

Agricultural Land as an Investment

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AGEC 812, October 17, 2011

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

Related papers are found at
www.agmanager.info

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Factors/issues impacting land values

- 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)
- Ethanol and bio-diesel / global demand for grain
- 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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Factors impacting agricultural land values...

- Ag factors
 - Ag portion of land value has been diminishing (long term)
 - Reduced ability to cash flow traditional land loans with value of agricultural production
- Non-ag factors
 - Urbanization, recreational use of land, etc. -- more related to the condition of overall economy
- While agricultural land may continue to be a good investment, producers need to decide if they want to tie up equity in land versus other assets
- Increasingly difficult to analyze/evaluate land purchases/prices

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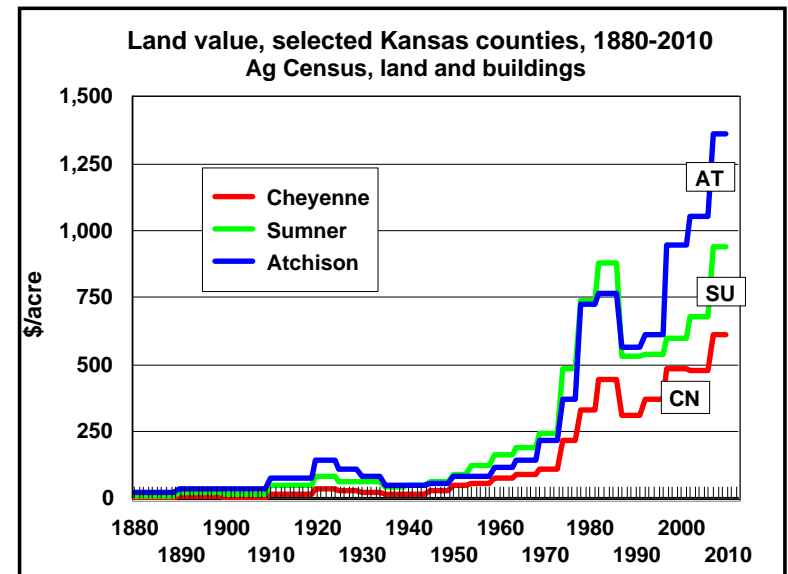
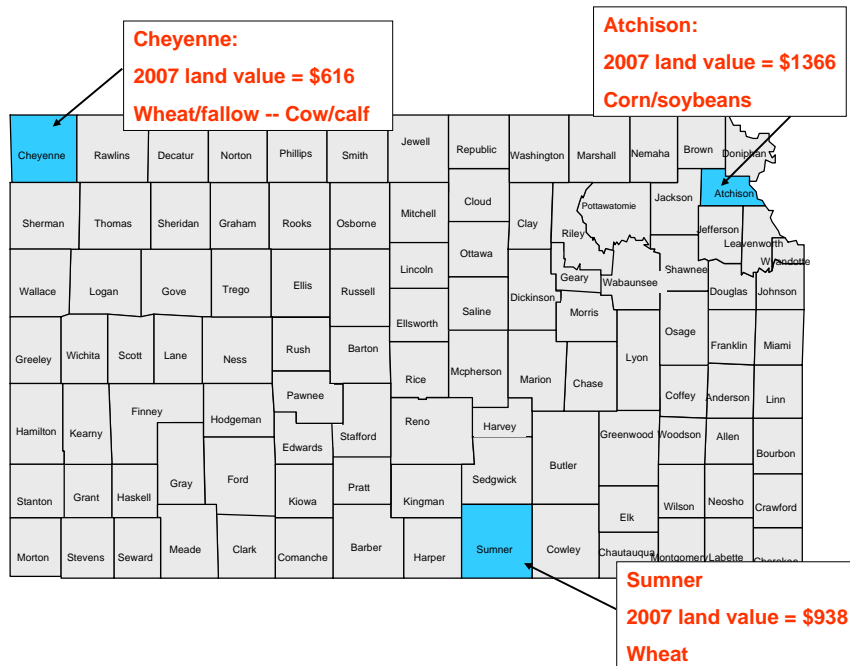
Land is Unique

- Most fixed of farming assets
 - Residual claimant
 - Capitalizes government subsidies
- Often is taxed
 - Favorably or unfavorably
- Has non-ag benefits that may be pecuniary
- Has non-pecuniary benefits
- A long term investment involving long term expectations – history is a guide

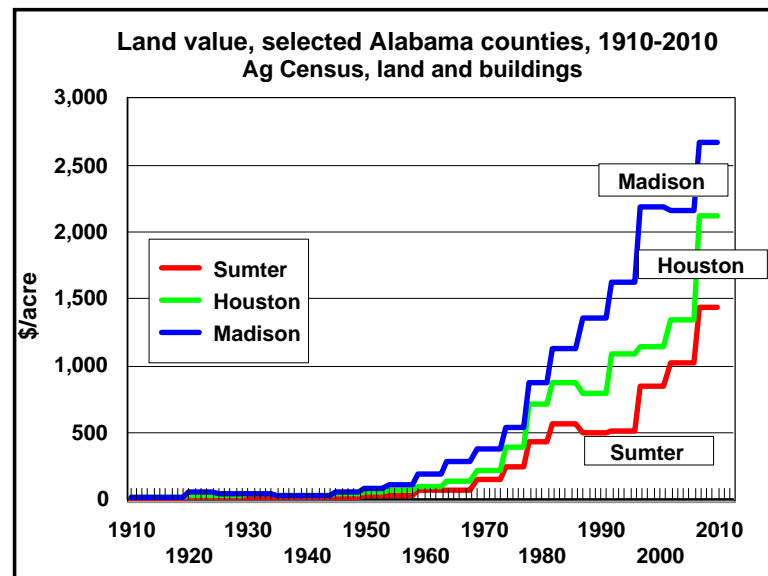
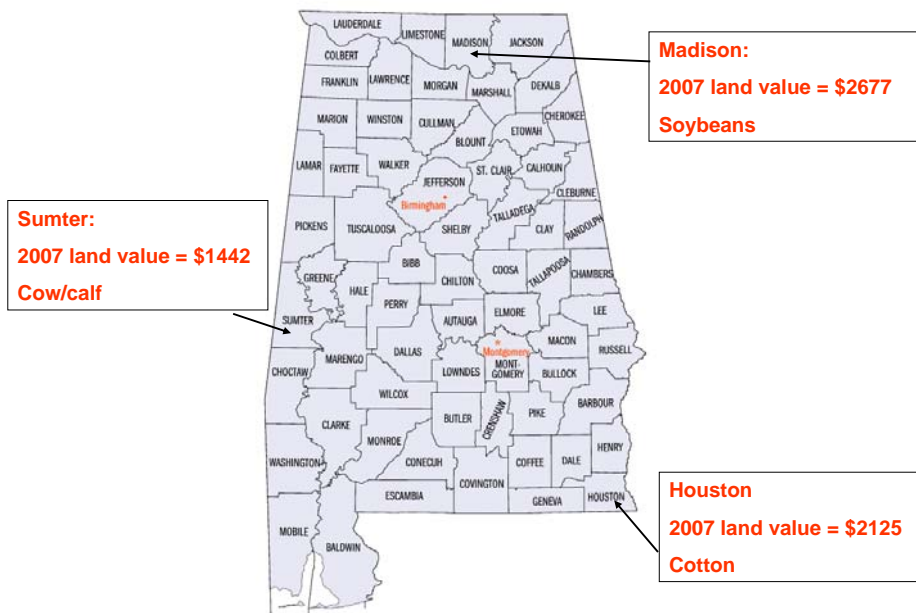
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Historical land values and growth

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1910: Sumter = \$13; Houston = \$17; Madison = \$21 (Madison never fell in 80's)

