Global Impacts on Iowa Agriculture & Iowa Land Value Outlook

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Pro-Ag Outlook Meeting, Altoona, IA, Nov 13, 2017
A Quick Introduction: Dr. Wendong Zhang

– Grown up in a rural county in NE China
– Attended college in Shanghai and Hong Kong
– Ph.D. in Ag Econ in 2015 from Ohio State
– 2012 summer intern at USDA-ERS on farm economy and farmland values
– Research and extension interests:
  land value/ownership [http://card.iastate.edu/farmland/]
  agriculture and the environment
China Ag: quarterly Ag DM articles
## China vs. US

<table>
<thead>
<tr>
<th>Category</th>
<th>China</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>1350.4 million</td>
<td>318.9 million</td>
</tr>
<tr>
<td>Gross agricultural production</td>
<td>555.2 billion $</td>
<td>232.4 billion $</td>
</tr>
<tr>
<td>Share of Agriculture in Total GDP</td>
<td>10.0%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Share of Agriculture in Employment</td>
<td>35.0%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>China</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Farmers</td>
<td>241.7 million</td>
<td>3.2 million</td>
</tr>
<tr>
<td>Number of Farms</td>
<td>200.2 million</td>
<td>2.1 million</td>
</tr>
<tr>
<td>Total Farmland Area</td>
<td>406.8 million acres</td>
<td>914.5 million acres</td>
</tr>
<tr>
<td>Corn Production Area</td>
<td>89.7 million acres</td>
<td>87.4 million acres</td>
</tr>
<tr>
<td>Soybean Production Area</td>
<td>16.9 million acres</td>
<td>76.3 million acres</td>
</tr>
<tr>
<td>Wheat Production Area</td>
<td>59.6 million acres</td>
<td>45.3 million acres</td>
</tr>
<tr>
<td>Total Size of Vegetable/Herb Greenhouses</td>
<td>83.6 million sq.ft.</td>
<td>61.8 million sq.ft</td>
</tr>
<tr>
<td>Average Farm Size</td>
<td>2.0 acres</td>
<td>433.6 acres</td>
</tr>
</tbody>
</table>
China

$21.4 billion U.S. Agricultural Exports, 2016

Top 5 U.S. Exports
1. Soybeans ($14.2 billion)
2. Course Grains* ($1.0 billion)
3. Hides & Skins ($949 million)
4. Pork ($578 million)
5. Cotton ($550 million)

*Excluding Corn

Export Growth
2006-2016
$6.7 billion

219% Increase
$21.4 billion

#1 Among U.S. Agricultural Export Markets, 2016

Source: FAS Global Agricultural Trade System (GATS) BICO HS-6
China’s Ag Imports by Source Country 2001-2015 ($ Billion)

Source: Choices
2017 Q2 Issue
US Ag Exports to China Increased Significantly since China joined WTO in 2001 ($ Billion)

Source: Choices 2017 Q2 Issue
A steadily increasing disposable income, albeit at a moderating but robust pace, with wide urban-rural gap.
Share of food in rural China’s per capita consumption basket is declining, offset by higher value purchases.
US Loses Market Share as China Increases Meat Imports from the World

Source: Choices 2017 Q2 Issue
“When the Chinese people taste our high-quality U.S. beef, there’s no doubt in my mind that they’ll want more of it” – Sonny Purdue
China sets 2020 target for nationwide ethanol use to cut corn stocks
Why Care About Farmland Market?

Note: F = forecast; data for 2016 and 2017 are forecasts. The GDP chain-type price index is used to convert the nominal (current-dollar) statistics to real (inflation adjusted) amounts (2009=100).

Guiding Framework

Land Value = localized net income / universal interest rate
Percent change in dollar value of "good" farmland

**Top:** July 1, 2017 to October 1, 2017
**Bottom:** October 1, 2016 to October 1, 2017

<table>
<thead>
<tr>
<th>State</th>
<th>July 1, 2017 to October 1, 2017</th>
<th>October 1, 2016 to October 1, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illinois</td>
<td>-1</td>
<td>-3</td>
</tr>
<tr>
<td>Indiana</td>
<td>+1</td>
<td>-4</td>
</tr>
<tr>
<td>Iowa</td>
<td>0</td>
<td>+2</td>
</tr>
<tr>
<td>Michigan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wisconsin</td>
<td>-1</td>
<td>+2</td>
</tr>
<tr>
<td>Seventh District</td>
<td>0</td>
<td>-1</td>
</tr>
</tbody>
</table>

**REALTORS® Land Institute - Iowa Chapter**
September 1, 2017
September 2016 – September 2017

Iowa's farmland values on the rise, but experts say it's unlikely an ag downturn has turned a corner.

*The Des Moines Register*
US Farm Income 1990-2026

U.S. farm income indicators

Source: USDA OCE 2016
The “temporary break” in continued declines results from limited land supply.

