belt)

Year	Oct-May Fertilizer Price*						Year-to-year % change
	NH3 (82%)	UAN (32%)	Urea (46%)	- P -	- K -	Wtd Avg	
2000	0.136	0.204	0.205	0.211	0.148	0.175	----
2001	0.217	0.305	0.272	0.193	0.148	0.234	33.2%
2002	0.141	0.218	0.187	0.201	0.144	0.175	-25.3%
2003	0.195	0.253	0.227	0.209	0.141	0.211	20.7%
2004	0.218	0.290	0.262	0.214	0.141	0.234	10.8%
2005	0.238	0.356	0.322	0.223	0.174	0.267	14.4%
2006 (F)	0.309	0.440	0.351	0.228	0.194	0.318	18.8%
05 - Avg(00-04)	\$0.057	\$0.103	\$0.092	\$0.017	\$0.029	\$0.061	29.9%
06 - Avg(00-04)	\$0.128	\$0.186	\$0.120	\$0.023	\$0.050	\$0.112	54.4%

* Oct-Dec of previous year (P = average of 10-34-0 and 18-46-0, K = muriate of potash)
F = forecast

06 vs Avg(00-04)	170.4%	173.3%	152.2%	111.2%	134.5%	154.4%
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Impact of high costs on leases ...

KSU-Lease.xls is a tool that can be used to analyze the impact current costs have on equitable crop share leases as well as their cash-rent equivalents

The impact high costs have on leases will depend on each specific situation due to how producers change (or not change) production practices in response to these high prices

→ producers should “run their own numbers”

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Sources of data ...

- Crop budgets are designed to follow KSU Farm Management Guides and thus these budgets are often a good “first start” at inputs
- Machinery costs are based on custom rates approach (as opposed to investment per acre)
- Generally suggest using “average” data as opposed to farm-specific data, but this will depend on situation

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Budgets based on 2000-04 costs for energy-related inputs

CROP BUDGETS SHOWING TOTAL COSTS AND RETURNS										Print budgets		
Crop/System	Wheat	Sorghum	Soybean	Corn	Soybean	Sorghum	Total	Per Acre	Per Acre			
Planted acres of each crop	73.0	21.0	6.0	50.0	42.0	8.0	200.0					
Tillable acres per planted acre	1.00	1.00	1.00	1.00	1.00	1.00	200.0	Planted	Tillable			
INCOME PER ACRE												
A. Yield per acre	48.0	65.0	25.0	175.0	55.0	150.0	---	---	---			
B. Price per unit	\$3.25	\$2.20	\$5.65	\$2.35	\$5.65	\$2.20	---	---	---			
C. Net government payments	\$15.00	\$15.00	\$15.00	\$25.00	\$25.00	\$25.00	\$4,000	\$20.00	\$20.00			
D. Indemnity payments	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0	\$0.00	\$0.00			
E. Miscellaneous income	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0	\$0.00	\$0.00			
F. Returns/acre (A x B) + C + D + E)	\$171.00	\$158.00	\$156.25	\$436.25	\$335.75	\$355.00	\$55,493	\$277.46	\$277.46			
COSTS PER ACRE												
1. Seed	\$6.00	\$10.33	\$31.50	\$54.00	\$44.10	\$17.70	\$5,538	\$27.69	\$27.69			
2. Herbicide	5.20	25.00	12.40	30.00	11.20	27.50	3,169	15.85	15.85			
3. Insecticide / Fungicide	1.00	0.00	0.00	0.00	0.00	0.00	73	0.37	0.37			
4. Fertilizer and Lime	26.20	22.40	9.00	55.70	14.60	44.75	6,193	30.97	30.97			
5. Crop Consulting	0.00	0.00	0.00	6.50	6.50	6.50	650	3.25	3.25			
6. Crop Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00			
7. Drying	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00			
8. Miscellaneous	6.00	6.00	6.00	9.00	9.00	9.00	1,500	7.50	7.50			
9. Machinery Expense	63.96	56.87	46.01	73.12	49.88	79.57	12,527	62.63	62.63			
10. Non-machinery Labor	8.00	8.00	5.50	10.00	6.50	8.00	1,622	8.11	8.11			
11. Irrigation	0.00	0.00	0.00	106.03	106.03	98.25	10,541	52.70	52.70			
12. Land Charge / Rent	44.00	44.00	44.00	79.75	79.75	79.75	12,375	61.88	61.88			
G. SUB TOTAL	\$160.36	\$172.60	\$154.41	\$424.09	\$327.56	\$371.02	\$54,188	\$270.94	\$270.94			
H. TOTAL COSTS	\$164.04	\$176.87	\$158.12	\$434.42	\$334.38	\$379.22	\$55,436	\$277.18	\$277.18			
I. RETURNS OVER COSTS (F - H)	\$6.96	(\$18.87)	(\$1.87)	\$1.83	\$1.37	(\$24.22)	\$57	\$0.28	\$0.28			
J. TOTAL COSTS/UNIT (H/A)	\$3.42	\$2.72	\$6.32	\$2.48	\$6.08	\$2.53	---	---	---			
K. RETURN TO TOTAL COST (I/H)	4.25%	-10.67%	-1.18%	0.42%	0.41%	-6.39%	0.10%	0.10%	0.10%			