Annual Growth Rate

$$V_m = V_{m-1} * (1 + g_m)$$

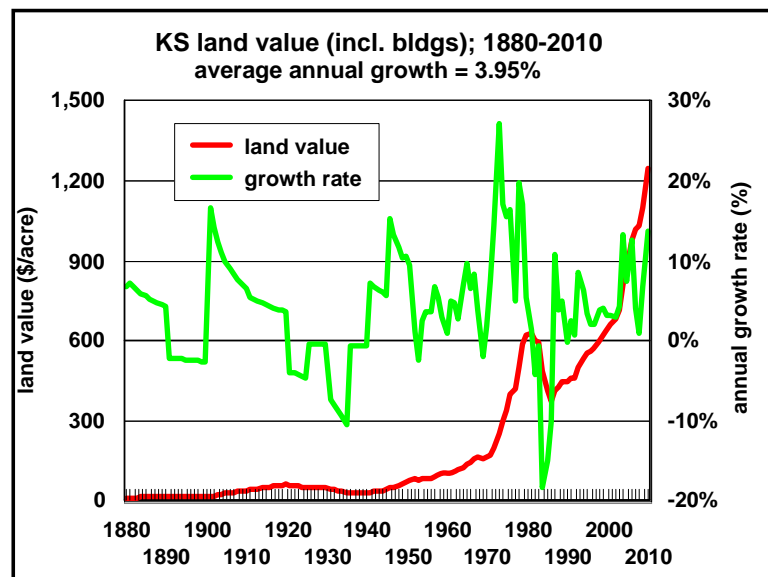
$$V_{2011} = V_{2010} * (1 + g_{2011})$$

$$= \$1250 * (1.03) = \$1287.50$$

$$g_m = \frac{V_m}{V_{m-1}} - 1$$

$$g_{2011} = \frac{V_{2011}}{V_{2010}} - 1$$

$$= \frac{\$1287.50}{\$1250.00} - 1 = 0.03 = 3\%$$



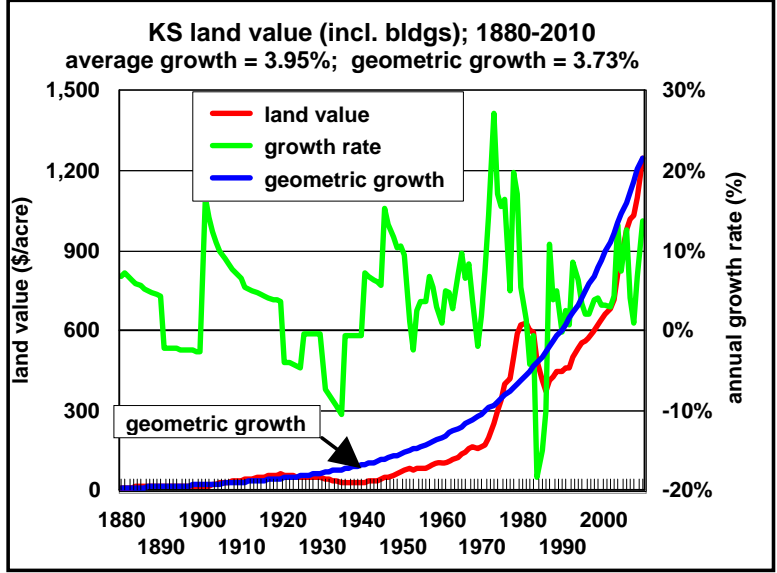
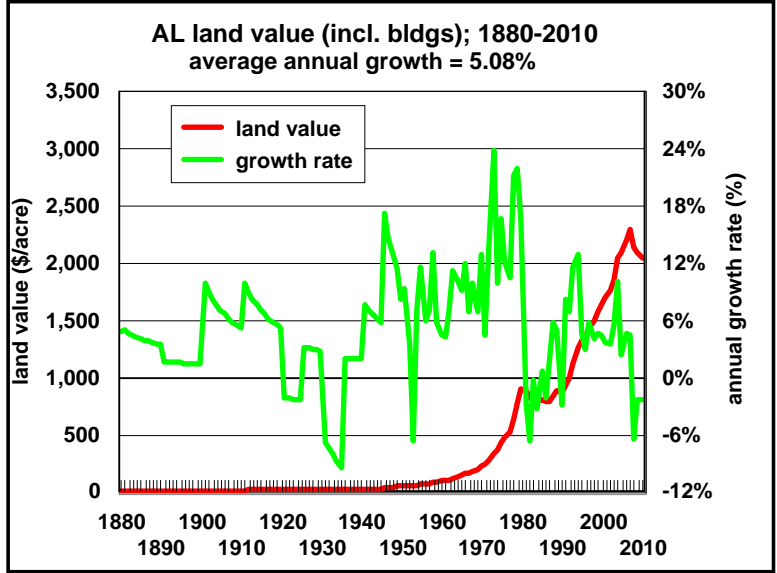
Historical Growth

$$average\ growth = \frac{1}{131} * (g_{1880} + g_{1881} + \dots + g_{2010})$$

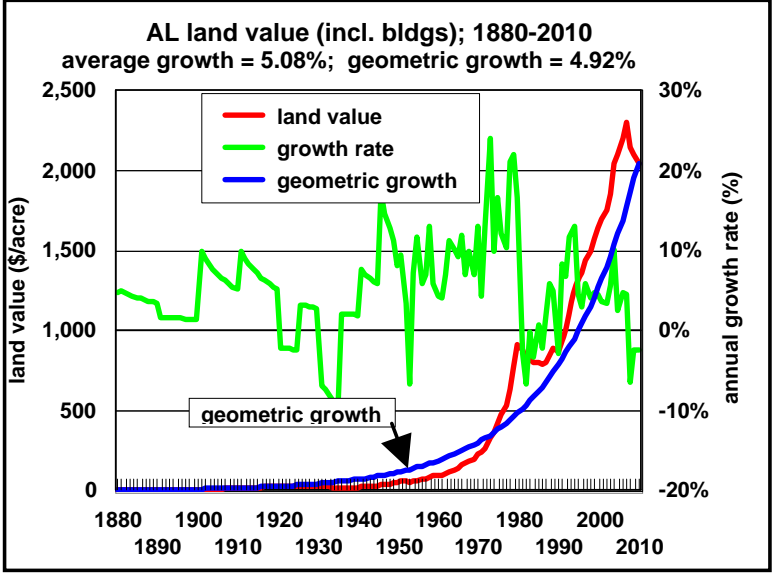
$$V_n = V_m * (1 + g)^{n-m}$$

$$geometric\ mean = g = \left(\frac{V_n}{V_m}\right)^{\left(\frac{1}{n-m}\right)} - 1$$

$$g = \left(\frac{V_{2010}}{V_{1879}}\right)^{\left(\frac{1}{2010-1879}\right)} - 1 = \left(\frac{\$1250}{\$10.30}\right)^{\frac{1}{131}} - 1 = 0.0373$$

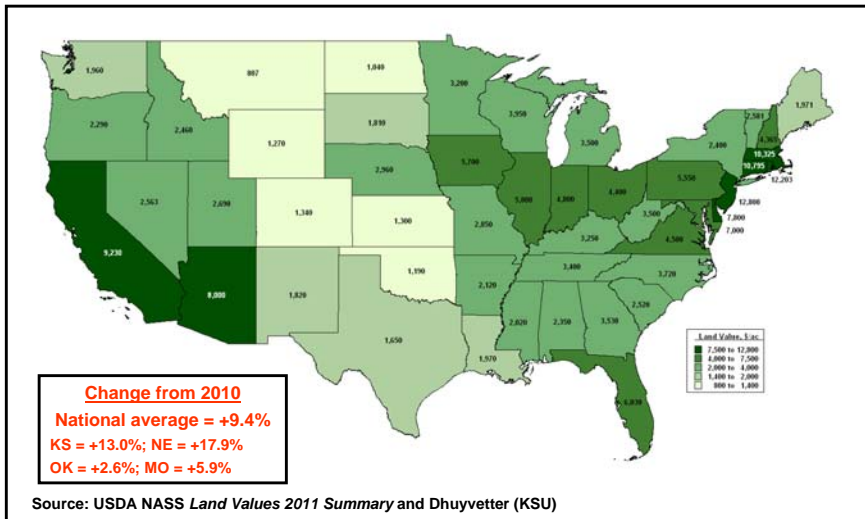


1879 starting land value for Kansas was \$10.30



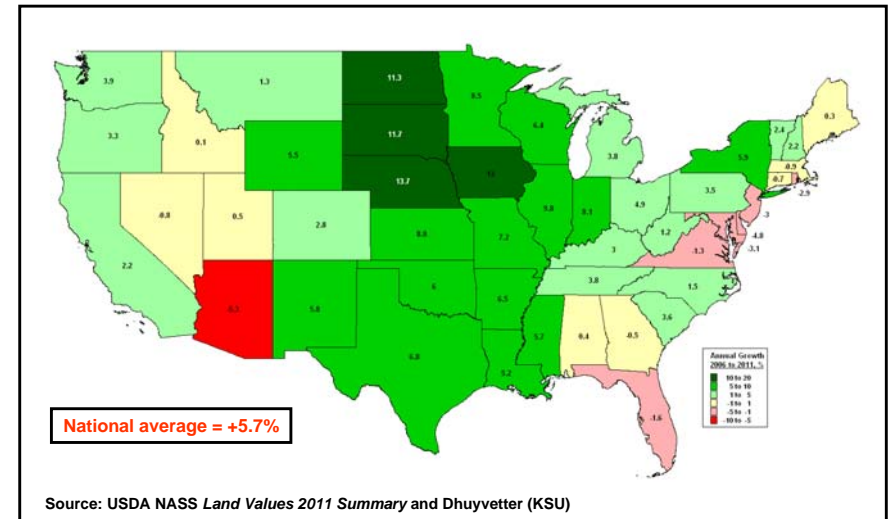
1879 starting land value for Alabama was \$3.82

