

## Cropland Leasing – Developing Equitable Land Leases

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Manhattan, KS. January 17, 2008



## 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-Landbuy.xls*
  - *KSU-Lease.xls*

Related papers are found at  
[www.agmanager.info](http://www.agmanager.info)

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## Factors/issues impacting land values

(alphabetical order)

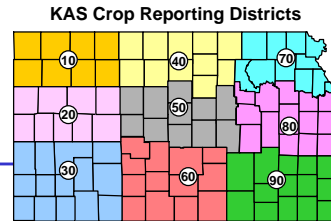
- Farm profitability
- Farm size
- Government programs
- Input costs (e.g., fuel and fertilizer)
- Interest rates
- Outside investors (i.e., stock market money)
- Recreation uses (e.g., hunting)
- Renewable fuels (ethanol and bio-diesel)
- Section 1031 tax exchanges
- Technology (e.g., no-till, precision ag, bio-tech, DNA)
- Urban sprawl
- Weather (i.e., drought, flood)

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## Background for land leasing

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## Length of cropland leases ...



Region	Years rented
Northwest (10)	22.0
West Central (20)	21.3
Southwest (30)	19.0
North Central (40)	18.1
Central (50)	16.6
South Central (60)	15.7
Northeast (70)	16.4
East Central (80)	15.7
Southeast (90)	14.8
<b>State</b>	<b>17.7</b>

Source: Golden, Tsoodle, and Bigge -- 2002 KAS/KSU survey

## Distribution of leases by type of lease ...

Region	Cash	Share	Other
Northwest	23.0%	74.3%	2.7%
West Central	16.4	75.8	7.8
Southwest	8.7	89.1	2.2
North Central	27.8	68.2	4.0
Central	25.7	62.0	12.3
South Central	19.7	75.2	5.1
Northeast	33.1	59.9	7.0
East Central	35.0	60.4	4.6
Southeast	34.2	62.9	2.9
<b>State</b>	<b>24.8</b>	<b>69.8</b>	<b>5.4</b>

Source: Golden, Tsoodle, and Bigge -- 2002 KAS/KSU survey

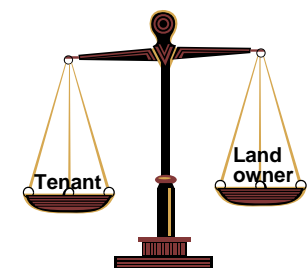
## In recent years, the majority of leasing questions received pertain to:

- Impact of adopting new technologies
- Cash renting
- “Non-traditional” leases
  - Net share rent
  - Flexible cash rent
  - Bushel rent
  - Combination cash/cropshare

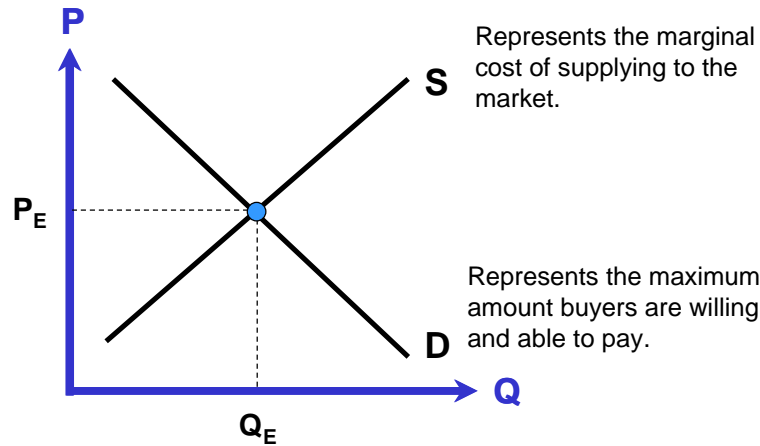
... while current “hot topic” changes over time, the method of addressing questions has not changed.

## Determining the terms of a lease ...

How are cash lease rates or the terms of crop share leases established?



## Market established rental rates ...

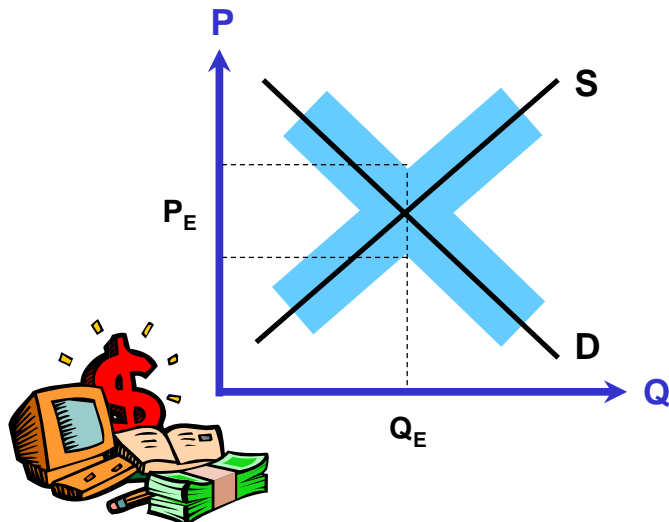


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## Market established rates...

- 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 established rental rates



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## Ways to find equilibrium price/share ...

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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## Equitable vs. traditional share rent ...

**Equitable:** Income is shared in the same proportion as the contribution of total inputs.

**Traditional:** Income and shared expenses (if any) are shared in the same proportion as what has been done in the past. Share rent based on tradition may, or may not, be equitable.

Traditional = Equitable in the long-run

## 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 ...

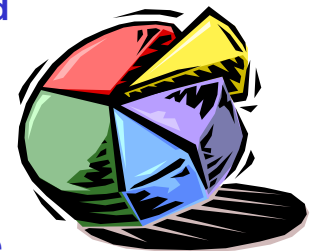
1. Yield increasing inputs should be shared
  2. Share arrangements should be evaluated as technology changes
  3. Total returns divided in same proportion as resources contributed
- 
4. Compensation for unused long-term investments at termination
  5. Good landlord/tenant communications

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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.

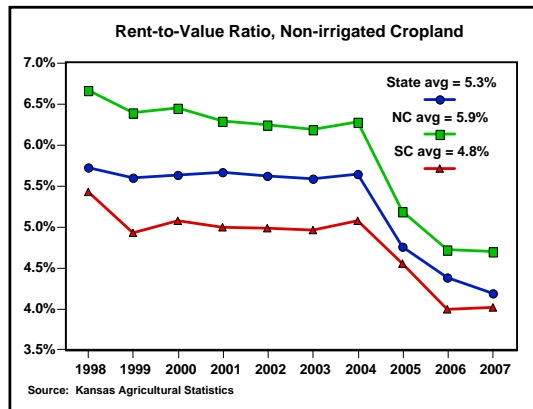


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## Land contribution ...

The land contribution has typically been based on an “average market value” for the land along with an historical average return to land.

As cash leases become more common, the land contribution can be set equal to the cash rent.



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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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## “Non-traditional” leases ...

- Cash rent
- Net share rent
- Bushel rent
- Flexible cash rent
- Combination cash and crop share rent

Because there is currently much interest in these types of leases, there must be good reasons to use them ...

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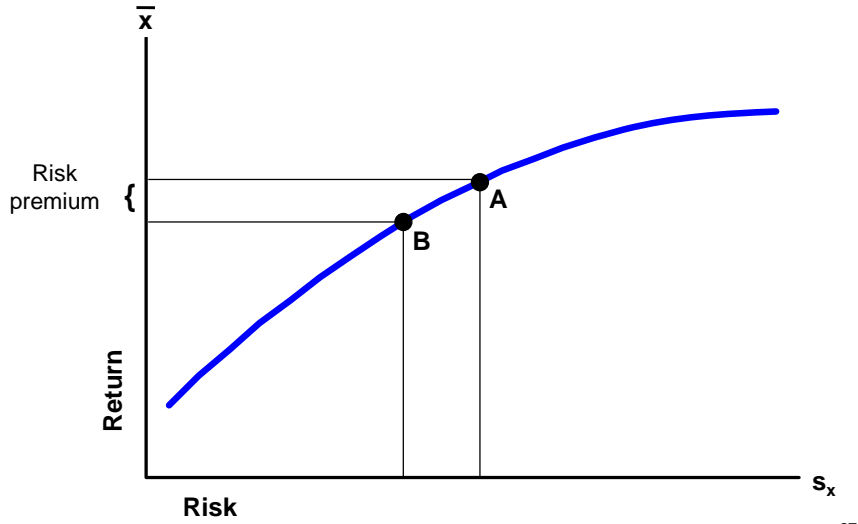
## “Non-traditional” leases ...

