Leasing Land

Presented at U.S. AgBank Appraisal Seminar
May 4-5, 2005 and September 14-15, 2005 – Wichita, KS

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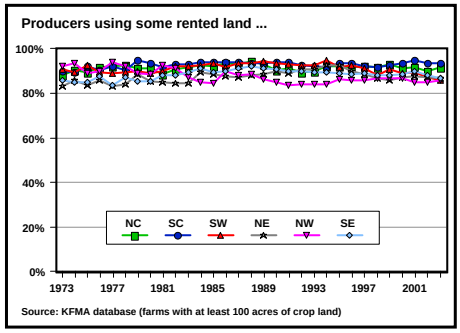
Current land lease issues ...

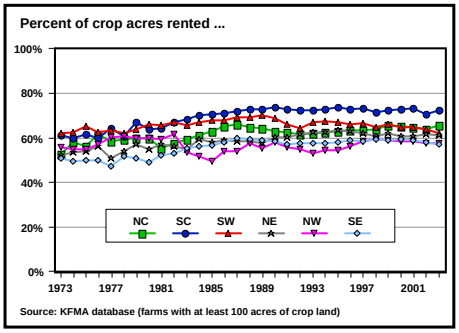
Majority of questions we get concern ...

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

Renting cropland in Kansas …

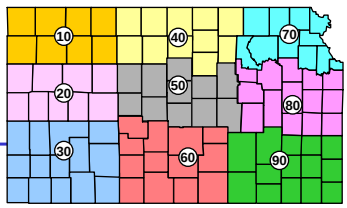
- **Producers in Kansas rely heavily upon rented land in their operations**





Length of cropland leases …

KAS Crop Reporting Districts



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
South Central (90)	14.8
State	17.7

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

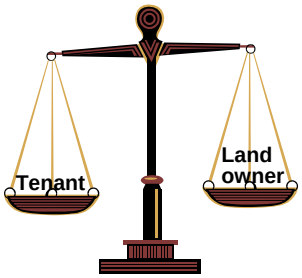
Distribution of leases by type of lease …

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
South Central	34.2	62.9	2.9
State	24.8	69.8	5.4

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

Determining the terms of a lease ...

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



We would like to rely upon the market to establish lease rates …

Landowners and tenants in Kansas often claim to want a crop share or cash lease rate that is "fair" to both parties.

Economist's definition of "FAIR"

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.

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)

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

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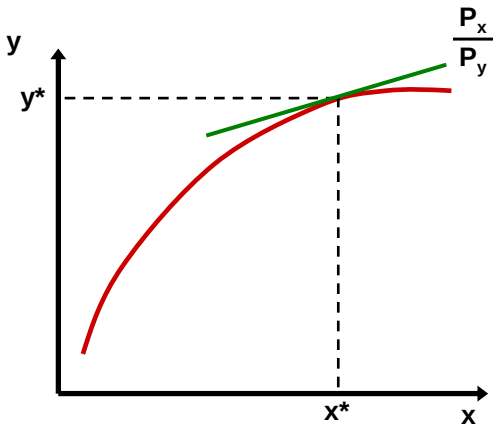
4. Compensation for unused long-term investments at termination
5. Good landlord/tenant communications

Principle #1:
Yield increasing inputs should be shared

Examples of yield increasing inputs

- Fertilizer
- Irrigation water
- Herbicides ???
- Seed ???