Crop Land Average Value per Acre January 1, 2011

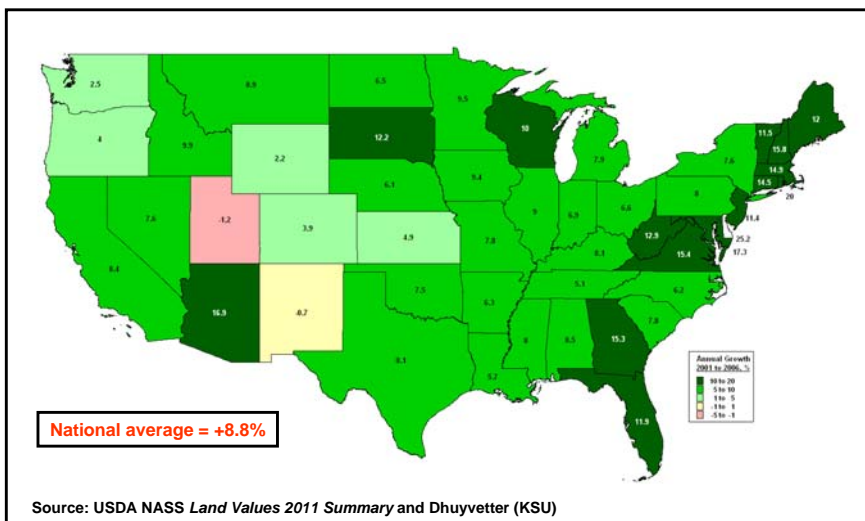


* Corresponding changes in pasture land values were US=+1.9%; KS=+2.5%; NE=+9.5%; OK=+2.0%; and MO=+2.4%.

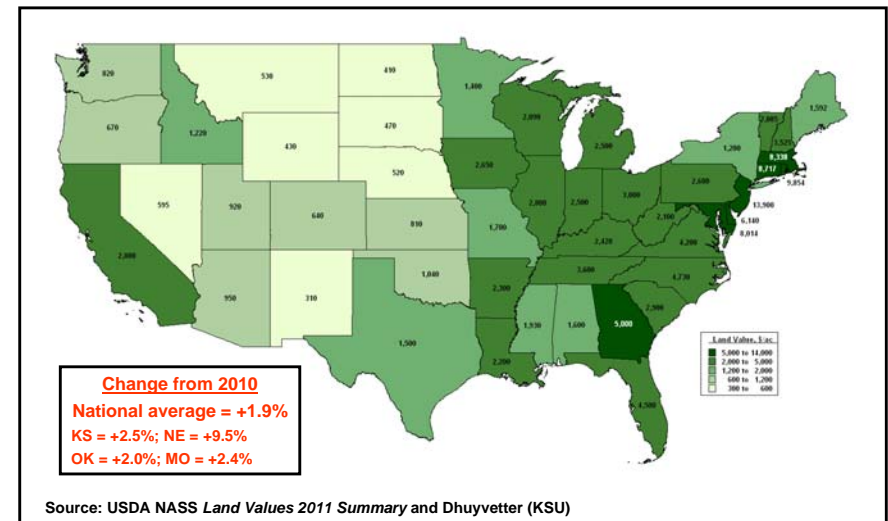
Crop Land Average Annual Growth Rate Jan 1, 2006 to Jan 1, 2011, percent (geo mean)



Crop Land Average Annual Growth Rate Jan 1, 2001 to Jan 1, 2006, percent (geo mean)

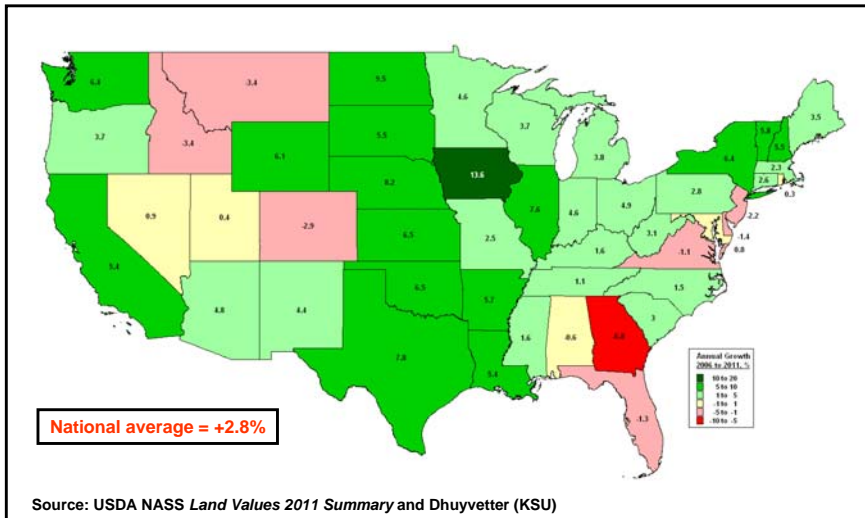


Pasture Land Average Value per Acre January 1, 2011

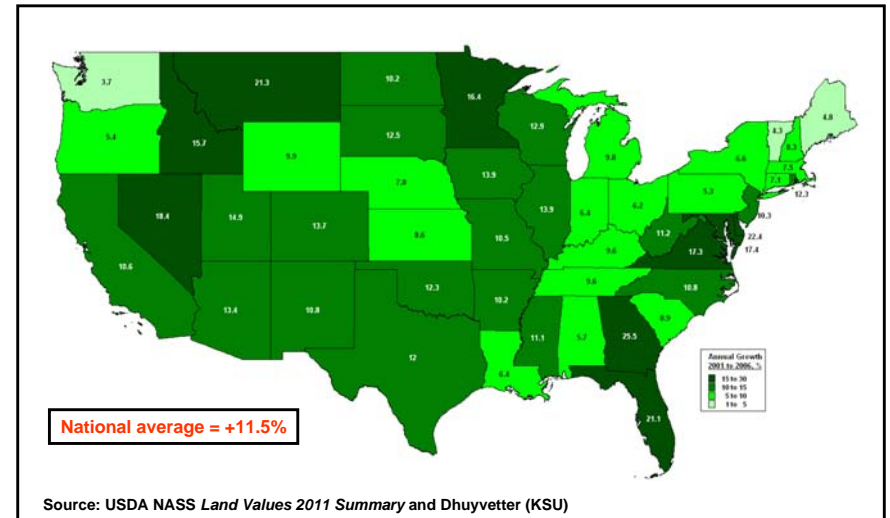


* Corresponding changes in crop land values were US= +9.4%; KS=+13.0%; NE=+17.9%; OK=+2.6%; and MO=+5.9%.

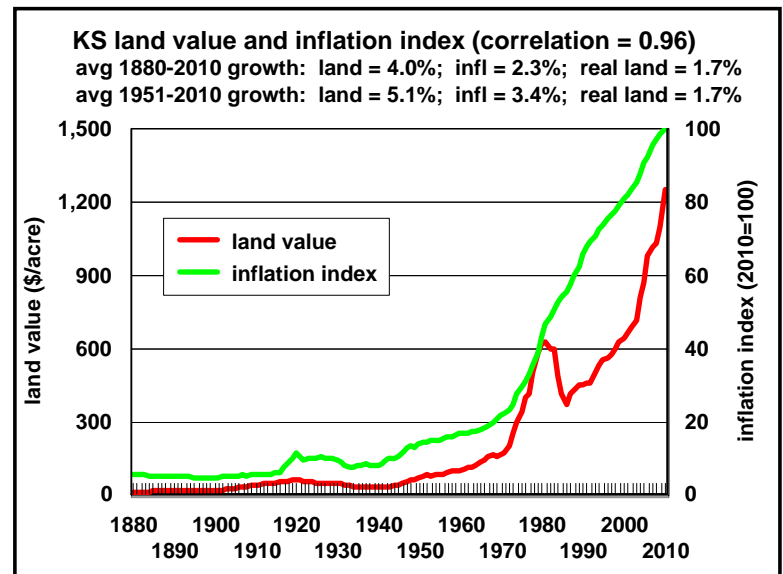
**Pasture Land Average Value Annual Growth Rate
Jan 1, 2006 to Jan 1, 2011, percent (geo mean)**

