K-STATE Research and Extension

Kansas Agricultural Land Values and Cash Rents

Mykel Taylor
Asst. Professor

KSU Agricultural Economics
Farm Management PFT

January 18, 2013

Knowledge for Life

K-STATE Research and Extension

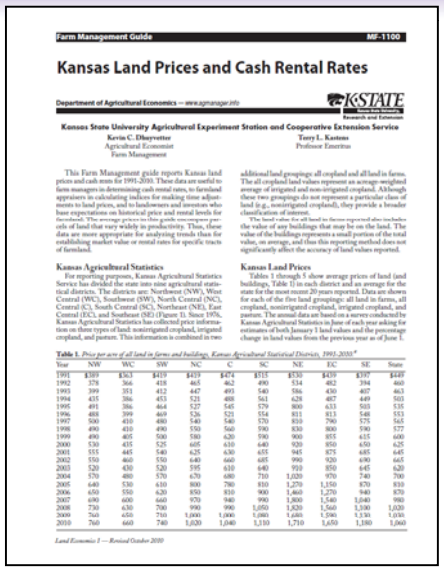
KANSAS AG LAND VALUES

Knowledge for Life

K-STATE Research and Extension

Kansas Land Values

- Where do we get information on land values?
- KS Ag Stats Service
  - Historical series



Farm Management Guide MF-1100

Kansas Land Prices and Cash Rental Rates

Department of Agricultural Economics — www.agmanager.info

K-STATE Research and Extension

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Kevin C. Dhuyvetter, Agricultural Economist, Farm Management

Tony L. Kastens, Professor Emeritus

This Farm Management guide reports Kansas land prices and cash rents for 1991-2010. These data are useful to farm managers in determining cash rental rates, to farmland appraisers in calculating indices for making time adjustments to land prices, and to landowners and investors who base expectations on historical price and rental levels for farmland. The average prices in this guide encompass 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 farmland.

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), Northeast (NE), East Central (EC), and Southeast (SE) (Figure 1). Since 1976, Kansas Agricultural Statistics has collected price information on three types of land: nonirrigated cropland, irrigated cropland, and pasture. This information is combined in two additional land groupings: all cropland and all land in farms. The all cropland land values represent an acreage-weighted average of irrigated and non-irrigated cropland. Although these two groupings do not represent a particular class of land (e.g., nonirrigated cropland), they provide a broader classification of interest.

The land value for all land in farms reported also includes the value of any buildings that may be on the land. The value of the buildings represents a small portion of the total value, on average, and thus this reporting method does not significantly affect the accuracy of land values reported.

Kansas Land Prices

Tables 1 through 5 show average prices of land (and buildings, Table 1) in 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 a survey conducted by Kansas Agricultural Statistics in June of each year asking for estimates of both January 1 land values and the percentage change in land values from the previous year as of June 1.

Table 1. *Price per acre of all land in farms and buildings, Kansas Agricultural Statistical Districts, 1991-2010.*

