

Kansas Agricultural Land Values

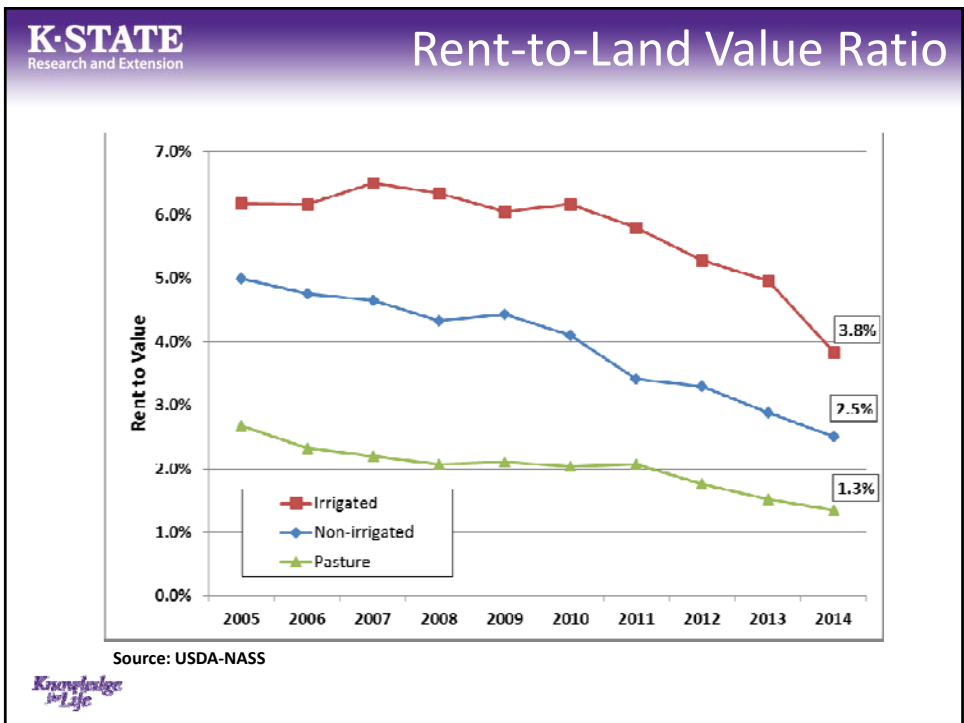
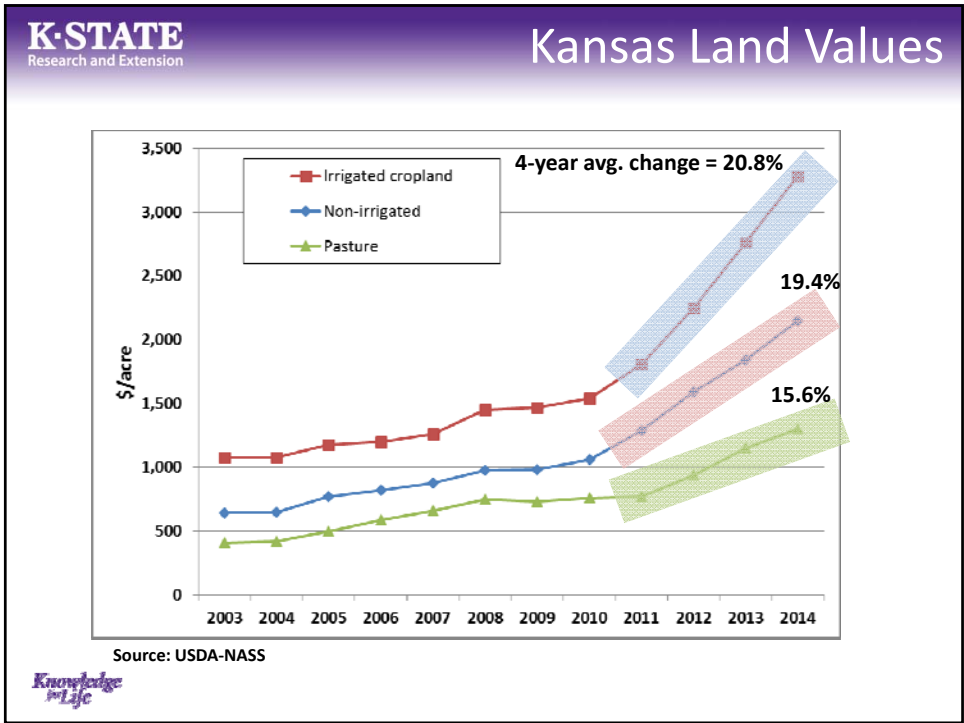
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Asst. Professor