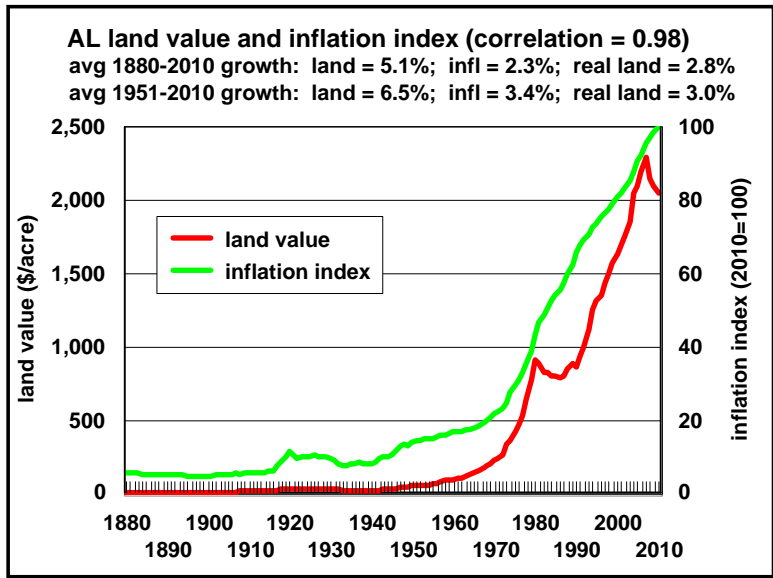


**Pasture Land Average Value Annual Growth Rate
Jan 1, 2001 to Jan 1, 2006, percent (geo mean)**

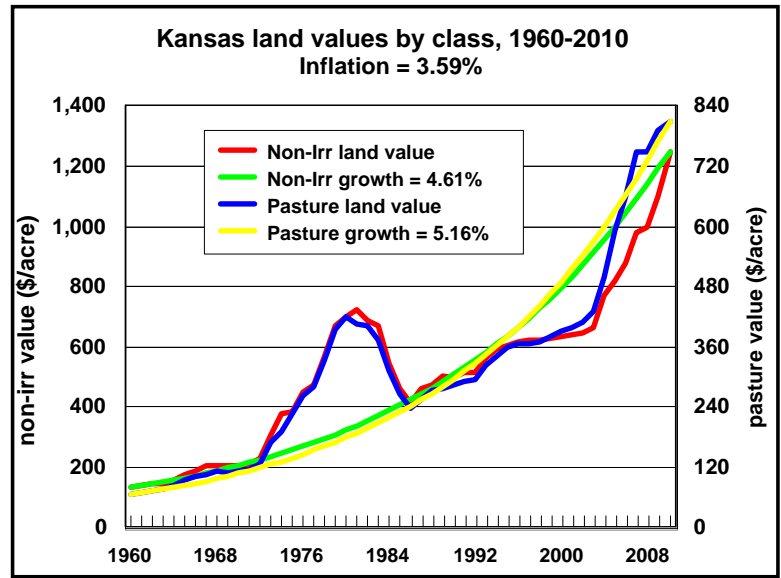


Land growth rates vs. inflation

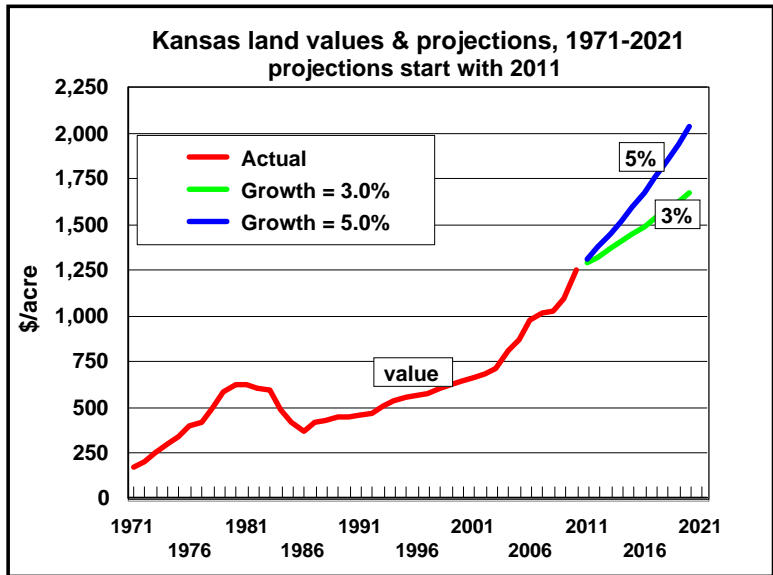




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Returns to land

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Returns to land

- Capital gains (growth)
- Cash returns (rent)
- The two returns to land are similar to other investments such as the stock market (capital gains and dividends)

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Rent

- KFMA farms with > 100 crop acres (2008-2010 avg)
 - 88% of KFMA farms use rented crop land (range across six regions, 81%-93%)
 - 61% of crop acres farmed by KFMA members are rented (range across six regions, 52%-71%)
- For owner-operators rent is the “profit” assigned to land after all other opportunity costs are considered

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Sidebar

Land returns vs. farm returns

- Kansas Farm Management Associations
 - 2,000+ farms per year 1973 – 1999
 - Less farms if require multi-year presence
 - Calculated an after-tax ROE (ATROE)
 - Converted ATROE to pre-tax according to:
 $PTROE = ATROE / (1 - 0.35)$
- Kansas farm returns are compared to Kansas land returns and to the S&P

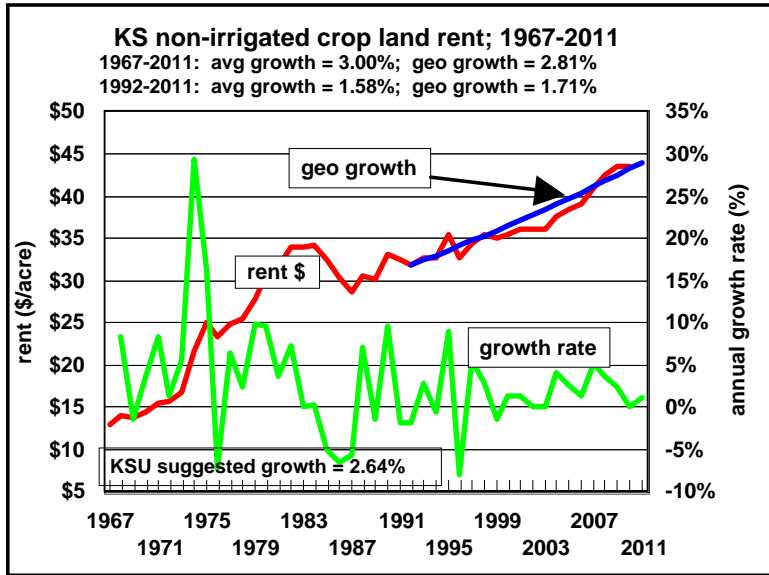
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Sidebar

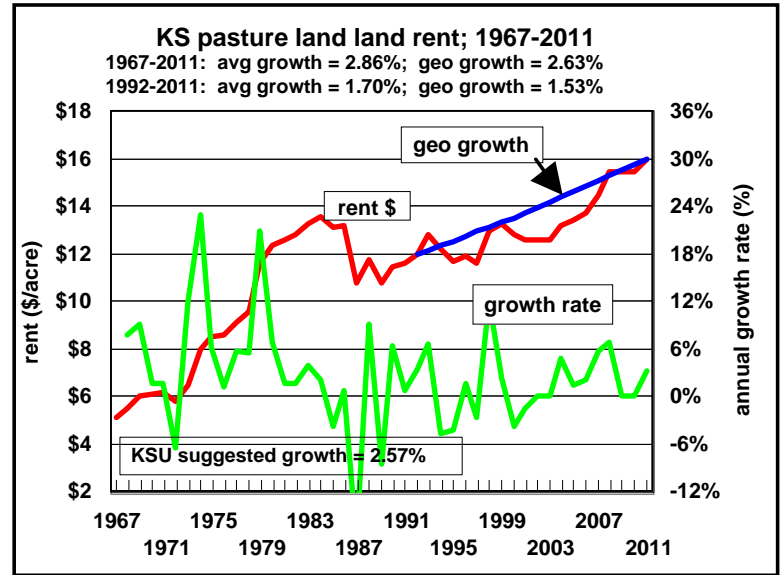
1973-1999 annual returns

- S&P fund
15.2% avg and 16.7% std
- Land portfolio
10.1% avg and 10.7% std
- Portfolio of average farms (138 farms)
8.3% avg and 10.5% std
- Portfolio of “top-third” farms (46 farms)
13.9% avg and 14.8% std
- Portfolios of farms, or land, or stock have lower risk than individual farms, parcels, or stocks