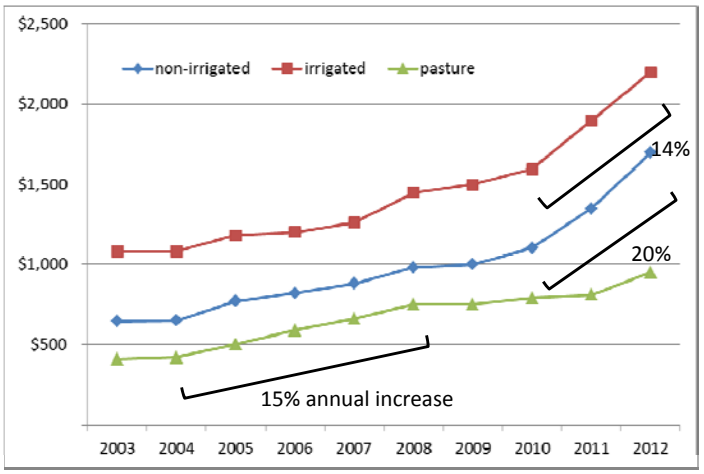
Year	NW	WC	SW	NC	C	SC	NE	EC	SE	State
1991	$385	$363	$419	$419	$474	$515	$530	$439	$397	$449
1992	378	366	418	465	462	490	534	482	394	460
1993	399	351	412	447	493	540	586	430	407	463
1994	435	386	453	521	488	561	628	487	449	503
1995	491	386	464	527	545	579	800	633	503	535
1996	488	399	469	526	521	554	811	813	548	553
1997	500	410	480	540	540	570	810	790	575	565
1998	490	410	490	550	560	590	830	800	590	577
1999	490	405	500	580	620	590	900	855	615	600
2000	530	435	525	605	630	640	920	950	650	625
2001	555	445	540	625	630	655	945	875	685	645
2002	550	460	550	640	660	685	990	920	690	665
2003	520	450	520	595	610	640	910	850	645	620
2004	570	480	570	670	680	710	1,020	970	740	700
2005	640	530	630	800	780	810	1,270	1,150	870	810
2006	650	550	620	850	810	900	1,460	1,270	940	870
2007	690	600	660	970	940	990	1,800	1,540	1,040	980
2008	730	630	700	990	990	1,050	1,820	1,560	1,100	1,020
2009	760	650	710	1,000	1,000	1,080	1,680	1,590	1,130	1,030
2010	760	660	740	1,020	1,040	1,110	1,710	1,650	1,180	1,060

Land Economics 1 — Revised October 2010

Knowledge for Life

K-STATE Research and Extension

Kansas Land Values



Source: Kansas Agricultural Statistics (KAS), Kansas Board of Agriculture, United States Department of Agriculture

Knowledge for Life

Kansas 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 KAS is declining
- Can we add to the available information and improve our estimates of land value trends?

Kansas Land Values

- Need market transaction data
  - Property Valuation Department, Topeka
- 2010-11 sales data
  - County location
  - Size of parcel
  - Mixture of irrigated, non-irrigated and pasture
  - Enrollment in government set-asides
  - Valuation of improvements

PVD Sales Data

- 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)

PVD Sale Data 2010-11

	Average
Price per acre	$1,424
Parcel size	201
Non-irrigated	56.0%
Pasture	38.4%
Irrigated	5.7%
CRP acres	1.6%
Sales per county	39
Total sales transactions:	4,052

Results of the Land Model

- 2011 estimate for non-irrigated cropland
  - $1,815/acre
  - 34% higher than 2011 KAS state estimate
- 2011 estimate for pasture
  - $1,237/acre
  - 53% higher than 2011 KAS estimate

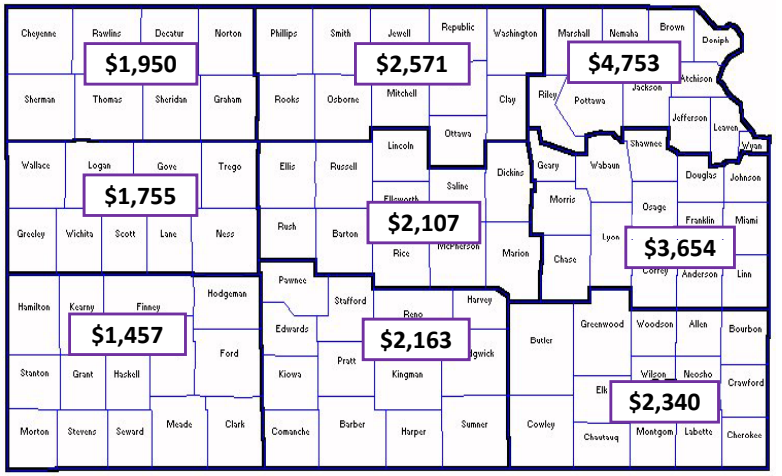
Results of Land Model

- But most current prices would include appreciation through 2012…
- Adjusted the predicted numbers using KAS and KC Fed estimates of % change in land prices between 2011 and 2012
  - 25.5% for non-irrigated cropland
  - 16.4% for pasture