Department of Agricultural Economics

Presentation to Kansas County Appraisers Association
Manhattan, KS
June 9, 2015


KANSAS AG LAND VALUES



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- Where do we get information on land values?
- KS Ag Stats Service
 - Annual survey series
 - Dropped CRD-level estimates in 2013
 - Only have a state value for irrigated, non-irrigated, and pasture land in Kansas

Kansas Land Values



News Release

KANSAS FARM REAL ESTATE VALUE AND CROPLAND RENT HIGHER

TOPEKA, KS, August 2, 2013 -- Kansas's farm real estate value, a measurement of the value of all land and buildings on farms, increased from 2012, according to USDA's National Agricultural Statistics Service. Farm real estate value for 2013 averaged \$1,900 per acre. This is up \$200 per acre or 18 percent higher than last year's revised level.

Cropland value increased 19 percent from last year to \$2,100 per acre. Dryland cropland value averaged \$2,000 per acre, up \$300 from last year. Irrigated cropland value averaged \$3,000 per acre, up \$600 from a year ago. Pastureland, at \$1,200 per acre, increased \$250 from a year ago.

Cash rent paid to landlords in 2013 for cropland also increased from last year. Irrigated cropland rent averaged \$137 per acre, an increase of \$18. Dryland cropland rent averaged \$55 per acre, up slightly from a year earlier. Pasture rented for cash, which averaged \$17.50 per acre, is up \$1.00 from the previous year.

County level averages of 2013 cash rents paid to landlords will be released on September 6 and will be available through NASS Quick Stats. Quick Stats is located at <http://quickstats.nass.usda.gov>.


Access the National publication for this release at:
<http://usda01.library.conncoll.edu/ushs/current/AgrLandV/AgrLandV-08-02-2013.pdf>

Find agricultural statistics for your county, State, and the Nation at www.nass.usda.gov.

- 8 -

NASS provides accurate, timely, useful and objective statistics in service to U.S. agriculture. The Agency invites you to express your thoughts and provide occasional feedback on our products and services by using a data user community. To join, sign in at <http://usda.usaiblib.conncoll.edu/subscriptions> and look for "NASS Data User Community".

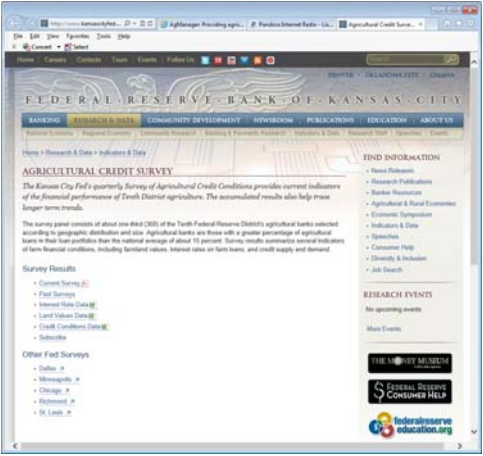
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- Where do we get information on land values?
- KC Federal Reserve
 - Quarterly survey of bankers
 - 10th District includes CO, KS, NE, OK, WY and parts of NM and MO
 - Report percent change from previous year by land type

High Plains Land Values





- Potential problems with these data
 - Surveys ask for an opinion (read: guess)
 - NOT a market-based estimate
 - Don't know the spread, only the average
 - Funding for USDA-KASS is declining
- Can we add to the available information and improve our estimates of land value trends?

MARKET-BASED LAND VALUES

- Source for market transaction data
 - Property Valuation Department, Topeka
- 2010-14 sales data
 - County location
 - Acres in sale
 - Mixture of irrigated, non-irrigated and pasture
 - Soil types found on parcel
 - Enrollment in government set-asides
 - Value of improvements

- Data were 'cleaned' to remove outliers
 - Removed parcels under 40 acres
 - Bare land sales only (no houses)
 - Arm's length sales only
- Other aspects of data
 - Wyandotte and Johnson counties not in dataset
 - Soil type data used to create a productivity measure (AUM capacity)

K-STATE Research and Extension		PVD Sales Data 2010-14	
2014	Average		
Acres in Sale, 2014	229.7		
CRP Contracts, 2014	1.80%		
Sales Per County, 2014	15.0		
All Years			
Total Sales Transactions:	8,743		
2014	17.8%		
2013	16.1%		
2012	19.3%		
2011	20.5%		
2010	26.3%		

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K-STATE Research and Extension		PVD Sales Data 2014	
Land Type	Average \$/ac	% of All Transactions	
Non-Irrigated	\$2,833	54.7%	
Irrigated	\$3,478	4.9%	
Pasture	\$1,991	40.4%	
All Cropland and Pasture	\$2,524	100%	