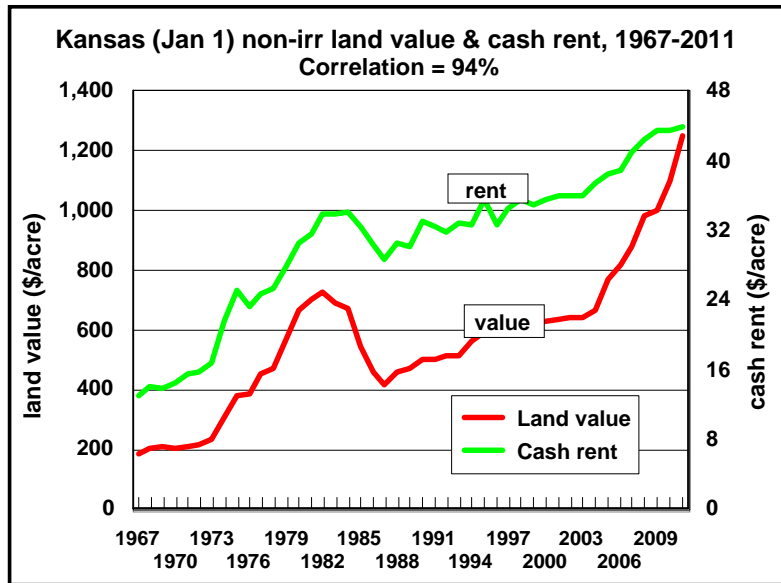
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If grain demand continues, expectation for growth might need to be raised



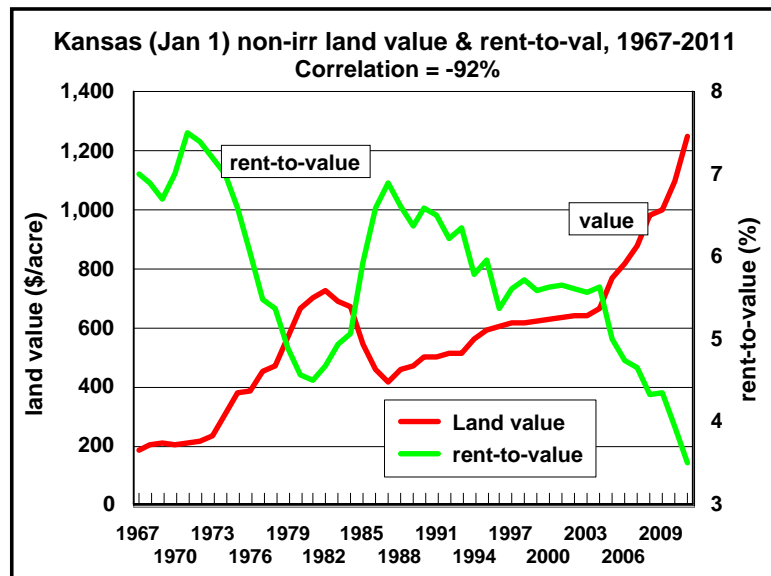
If grain demand continues, expectation for growth might need to be raised



Capitalization Formula

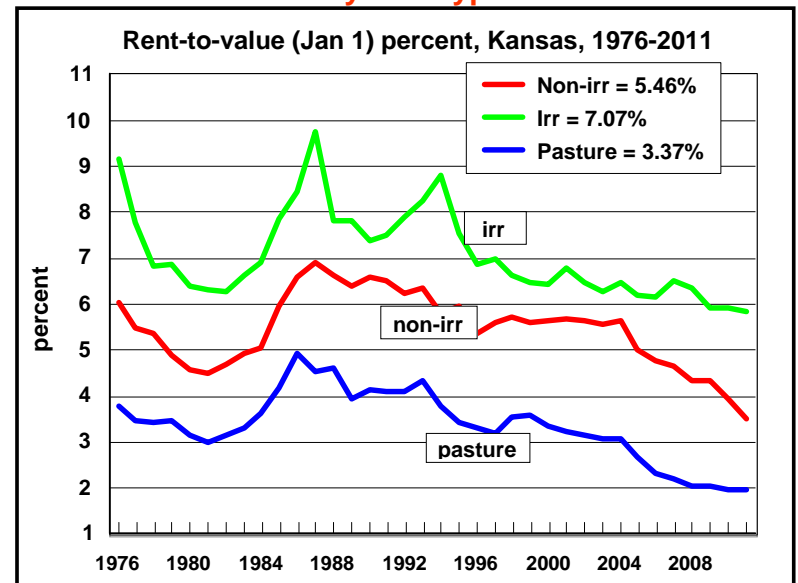
$$Value = \frac{Annual\ land\ income}{Capitalization\ rate}$$

$$Cap\ rate\ (rtv) = \frac{Annual\ land\ income}{Value}$$



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Rent-to-value varies by land type...



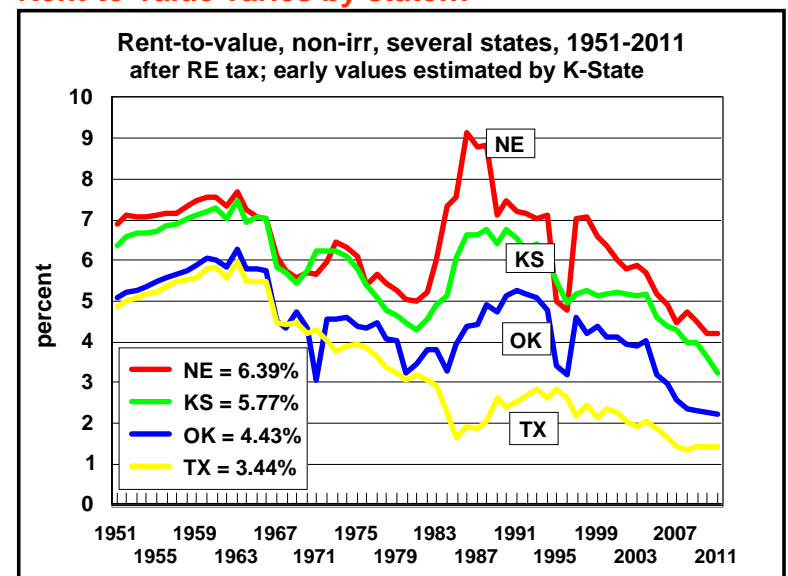
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Why are Rents Lower on Pasture than on Farmland?

- People just love cows and pasture
- Security more important in cattle production
- Imperfect markets/sticky prices
 - share rents would adjust to technology faster
 - share rents would keep cash rents in line
 - little share renting in pasture
 - landlord management small (tenant power)
- Less desirable pastures are rented
 - size, shape, location, grass quality, water, fences
- Non-ag influence (greater on pasture than crop)

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Rent-to-value varies by state...



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Land as an Investment

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Buying and owning land – ideas

- Total return = rent + capital gain
- Land doesn't cash flow when purchased
 - i.e, rents don't cover a 100% loan
- Cash flow is not the same as profitability
- Rents grow, loan payments don't
 - land eventually cash flows
- Income tax and capital gains tax rates matter
- Long-term investment means time value of money matters

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Time Value of Money

- \$1 received today can earn interest:

$$V_n = V_0 * (1 + i)^n$$

$$V_3 = V_0 * (1 + i)^3 = \$1 * 1.08 * 1.08 * 1.08 = \$1.26$$

- \$1 received in the future is worth less today:

$$V_0 = \frac{V_n}{(1 + i)^n}$$

$$V_0 = \frac{V_3}{(1 + i)^3} = \frac{\$1}{1.08^3} = \$0.79$$

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- Today's (present) value of a stream of future rents:

$$PVR = \frac{R_1}{(1 + i)^1} + \frac{R_2}{(1 + i)^2} + \dots + \frac{R_T}{(1 + i)^T}$$

- Future rents based on growing today's rent:

$$PVR = \frac{R_0 * (1 + g)^1}{(1 + i)^1} + \frac{R_0 * (1 + g)^2}{(1 + i)^2} + \dots + \frac{R_0 * (1 + g)^T}{(1 + i)^T}$$

- Rents need adjusted for property tax and income tax; interest rate needs adjusted for income tax:

$$PVR = \frac{(R_0 - Ptx_0) * (1 - Itx) * (1 + g)^1}{[1 + i * (1 - Itx)]^1} + \frac{(R_0 - Ptx_0) * (1 - Itx) * (1 + g)^2}{[1 + i * (1 - Itx)]^2} + \dots + \frac{(R_0 - Ptx_0) * (1 - Itx) * (1 + g)^T}{[1 + i * (1 - Itx)]^T}$$

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- Today's (present) value of net future land sale:

$$PVS = \frac{SP - Ctx * (SP - PP)}{[1 + i * (1 - Itx)]^T}$$

- Future land value based on growing today's value:

$$PVS = \frac{MV_0 * (1 + g)^T - Ctx * [MV_0 * (1 + g)^T - PP]}{[1 + i * (1 - Itx)]^T}$$

- Total value of the land is today's value of the rent stream plus today's value of the future land sale:

$$PVL = PVR + PVS$$

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Buying Land – How much can I afford?