Principle #1:
Optimal fertilizer levels under crop share

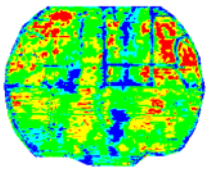
						Income and cost position of tenant			
Fert (lb/ac)	Yield (bu)	Income ($/ac)	Return over fert	VMP* ($2.05/bu)	MIC** ($0.30/lb)	All inc. all cost	2/3 inc. all cost	2/3 inc. no cost	2/3 inc. 2/3 cost
0	36	$73.80	$73.80	---	---	$73.80	$49.20	$49.20	$49.20
10	50	$102.50	$99.50	$28.70	$3.00	$99.50	$65.33	$68.33	$66.33
20	60	$123.00	$117.00	$20.50	$3.00	$117.00	$76.00	$82.00	$78.00
30	68	$139.40	$130.40	$16.40	$3.00	$130.40	$83.93	$92.93	$86.93
40	74	$151.70	$139.70	$12.30	$3.00	$139.70	$89.13	$101.13	$93.13
50	79	$161.95	$146.95	$10.25	$3.00	$146.95	$92.97	$107.97	$97.97
60	83	$170.15	$152.15	$8.20	$3.00	$152.15	$95.43	$113.43	$101.43
70	86	$176.30	$155.30	$6.15	$3.00	$155.30	$96.53	$117.53	$103.53
80	88	$180.40	$156.40	$4.10	$3.00	$156.40	$96.27	$120.27	$104.27
90	89	$182.45	$155.45	$2.05	$3.00	$155.45	$94.63	$121.63	$103.63
100	90	$184.50	$154.50	$2.05	$3.00	$154.50	$93.00	$123.00	$103.00

* VMP = Value of Marginal Product
** MIC = Marginal Input Cost

Principle #2:
Technology may affect share arrangements

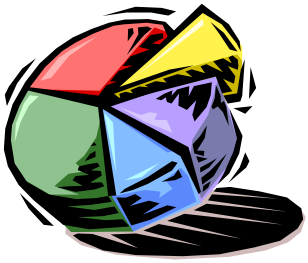
Examples of technological change

- Reduced-/no-till
- New crops and/or rotations
- Center pivot irrigation
- Hybrid seed
- Bio-technology
- Precision agriculture (GPS)



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

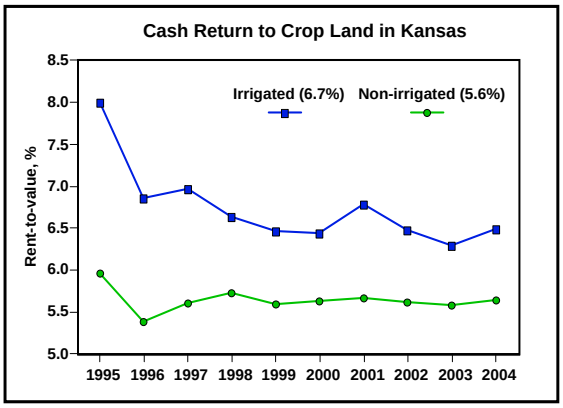
This requires annual contributions of both parties to be identified (budgeting type approach).



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

Land contribution …

The land contribution is typically based on an "average market value" for the land along with an historical average return to land.



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.

Crop production input contributions …

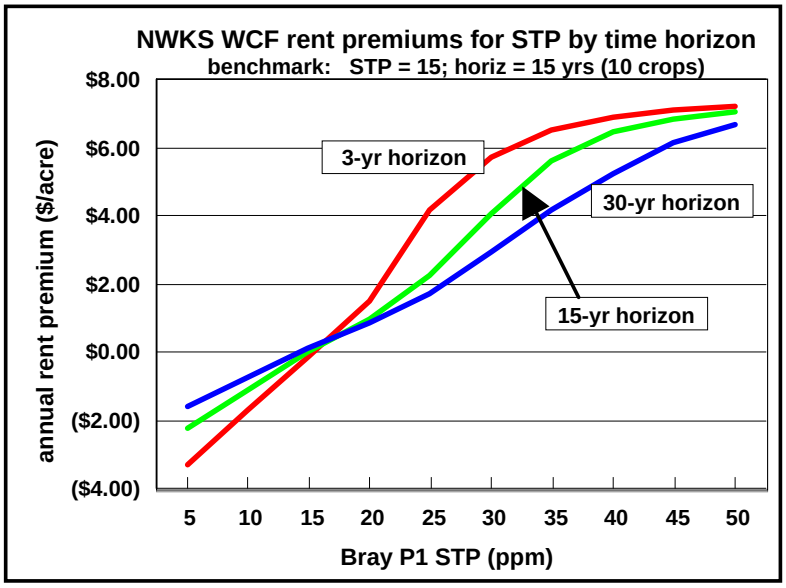
The value of contributions for input expenses such as seed, herbicides, insecticides, fertilizer, etc. are generally valued at current market prices and represent “typical” production practices.

Principle #4:
Compensation for unused long-term investments at lease termination.