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Land Model

Land Type	2014 Data Sample Average \$/ac	2014 USDA- NASS \$/ac
Non-Irrigated	\$2,833	\$2,150
Irrigated	\$3,478	\$3,280
Pasture	\$1,991	\$1,300

- Use of a regression model to estimate land values
 - Alternative to summary statistics (average, range)
 - Accounts for variability in land found in sample

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Land Model

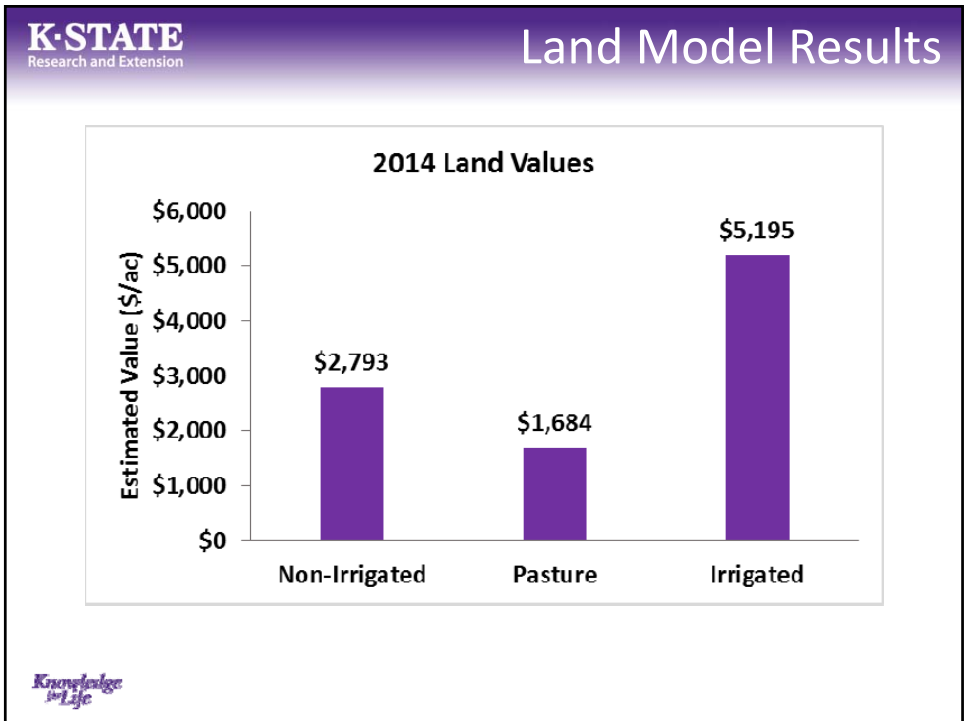
- Allows specification of unique characteristics of land parcels
 - Location (rain fall, taxes, proximity to development)
 - Parcel size, size squared
 - Productivity by soil type (AUM)
 - Land type (dryland, irrigated, pasture)
 - When the sale occurs (year, quarter)
 - CRP enrollment