Numerous good reasons to use these different types of leases, but landowners and producers need to recognize several things when doing so ...

- Communication is critical
- Rules-of-thumb really don't exist
- More important to have a written lease
- Pay special attention to FSA rulings

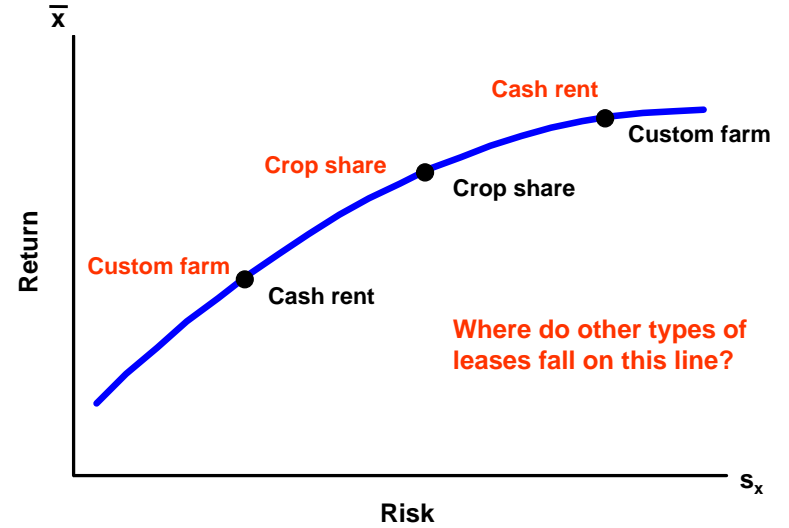
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## Risk-return tradeoff



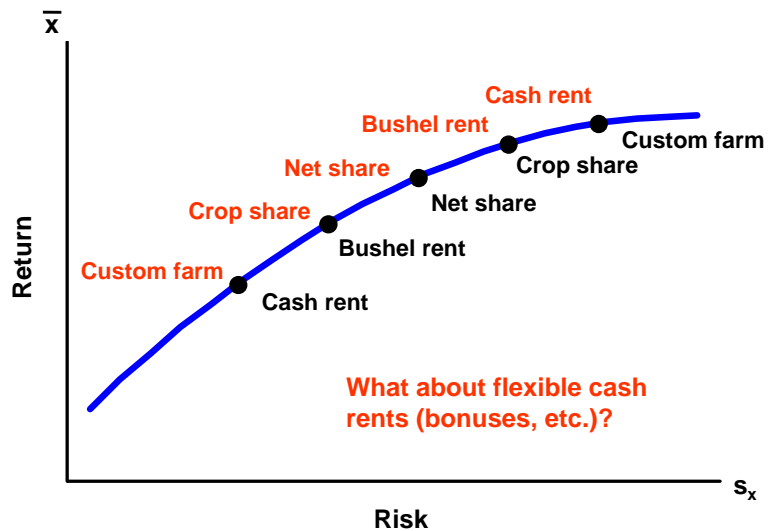
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## Landowner/producer risk-return tradeoff



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## Landowner/producer risk-return tradeoff



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## Methods of establishing cash rent values ...

- Market going rate (if available)

- 
- Crop share equivalent (adjusted for risk)

- Landowner's cost

- Amount tenant can afford to pay

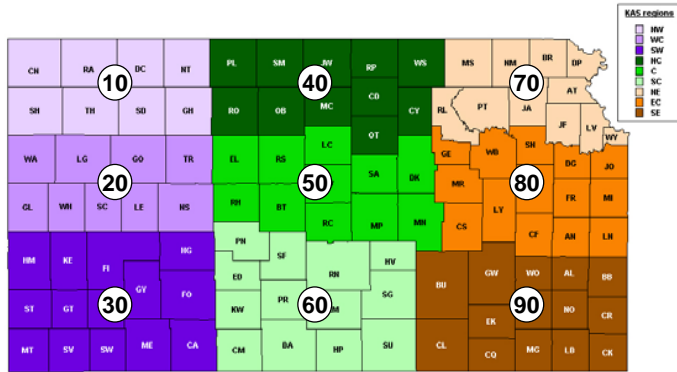


The last three require yield, price, and government payment projections (as well as cost information used for crop share).

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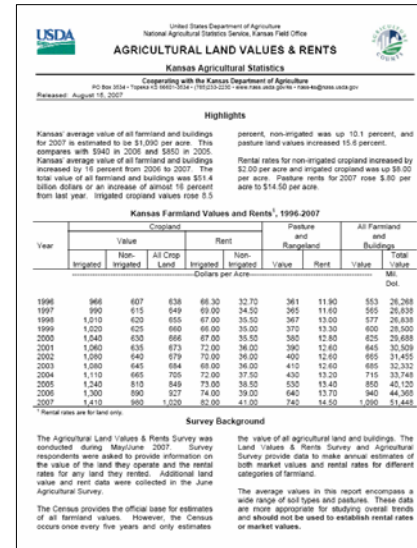
## Market going rate ...

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

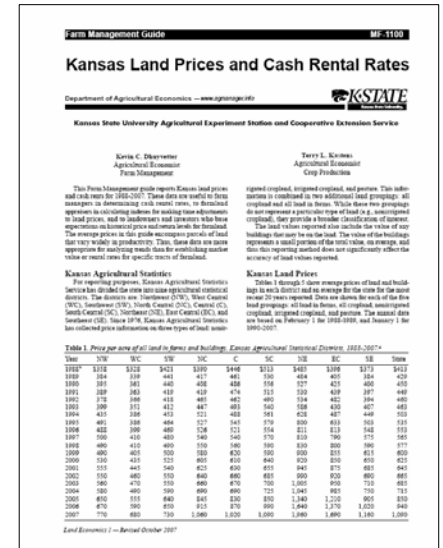


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## KAS surveyed market rates ...

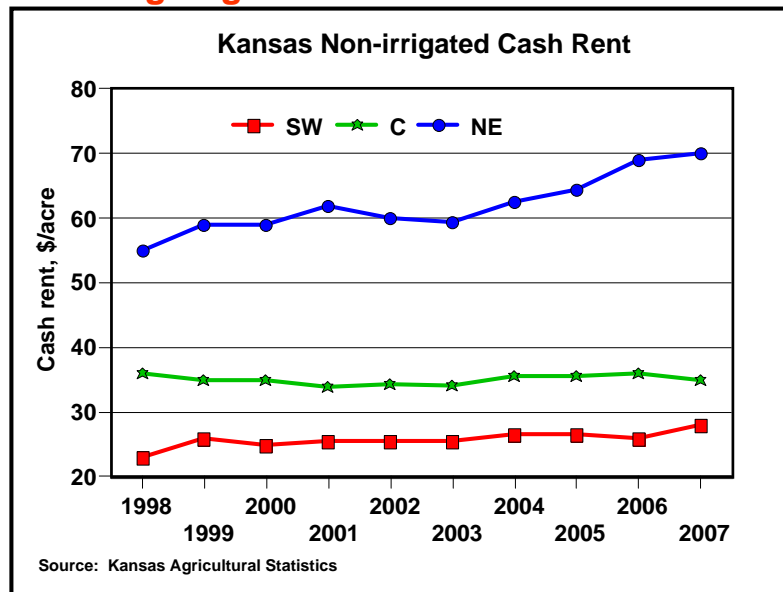


KAS report



KSU report

## Market going rate ...



Source: Kansas Agricultural Statistics

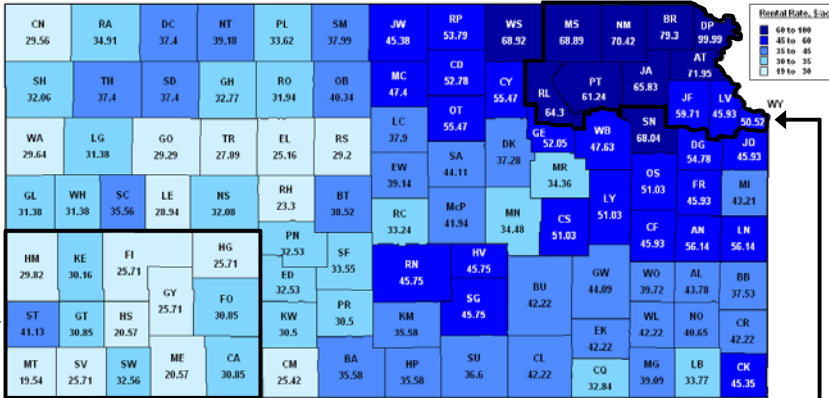
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## County-level cash rents ...