It is generally recommended that landowners make long-term investments such as terraces, irrigation well, lime, alfalfa seed, etc.

If the tenant pays for long-term investments, or shares their cost, he should be compensated for his share of any value that remains when the lease is terminated

Fertility levels impact rents (land values) . . .



Expected yield: 75 corn 45 wheat; allowed for application savings when doesn't pay

Does no-till impact rents (land values) . . .

- What are the long-term impacts of NT on soil quality?
  - -- organic matter (fertilizer provider)
  - -- soil structure (water holding capacity)
  - -- reduced erosion
- Market rents early vs. late (extra N needed early?)
- Will tenants be compensated for improvements at lease termination?

Principle #5:
Good communications between the landlord and the tenant.

Because so many of the terms of a lease are based on negotiation between the landowner and the tenant, good communications are critical.

A lease is a legal contract in Kansas, thus it is suggested that terms of the lease agreed upon by both parties be put in writing. This becomes more important as the complexity of leases increases.

Tests of a good crop share lease …

- Are yield increasing inputs shared?
- Does it have flexibility to deal with change?
- Does it promote optimal management?
- Is income shared in same % as contributions?
- Is it written?
- Will it be reviewed periodically?
- Do all parties agree that lease is “fair”?

Impact of new technologies …

- Why do people adopt new technologies?
- What happens as “new” technologies become common practice?
- How does this impact relative contributions?

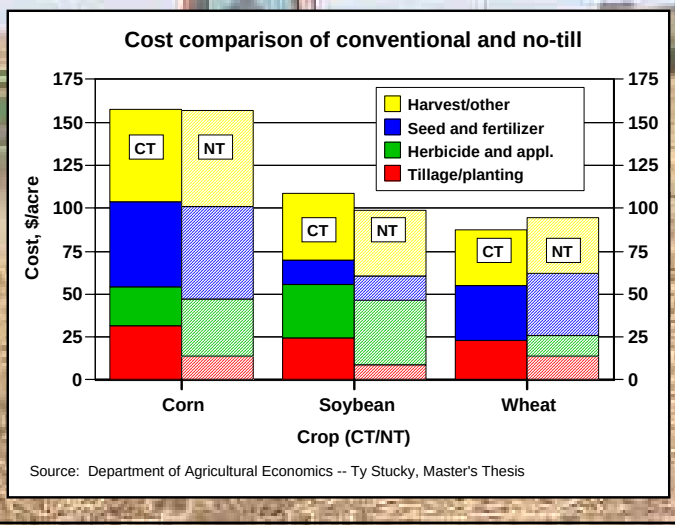
Technology adoption example:

Impact switching to no-till has on equitable lease arrangements

Lease examples of CT vs NT for NC Kansas

-- Corn, soybean, wheat rotation projected budgets

-- Average land values



Source: Department of Agricultural Economics -- Ty Stucky, Master's Thesis

Conventional (CT) vs. No-tillage (NT) Effect on Equitable Shares (Rotation = 50% W, 25% C, 25% S)				
	Farm #1		Farm #2	
Tillage system	CT	NT	CT	NT
Contribution	Contributor		Contributor	
Land	Landlord	Landlord	Landlord	Landlord
Machinery	Tenant	Tenant	Tenant	Tenant
Fertilizer/insect.	Shared	Shared	Shared	Shared
Herbicde	Tenant	Tenant	Shared	Shared
Herbicide appl.	Tenant	Tenant	Shared	Shared
Other	Tenant	Tenant	Tenant	Tenant
Contributions	32.5/67.5	33.1/66.9	36.3/63.7	40.6/59.4

If you were previously sharing herbicides ...

- **Rather than change the crop share splits, many producers/landowners continue to share "non-burndown" herbicides and the tenant pays 100% of the burndown herbicides.**
- **Is this equitable?**
- **Is there a problem with this arrangement?**

Conventional (CT) vs. No-tillage (NT) Effect on Equitable Shares (Rotation = 50% W, 25% C, 25% S)				
	Farm #1		Farm #2	
Tillage system	CT	NT	CT	NT
Contribution	Contributor		Contributor	
Land	Landlord	Landlord	Landlord	Landlord
Machinery	Tenant	Tenant	Tenant	Tenant
Fertilizer/insect.	Shared	Shared	Shared	Shared
Herbicde	Tenant	Tenant	Shared	Shared
Herbicide appl.	Tenant	Tenant	Shared	Shared
Burndown herbicde	Tenant	Tenant	Tenant	Tenant
Burndown appl.	Tenant	Tenant	Tenant	Tenant
Other	Tenant	Tenant	Tenant	Tenant
Contributions	32.5/67.5	33.1/66.9	36.3/63.7	36.7/63.3

If the goal is to have an "equitable" lease …

… then crops should be divided in the same proportion that inputs are provided, regardless of whether or not herbicide costs are shared.