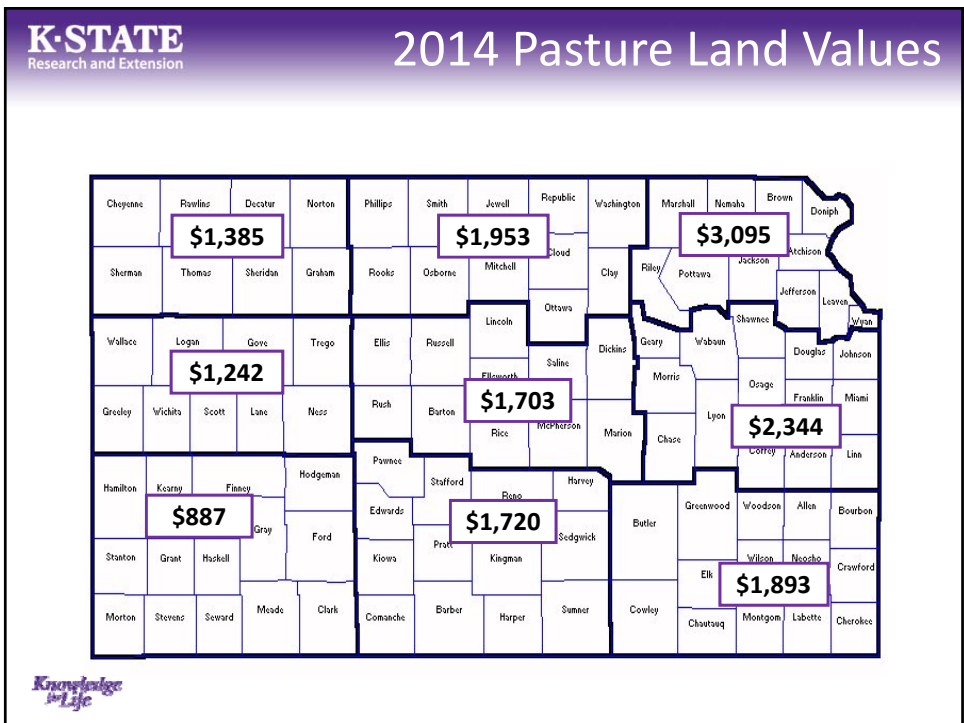
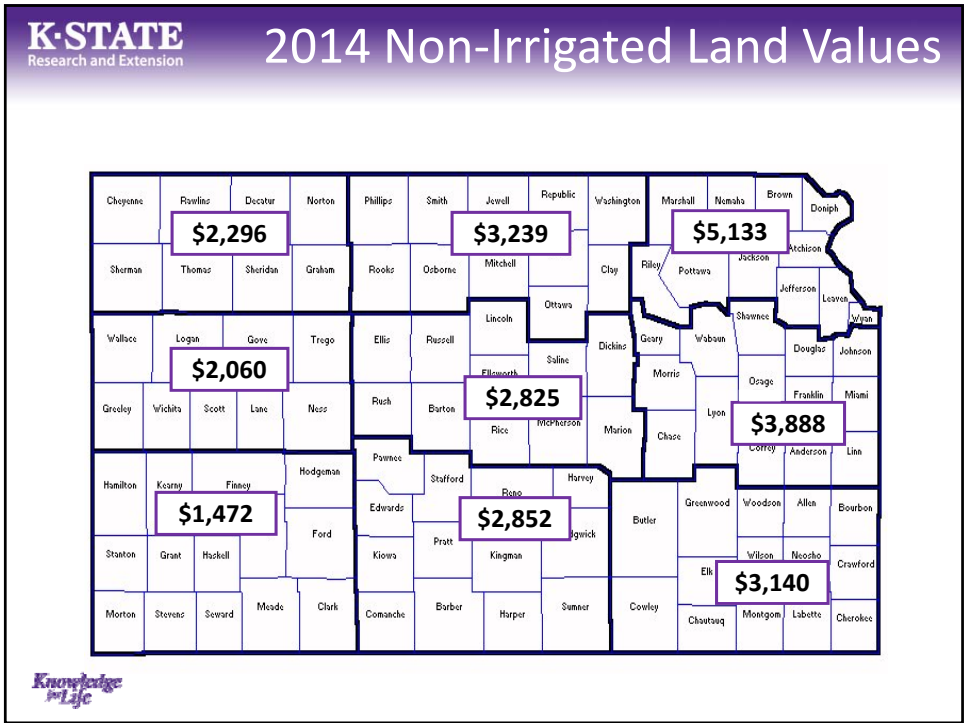
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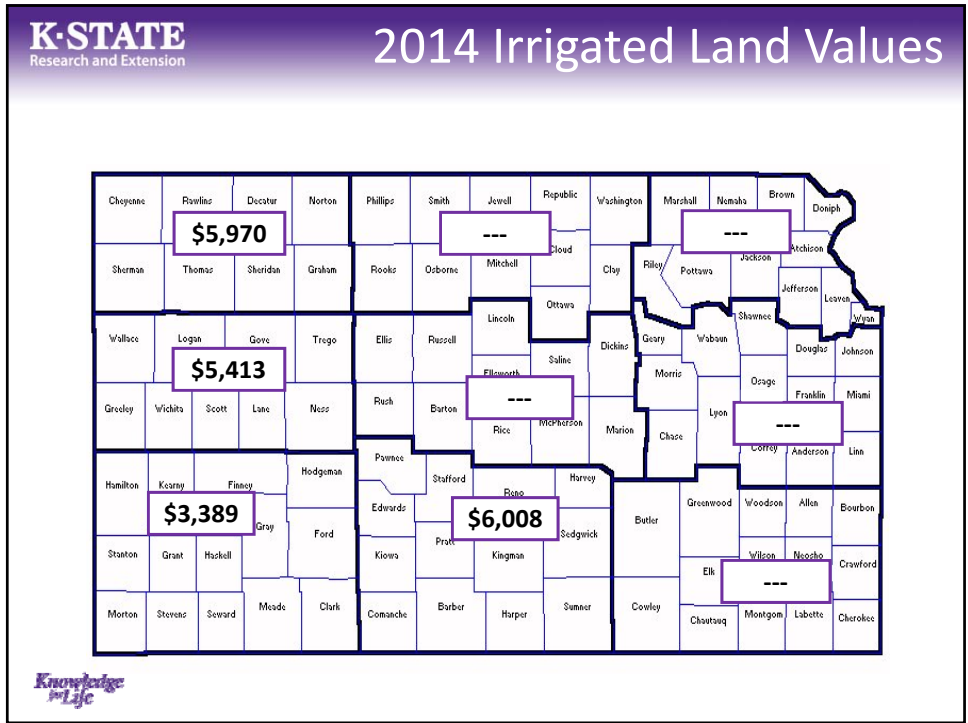
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LAND MODEL RESULTS