- 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 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 for land values

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



Based on KAS reported values for January 1, 2007

Acreage-weighted average of counties equals \$28.00 (KAS)

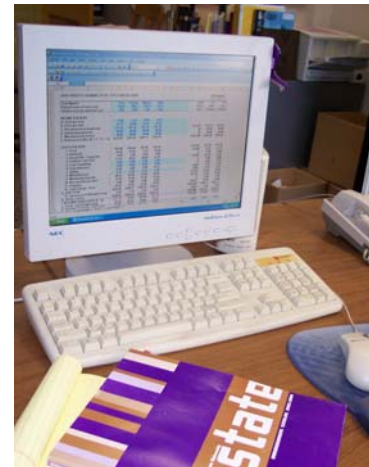
Acreage-weighted average of counties equals \$70.00 (KAS)

## Methods of establishing cash rent values ...

- **Crop share equivalent (adjusted for risk)**
  - Converts equitable crop share rent to an expected dollar amount per acre
- **Landowner's cost**
  - Based on the premise of landowner's continuing to receive comparable returns to what has been received in the past
- **Amount tenant can afford to pay**
  - Residual approach – after tenant pays all expenses, whatever income is left represents cash rent

## Using *KSU-Lease*

## Using "*KSU-Lease.xls*" to determine equitable crop share and cash leases ...



### Information/data required:

1. Crop rotation/mix
2. Income information
3. Production inputs
4. Machinery costs
5. Land value
6. Irrigation equipment
- 
7. Contributor of input
8. Risk adjustment

## 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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## Level of complexity ...

- **KSU-Lease is extremely flexible and can be used to generate leases with terms that are quite simple to extremely complex**
- For example equitable percentages for ...
  - net share lease (i.e., no inputs shared)
  - fertilizer shared equitably (i.e., same % as income)
  - fertilizer shared equitably, herbicides shared in some other proportion
  - different inputs shared differently for each crop
  - combination of crop share and cash rent
  - percent of yield for bushel rent

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Microsoft Excel - KSU-Lease (SC Kansas).xls

KSU Lease.xls ---- A spreadsheet budgeting program to determine equitable crop share and cash lease rental arrangements.

Version -- 11.19.07

**INPUTS vs CALCULATED VALUES**  
In the *Crop budgets*, *Shares*, and *Lease budgets* sheets all blue numbers are inputs and all black numbers are calculated from these inputs. The spreadsheet automatically recalculates every time an additional input is entered. Thus, it is important to wait until all data have been entered and reviewed before interpreting any of the calculated results (i.e., black numbers).

**DESCRIPTION OF INPUTS**  
The paper titled *KSU-Lease.pdf* serves as a "users guide" and provides a brief overview of this spreadsheet. Also, several of the input cells (i.e., blue number) have a red diamond in the upper right corner of the cell. By moving your mouse cursor over this diamond, a brief description of the input will be displayed on the screen.

**COMPANION PUBLICATIONS**  
This spreadsheet was developed as a decision-aid tool based on the principles of equitable leases outlined in several publications that can be found on the K-State Ag Econ departmental website ([www.agecon.ksu.edu](http://www.agecon.ksu.edu)). Additionally, the budget format of this spreadsheet was designed to follow that of the K-State Farm Management Guide crop budgets, which are also available on the Ag Econ website, so they can also be a useful resource when analyzing leasing alternatives.

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Various tabs: Intro / Crop budgets / Shares / Lease budgets / Irr energy costs / Notes

Microsoft Excel - KSU Lease (Riley (1-17-08)).xls

CROP BUDGETS SHOWING TOTAL COSTS AND RETURNS

Crop/System	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total	Per Acre Planted	Per Acre Tillable
Planted acres of each crop	24.0	45.8	88.9	80.7	80.7	0.0	320.0		
Tillable acres per planted acre	1.00	1.00	1.00	1.00	1.00	0.00	320.0		
<b>INCOME PER ACRE</b>									
A. Yield per acre	86.9	80.3	30.7	47.9	41.2	20.0	---	---	---
B. Price per unit	\$3.72	\$3.81	\$8.59	\$5.79	\$5.79	\$8.59	---	---	---
C. Net government payments	\$13.60	\$13.60	\$13.60	\$13.60	\$13.60	\$0.00	\$4,352	\$13.60	\$13.60
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)	\$336.96	\$319.38	\$276.92	\$290.80	\$251.99	\$171.80	\$91,107	\$284.71	\$284.71
<b>COSTS PER ACRE</b>									
1. Seed	\$70.47	\$14.15	\$30.80	\$16.80	\$10.50	\$36.20	\$7,277	\$22.74	\$22.74
2. Herbicide	28.18	23.94	10.14	5.28	5.28	15.46	3,525	11.02	11.02
3. Insecticide / Fungicide	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
4. Fertilizer and Lime	44.54	38.80	15.37	57.45	35.80	12.30	11,734	36.67	36.67
5. Crop Consulting	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
6. Crop Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
7. Drying	11.30	10.43	0.00	0.00	0.00	0.00	749	2.34	2.34
8. Miscellaneous	8.25	8.25	8.25	8.25	8.25	8.25	2,640	8.25	8.25
9. Machinery Expense	63.58	62.25	48.11	47.63	73.72	45.98	18,440	57.63	57.63
10. Non-machinery Labor	7.90	6.90	5.50	5.50	8.40	5.20	2,116	6.61	6.61
11. Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
12. Land Charge / Rent	65.00	65.00	65.00	65.00	65.00	0.00	20,800	65.00	65.00
G. SUB TOTAL	\$299.22	\$229.72	\$183.17	\$205.91	\$206.95	\$122.39	\$67,281	\$210.25	\$210.25
13. Interest on 1/2 Nonland Costs	8.57	5.68	4.34	5.31	4.99	4.55	1,683	5.26	5.26
H. TOTAL COSTS	\$307.80	\$235.40	\$187.51	\$211.22	\$211.94	\$126.94	\$68,964	\$215.51	\$215.51
I. RETURNS OVER COSTS (F - H)	\$29.17	\$83.98	\$89.41	\$79.58	\$40.05	\$44.86	\$22,143	\$69.20	\$69.20
J. TOTAL COSTS/UNIT (H/A)	\$3.54	\$2.93	\$6.12	\$4.41	\$5.15	\$6.35	---	---	---
K. RETURN TO TOTAL COST (I/H)	9.48%	35.68%	47.68%	37.67%	18.90%	35.34%	32.11%	32.11%	32.11%

Microsoft Excel - KSU Lease - Riley (1-17-08).xls

TABLE 1. Production Inputs Used for Budgets

ITEM	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	\$/unit
Seeding rate (lbs. seeds, etc)	27	4.67	140	120	75	160	
Seed price, \$/unit	\$2.61	\$3.03	\$0.22	\$0.14	\$0.14	\$0.22	
Fertilizer:							
82-0-0	68.0	50.7	0.0	0.0	64.2	0.0	\$0.290 /lb
N (dry/liquid)	11.1	10.6	0.0	84.3	6.7	0.0	\$0.500 /lb
P	37.1	35.9	26.9	26.8	23.0	20.0	\$0.385 /lb
K	0.0	0.0	0.0	0.0	0.0	20.0	\$0.230 /lb
Lime	500	500	500	500	500	0	\$0.010 /lb
Herbicide							
Bicep II Magnum (PRE)	2	1.6					\$8.75 /qt
Buctril + Atrazine		2					\$4.97 /pt
Spirit	1						\$10.68 /oz
Glyphosate			24				\$0.12 /oz
+ 2% Ammonium Sulfate			3				\$0.22 /oz
Finesse				0.3	0.3		\$14.18 /oz
+ Surfactant				6.4	6.4		\$0.16 /oz
Glean						44	\$16.71 /oz
Roundup Weather Max			22				\$0.30 /oz
+ 2, 4-D LV Ester						0.5	\$4.52 /qt
Insecticide / Fungicide							\$1.00 /ac
Seed treatment							\$1.00 /ac
Seedbox treatment							\$1.00 /ac
xxx							
xxx							
Irrigation water, inches/acre	0	0	0	0	0	0	\$4.50 /in
Irrigation repairs, \$/acre-inch							\$0.33 /in
Drying cost, \$/unit (bu. cwt, etc)	\$0.13	\$0.13	\$0.00	\$0.00	\$0.00	\$0.00	

68.0 x 0.29 = \$24.94 /ac  
 + 11.1 x 0.50  
 + 37.1 x 0.385  
 + 0 x 0.23  
 + 500 x 0.01  
 \$44.54/ac