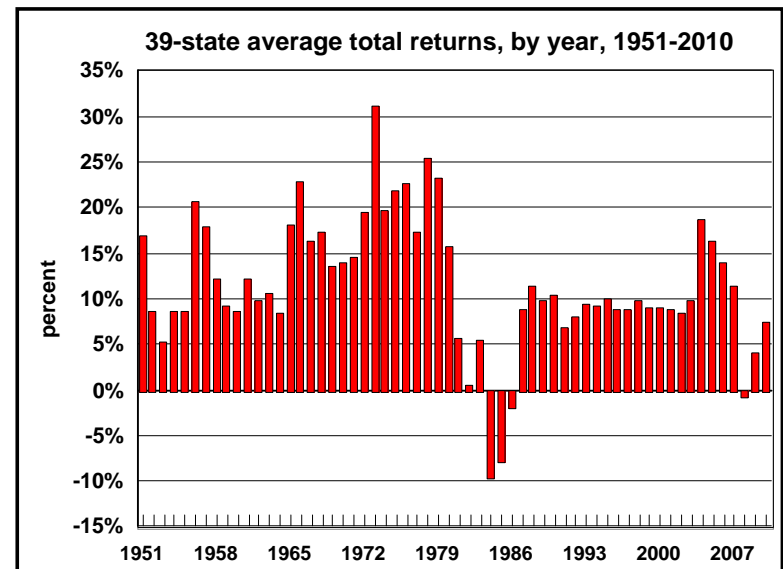
- Valuing the capital gains portion
 - Pick a “selling point,” say 30 years from now
 - What will the land be worth then?
 - Assume some annual capital gain % -- ag and non-ag
 - What is left after “sell” & pay cap gains tax?
 - What is that amount worth today?
- Valuing the rent portion
 - What is cash rent today, ag and non-ag?
 - How will rents evolve (grow) over time?
 - What is the future stream of rents worth today?
- Maximum bid = today's value of the capital gain + today's value of the rent stream

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Non-ag Considerations

- There could be a non-ag rent:
 - e.g., leasing your land to hunters
- There could be a non-ag land value growth:
 - e.g., expectations of future development
- *KSU-Landbuy.xls* allows for both
- But first some historical information

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High farming profit in 2008 didn't make it to rents or end-of-year land values

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Agricultural Market Value of Agricultural Land

- Based on the idea of an ag cap rate
- Used average after-property-tax RTV 1951-72
 - Early on while ag still is dominant
 - Before wild inflation of the 1970's
- Alabama ag cap rate = 8.03%
- Kansas ag cap rate = 6.64%
- 39-state average cap rate = 6.57%

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Agricultural Market Value of Agricultural Land using Alabama crop land as an example

- Jan. 1, 2011 crop land value = \$2350 /acre
- Cash rent for 2011 = \$51.00 /acre
- 2011 property tax = \$1.71 /acre
- 2011 after-property-tax rent = \$49.29 /acre
- $\$49.29 / 0.0803 = \$613.82 / \text{acre}$
- $\text{AMVP} = \$613.82 / \$2350 = 0.2612 = 26.12\%$

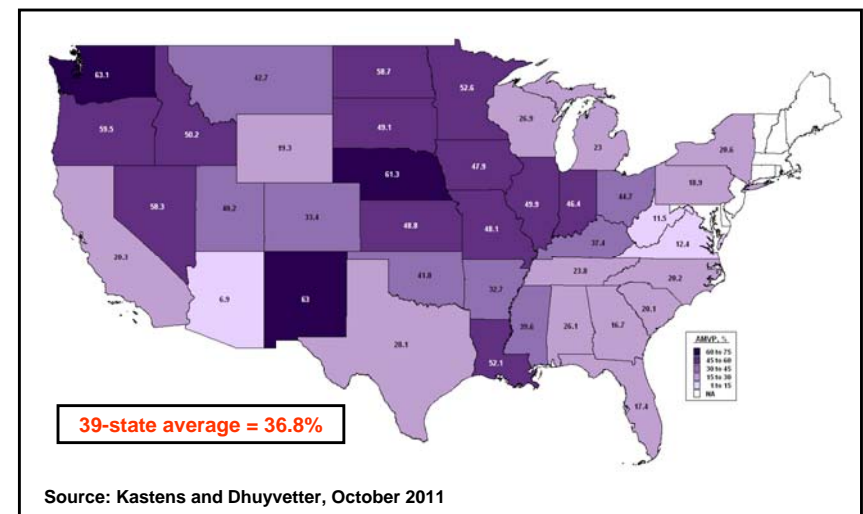
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Agricultural Market Value of Agricultural Land using KS non-irrigated cropland as an example

- Jan. 1, 2011 land value = \$1250 /acre
- Cash rent for 2011 = \$44.00 /acre
- 2011 property tax = \$3.50 /acre
- 2011 after-property-tax rent = \$40.50 /acre
- $\$40.50 / 0.0664 = \$609.94 / \text{acre}$
- $\text{AMVP} = \$609.94 / \$1250 = 0.4879 = 48.79\%$
(non-irr)

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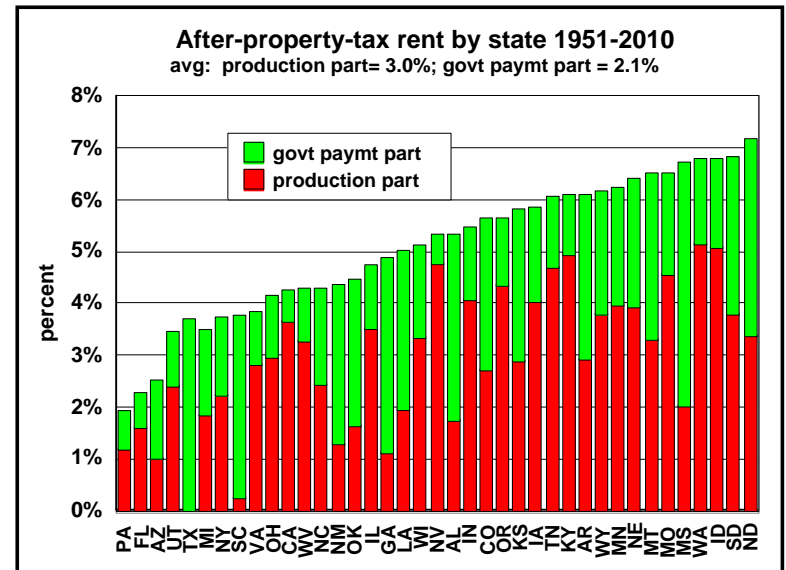
Portion of Jan 1, 2011 Crop Land Value Attributed to Agricultural (production and government payments)



Government Program Payments

- Generally, are thought to be capitalized into land values and cash rents
- Many Great Plains states and many Southern states are highly dependent on government program payments

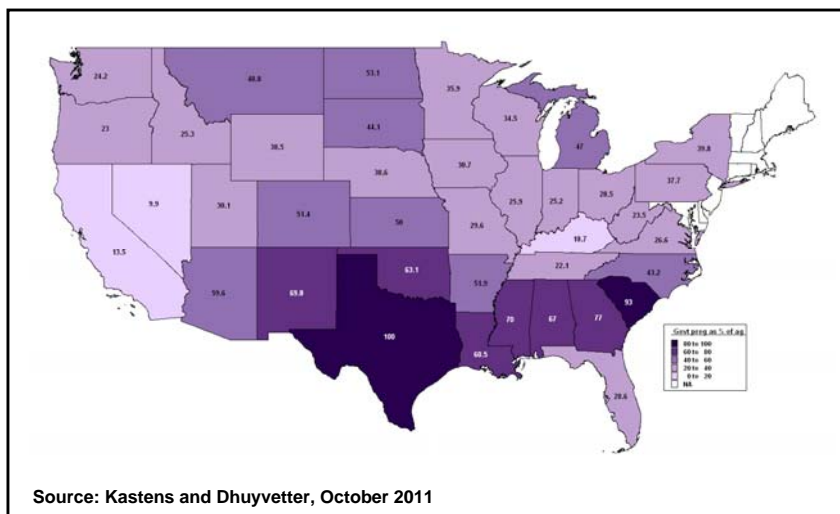
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ranked by total rent

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Percentage of Agricultural Value Attributed to Government Program Payments (1951-2010 average)