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Land Model Results

Year	Non-Irrigated	Irrigated	Pasture
<u>Annual % Change in Value</u>			
2010-11	19%	33%	13%
2011-12	24%	33%	16%
2012-13	19%	1%	15%
2013-14	6%	9%	9%

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RENTS AND NET FARM INCOME

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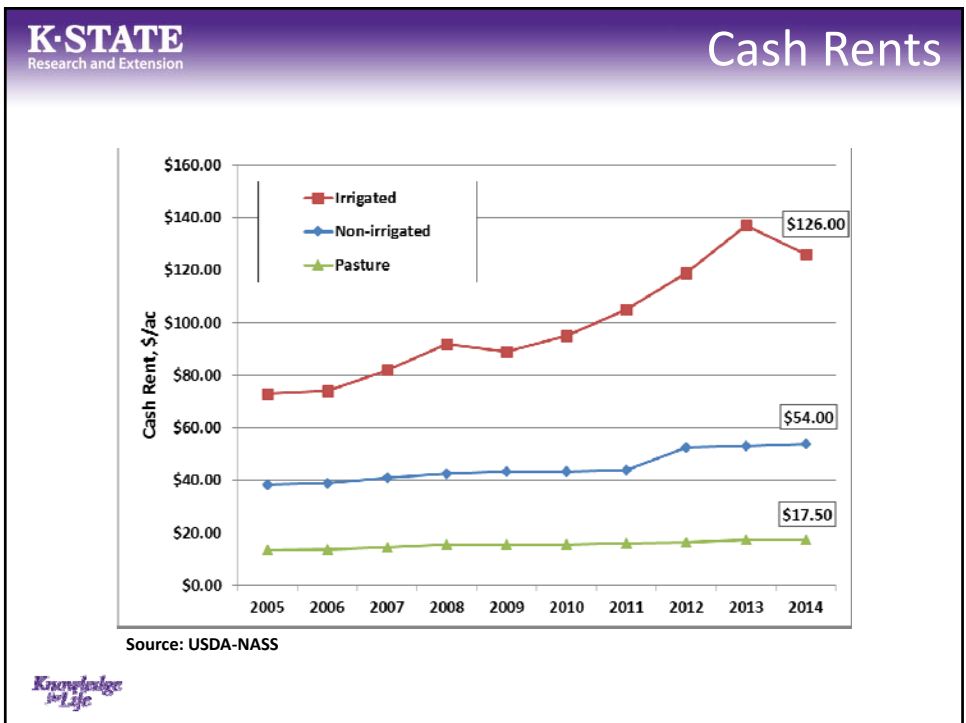
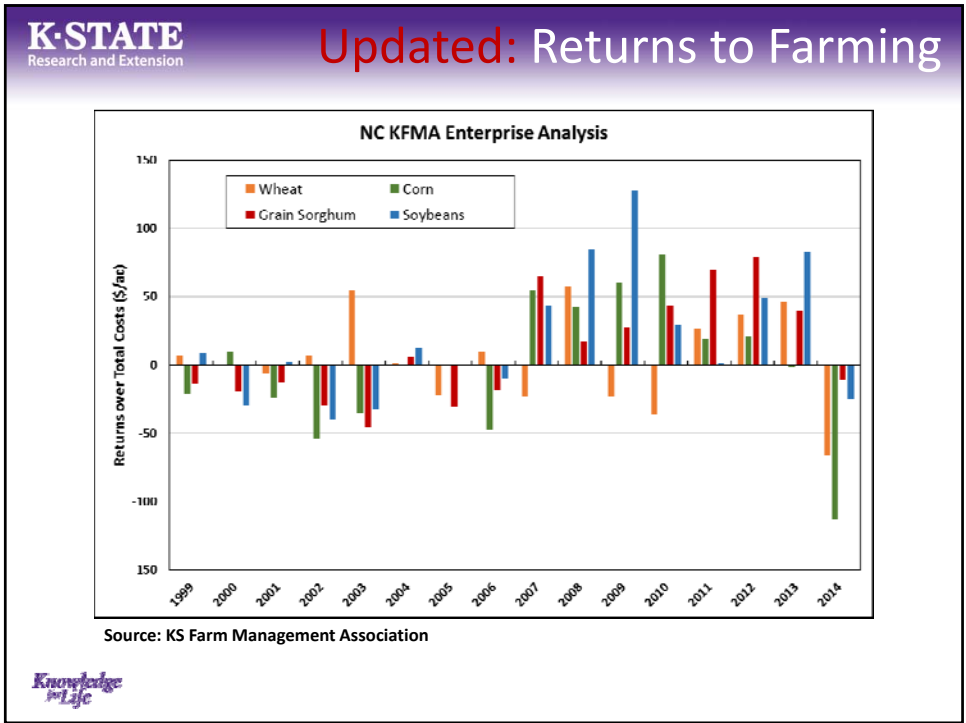
Returns to Farming