Print budgets

Microsoft Excel - KSU Lease - Riley (1-17-08).xls

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Tillable acres per planted acre	1.00	1.00	1.00	1.00	1.00	0.00	320.0		
INCOME PER ACRE									
A. Yield per acre	86.9	80.3	30.7	47.9	41.2	20.0	---	---	---
B. Price per unit	\$3.72	\$3.81	\$8.59	\$5.79	\$5.79	\$8.59	---	---	---
C. Net government payments	\$13.60	\$13.60	\$13.60	\$13.60	\$13.60	\$0.00	\$4,352	\$13.60	\$13.60
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
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4. Fertilizer and Lime	44.54	38.80	15.37	57.45	35.80	12.30	11,734	36.67	36.67
5. Crop Consulting	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
6. Crop Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
7. Drying	11.30	10.43	0.00	0.00	0.00	0.00	749	2.34	2.34
8. Miscellaneous	8.25	8.25	8.25	8.25	8.25	8.25	2,640	8.25	8.25
9. Machinery Expense	63.58	62.25	48.11	47.83	73.72	45.98	18,440	57.63	57.63
10. Non-machinery Labor	7.90	6.90	5.50	5.50	8.40	5.20	2,116	6.61	6.61
11. Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
12. Land Charge / Rent	65.00	65.00	65.00	65.00	65.00	0.00	20,800	65.00	65.00
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I. RETURNS OVER COSTS (F - H)	\$29.17	\$83.98	\$89.41	\$79.58	\$40.05	\$44.86	\$22,143	\$69.20	\$69.20
J. TOTAL COSTS/UNIT (H/A)	\$3.54	\$2.93	\$6.12	\$4.41	\$5.15	\$6.35	---	---	---
K. RETURN TO TOTAL COST (I/H)	9.48%	35.68%	47.68%	37.67%	18.90%	35.34%	32.11%	32.11%	32.11%

Print budgets

Microsoft Excel - KSU Lease - Riley (1-17-08).xls

TABLE 2. Machinery and Land Resources Used for Budgets

ITEM	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	\$/unit
Drill/Plant, \$/acre	\$11.71	\$11.40	\$12.14	\$11.91	\$8.62	\$12.14	
Tillage and Chemical Applications:							
Chisel	0	0	0	0	1	0	\$9.21 /ac
Disk	0	0	0	0	1	0	\$7.88 /ac
Field cultivate	0	0	0	0	1	0	\$7.46 /ac
Cultivate with sidedress	0	0	0	0	1	0	\$7.69 /ac
Anhydrous application	1	1	0	0	1	0	\$6.83 /ac
Fertilizer application	0	0	0	1	1	0	\$4.20 /ac
Herbicide application	2	2	2	1	2	2	\$4.45 /ac
Insecticide application	0	0	0	0	0	0	\$4.56 /ac
Harvest							
Base charge, \$/acre	\$22.01	\$16.84	\$22.14	\$15.97	\$15.97	\$22.14	
Charge for high yields, \$/unit	\$0.152	\$0.150	\$0.174	\$0.151	\$0.151	\$0.174	
High yield	74	36	27	21	21	27	
Hauling, \$/unit	\$0.140	\$0.145	\$0.140	\$0.147	\$0.147	\$0.140	
Non-machinery labor, hr/acre	0.79	0.69	0.55	0.55	0.84	0.52	\$10.00 /hr
Irrigation labor, hr/acre	0.00	0.00	0.00	0.00	0.00	0.00	\$10.00 /hr
Average land value, \$/acre	\$65	\$65	\$65	\$65	\$65	\$0	
Annual return to land, %							100.00%
Interest on capital, %							8.5%
Investment, \$							Salvage value, %
Irrigation Equipment	Total	\$/wt/ac					Years
Well, pump and gearhead value	\$0	n/a			25		0%
Power unit and meter	\$0	n/a			7		0%
Irrigation system	\$0	n/a			20		0%

Print tables

Price scenarios to consider

	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Use (Y=1, N=0)
Long-run prices	\$2.69	\$2.79	\$6.78	\$4.49	\$4.49	\$6.78	
Short-run prices	\$3.72	\$3.81	\$8.59	\$5.79	\$5.79	\$8.59	
Current forward contract bids	\$4.50	\$4.40	\$10.50	\$8.00	\$8.00	\$10.50	

Print budgets

Microsoft Excel - KSU Lease - Riley (1-17-08).xls

Landowner =====> Average landowner, CY-GE-PT-RL Co KS, 555-987-6543 01/14/08  
 Operator =====> Average farmer, NC/NE KS, 555-123-4567 7:51 AM  
 Basis for equitable share calculations: For the entire rotation (L4 = 0), Crop-by-crop (L4 = 1) L4 ==> 0

OPERATOR'S share of production inputs (enter -100% if equitably shared)

Crop/System	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total
Planted acres	24.0	45.8	88.9	80.7	80.7	0.0	320.0
Seed	100%	100%	100%	100%	100%	100%	
Fertilizer:							
82-0-0	-100%	-100%	-100%	-100%	-100%	-100%	
N (dry/liquid)	-100%	-100%	-100%	-100%	-100%	-100%	
P	-100%	-100%	-100%	-100%	-100%	-100%	
K	-100%	-100%	-100%	-100%	-100%	-100%	
Lime	-100%	-100%	-100%	-100%	-100%	-100%	
Herbicide							
Bicep II Magnum (PRE)	-100%	-100%	-100%	-100%	-100%	-100%	
Buctril + Atrazine	-100%	-100%	-100%	-100%	-100%	-100%	
Spirit	-100%	-100%	-100%	-100%	-100%	-100%	
Glyphosate	-100%	-100%	-100%	-100%	-100%	-100%	
+ 2% Ammonium Sulfate	-100%	-100%	-100%	-100%	-100%	-100%	
Finesse	-100%	-100%	-100%	-100%	-100%	-100%	
+ Surfactant	-100%	-100%	-100%	-100%	-100%	-100%	
Glean	-100%	-100%	-100%	-100%	-100%	-100%	
Roundup Weather Max	-100%	-100%	-100%	-100%	-100%	-100%	
+ 2, 4-D LV Ester	-100%	-100%	-100%	-100%	-100%	-100%	
Insecticide / Fungicide							
Seed treatment	100%	100%	100%	100%	100%	100%	
Seedbox treatment	100%	100%	100%	100%	100%	100%	
xxx	100%	100%	100%	100%	100%	100%	
xxx	100%	100%	100%	100%	100%	100%	
Crop consulting	100%	100%	100%	100%	100%	100%	
Crop insurance	-100%	-100%	-100%	-100%	-100%	-100%	
Drying cost	-100%	-100%	-100%	-100%	-100%	-100%	
Operator's equitable share (OS%)	70.5%	59.3%	59.6%	55.4%	61.6%	100.0%	60.2%

Print operator's shares

	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total
Crop/System	24.0	45.8	88.9	80.7	80.7	0.0	320.0
Planted acres							
<b>OPERATOR'S share of machinery, labor, irrigation, and land (enter -100% if shared equitably)</b>							
Drill/Plant	100%	100%	100%	100%	100%	100%	
<b>Tillage and Chemical Applications:</b>							
Chisel	100%	100%	100%	100%	100%	100%	
Disk	100%	100%	100%	100%	100%	100%	
Field cultivate	100%	100%	100%	100%	100%	100%	
Cultivate with sidedress	100%	100%	100%	100%	100%	100%	
Anhydrous application	100%	100%	100%	100%	100%	100%	
Fertilizer application	100%	100%	100%	100%	100%	100%	
Herbicide application	100%	100%	100%	100%	100%	100%	
Insecticide application	100%	100%	100%	100%	100%	100%	
<b>Harvest</b>							
Harvest	100%	100%	100%	100%	100%	100%	
Hauling	100%	100%	100%	100%	100%	100%	
<b>Miscellaneous</b>							
Non-machinery labor	100%	100%	100%	100%	100%	100%	
<b>Irrigation expenses</b>							
Labor	100%	100%	100%	100%	100%	100%	
Fuel and oil	100%	100%	100%	100%	100%	100%	
Repair and maintenance	100%	100%	100%	100%	100%	100%	
<b>Irrigation investment</b>							
Well, pump and gearhead	0%	0%	0%	0%	0%	0%	
Motor	0%	0%	0%	0%	0%	0%	
Irrigation system	0%	0%	0%	0%	0%	0%	
<b>Land</b>							
Cash payment to landowner, \$/acre	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0
Operator's equitable share (OS%)	70.8%	59.3%	59.6%	55.4%	61.8%	100.0%	60.2%
Landowner's equitable share (LS%)	29.5%	40.7%	40.4%	44.6%	38.4%	0.0%	39.8%