Initial input assumptions

TABLE 1. Production Inputs Used for Budgets

ITEM	Wheat	Sorghum	Soybean	Corn	Soybean	Sorghum	\$/unit
Seeding rate (lbs, seeds, etc)	75	3.5	150	30	210	6	
Seed price, \$/unit	\$0.08	\$2.95	\$0.21	\$1.80	\$0.21	\$2.95	
Fertilizer:							
82-0-0	70	50	0	155	0	125	\$0.19 /lb
N (dry/liquid)	10	10	0	25	0	20	\$0.25 /lb
P	27	27	20	75	48	55	\$0.20 /lb
K	0	0	0	0	0	0	\$0.15 /lb
Lime	500	500	500	500	500	500	\$0.01 /lb
Herbicide							
Dryland wheat	5.2						\$1.00 /ac
Dryland sorghum		25					\$1.00 /ac
Dryland soybeans			12.4				\$1.00 /ac
xxx							
Irrigated corn				30			\$1.00 /ac
Irrigated soybeans					11.2		\$1.00 /ac
Irrigated sorghum						27.5	\$1.00 /ac
xxx							
xxx							
xxx							
Insecticide / Fungicide							
Seed treatment	1						\$1.00 /ac
xxx							
xxx							
xxx							
Irrigation water, inches/acre	0	0	0	16	16	14	\$2.35 /in
Irrigation repairs, \$/acre-inch							\$0.33 /in
Drying cost, \$/unit (bu, cwt, etc)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

2000-04 averages

Microsoft Excel - KSU-Lease2 (MP Co).xls

Initial input assumptions

TABLE 2. Machinery and Land Resources Used for Budgets

ITEM	Wheat	Sorghum	Soybean	Corn	Soybean	Sorghum	\$/unit
Drill/Plant, \$/acre	\$7.35	\$10.29	\$10.84	\$10.55	\$10.84	\$10.29	
Tillage and Chemical Applications:							
Chisel	1	0	0	0	0	0	\$7.96 /ac
Disk	1	0	0	0	0	0	\$6.84 /ac
Field cultivate	1	0	0	0	0	0	\$6.27 /ac
Harrow	0	0	0	0	0	0	\$5.25 /ac
Anhydrous application	1	1	0	1	0	1	\$6.93 /ac
Fertilizer application	0	1	1	1	1	1	\$3.83 /ac
Herbicide application	1	2	2	2	2	2	\$4.03 /ac
Insecticide/fungicide application	0	0	0	0	0	0	\$4.02 /ac
Harvest							
Base charge, \$/acre	\$14.48	\$15.27	\$20.06	\$0.00	\$20.06	\$15.27	
Charge for high yields, \$/unit	\$0.136	\$0.135	\$0.000	\$0.250	\$0.000	\$0.135	
High yield	21	36	26	0	26	36	
Hauling, \$/unit	\$0.134	\$0.132	\$0.129	\$0.000	\$0.129	\$0.132	
Non-machinery labor, hr/acre	0.80	0.80	0.55	1.00	0.65	0.80	\$10.00 /hr
Irrigation labor, hr/acre	0.00	0.00	0.00	0.50	0.50	0.50	\$10.00 /hr
Average land value, \$/acre	\$800	\$800	\$800	\$1,450	\$1,450	\$1,450	
Annual return to land, %							5.50%
Interest on capital, %							8.0%
Investment, \$							
	Total	\$/wet ac	Years			Salvage value, %	
Irrigation Equipment							
Well, pump and gearhead value	\$12,000	\$120	25			0%	
Power unit and meter	\$4,000	\$40	7			0%	
Irrigation system	\$45,600	\$456	20			0%	

2004 custom rates as reported by KAS

Print tables

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Non-irrigated example assumptions ...