What is most important is communication.

Technology adoption example:

Impact increasing cropping intensity has on equitable lease arrangements

Lease examples of WF vs WCF in western KS

-- based on Farm Management Guides and *KSU-Lease.xls*

Impact of increasing cropping intensity …

Equitable Crop Shares with Wheat-Fallow vs. Wheat-Corn-Fallow Rotations
(based on 2004 Farm Management Guides -- machinery costs adjusted)

Contributor --- (L=Landlord, T=Tenant, and S=Shared (equitably))

Alternative Arrangements for Sharing Various Inputs

Crop rotation	Wheat-Fallow			Wheat-Corn-Fallow			
Land	L	L	L	L	L	L	L
Machinery	T	T	T	T	T	T	T
Fertilizer[1]	S	S	T	S	S	S	T
Herbicide (wheat)[1]	T	S	T	T	T	S	T
Herbicide (corn)[1]	---	---	---	T	S	S	T
Other	T	T	T	T	T	T	T
Contributions (L/T)	37.1/62.9	39.8/60.2	32.8/67.2	29.7/70.3	33.5/66.5	34.9/65.1	24.6/75.4
Net return, $/ac	-$18.10	-$18.10	-$18.10	-$2.10	-$2.10	-$2.10	-$2.10

[1] Product only; application cost is included in machinery category and is covered by tenant.

Impact of increasing cropping intensity to increase returns …

… “profit” associated with new technology is bid out of the market over time.

… as profit is bid out of the market (typically through higher land costs), relative contributions change.

… equitable lease is “dynamic” as market adjusts to new technologies.

Adoption of new technologies …

… tends to cause problems because traditional arrangements or rules-of-thumb are often not appropriate.

… should not be a problem if we follow basic principles of a good lease.

… if problems persist as to what is equitable, can lead to alternative leasing arrangements (e.g., cash lease).

Cash leasing

"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 ...

"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

Increased interest in cash rents …

Some possible explanations for the current interest in cash rents …

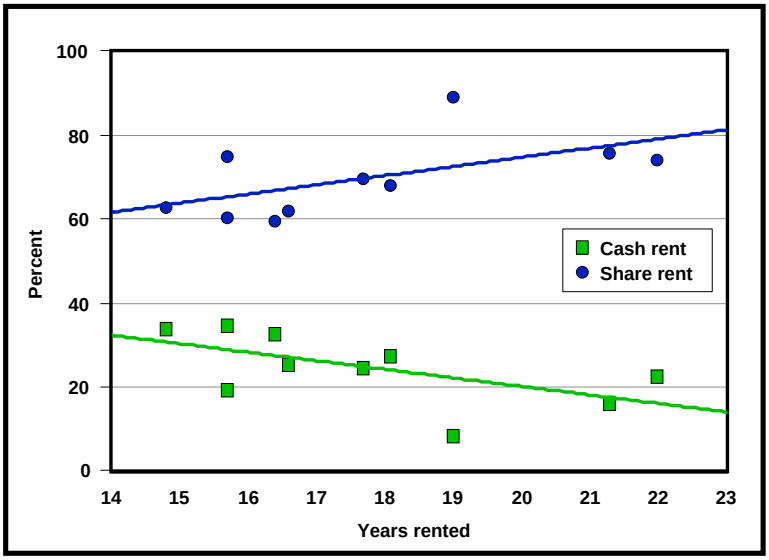
- Increased cropping flexibility
- Landowners not wanting to share increased expenses of new tillage/cropping systems
- Landowners wanting fixed income
- Increasing farm size and landlords per farm
- Difficult to prorate technology costs (e.g., GIS)

Cash rents …

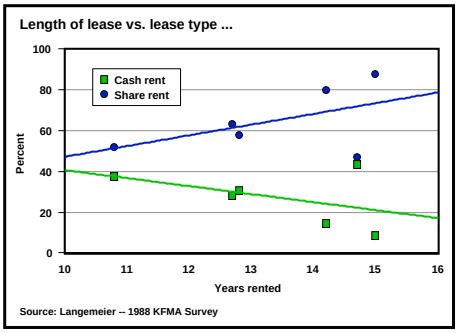
Numerous good reasons to go to cash rent, but landowners and producers need to recognize several things when doing so ...