	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total	Per Planted	Per Tillable
Average farmer, NC/NE KS, 555-123-4567	60.2%	60.2%	60.2%	60.2%	60.2%	60.2%	60.2%	7:51 AM	01/14/08
Equitable share (OS%)	60.2%	60.2%	60.2%	60.2%	60.2%	60.2%	60.2%		
Crop/System	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total		
Total tillable acre							320.0		
Planted acres of each crop	24.0	45.8	88.9	80.7	80.7	0.0	320.0		
Harvested yield per acre	86.9	80.3	30.7	47.9	41.2	20.0			
<b>INCOME PER ACRE</b>									
A. Yield per acre	52.4	49.3	19.5	29.8	24.8	12.0			
B. Price per unit	\$3.72	\$3.81	\$8.59	\$5.79	\$5.79	\$8.59			
C. Net government payments	\$8.19	\$8.19	\$8.19	\$8.19	\$8.19	\$0.00	\$2,621	\$8.19	\$8.19
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 ((AxB) + C + D + E)	\$202.97	\$192.38	\$166.80	\$175.16	\$151.79	\$103.48	\$54,878	\$171.49	\$171.49
<b>COSTS PER ACRE</b>									
1. Seed	\$70.47	\$14.15	\$30.80	\$16.80	\$10.50	\$35.20	\$7,277	\$22.74	\$22.74
2. Herbicide	16.97	14.42	6.11	3.18	3.18	9.31	2,123	6.64	6.64
3. Insecticide / Fungicide	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
4. Fertilizer and Lime	26.83	23.37	9.26	34.61	21.57	7.41	7,068	22.09	22.09
5. Crop Consulting	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
6. Crop Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
7. Drying	6.81	6.28	0.00	0.00	0.00	0.00	451	1.41	1.41
8. Miscellaneous	8.25	8.25	8.25	8.25	8.25	8.25	2,640	8.25	8.25
9. Machinery Expense	63.58	62.25	48.11	47.63	73.72	45.98	18,440	57.63	57.63
10. Non-machinery Labor	7.90	6.90	5.50	5.50	8.40	5.20	2,116	6.61	6.61
11. Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
12. Land Charge / Rent	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
G. SUB TOTAL	\$200.81	\$135.62	\$108.02	\$115.96	\$125.61	\$111.35	\$40,116	\$125.36	\$125.36
H. TOTAL COSTS	\$208.16	\$140.24	\$111.93	\$120.22	\$129.91	\$115.43	\$41,540	\$129.81	\$129.81
I. RETURNS OVER COSTS (F - H)	(\$5.19)	\$52.14	\$54.95	\$54.95	\$21.88	(\$11.95)	\$13,338	\$41.68	\$41.68
J. TOTAL COSTS/UNIT (H/A)	\$3.98	\$2.98	\$6.06	\$4.17					
K. RETURN TO TOTAL COST (I/H)	-2.49%	37.18%	49.02%	45.71%	16.84%	-10.35%	32.11%	32.11%	32.11%

	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total	Per Planted	Per Tillable
Average landowner, CY-GE-PT-RL Co KS, 555-987-6543	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	7:51 AM	01/14/08
Equitable share (100 - OS%)	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%		
Crop/System	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total		
Total tillable acre							320.0		
Planted acres of each crop	24.0	45.8	88.9	80.7	80.7	0.0	320.0		
Harvested yield per acre	86.9	80.3	30.7	47.9	41.2	20.0			
<b>INCOME PER ACRE</b>									
A. Yield per acre	34.6	31.9	12.2	19.0	16.4	8.0			
B. Price per unit	\$3.72	\$3.81	\$8.59	\$5.79	\$5.79	\$8.59			
C. Net government payments	\$5.41	\$5.41	\$5.41	\$5.41	\$5.41	\$0.00	\$1,731	\$5.41	\$5.41
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 ((AxB) + C + D + E)	\$133.99	\$127.00	\$110.12	\$115.64	\$100.20	\$68.32	\$36,229	\$113.21	\$113.21
<b>COSTS PER ACRE</b>									
1. Seed	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0	\$0.00	\$0.00
2. Herbicide	11.21	9.52	4.03	2.10	2.10	6.15	1,402	4.38	4.38
3. Insecticide / Fungicide	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
4. Fertilizer and Lime	17.71	15.43	6.11	22.85	14.24	4.66	14,568	45.52	45.52
5. Crop Consulting	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
6. Crop Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
7. Drying	4.49	4.15	0.00	0.00	0.00	0.00	298	0.93	0.93
8. Miscellaneous	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
9. Machinery Expense	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
10. Non-machinery Labor	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
11. Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
12. Land Charge / Rent	65.00	65.00	65.00	65.00	65.00	0.00	20,800	65.00	65.00
G. SUB TOTAL	\$98.41	\$94.10	\$75.14	\$89.54	\$81.34	\$11.04	\$27,166	\$84.89	\$84.89
H. TOTAL COSTS	\$99.64	\$95.16	\$75.58	\$91.00	\$82.03	\$11.51	\$27,423	\$85.70	\$85.70
I. RETURNS OVER COSTS (F - H)	\$34.35	\$31.84	\$34.54	\$24.63	\$18.17	\$56.81	\$9,065	\$27.52	\$27.52
J. TOTAL COSTS/UNIT (H/A)	\$2.88	\$2.98	\$6.20	\$4.78					
K. RETURN TO TOTAL COST (I/H)	34.48%	33.46%	45.70%	27.06%	22.15%	493.65%	32.11%	32.11%	32.11%

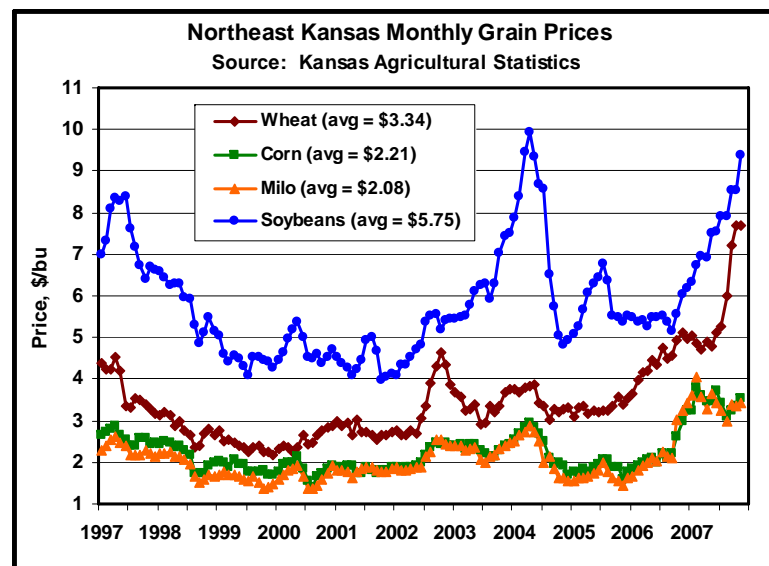
	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total	Per Planted	Per Tillable
Average landowner, CY-GE-PT-RL Co KS, 555-987-6543	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	7:51 AM	01/14/08
<b>ALTERNATIVE METHODS OF ESTIMATING CASH RENT</b>									
Crop/System	Corn	Milo	Soybeans	Wheat-R	Wheat-C	DC-SB	Total		
Total tillable acre							320.0		
Planted acres of each crop	24.0	45.8	88.9	80.7	80.7	0.0	320.0		
<b>A. Landowner's COST</b>									
Land	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$0.00	\$20,800	\$65.00	\$65.00
Irrigation equipment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0	\$0.00	\$0.00
Total	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$0.00	\$20,800	\$65.00	\$65.00
<b>B. Landowner's EQUITABLE SHARE RENT ---- risk adj factor</b>									
Total income	\$336.96	\$319.38	\$276.92	\$290.80	\$251.99	\$171.80	\$91,107	\$284.71	\$284.71
Landowner's share	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%	39.8%
Landowner's income	\$133.99	\$127.00	\$110.12	\$115.64	\$100.20	\$68.32	\$36,229	\$113.21	\$113.21
Income less operating expense	\$4.54	\$0.16	\$0.59	\$6.00	\$1.03	\$11.51	\$22.83	\$0.71	\$0.71
Less risk adjustment	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00
Cash rent equivalent	\$99.35	\$96.84	\$99.54	\$89.63	\$83.17		\$29,605	\$92.52	\$92.52
<b>C. Amount tenant CAN AFFORD TO PAY</b>									
Total income	\$336.96	\$319.38	\$276.92	\$290.80	\$251.99	\$171.80	\$91,107	\$284.71	\$284.71
Total operating expense	\$242.80	\$170.40	\$122.51	\$146.22	\$146.94	\$126.94	\$48,164	\$150.51	\$150.51
Return to land and irr equip	\$94.17	\$148.98	\$154.41	\$144.58	\$105.05	\$44.86	\$42,943	\$134.20	\$134.20
<b>Comparison of alternative cash rent methods</b>									
Low	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$0.00	\$20,800	\$65.00	\$65.00
Average	\$96.17	\$103.61	\$106.32	\$99.74	\$84.41	\$22.43	\$31,116	\$97.24	\$97.24
High	\$99.35	\$148.98	\$154.41	\$144.58	\$105.05	\$44.86	\$42,943	\$134.20	\$134.20
Returns above all costs (profit)	\$29.17	\$83.98	\$89.41	\$79.58	\$40.05	\$44.86	\$22,143	\$69.20	\$69.20