NC KFMA Enterprise Analysis

Year	Wheat	Corn	Grain Sorghum	Soybeans
1999	10	-15	-10	10
2000	10	10	-10	-20
2001	0	-10	-10	0
2002	10	-50	-10	-10
2003	50	-10	-10	-10
2004	0	0	0	10
2005	-10	-10	-10	0
2006	10	-50	-10	-10
2007	0	50	60	40
2008	50	40	10	80
2009	-10	50	20	120
2010	-30	80	40	30
2011	20	10	60	0
2012	30	10	70	40
2013	40	0	30	80

Source: KS Farm Management Association

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- Survey results tend to lag market due to
 - Survey reflect average rents paid (masks quality differences)
 - Doesn't consider when the rental rates were negotiated
 - May include non-market activities
- Are there alternatives to the USDA-KASS survey?

- Another way to obtain an estimate of cash rental rates for cropland
 - Budgeting approach that reflects *expected* returns to farming
 - Marginal rental rate versus average rental rate
- Calculate crop share revenues based on long-term profit expectation and apply a risk premium

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Projected Rental Rates

- Crop share revenues
 - Used predicted crop share % obtained by budgets using current inputs costs and production practices
 - County-level yields from a 20 year trend
 - Expected cash prices from futures and local basis
 - Adjust expected revenues down by 15% risk premium
- Biggest different between 2014 and 2015 cash rent projections...

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Projected Rental Rates

- Expected crop prices dropped significantly between 2014 and 2015


Year	Expected Prices (\$/bu)			
	Wheat	Corn	Soybeans	Grain Sorghum
2014	6.61	4.60	10.70	4.35
2015	5.79	4.09	9.30	3.94
\$ change	-0.82	-0.51	-1.40	-0.41

Note: Prices are the average price of harvest futures contracts in preceding November

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K-STATE Research and Extension		Non-Irrigated Rental Rates		
Region	2014 KSU (\$/ac)	2015 KSU (\$/ac)	Change in Rent (%)	
Northwest	70.90	38.75	-45.3	
West Central	65.51	30.18	-53.9	
Southwest	57.29	22.03	-61.5	
North Central	102.55	69.31	-32.4	
Central	86.27	53.79	-37.6	
South Central	69.29	42.61	-38.5	
Northeast	167.65	119.50	-28.7	
East Central	103.84	63.84	-38.5	
Southeast	55.83	31.64	-43.3	

Source: Taylor, 2015



K-STATE Research and Extension		Irrigated Rental Rates		
Region	2014 KSU (\$/ac)	2015 KSU (\$/ac)	Change in Rent (%)	
Northwest	179.13	112.75	-37.1	
West Central	141.00	81.00	-42.6	
Southwest	139.54	71.62	-48.7	
North Central	239.88	167.13	-30.3	
Central	183.20	114.20	-37.7	
South Central	147.64	77.45	-47.5	

Note: Estimated values reflect tenant-owned pivot
Source: Taylor and Tsoodle, 2015



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Returns to Land

- Has every farmer dropped their cash rents for 2015?
- Answer: no

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Returns to Land

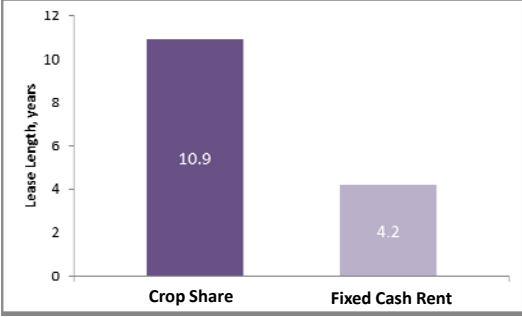
- Residual cash from better revenue years will allow farmers to be competitive a little longer
 - Neighbors with more carry-over cash will keep bids high
 - But adjustments will occur if commodity prices remain low

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Returns to Land

- Contracts length in Kansas averages 3 to 5 years
 - Farmers are locked in for the short run
 - Adjustments will be made as the contracts are renewed