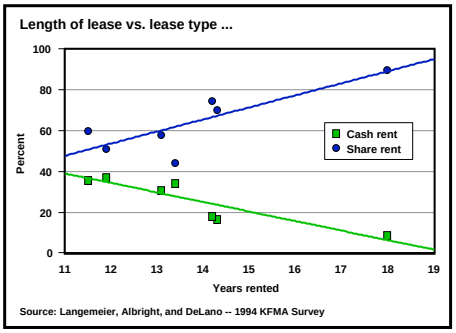
- Land tends to change hands more often

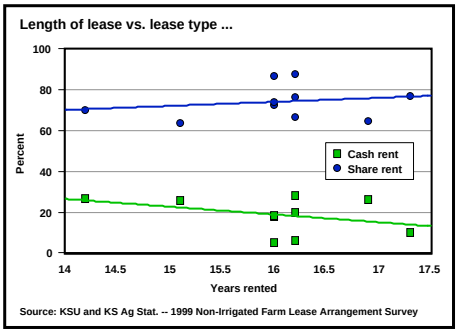
Length of lease vs. lease type …

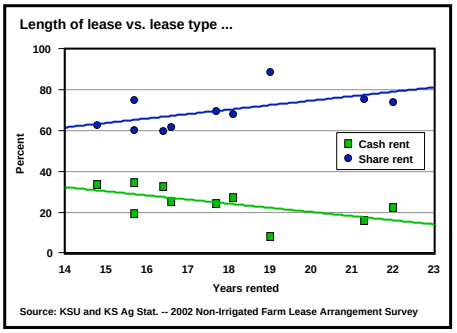


Source: Golden, Tsoodle, and Bigge -- 2002 KAS/KSU survey







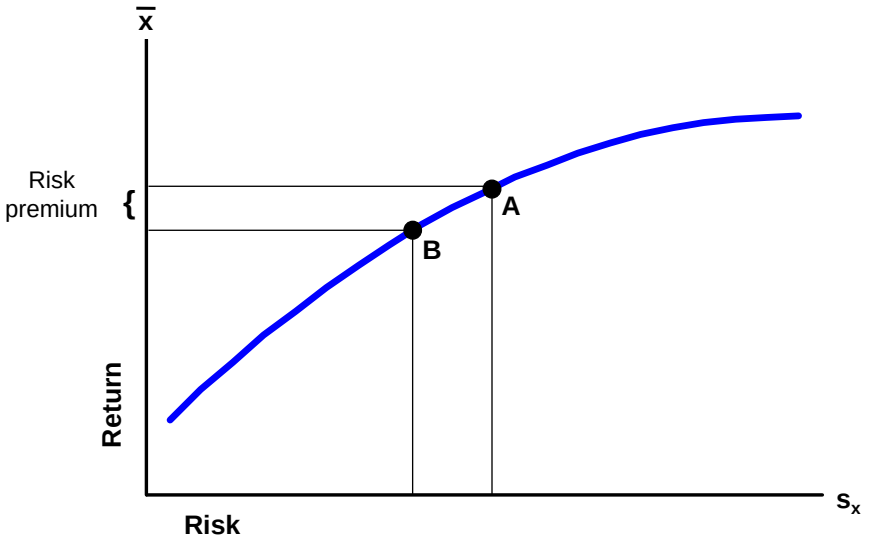


Cash rents …

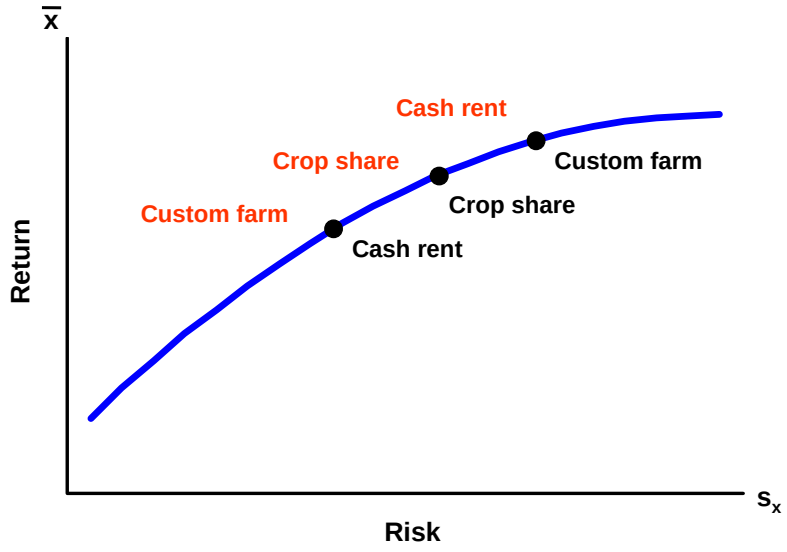
Numerous good reasons to go to cash rent, but landowners and producers need to recognize several things when doing so ...

- **Land tends to change hands more often**
- **Relative risks change**

Risk-return tradeoff



Landowner/producer risk-return tradeoff



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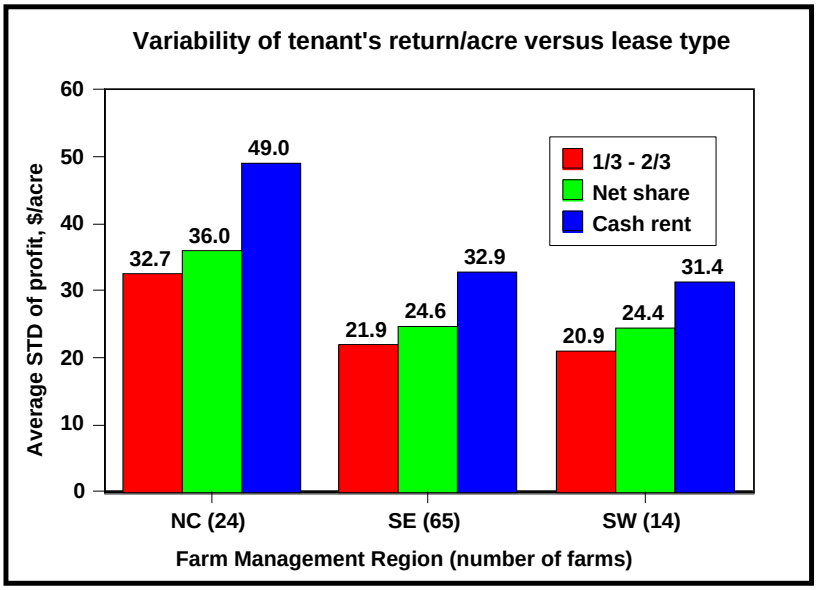


Based on 10 years of data -- average profit for all three lease types is equal
No allowance for crop insurance in analysis

Cash rents may not be much lower than cash equivalents of crop share rents because risk may not be that much different …

- Subsidized crop insurance
- Geographical spread of large farms
- Ad hoc disaster programs
- Non-insured assistance program (NAP)
- Landowners still have risk with cash rents

Cash rents may even be higher than cash equivalents of crop share rents …

- It may be easier to "bid away" land from other producers with cash rents (prevailing crop share arrangements are often "sticky")
- Cost of servicing lease is lower for tenant
  - Costs associated with billing landlord for inputs
  - Marketing landlord's crop
  - Reporting on crop progress
  - Educating landlord about new technologies

… cash rents are not just about risk/return, they are also about costs and revenues