## Impact of high commodity prices on rental rates

Two approaches:  
 Crop budgets  
 Historical relationship

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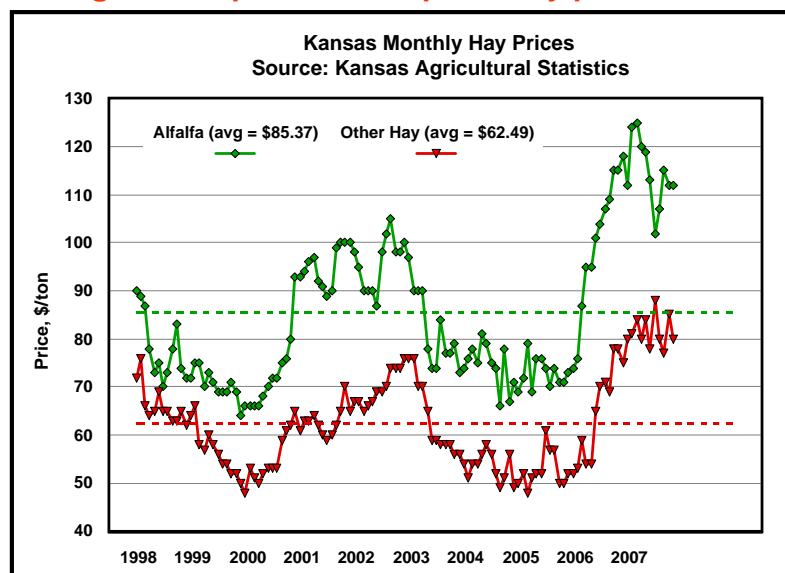
## Crop prices are strong by historical standards...



It's not just corn!

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## Strength in crop markets impacts hay prices...



It's not just grains!

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## Impact of high costs and prices on leases ...

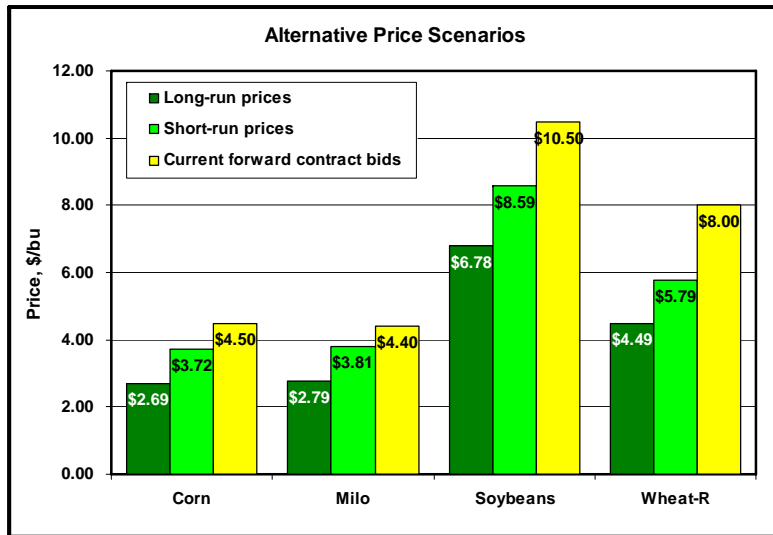
KSU-Lease.xls is a tool that can be used to analyze the impact current costs and prices have on equitable crop share leases as well as their cash-rent equivalents

How leases are impacted by current conditions depends on how producers change (or not change) production practices in response to these high prices and costs

→ producers should “run their own numbers”

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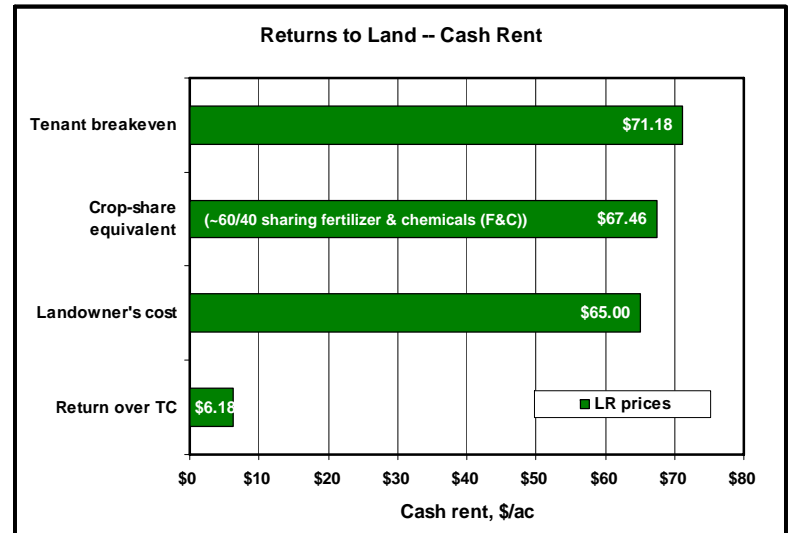
**Alternative Prices to Consider for NC/NE Kansas**



Long-run (08-12) and short-run (08) from MF-1013, current bids from several co-ops (1/5/08)

**Estimated cash rents for NC/NE Kansas**

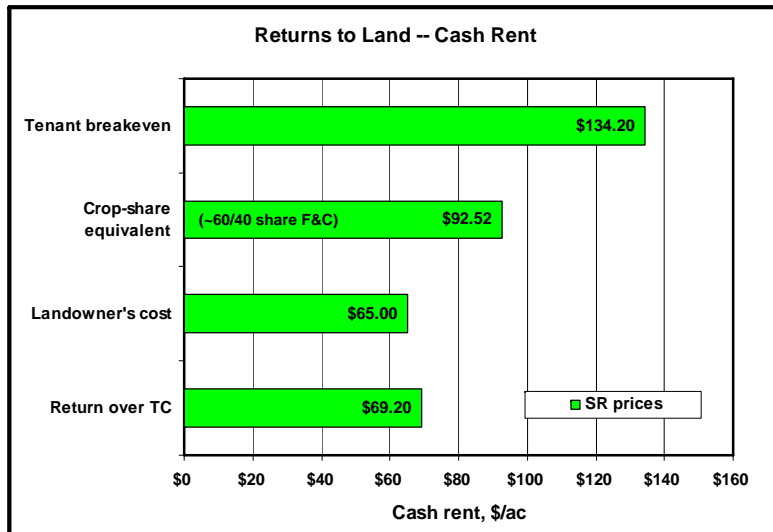
[long run (2008-2012) projected prices]



Based on KSU Farm Management Guides (October 2007) and KSU-Lease.xls (available at [www.agmanager.info](http://www.agmanager.info))

**Estimated cash rents for NC/NE Kansas**

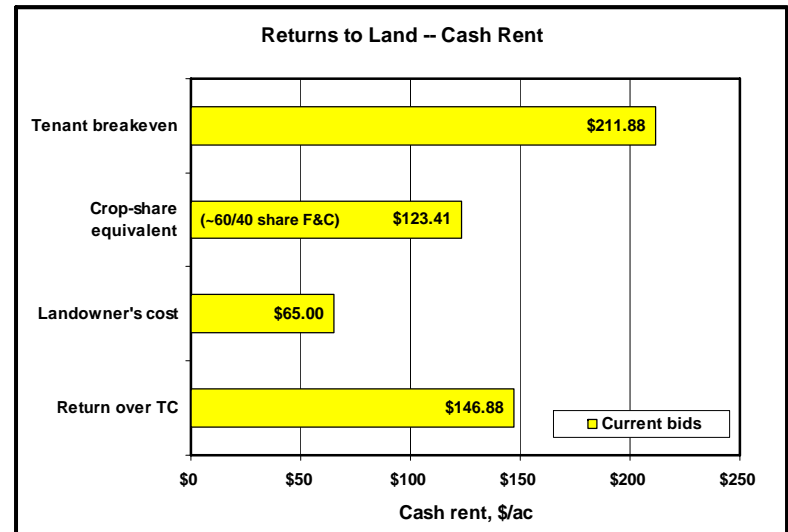
[short-run (2008) projected prices]