Figure 2. Number of public auctions by month, 2011 – 2016

Source: Ag Decision Maker

Data Source: Jim Knuth, Farm Credit Services of America
Farm Crises and this downturn

• Positives
  – High income in pre-crisis “golden” eras
  – Low interest rate environment
  – Prudence among ag lenders and bank regulators

• Uncertainty in government support

• Concerns
  – Deteriorating farm income and ag credit
  – High reliance on ag exports, US $
  – Uncertainty in farmland supply and turnover

• Looking Ahead
Inflation-adjusted Iowa Ag Real Estate Values 1850-2016

Source: USDA-NASS; Ag Census, Iowa Farmland Value Portal
## Positive 1: Real Income Accumulation 2003-2013

<table>
<thead>
<tr>
<th>Golden Eras</th>
<th>Land</th>
<th>Gross Income</th>
<th>Net Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910-1920</td>
<td>1.2%</td>
<td>0.8%</td>
<td>0.2%</td>
</tr>
<tr>
<td>1973-1981</td>
<td>9.7%</td>
<td>0.9%</td>
<td>-3.2%</td>
</tr>
<tr>
<td>2003-2013</td>
<td>11.1%</td>
<td>4.5%</td>
<td>8.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crises and Declines</th>
<th>Land</th>
<th>Gross Income</th>
<th>Net Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>1921-1933</td>
<td>-5.8%</td>
<td>-1.9%</td>
<td>-1.0%</td>
</tr>
<tr>
<td>1981-1987</td>
<td>-15.0%</td>
<td>-2.5%</td>
<td>2.6%</td>
</tr>
<tr>
<td>2013-2017</td>
<td>-4.5%*</td>
<td>-4.5%</td>
<td>-9.8%</td>
</tr>
</tbody>
</table>

Note: The average land value change from 2013 to 2017 is approximate because 2017 land values are unknown. The 1910–1933 gross and net farm income changes are for the whole United States due to limited data at the state level. Land values are based on USDA Census of Agriculture and USDA NASS Land Value and Cash Rent Survey, while the data on farm income is from the USDA Economic Research Service Farm Income and Wealth Statistics database.

Source: USDA-ERS, Ag DM C2-70, Zhang and Beek 2016
Positive 2: Historically low interest rates

Source: http://www.multpl.com/10-year-treasury-rate
Positive 3: Prudence in Ag Lenders/Regulators

• Banking Regulations
  – More stringent, frequent stress-test
  – BASEL III, liquidity requirements for banks
  – (Ron Hansen – Iowa Division of Banking Superintendent) walk into this “with eyes wide open”

• Changes in Loan Practices (FCS, Iowa)
  – Before 1987: loan to value ratio is 85%
  – 1987-2008: loan to value ratio is 65%
  – After 2008: use cash-flow method for collateral ($4 corn, $10 bean) and 50% of cash flow value

Source: Jim Knuth, FCS
Annual Mortgage Payments vs. Cash Rents for Iowa Farmland Loan

Cash Rent or Mortgage Payments ($/acre)

Source: Zhang and Tidgren 2017
Gov’t Safety Net: Broader Coverage ≠ Stronger Income Support

- Dwindling support level from ARC-CO
- Farmers now cannot re-select PLC under current 2014 Farm Bill ($35/acre in 2016/17)
- CRP reaching acreage cap, cannot serve as supply reduction as it did in the 1980s through set-asides
- Almost all producer already enrolled in crop insurance, so not much room for additional support compared to in 1980s only half have crop insurance
Farmland Price Expectations, 12 months from now

Higher Farmland Prices
Lower Farmland Prices

% of respondents

Nov '15  Feb '16  March '16  May '16  July '16  Nov. '16  Feb '17  May '17  Aug. '17

Most Recent Observation: Aug. 2017
Ongoing Surveys

• 2017 Census of Agriculture Survey
  – Starting Dec 2017, Results released Feb 2019
  – Online Link: https://agcensus.usda.gov/

• 2017 Iowa Farmland Ownership and Tenure Survey
  – Ongoing now, results released spring 2018
  – Iowa legislative mandate since 1989, telephone survey
  – Provide info on farmland lease, transition etc.

• 2017 ISU Land Value Survey
2017 Census of Agriculture

• https://www.agcounts.usda.gov/cawi

SECTION 7  PERSONAL CHARACTERISTICS  NO PRIMARY OPERATOR ANYMORE

1. In 2017, how many men and women were involved in decisions for this operation (include family members and hired managers)? Exclude hired workers unless they were a hired manager or family member.  

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

2. Answer the following questions for up to four individuals who were involved in the decisions for this operation as of December 31, 2017.

<table>
<thead>
<tr>
<th>Number</th>
<th>Person 1</th>
<th>Person 2</th>
<th>Person 3</th>
<th>Person 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Becky</td>
<td>Nick</td>
<td>Matt</td>
<td>Jason</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Full name</th>
<th>Completing this form</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>1610</td>
<td>Yes</td>
<td>3 No</td>
<td>Male 2</td>
</tr>
<tr>
<td>1611</td>
<td>Yes</td>
<td>3 No</td>
<td>Male 2</td>
</tr>
<tr>
<td>1612</td>
<td>Yes</td>
<td>3 No</td>
<td>Male 2</td>
</tr>
<tr>
<td>1613</td>
<td>Yes</td>
<td>3 No</td>
<td>Male 2</td>
</tr>
</tbody>
</table>
2017 Land Owner & Tenure Survey

Results will be released spring 2018

• Widely used and best available information
  – Ownership, transition, purchase
  – practices in farmland leasing
  – characteristics of farmland owners

• Statistically representative & sound
  – > 70% response rate (770 parcels, 555 respondents in 2012);
  – the same area sample since 1982; every 5 years since 1992

• New Additions with grants
  – Land Tenure and Conservation
  – Land transfer, transition – compare w USDA TOTAL
2017 ISU Land Value Survey is Ongoing until Dec 1st

- Who: Farm managers, appraisers, real estate brokers, ag lenders, ag sales
- When: December 1st, 2017
- Contact: landvalue@iastate.edu
- Results released Dec 12 Tuesday
Iowa Farmland Value Portal

https://www.card.iastate.edu/farmland

#ISUmland value
Thank You!

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