Methods of establishing cash rent values …

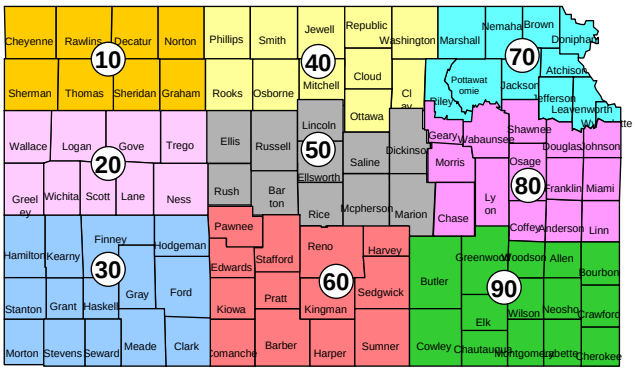
- Market going rate (if available)

- Crop share equivalent (adjusted for risk)
- Landowner's cost
- Amount tenant can afford to pay

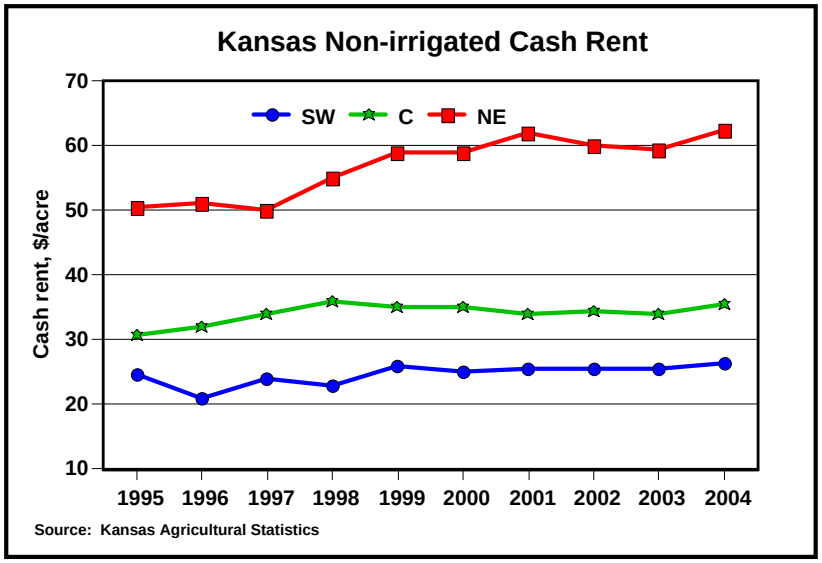
The last three require yield, price, and government payment projections (as well as cost information used for crop share).

Market going rate …

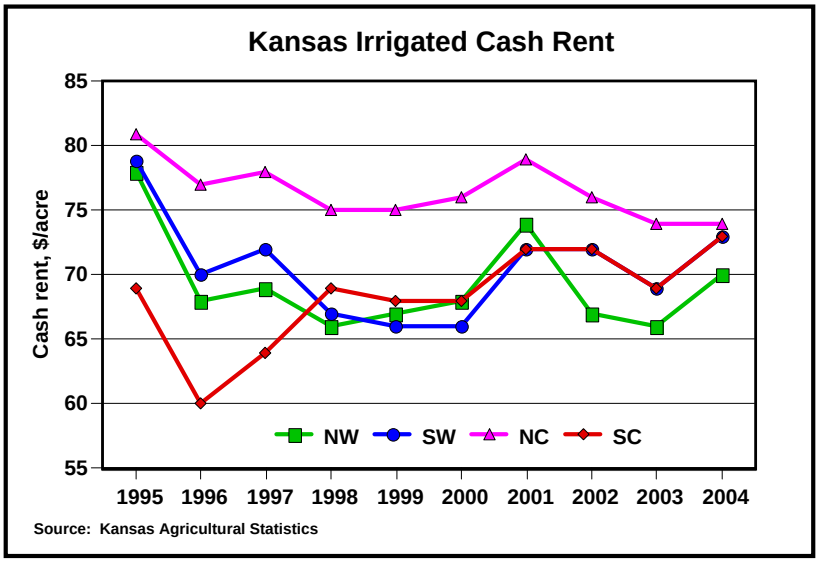
- Kansas Agricultural Statistics (KAS) reports average cash rent values for non-irrigated, irrigated, and pasture land at the crop reporting district (CRD) level