- Crop rotation -- 73% wheat, 21% sorghum, and 6% soybeans (2000-04 average for MP Co)
- Equitably share all fertilizer on all crops (tenant pays application costs)
- Equitably share herbicide on all crops (tenant pays application costs)
- Initial analysis is based on 2000-04 fertilizer costs and 2004 custom rates
- Examined impact on equitable crop share and cash rent equivalent with increased costs (all else held constant)

Budgets based on 2000-04 costs

ALTERNATIVE METHODS OF ESTIMATING CASH RENT				Total	Per Planted Acre	Per Tillable Acre
Crop/System	Wheat	Sorghum	Soybean			
Total tillable acre	----->			100.0		
Planted acres of each crop	73.0	21.0	6.0	100.0		
A. Landowner's COST						
Land	\$44.00	\$44.00	\$44.00	\$4,400	\$44.00	\$44.00
Irrigation equipment	\$0.00	\$0.00	\$0.00	\$0	\$0.00	\$0.00
Total	\$44.00	\$44.00	\$44.00	\$4,400	\$44.00	\$44.00
B. Landowner's EQUITABLE SHARE RENT ----- risk adj factor 3.0%						
Total income	\$171.00	\$158.00	\$156.25	\$16,739	\$167.39	\$167.39
Landowner's share	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%
Landowner's income	\$57.50	\$53.13	\$52.54	\$5,629	\$56.29	\$56.29
Landowner operating expense	10.98	16.58	7.48	1,195	11.95	11.95
Income less operating expense	\$46.52	\$36.55	\$45.06	\$4,434	\$44.34	\$44.34
Less risk adjustment	1.40	1.10	1.35	133	1.33	1.33
Cash rent equivalent	\$45.12	\$35.46		\$4,301	\$43.01	\$43.01
C. Amount tenant CAN AFFORD TO PAY						
Total income	\$171.00	\$158.00	\$156.25	\$16,739	\$167.39	\$167.39
Total operating expense	\$120.04	\$132.87	\$114.12	\$12,238	\$122.38	\$122.38
Return to land and irr equip	\$50.96	\$25.13	\$42.13	\$4,501	\$45.01	\$45.01
Comparison of alternative cash rent methods						
Low	\$44.00	\$25.13	\$42.13	\$4,301	\$43.01	\$43.01
Average	\$46.70	\$34.86	\$43.07	\$4,401	\$44.01	\$44.01
High	\$50.96	\$44.00	\$44.00	\$4,501	\$45.01	\$45.01
Returns above all costs (profit)	\$6.96	(\$10.87)	(\$1.87)	\$101	\$1.01	\$1.01

Cash-rent equivalent of roughly \$44/acre (profit = +\$1.01)

Non-irrigated example summary ...

	Equitable share	Cash rent	Profit
Base scenario	66.4 / 33.6	\$44.01	+\$1.01
Increased fertilizer costs	66.4 / 33.6	\$39.27	-\$9.71
Increased fuel costs	67.9 / 32.1	\$41.25	-\$5.28
Increased fuel and fert costs	67.9 / 32.1	\$36.57	-\$16.00

Irrigated example assumptions ...

- Rotation -- 50% corn, 42% soybeans, and 8% sorghum
- Equitably share fertilizer, herbicides, and irrigation energy (tenant pays all application costs)
- Tenant owns center pivot and 1/2 motor, landowner owns well, pump and gearhead, and 1/2 motor (tenant pays 50% of irrigation repairs, landowner 50%)
- Initial analysis is based on 2000-04 fertilizer and irrigation pumping costs and 2004 custom rates
- Examined impact on equitable crop share and cash rent equivalent with increased costs (all else held constant)

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Irrigated example summary ...

	Equitable share	Cash rent	Profit
Base scenario	66.7 / 33.3	\$91.88	-\$0.44
Increased fertilizer costs	66.7 / 33.3	\$84.86	-\$16.36
Increased pumping costs	66.7 / 33.3	\$74.26	-\$40.39
Increased fuel costs	67.4 / 32.6	\$89.01	-\$6.99
Increased costs (ALL)	67.4 / 32.6	\$64.51	-\$62.86

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Impact of high costs on land values ...