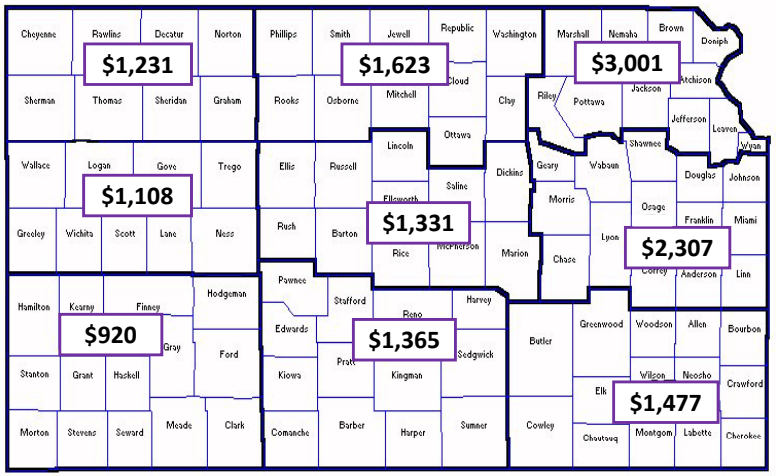
Results of the Land Model

- 2012 estimate for non-irrigated cropland
  - $2,515/acre
  - 48% higher than 2012 KAS state estimate
- 2012 estimate for pasture
  - $1,589/acre
  - 67.2% higher than 2012 KAS estimate

2012 Non-Irrigated Land Values



2012 Pasture Land Values



Land Model Results

- Use of a regression model to estimate land values
  - Alternative to summary statistics (average, range)
- Allows specification of unique characteristics of land parcels
  - Location (rain fall, taxes, proximity to development)
  - Parcel size
  - Productivity
  - Mixed use parcels
  - When the sale occurs
  - CRP enrollment

Land Model Results

- CRP enrollment decreases values
  - Approx. a 24% discount if acres are enrolled
  - We don't know residual years on contract
- Parcel size affects price per acre
  - Approx. 0.13% decline for each additional acre
  - Example of this effect in Geary county
    - 600 acre parcel
      - $1,285/acre
    - 200 acre parcel
      - $1,718/acre

Land Model Results

- Non-irrigated versus pasture value ratio
  - Estimated at: 68%
  - Might vary by region (still working on this)
- Higher quality ground fetches higher price
  - Based on AUM productivity index (NRCS)
- Selling season effects
  - Strongest prices: Oct.-Nov.
  - Weakest prices: Jul.-Sep.

Land Model Results

- A word of caution when comparing county-level estimates of value to your land…
- Location and productive capacity are important drivers of price
  - Measureable and parcel-specific
- Model doesn't capture other factors in market
  - Expected returns to agriculture in future
  - Excess liquidity in the real estate market

KANSAS AG RENTAL RATES

Rental Rates

- Next question…
  - How has the land market and returns to crop and livestock production affected rental rates?
- Again, we have only KAS survey data available for the public
  - Not an opinion (asks what they actually pay)
  - But there is still a lot of variability in rental rates that is masked by KAS averages

Rental Rates

- Another way to obtain an estimate of cash rental rates for non-irrigated cropland
  - Reflects expected returns to farming
- Calculate crop share revenues based on long-term profit expectation and apply a risk premium
- Note: not an equivalent procedure for pasture because county-level stocking rates not available

Rental Rates

- Crop share revenues
  - Used predicted crop share %
  - KAS county-level yields
  - Expected cash prices
- To obtain a cash rent equivalent…
  - Adjust down the expected crop share returns to reflect less risk by the landowner
  - Used 20% to reflect high volatility in current commodity markets

2012 Non-Irrigated Rental Rates

Farm Management Region	Predicted Crop Share (%)
West	33.3
North Central	33.3
South Central	33.3
Northeast	40.0
Southeast	33.3

2012 Non-Irrigated Rental Rates

Crop	3-5 Year Expected Price ($/bu)
Wheat	6.36
Corn	5.00
Soybeans	10.64
Grain Sorghum	4.71