Lease Type	Average Lease Length (years)
Crop Share	10.9
Fixed Cash Rent	4.2

Source: KS Farm Management Association

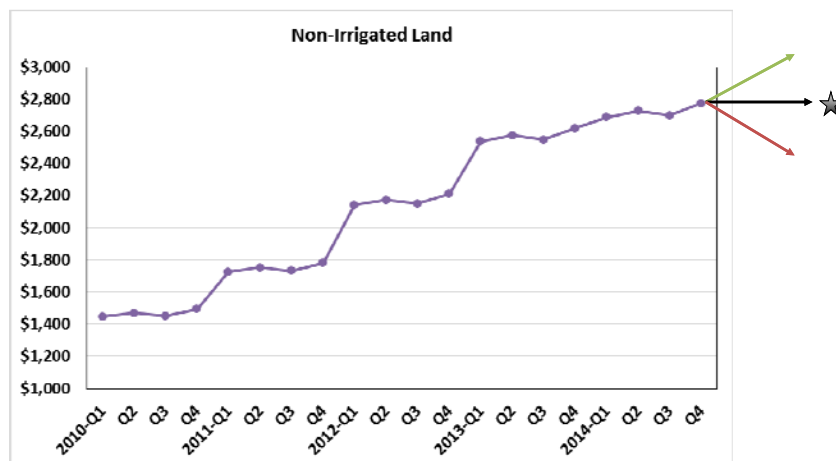
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SUMMARY LAND VALUES & RENTS

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- Land values are up for 2014, but rate of growth has slowed for all land types
- Appears to be reflecting 2014 net farm income and expected income for 2015
- Are we headed for a big drop in land values?
 - Not likely, due to continued low interest rates
 - Would also need a large increase in supply of land on market to see a repeat of 80's decline in values



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LEGISLATION AND LAND IN KANSAS

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Legislation

- State of Kansas
 - 2015 property tax proposals
 - Potential implications
- Federal
 - EPA and other regulatory agencies

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Legislation

- Flat tax of \$3 per acre (or something like this)
- Benefits
 - Easy to implement and understand
 - No additional information required
- Challenges
 - When a flat dollar tax is used, the % tax burden is not consistent across land types
 - Irrigated: 0.05%
 - Non-irrigated: 0.11%
 - Pasture: 0.18%

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Legislation

- Taxes based on cash rents
- Benefits
 - Based on productive value of the land
- Challenges
 - Need reliable information on cash rents
 - Possible source: surveys
 - What is the economic incentive to report accurate rental rate data to a survey that will affect your property taxes?
 - What about crop share leases (still about 50% of land in KS rented this way)

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Regulation

- EPA's Clean Water Rule
 - Waters of the US (WOTUS)
 - 297 page rule released last week available here:
 - <http://www2.epa.gov/cleanwaterrule/prepublication-version-final-clean-water-rule>
 - “Clarify the scope of WOTUS that are protected under the Clean Water Act, based on...best available peer-reviewed science, public input, and agencies’ technical expertise...”
- What does all this mean?
 - Uncertainty



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Regulation

- To be determined:
 - Are more waters going to be covered by this rule?
 - If so, which ones?
 - Appears to be based on the term “significant nexus”
- I think we will see more
 - Congressional debate, lawsuits, possible changes under a new administration...
 - In other words: continued uncertainty
- Impact: possible downward pressure on value of certain types of farmland (e.g. w/ a wetland)



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Resources

- New mapping program from UM
- Business Environmental Risk Management
 - <http://ims.missouri.edu/berm/>

CARES | about CARES | projects | map room

UNIVERSITY OF MISSOURI - COLUMBIA

Center for Applied Research and Environmental Systems
 (573) 882-7458 | 130 Mumford Hall, Columbia, MO 65211
 Division of Applied Social Sciences, College of Agriculture, Food and Natural Resources

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BERM Analysis Report

Geographic Summary

Analysis Area: 1,775.9 Acres Legal Description (Central Section): Sec. 15, T35N, R27W, 5th PM
 Latitude/Longitude (Center of Map): 37° 48' 7.3" N 103° 53' 34.5" W
 County(s): Cedar

Hydrologic Summary

Streams	Total Stream (ft)	Perennial (ft)	Intermittent (ft)	Canal or Ditch (ft)	Other Stream (ft)
	49,093.4	0.0	0.0	0.0	49,093.4

Rivers, Ponds and Lakes

Total Water Acres	River Acres	Pond / Lake Acres	Swamp Acres	Other Water Acres
49.4	44.2	5.3	0.0	0.0