KSU-Landbuy.xls is a tool that can be used to analyze the theoretical impact higher costs might have on land values in the long-run (i.e., assuming high costs persist in the future)

It is important to recognize that numerous factors impact land values and thus observed values likely won't match up with theoretical expectations

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Microsoft Excel - KSU-Landbuy (MP Co).xls

Inputs					Print report					
KS	Crop	Pasture	Waste	Average	Label	(refers to notation in Valuing and Buying Farmland publication)				
160	0	0	0	160	KS	State where land is located (enter as two letter abbreviation, e.g., Kansas = KS)				
\$800	\$350	\$0	\$0	\$800	Ac	Land classification (e.g., cropland, pasture, woods)				
\$800	\$350	\$0	\$0	\$800	MV_0	Enter the acres of each class of land (used to calculate weighted average)				
\$44.00	\$12.00	\$0.00	\$0.00	\$44.00	PP	Market price of land, \$/acre				
\$4.80	\$2.10	\$0.00	\$0.00	\$4.80	aR	Purchase price (PP -- amount you pay), \$/acre				
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Ptx	Ag rent--cash or cash equivalent in \$/acre today				
30	30	30	30	30	nR	Real estate (property) tax in \$/acre today				
35%	35%	35%	35%	35%	T	Non-ag rent in \$/acre today				
15%	15%	15%	15%	15%	I	Time horizon in years land is held (less than or equal to 100 years)				
7.50%	7.50%	7.50%	7.50%	7.50%	Ibc	Income tax rate (on last dollar of taxable income -- include SE tax if relevant)				
40.0%	40.0%	40.0%	40.0%	40%	Cbc	Capital gains tax rate				
1.50%	1.00%	0.00%	0.00%	1.50%	I	Interest rate on land loans (discount rate)				
0.00%	0.00%	0.00%	0.00%	n/a	f	Percent of purchase price that is financed (only needed for return on equity calculations)				
3.50%	3.50%	0.00%	0.00%	3.50%	gA	Growth rate on ag rent and ag portion of land value (see column G in Guidelines)				
1.97%	2.48%	0.00%	1.97%	1.97%	gN	Growth rate on non-ag rent (normally >= inflation rate)				
					g	Growth rate on total (ag and non-ag) land value (see column I in Guidelines)				
					gNw	Calculated non-ag growth rate on land value				
Calculated Outputs										
4.88%	4.88%	4.88%	4.88%	4.88%	(1-Ibc)	After-tax interest rate on land loans (discount rate)				
\$25.48	\$6.44	\$0.00	\$0.00	\$25.48		After-tax rent, \$/acre (now property taxes are removed as well)				
\$479.07	\$113.52	\$0.00	\$0.00	\$479.07	PVRA	Discounted value of all future after-tax ag rents				
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	PVRN	Discounted value of all future after-tax non-ag rents				
\$2,245.43	\$982.38	\$0.00	\$0.00	\$2,245.43		Projected land value in 30 years, based on market price and ag & non-ag growth				
\$1,250.46	\$471.75	\$0.00	\$0.00	\$1,250.46		Projected land value in 30 years, based on market price and only ag growth				
\$486.45	\$212.82	\$0.00	\$0.00	\$486.45	PVS	Discounted value of land sale in 30 years (after capital gains tax)				
\$283.65	\$108.74	\$0.00	\$0.00	\$283.65	PVSA	Discounted value of land sale in 30 years (after capital gains tax) -- if only ag growth				
\$965.52	\$326.34	\$0.00	\$0.00	\$965.52	PVL	Present value of land purchase				
79%	68%	n/a	79%	AMVP	Ag market value percent implied by non-ag rent and					
92%	47%	n/a	92%	AMVP	Ag market value percent implied by Ag Rent-to-Value					
\$165.52	\$23.66	\$0.00	\$0.00	\$165.52		Present value less market price				
\$165.52	\$23.66	\$0.00	\$0.00	\$165.52		Present value less purchase price				
8.94%	7.03%	n/a	8.94%	8.94%		Approximate pre-tax rate of return on assets				
9.90%	6.72%	n/a	9.90%	9.90%		Approximate pre-tax rate of return on equity				

Rent = \$44.00/acre
PVL = \$966/acre

Summary ...

Producers need to “do their homework” so as to understand the numbers before talking to landowner(s)

Tenants need to think long-term when negotiating with landowners

- Impact of losing or giving up land?
- Have “good times” been shared?

Good landlord/tenant communications will be critical as we go through these tough economic times

Impact of higher costs on land values will depend on expectations about future costs as well as other factors that affect land market

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