2012 Non-Irrigated Rental Rates

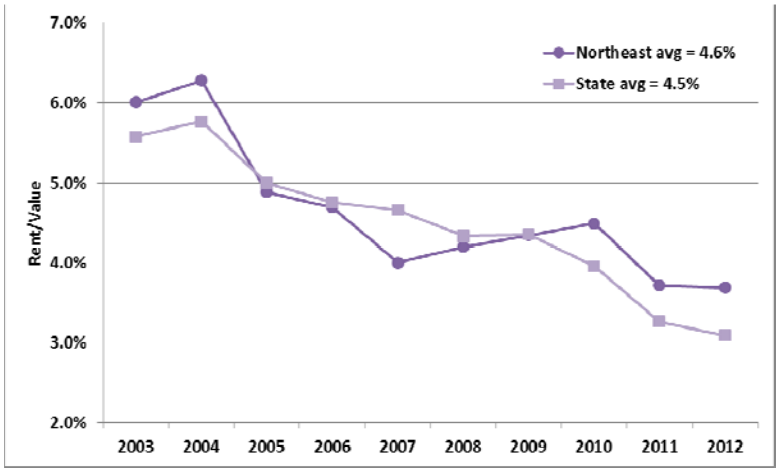
CRD	KAS ($/ac)	KSU-Lease ($/ac)	Difference (%)
Northwest	46	65	42.4
West Central	40	62	55.8
Southwest	31	54	71.6
North Central	58	86	48.1
Central	46	72	57.4
South Central	43	60	40.8
Northeast	91	158	74.0
East Central	58	111	91.6
Southeast	47	77	65.9

Rental Rates

- Large differences between KAS survey and KSU-Lease estimates. Why?
- Surveys reflect many things
  - Multi-year fixed rate leases
  - Differences in productivity of land and tenant
  - "Relationship" benefits for landowner
- Cash rent estimates use <u>expected</u> prices
  - Can and do change as we move forward
  - Rents will adjust to reflect these differences

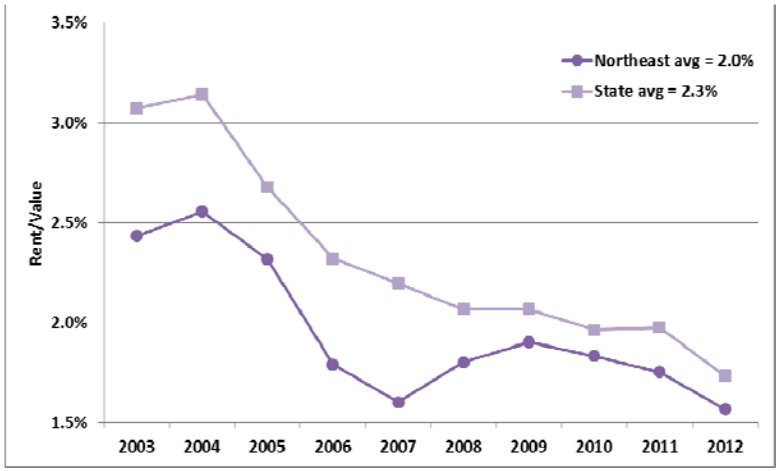
RETURNS TO LAND INVESTMENT

Returns to Non-Irrigated Cropland



Source: Kansas Agricultural Statistics (KAS), K-State

Returns to Pasture



Source: Kansas Agricultural Statistics (KAS), K-State

K-STATE Research and Extension

Land as an Investment

- Landowner contribution value has increased
- Historical returns range from 5 to 7% on cropland and 2-3% on pasture
- Estimates of current rates of return
  - Non-irrigated cropland: 3% to 4%
  - Pasture: 1% to 2%

  **Important for landowners to understand

Knowledge for Life

K-STATE Research and Extension

Kansas Agricultural Land Values and Cash Rents

Mykel Taylor

Asst. Professor

www.AgManager.info

785-532-3033

mtaylor@ksu.edu

Knowledge for Life