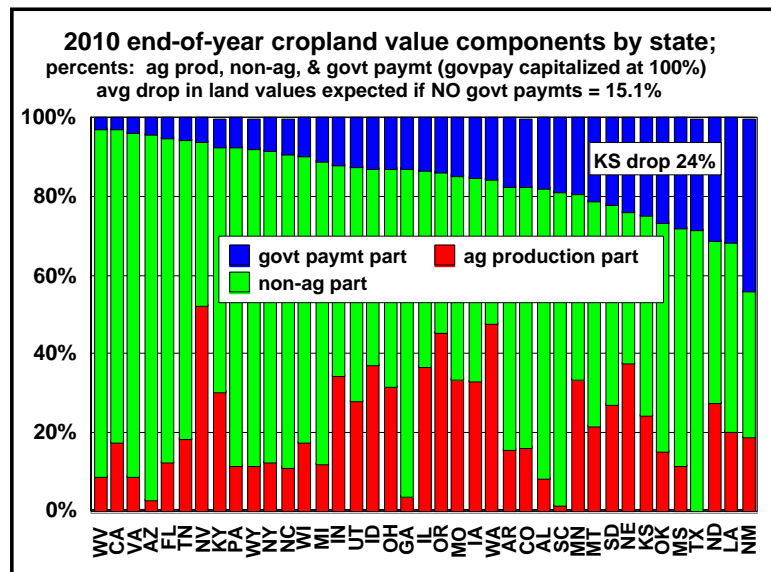
government payments as a percent of agricultural rent

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Government Program Payments

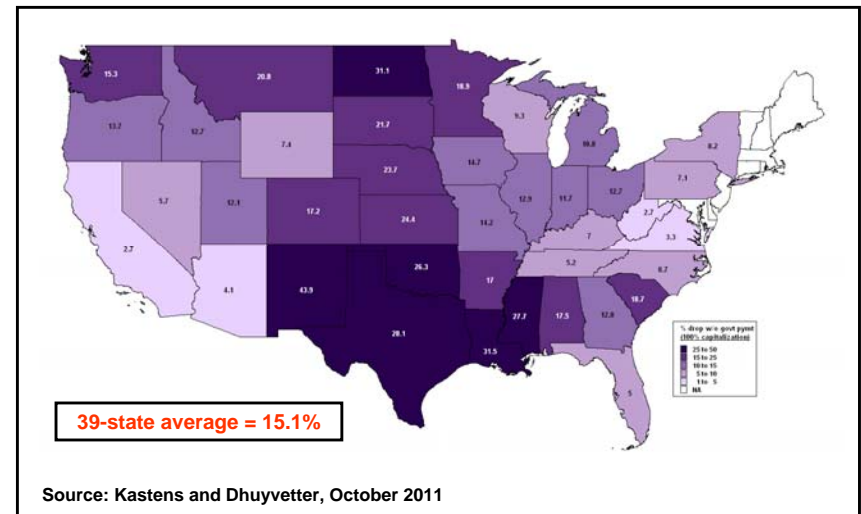
- States whose land values have substantial non-ag components would not suffer as much in the absence of payments
 - Florida and Georgia are notable Southern states
 - Great Plains states don't have that advantage

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ranked by percent of land value that is due to government program payments

Estimated Reduction in Land Value with the Elimination of Government Programs (100% cap)



reduction is proportional to capitalization rate (e.g., KS=12.2% with 50% cap)

Would land values really fall that far?

- Tract-specific sales and rent prices indicate that gov't payments are not fully capitalized
- Rental contracts are "sticky"
- Increasing importance of non-ag factors
- Excess profits in big & growing farms
 - Very large KS farms still have ROA of 8% paying existing rent yet taking 36% hit on their land values (Dumler, Risk & Profit Conference 2005)
 - Easier to exploit economies of size in level playing field regarding govt payments
 - Increased competition would bolster rents

Analyzing a Land Purchase

KSU-Landbuy.xls spreadsheet for land investment decisions

KSU-Landbuy.xls -- A spreadsheet program to analyze land purchase prices and land values in general.

Version -- 10.12.11

PRINT INFORMATION

INPUTS vs CALCULATED VALUES
 In the KSU-Landbuy sheet all blue numbers in shaded cells are inputs and all other 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
 Several resources exist to aid in the use of this spreadsheet. 1) The paper titled *Valuing and Buying Farmland* (paper at www.agmanager.info/farmmg/land_land_buy) serves as a user's guide and provides a more detailed documentation of the concepts and formulas used in this spreadsheet. 2) The input cells (i.e., blue numbers) have a red diamond in the upper right hand corner of the cell (if the comments do not appear go to View / Comments on the Excel menu). By moving your mouse cursor over this diamond, a brief description of the input will be displayed on the screen. 3) A video file (KSU-Landbuy.wmv) and an audio file (KSU-Landbuy.mp3) -- available at www.agmanager.info/farmmg/land_land_buy -- can be played on your computer providing a brief explanation of the inputs and outputs line by line.

Developed by: Terry L. Kastens, Professor Emeritus, Kansas State University; Kevin C. Dhuyvetter, Extension Agricultural Economist, Kansas State University.

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Links to supporting materials: [Valuing and Buying Farmland](#) (on www.agmanager.info); [KSU-Landbuy.wmv](#); [KSU-Landbuy.mp3](#)

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Blue values are user inputs – all other values are calculated

Inputs

| KS | KS | KS | KS |
|---------|---------|--------|---------|
| Crop | Pasture | Waste | Average |
| 160 | 0 | 0 | 160 |
| \$1,500 | \$770 | \$0 | \$1,500 |
| \$1,600 | \$770 | \$0 | \$1,600 |
| \$60.00 | \$13.50 | \$0.00 | \$60.00 |
| \$6.00 | \$3.08 | \$0.00 | \$6.00 |
| \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| 30 | 30 | 30 | 30 |
| 43% | 43% | 43% | 43% |
| 15% | 15% | 15% | 15% |
| 6.50% | 6.50% | 6.50% | 6.50% |
| 40.0% | 40.0% | 40.0% | 40% |
| 2.64% | 2.63% | 0.00% | 2.64% |
| 3.00% | 0.00% | 0.00% | n/a |
| 3.95% | 3.95% | 0.00% | 3.95% |
| 1.28% | 1.38% | 0.00% | 1.28% |

Calculated Outputs

| 3.71% | 3.71% | 3.71% | 3.71% |
|----------|----------|--------|----------|
| \$30.78 | \$7.08 | \$0.00 | \$30.78 |
| \$790.01 | \$178.86 | \$0.00 | \$790.01 |
| \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| \$4.795 | \$2,462 | \$0 | \$4,795 |
| \$3,278 | \$1,629 | \$0 | \$3,278 |
| \$1,449 | \$741 | \$0 | \$1,449 |
| \$1,016 | \$504 | \$0 | \$1,016 |
| \$2,239 | \$920 | \$0 | \$2,239 |
| 81% | 74% | n/a | 81% |
| 54% | 24% | n/a | 54% |
| \$739.12 | \$150.15 | \$0.00 | \$739.12 |
| \$639.12 | \$150.15 | \$0.00 | \$639.12 |
| 9.06% | 7.71% | n/a | 9.06% |
| 10.77% | 8.52% | n/a | 10.77% |

Labels (refers to notation in Valuing and Buying Farmland publication)

- State where land is located (enter as two letter abbreviation, e.g., Kansas = KS)
- Land classification (e.g., cropland, pasture, woods)
- Ac: Enter the acres of each class of land (used to calculate weighted average)
- MV₀: Market price of land, \$/acre
- PP: Purchase price (PP -- amount you pay), \$/acre
- r: Ag rent--cash or cash equivalent in \$/acre today
- Ptx: Real estate (property) tax in \$/acre today
- nR: Non-ag rent in \$/acre today
- T: Time horizon in years land is held (less than or equal to 100 years)
- Itx: Income tax rate (on last dollar of taxable income -- include SE tax if relevant)
- Cdx: Capital gains tax rate
- i: Interest rate on land loans (discount rate)
- : Percent of purchase price that is financed (only needed for return on equity calculations)
- gA: Growth rate on ag rent and ag portion of land value (see column G in Guidelines)
- gN/A: 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)
- gNv: Calculated non-ag growth rate on land value
- i(1-tb): After-tax interest rate on land loans (discount rate)
- : After-tax rent, \$/acre (now property taxes are removed as well)
- PVRA: Discounted value of all future after-tax ag rents
- PVRN: Discounted value of all future after-tax non-ag rents
- : Projected land value in 30 years, based on market price and ag & non-ag growth
- : Projected land value in 30 years, based on market price and only ag growth
- PVS: Discounted value of land sale in 30 years (after capital gains tax)
- PVSA: Discounted value of land sale in 30 years (after capital gains tax) -- if only ag growth
- PVL: Present value of land purchase
- AMVP: Ag market value percent implied by non-ag rent and growth inputs
- AMVP: Ag market value percent implied by Ag Rent-to-Value (column J of Guidelines) and after-tax cash
- : Present value less market price
- : Present value less purchase price
- : Approximate pre-tax rate of return on assets
- : Approximate pre-tax rate of return on equity