Wetlands

Description	Acres
Inland Forested Wetland	95.4
Inland Herbaceous Wetland	6.0

USDA-NRCS 12-Digit Hydrologic Units

HU ID	HU Name	On Farm Acreage	Total HU Acreage
10200106005	Cedar Creek	1,697.2	21,939
10200106004	Adler Creek	78.7	24,541

Community Concerns Summary

Population Within 5 Miles:
 Total Persons: 850 Persons per Square Mile: 10.8

Community Sites Within 5 Miles:

Incorporated Areas	Parks (Public Lands)	Schools	Enrollment	Churches
None	1) Monogah Prairie Conservation Area	0	0	5

Environmental Concerns Summary

Wells Within 1 Mile:

Public Wells	Private Wells
0	5

2006 303(d) List Impaired Water Bodies in Analysis Area 12-Digit Hydrologic Units:

Water Body	Pollutant	Source	TMDL
No 303(d) listed water bodies in the evaluation area hydrologic units.			

303 (d) List Impaired Water Bodies in Downstream 12-Digit Hydrologic Units:

Water Body	Pollutant	Source	Priority	TMDL
No 303(d) listed water bodies in downstream hydrologic units.				

Restricted Pesticide Use Areas and Species:

Species	Location	Restricted Pesticides	Restrictions
None			

Karst Features:

Acres in Karst Prone Soils
None

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Floodplain:
(The available data for floodplain features is incomplete. [Click for data availability map.](#))

Acres in 100-Year Floodplain	Additional Acres in 500-Year Floodplain	Acres in Excluded Areas
0.0	0.0	0.0

Warning: The entire analysis area is outside floodplain mapping area.

Critical Watersheds: [LEARN MORE](#)

Public Water Supply	Outstanding National Resource Waters
Henry Co. PWSD #2 - Truman Reservoir	None

Environmental Concerns Summary - Continued

Slope Classification: [LEARN MORE](#)

Slope Category	Description	Acres	Percent of Area
0% to 3% Slope	Prime Farm Land, Suitable for Land Application	618.0	34.8 %
3% to 6% Slope	Suitable Farm Land, Suitable for Land Application	568.4	32.0 %
6% to 10% Slope	Marginal for Land Application	408.1	23.0 %
10% to 15% Slope	Land Application of Manure not Allowed	123.2	6.9 %
15% or Greater Slope	Unsuitable for Agriculture	57.6	3.2 %

Soils:

Map Unit	Name	Acres	Percent of Area	Hydrologic Group (Dominant Condition)
40004	Barden loam, 2 to 5 percent slopes	54.7	3.1%	C
40000	Barden silt loam, 1 to 3 percent slopes	1.6	0.1%	C
70000	Bona gravely silt loam, 3 to 8 percent slopes	167.3	9.4%	B
70001	Bona gravely silt loam, 8 to 15 percent slopes	23.8	1.3%	B
71750	Cleora fine sandy loam, 0 to 2 percent slopes, frequently flooded	0.0	0.0%	B
70054	Cliquot gravely loam, 3 to 20 percent slopes, very stony	15.9	0.9%	C
70007	Cliquot gravely loam, 8 to 15 percent slopes	17.1	1.0%	C
70040	Cliquot-Bolivar complex, 3 to 8 percent slopes	117.3	6.6%	C
70053	Courtois silt loam, 2 to 5 percent slopes	52.8	3.0%	C
70008	Gosa gravely silt loam, 3 to 8 percent slopes	128.5	7.2%	C

Legend

- MoDOT Roads and Highways, 2007
 - Interstate
 - U.S. Highway
 - State Numbered Highway
 - State Lettered Highway
 - Principal Road
 - Road or Street
- County Boundaries, 2008
- Incorporated Areas, 2008
 - City
 - Town
 - Village
 - Census Designated Place
 - Other
- 2009 High Resolution Aerial Photos (MARC)
- 2007-2009 (Spring) High Resolution Aerial Photos
- 2010 Aerial Photos (NAIP)
- 2010 Aerial Photos (NAIP)
- 2006 High Resolution Aerial Photos

Wind Rose (Apr. - Sep.)

Springfield, MO - Regional Airport

Location Map

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- 2014 Kansas Agricultural Land Values
http://www.agmanager.info/farmmgmt/land/county/CountyValues_April_2015.pdf
- 2014/15 Rental Rates for Non-Irrigated Cropland
[http://www.agmanager.info/farmmgmt/land/county/CountyNon-irrigatedRents\(Jan2015\).pdf](http://www.agmanager.info/farmmgmt/land/county/CountyNon-irrigatedRents(Jan2015).pdf)
- 2014/15 Rental Rates for Irrigated Cropland
http://www.agmanager.info/farmmgmt/land/county/CountyIrrigatedRents_Feb-2015.pdf