Based on KSU Farm Management Guides (October 2007) and KSU-Lease.xls (available at [www.agmanager.info](http://www.agmanager.info))

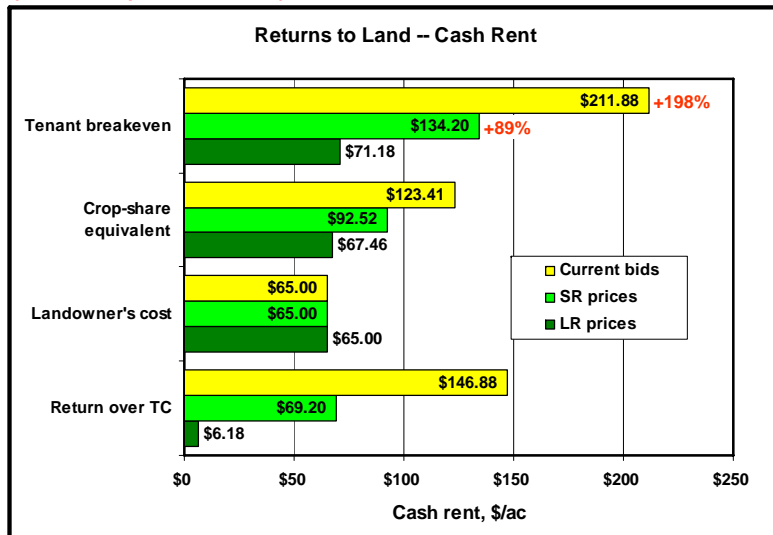
**Estimated cash rents for NC/NE Kansas**

[forward contract bids (1/5/08) for 2008 harvest delivery]



Based on KSU Farm Management Guides (October 2007) and KSU-Lease.xls (available at [www.agmanager.info](http://www.agmanager.info))

**Estimated cash rents for NC/NE Kansas**  
(alternative price scenarios)



Based on KSU Farm Management Guides (October 2007) and KSU-Lease.xls  
(available at [www.agmanager.info](http://www.agmanager.info))

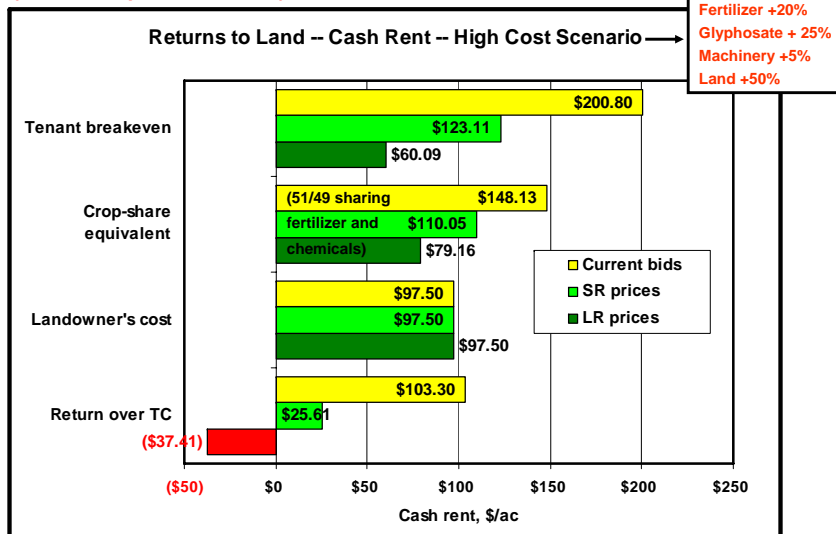
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**Really high rent potential . . .**

- Previous example suggested that price increases of 30% to 68% could mean a rent increase of 89% to 198% (elasticity of 2.9)
- Will this happen?
- No!
  - Farmers bid up production inputs as they try to increase acres or yield/a to get the high profits:
    - Fertilizer, chemicals, machinery, labor

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**Estimated cash rents for NC/NE Kansas**  
(alternative price scenarios)



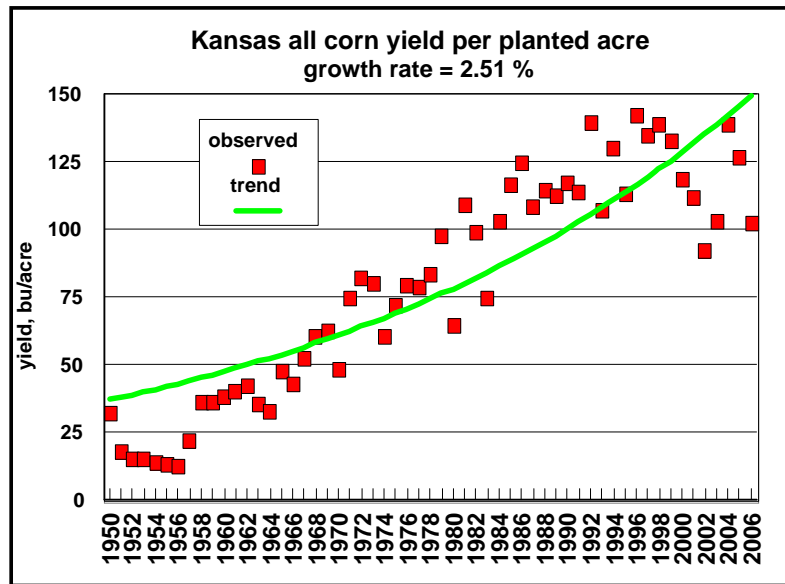
Based on KSU Farm Management Guides (October 2007) and KSU-Lease.xls  
(available at [www.agmanager.info](http://www.agmanager.info))

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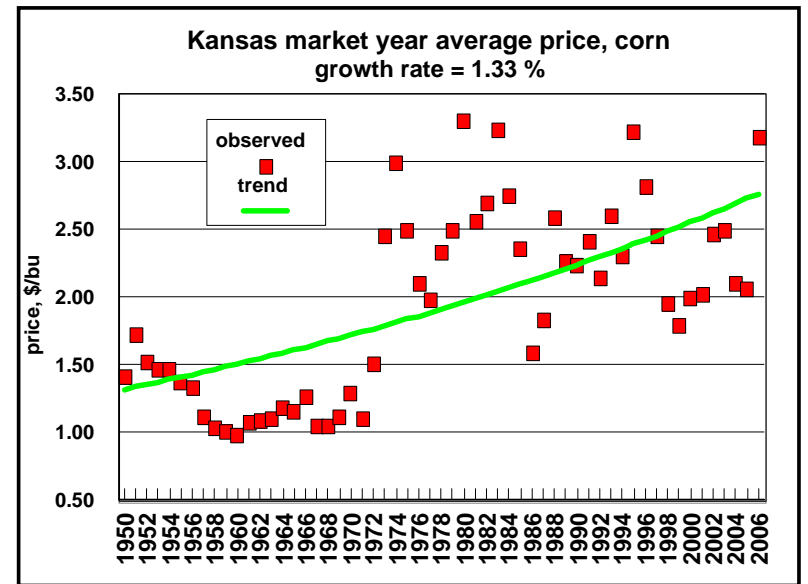
**Market approach...**

Examine relationship between historical prices and crop yields (revenue) and cash rents