Background information for different states (Guidelines tab)

Some guidelines for growth rates when using KSU-Landbuy.xls

| state | 1951-2010 | | 2011 | | 1951-1972 | | 2011 | | 1951-2010 | | 2011 | | 1951-2010 | | 2011 | | 1951-2010 | | 2011 | | 1951-2010 | | 2011 | | | | |
|-------|-------------|---------|-------------|---------|-------------|---------|--------------|---------|-----------|--------|--------------|------|----------------|-------------|---------------------------|-------------|-----------|-------------|---------|--------------|-----------|-----------|--------|--------------|------|----------------|-------------|
| | ag prop. tx | Ag Rent | ag prop. tx | Ag Rent | ag prop. tx | Ag Rent | Property tax | gA as % | gN/A as % | g as % | ag mkt value | AMVP | beginning year | ending year | annual inflation rate (%) | ag prop. tx | Ag Rent | ag prop. tx | Ag Rent | Property tax | gA as % | gN/A as % | g as % | ag mkt value | AMVP | beginning year | ending year |
| KS | 5.01 | 3.24 | 6.64 | 0.28 | 3.49 | 1.26 | 4.79 | 48.79 | 1090 | 1910 | -0.12% | | | | | | | | | | | | | | | | |
| AL | 5.33 | 2.10 | 8.03 | 0.07 | 4.73 | 2.15 | 6.98 | 26.12 | 1881 | 1911 | -0.12% | | | | | | | | | | | | | | | | |
| AR | 6.11 | 2.49 | 7.61 | 0.14 | 3.96 | 1.82 | 5.85 | 32.72 | 1882 | 1912 | 0.00% | | | | | | | | | | | | | | | | |
| AZ | 2.51 | 0.33 | 4.83 | 1.61 | 4.83 | 1.66 | 6.57 | 6.86 | 1883 | 1913 | 0.20% | | | | | | | | | | | | | | | | |
| CA | 4.26 | 1.17 | 5.76 | 0.22 | 2.98 | 2.62 | 5.59 | 29.28 | 1884 | 1914 | 0.36% | | | | | | | | | | | | | | | | |
| CO | 5.65 | 2.37 | 7.10 | 0.24 | 4.23 | 1.82 | 6.12 | 33.39 | 1885 | 1915 | 0.40% | | | | | | | | | | | | | | | | |
| FL | 2.26 | 0.57 | 3.30 | 0.16 | 5.35 | 2.84 | 8.34 | 17.44 | 1886 | 1916 | 0.64% | | | | | | | | | | | | | | | | |
| GA | 4.89 | 1.34 | 8.02 | 0.22 | 5.25 | 2.71 | 8.11 | 16.66 | 1887 | 1917 | 1.18% | | | | | | | | | | | | | | | | |
| IA | 5.06 | 3.04 | 6.35 | 0.40 | 4.57 | 1.28 | 5.91 | 47.90 | 1888 | 1918 | 1.72% | | | | | | | | | | | | | | | | |
| ID | 6.82 | 4.20 | 8.36 | 0.39 | 4.11 | 1.11 | 5.27 | 50.23 | 1889 | 1919 | 2.20% | | | | | | | | | | | | | | | | |
| IL | 4.76 | 2.66 | 5.23 | 0.50 | 4.76 | 1.19 | 6.00 | 49.53 | 1890 | 1920 | 2.70% | | | | | | | | | | | | | | | | |
| IN | 5.48 | 2.90 | 6.26 | 0.09 | 46.38 | 1891 | 1921 | 7.31% | 1891 | 1921 | 7.31% | | | | | | | | | | | | | | | | |
| KS | 5.81 | 3.24 | 6.64 | 0.28 | 3.49 | 1.26 | 4.79 | 48.79 | 1892 | 1922 | 2.09% | | | | | | | | | | | | | | | | |
| KY | 6.10 | 3.09 | 8.26 | 0.14 | 4.21 | 1.60 | 5.88 | 37.38 | 1893 | 1923 | 2.15% | | | | | | | | | | | | | | | | |
| LA | 5.01 | 3.19 | 6.12 | 0.16 | 4.37 | 1.06 | 5.48 | 52.10 | 1894 | 1924 | 2.28% | | | | | | | | | | | | | | | | |
| MI | 3.51 | 1.25 | 5.46 | 1.32 | 4.73 | 1.51 | 6.31 | 23.00 | 1895 | 1925 | 2.50% | | | | | | | | | | | | | | | | |
| MN | 6.23 | 3.81 | 7.23 | 0.41 | 5.06 | 1.11 | 6.23 | 52.64 | 1896 | 1926 | 2.54% | | | | | | | | | | | | | | | | |
| MO | 6.52 | 3.46 | 7.20 | 0.14 | 4.94 | 1.31 | 6.31 | 48.14 | 1897 | 1927 | 2.47% | | | | | | | | | | | | | | | | |
| MS | 6.73 | 3.66 | 9.24 | 0.10 | 4.87 | 1.42 | 6.36 | 39.64 | 1898 | 1928 | 2.42% | | | | | | | | | | | | | | | | |
| MT | 6.52 | 3.43 | 8.04 | 0.30 | 4.14 | 1.39 | 5.59 | 42.69 | 1899 | 1929 | 2.42% | | | | | | | | | | | | | | | | |
| NC | 4.31 | 1.48 | 7.32 | 0.28 | 3.81 | 2.34 | 6.24 | 20.19 | 1900 | 1930 | 2.34% | | | | | | | | | | | | | | | | |
| ND | 7.19 | 4.58 | 7.80 | 0.38 | 5.09 | 0.95 | 6.09 | 58.68 | 1901 | 1931 | 2.02% | | | | | | | | | | | | | | | | |
| NE | 6.42 | 4.20 | 6.85 | 0.70 | 5.01 | 0.78 | 5.83 | 61.33 | 1902 | 1932 | 1.52% | | | | | | | | | | | | | | | | |
| NH | 4.35 | 3.80 | 6.03 | 0.23 | 4.65 | 0.69 | 5.37 | 62.95 | 1903 | 1933 | 1.22% | | | | | | | | | | | | | | | | |
| NV | 5.32 | 4.01 | 6.88 | 0.25 | 4.41 | 0.88 | 5.33 | 58.31 | 1904 | 1934 | 1.33% | | | | | | | | | | | | | | | | |
| NY | 3.73 | 3.08 | 5.26 | 0.81 | 4.05 | 2.26 | 6.41 | 29.59 | 1905 | 1935 | 1.41% | | | | | | | | | | | | | | | | |
| OH | 4.15 | 2.16 | 4.84 | 0.34 | 4.50 | 1.37 | 5.93 | 44.68 | 1906 | 1936 | 1.44% | | | | | | | | | | | | | | | | |
| OK | 4.46 | 2.21 | 5.29 | 0.16 | 3.55 | 1.46 | 5.06 | 41.77 | 1907 | 1937 | 1.44% | | | | | | | | | | | | | | | | |
| OR | 5.65 | 4.22 | 7.09 | 0.78 | 4.77 | 0.81 | 5.62 | 59.46 | 1908 | 1938 | 1.50% | | | | | | | | | | | | | | | | |
| PA | 1.93 | 0.61 | 3.22 | 0.45 | 4.49 | 2.29 | 6.89 | 18.85 | 1909 | 1939 | 1.33% | | | | | | | | | | | | | | | | |
| SC | 3.76 | 1.18 | 5.89 | 0.16 | 4.01 | 2.49 | 6.61 | 20.13 | 1910 | 1940 | 1.36% | | | | | | | | | | | | | | | | |
| SD | 6.83 | 3.85 | 7.85 | 0.48 | 5.96 | 1.16 | 6.28 | 49.06 | 1911 | 1941 | 1.53% | | | | | | | | | | | | | | | | |
| TN | 6.06 | 2.16 | 9.08 | 0.18 | 3.72 | 2.24 | 6.05 | 23.76 | 1912 | 1942 | 1.75% | | | | | | | | | | | | | | | | |
| TX | 3.47 | 1.44 | 5.12 | 0.28 | 3.53 | 1.91 | 5.51 | 28.06 | 1913 | 1943 | 1.87% | | | | | | | | | | | | | | | | |
| UT | 3.45 | 0.97 | 4.91 | 0.26 | 3.67 | 1.49 | 5.22 | 40.23 | 1914 | 1944 | 1.88% | | | | | | | | | | | | | | | | |

Questions ???