Market going rate …



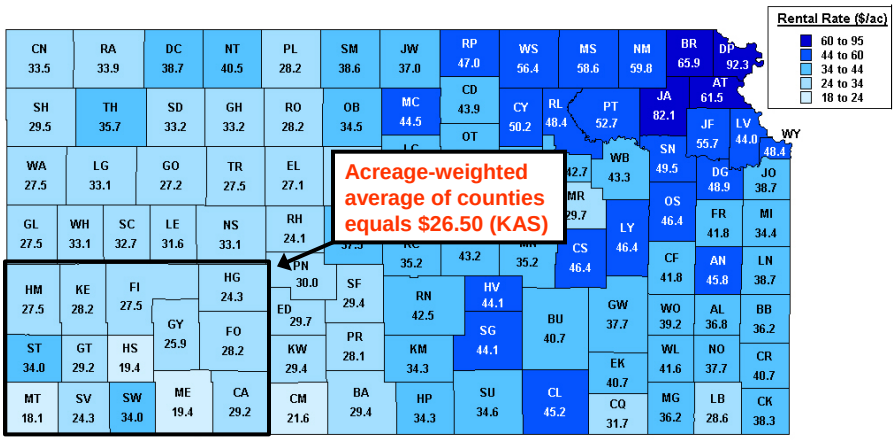
Market going rate …



County-level cash rents …

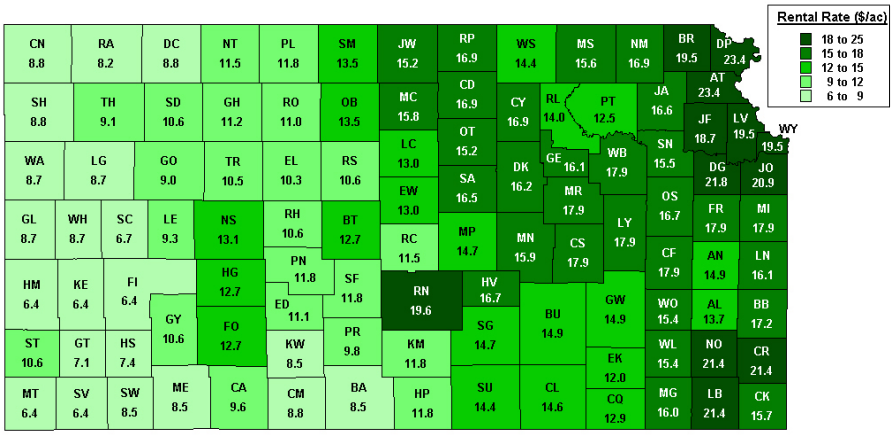
- County-level cash rents were estimated for non-irrigated crop and pasture land based upon the KAS reported CRD values
- CRD values prorated to individual counties based on 4-year average of county-level rents from FSA and 2002 census acreage data
- Weighted average county-level cash rents are exactly equal to the KAS reported district value
- Similar procedure done for land values

Kansas county-level non-irrigated crop cash rents…



Based on KAS reported values for January 1, 2004

Kansas county-level pasture cash rents …



Based on KAS reported values for January 1, 2004

Methods of establishing cash rent values …

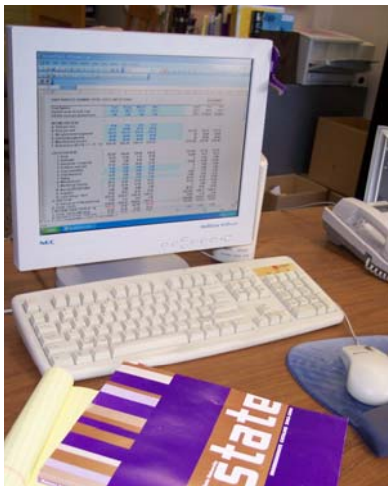
- **Crop share equivalent (adjusted for risk)**
  - Converts equitable crop share rent to an expected dollar amount per acre
- **Landowner's cost**
  - Based on the premise of landowner's continuing to receive comparable returns to what has been received in the past
- **Amount tenant can afford to pay**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

Methods of establishing cash rent values …

- Crop share equivalent (adjusted for risk)
- Landowner's cost
- Amount tenant can afford to pay

… because no one method is "correct," we typically suggest the average and range of the three methods as a starting point of negotiation between landowner and tenant.

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

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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

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

Using *KSU-Lease*
(go to Excel)

Questions ???

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