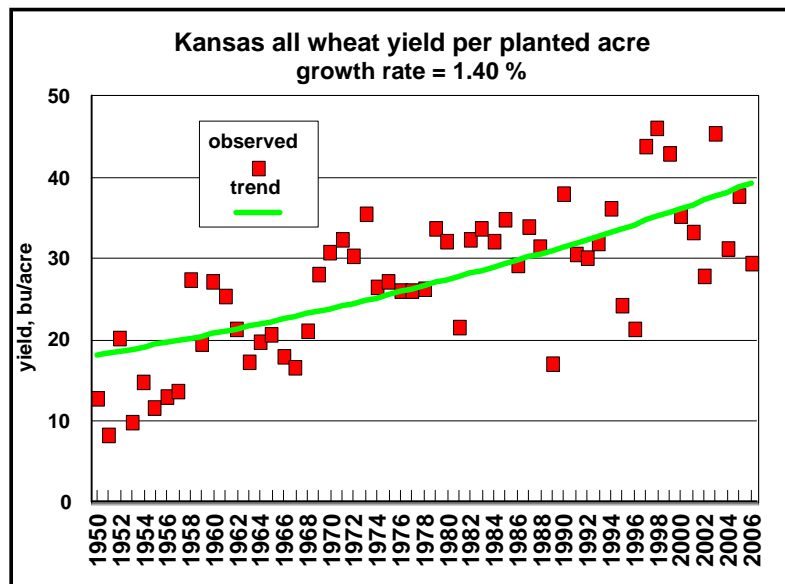
66



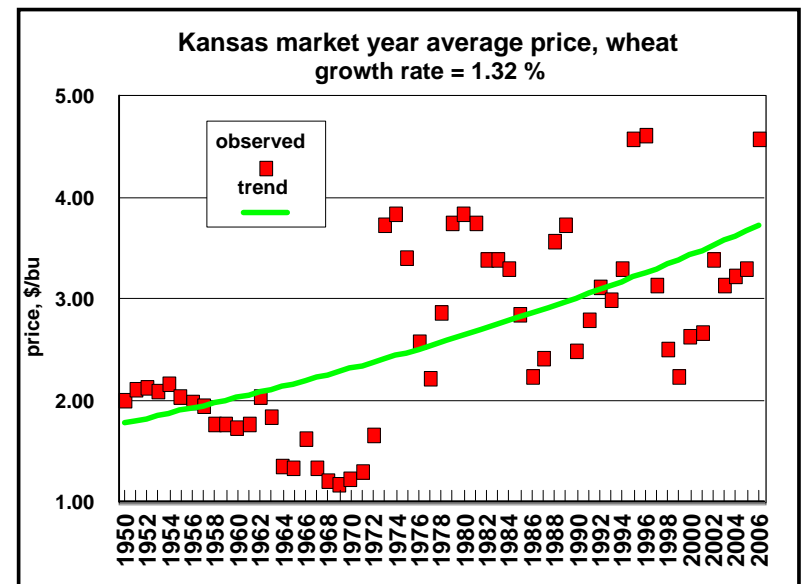
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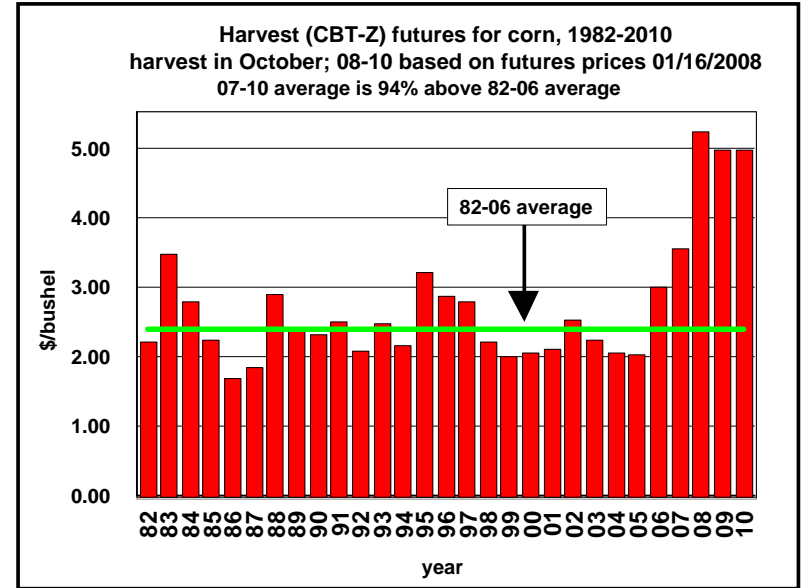
**A KSU study in January 2008 (Kastens & Dhuyvetter)**

state	rent	1950-1972 avg rent-to-value ratio (ag cap rate, %)	2007 % of land value due to agriculture	1950-2007 avg ann. growth rate in %, for non-ag land value	1950-2007 avg ann. growth rate in %, for corn yield	1950-2007 avg ann. growth rate in %, for corn price
AR	0.87	8.15	44.12	12.69	3.92	1.45
IA	1.24	7.61	53.43	9.77	2.01	1.46
IL	1.31	6.63	50.03	12.01	1.84	1.54
KS	0.76	7.78	57.98	11.17	3.15	1.58
MO	1.33	8.05	43.56	10.55	2.22	1.47
NE	1.07	8.06	60.37	7.12	2.88	1.51
AL	0.99	8.37	14.51	15.85	2.98	1.67
ND	1.10	9.02	72.51	9.29	3.01	1.57

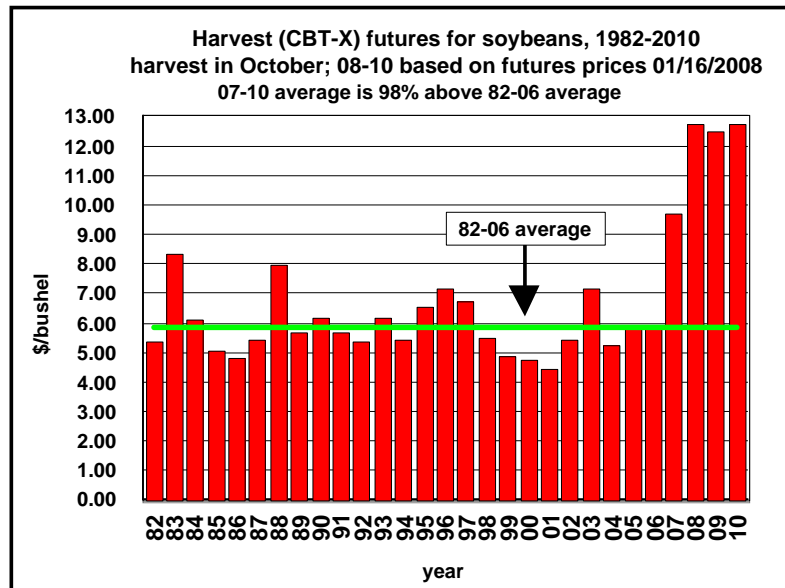
Notes:  
 Results don't materially change if use w heat or soybeans in analysis.  
 Most mathematical models explained 85 to 95% of variation in dependent variable.  
 Rent/(ag cap rate) equals agricultural portion of land market value.

AL and ND included as examples of high and low non-ag influence

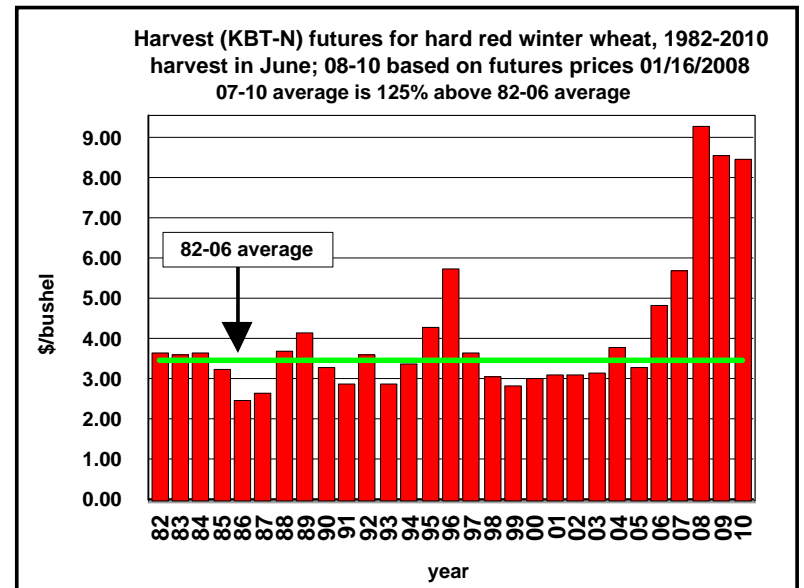
**How long will strong prices stick around?**



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**How long will strong prices stick around?**



## Market approach...

Assuming yields continue to grow at historical rates (i.e., 1.4 to 2.5 percent per year) and given current futures markets prices rents, would be expected to increase quite substantially.

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## Closing thoughts...

- Ethanol is inducing higher crop prices and it looks like they'll be around for awhile
- Higher crop prices have the potential to substantially increase rental rates, but rising input costs will temper increases somewhat
- Price volatility will be high in years ahead (without benefit of LDPs), thus fixed cash rents will be risky (potentially to both parties)
- Need for good communications between landowners and tenants is critical in these times

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**Questions?**

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November 18, 2007 by Jim Minner
- Kansas Grain Price Differentials  
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- Updated Crop Basis Tool  
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- Insurance Workshop Materials  
November 13, 2007 by Farming, et al
- Livestock Outlook Radio Program  
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