Current Economic Conditions
Returns to Farming

Source: KFMA Enterprise Reports (http://www.agmanager.info/kfma)
Returns to Farming

NC KFMA Enterprise Analysis

- Wheat
- Corn
- Grain Sorghum
- Soybeans

Returns over Total Costs ($/ac)

-150 -100 -50 0 50 100 150

Source: KFMA Enterprise Reports (http://www.agmanager.info/kfma)

Net Farm and Ranch Income

Net Income Per Operator

- Dryland Crop
- Cowherd

Returns over Total Costs ($/ac)

$230,000 $180,000 $130,000 $80,000 $30,000 $(20,000)

Net Farm Income

![Graph showing Net Farm Income from 2004 to 2015 with lines for Kansas and Aggregate U.S.]

Land Value Trends
Land Values

Affected by profitability in ag sector

But land values do not adjust as quickly as profitability to changes in commodity prices

Adjustment period due to
- Long-run reason for buying and holding land
- Expectations of buyers/sellers

Land Values

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

Source: USDA-NASS

Rent-to-Land Value Ratio

Source: USDA-NASS
Kansas Land Values

Potential problems with these data
- Surveys ask for an opinion (read: best guess)
- NOT a market-based estimate
- Don’t know the spread, only the average
- Kansas’ response rate is relatively low

Can we add to the available information and improve our estimates of land value trends?

Market-Based Land Values
Kansas Land Values
Source for market transaction data
- Property Valuation Department, Topeka

2014-16 sales data
- County location, population density
- Acres in sale
- Mixture of irrigated, non-irrigated and pasture in parcel
- 20-year average rainfall and water-holding capacity
- Enrollment in CRP
- Value of improvements is removed for bare land value
- Parcels under 40 acres are omitted
- Johnson and Wyandotte County parcels removed

PVD Sales Data 2014-2016

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres in Sale</td>
<td>155.8</td>
<td></td>
</tr>
<tr>
<td>CRP Contracts</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>Sales Per County</td>
<td>24.7</td>
<td></td>
</tr>
</tbody>
</table>

All Years
- Total Sales Transactions: 6,845
- 2016: 2,117
- 2015: 2,502
- 2014: 2,333

18% drop in sales
## Model-Predicted Sales Price ($/ac)

<table>
<thead>
<tr>
<th>Land Type</th>
<th>2016</th>
<th>2015</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Irrigated</td>
<td>2,398</td>
<td>2,897</td>
<td>2,835</td>
</tr>
<tr>
<td>Irrigated</td>
<td>4,896</td>
<td>5,540</td>
<td>5,444</td>
</tr>
<tr>
<td>Pasture</td>
<td>1,726</td>
<td>1,871</td>
<td>1,684</td>
</tr>
<tr>
<td>All Cropland and Pasture</td>
<td>$3,027</td>
<td>$3,378</td>
<td>$3,321</td>
</tr>
</tbody>
</table>

10.4% decline from 2015

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## Land Model Results
Land Model Results

Non-Irrigated Land

- 17% decline

Irrigated Land

- 12% decline
Land Model Results

2016 Non-Irrigated Land Values

Pasture Land

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated Value ($/Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>$1,776</td>
</tr>
<tr>
<td>2014</td>
<td>$1,766</td>
</tr>
<tr>
<td>2015</td>
<td>$1,210</td>
</tr>
<tr>
<td>2016</td>
<td>$2,530</td>
</tr>
<tr>
<td></td>
<td>$2,301</td>
</tr>
<tr>
<td></td>
<td>$1,969</td>
</tr>
<tr>
<td></td>
<td>$4,353</td>
</tr>
<tr>
<td></td>
<td>$3,130</td>
</tr>
<tr>
<td></td>
<td>$2,551</td>
</tr>
</tbody>
</table>

8% decline
2016 Pasture Land Values

2016 Irrigated Land Values
Long-Run Growth

Projected Income Per Crop Acre

Corn and Soybean Prices per Bushel

Income per Acre

- Corn
- Soybean
- Income
Land Value Impacts

The long-run multiplier is 21.71 or an implied capitalization rate of 4.61%
  - Long-run elasticity is 96.9%

At a net farm income per acre of $46, the projected long-run Kansas (real) land price is $999, a decline of about 50%
Your Observations…

Responses to the survey from Monday
- 114 people responded
- Majority of values for Kansas (other states: 6)

Reponses by occupation
- Lender: 34%
- Farmer/Rancher: 32%
- Other: 33%
Your Observations

<table>
<thead>
<tr>
<th>KS Region</th>
<th>Lender</th>
<th>Farmer/Rancher</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE</td>
<td>-11%</td>
<td>-7%</td>
<td>-4%</td>
</tr>
<tr>
<td>SE</td>
<td>-5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>NC</td>
<td>-10%</td>
<td>-6%</td>
<td>-5%</td>
</tr>
<tr>
<td>SC</td>
<td>-9%</td>
<td>-3%</td>
<td>-7%</td>
</tr>
<tr>
<td>NW</td>
<td>-20%</td>
<td>-6%</td>
<td>-16%</td>
</tr>
<tr>
<td>SW</td>
<td>-13%</td>
<td>-9%</td>
<td>-14%</td>
</tr>
<tr>
<td>Average</td>
<td>-11.3%</td>
<td>-5.2%</td>
<td>-7.7%</td>
</tr>
</tbody>
</table>

Summary
Summary

Land values have decreased since market high in 2015
- Non-irrigated cropland: -17%
- Irrigated cropland: -12%
- Pasture: -8%

Long-run trends indicate downward movement will continue into 2017 and possibly beyond
- Up to a 50% decline from highest value

Other Comments

Appraiser in Central Kansas
- “Attended 3 auctions in past 5 weeks. There only 12 people at one of them. At another, there were over 100 people, but only 3 bidders.”

Farmers are the biggest buyers of farmland
- When farmers are reluctant to buy, demand falls and isn’t likely to be sufficiently supported by outside investment
- Turnaround will happen when projections for net farm income rebound
Online Resources

2016 Kansas County-Level Ag Land Values
  ◦ www.agmanager.info/land-leasing/land-buying-valuing

2017 Rent Estimates: Non-Irr. & Irrigated Cropland
  ◦ www.agmanager.info/land-leasing/land-rental-rates

Pasture Rental Rate Tool
  ◦ www.agmanager.info/land-leasing/land-rental-rates/pasture-rental-rate-decision-tool