The Impacts of China on U.S. Ag Trade and Ag Economy

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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 [www.card.iastate.edu/farmland/]
  - agriculture and the environment
  - China Ag center [www.card.iastate.edu/china]
A corny tale

China imports a farm from Iowa

A slice of the Midwest outside Beijing

Publications


Presentations


China enters "New Era" • "Chinese Dream" • Belt and Road Initiative • Xi Jinping 2030? • COE of China
China’s Provinces

My Hometown
My hometown: Shenxian, Shandong Province

Greenhouse – plastic film - Shandong Province
Future of High-Speed Rail in China
China’s demographics – large is beautiful

1.39 bn
Population
54% urban

453 mn
Households

415 mn
Millennials
(30% of population)

217 mn
Gen Z
(18% of population)

1005 mn
Working age population

79 mn
College graduates

1042 mn
Smartphone subscribers

US$ 606 bn
Online retail market size

Note: Millennials are those born in the 1980s & 1990s, Gen Z: Born after 2000s
Source: BBVA Research, China National Bureau of Statistics
China’s 2016 provincial GDP per capita as % of Iowa
## China vs. US

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

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

*(Contract Right Certificate)*

- **Total land size**
- **Number of parcels**

### China’s New Rural Land Transfer Reform

- **2016:** 77 million acres (35% of cropland) transferred; 2007: 5%
- Among them: 30% to co-ops or corps; 80% non-grain production

<table>
<thead>
<tr>
<th>Family Rep.</th>
<th>30-year term</th>
<th>All family members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With at least one 30-year renewal</td>
<td></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
Share of U.S. Agriculture Exported in 2016

More than 20% of total U.S. agricultural production is exported annually.

- >70% Cotton
- >70% Tree Nuts
- >20% Cherries
- >30% Grapes
- 50% Soybeans
- >50% Rice
- >50% Sorghum
- 50% Wheat
- 15% Corn
- 15% Poultry
- 15% Dairy
- 20% Pork
- 10% Beef
- 1%
- 5%
- 2%
- 75%
- 15-18%
- 62%
- 0%

Share of China in US Ag Exports

- 5%

Twitter: @USDAForeignAg  Website: www.fas.usda.gov
Source: USDA-FAS Global Agricultural Trade System (GATS)

United States Department of Agriculture
Foreign Agricultural Service
US Ag Exports by Destination Country 2001-2016 ($ Billion)

Source: Choices
2017 Q2 Issue
## China’s Top Ag Imports Sources

<table>
<thead>
<tr>
<th>Commodity (2016 value of China ag imports)</th>
<th>USA</th>
<th>Brazil</th>
<th>Europe</th>
<th>Australia</th>
<th>Argentina or Uruguay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean ($34.4 Bil.)</td>
<td>38%</td>
<td>47%</td>
<td></td>
<td></td>
<td>A-10%</td>
</tr>
<tr>
<td>Pork ($2.32 Bil.)</td>
<td>13%</td>
<td></td>
<td>50%</td>
<td></td>
<td>Canada: 11%</td>
</tr>
<tr>
<td>Ethanol ($0.38 Bil.)</td>
<td>70%</td>
<td>11%</td>
<td></td>
<td>Pakistan 15%</td>
<td></td>
</tr>
<tr>
<td>Beef ($2.42 Bil.)</td>
<td>0%</td>
<td>22%</td>
<td>28%</td>
<td>U-21%</td>
<td></td>
</tr>
<tr>
<td>Poultry ($1.11 Bil.)</td>
<td></td>
<td></td>
<td>79%</td>
<td></td>
<td>A-9%</td>
</tr>
<tr>
<td>Corn ($0.87 Bil.)</td>
<td>10%</td>
<td></td>
<td></td>
<td>Ukraine: 79%</td>
<td></td>
</tr>
</tbody>
</table>
US Loses Market Share as China Increases Meat Imports from the World

Source: Choices
2017 Q2 Issue
China aims to build a global infrastructure network
“Belt and Road” infrastructure projects, planned and completed (March 2017)

Belt and Road Initiative
Most Chinese people are still much poorer than the average American.

China’s GDP will overtake the U.S. level in 2028 at these projected average growth rates:

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. GDP per capita (PPP)</th>
<th>China GDP per capita (PPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>$37,283</td>
<td>$1,846</td>
</tr>
<tr>
<td>2016</td>
<td>$53,417</td>
<td>$14,275</td>
</tr>
</tbody>
</table>

U.S. GDP per capita was 3.7 times that of China in 2016.

Urbanization in China was lower than that of the U.S. in 1910 and 1950:

- United States: 79.8% in 2004, 81.8% in 2016
- China: 41.1% in 2004, 56.8% in 2016

Bloomberg
Share of food in rural China’s per capita consumption basket is declining, offset by higher value purchases.

**Graph:** Rural annual per capita consumption expenditure (RMB)

- **Food**
- **Clothing**
- **Residence**
- **Hhd facility & service**
- **Transport & Telecom**
- **Recreation & Education**
- **Miscellaneous**

**Legend:**
- Blue: Food
- Light blue: Residence
- Orange: Hhd facility & service
- Yellow: Transport & Telecom
- Red: Recreation & Education
- Green: Miscellaneous

**Source:** China Consumption Trends | 2017

**Iowa State University**

**Center for Agricultural and Rural Development**

**BBVA | RESEARCH**
Lbs per capita Meat Consumption by Country 2016

- Vietnam
- United States
- Sub-Saharan Africa
- Russia
- OECD Countries
- Mexico
- Korea
- Japan
- European Union
- Egypt
- China
- Canada
- BRICS countries
- Brazil
- Australia
- Argentina

Source: OECD
Urban Chinese prefer to travel, stay connected, buy protein rich food, durable goods & recreation

Urban annual per capita consumption expenditure

CHINA CONSUMPTION TRENDS | 2017

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GMO in China: Controversy/Divide

China Wants GMOs. The Chinese People Don't.

After Decades Of Wariness, China To Grow GMOs

The Chinese have long been wary of genetically modified organisms. The country allows imports of genetically modified corn and soybeans for animal feed. But it’s held off on domestic commercialization of those crops.

Over the past year, China has signaled it would relax that stance. This week it released its latest five-year plan for science and technology, saying it would push for the commercialization of biotech corn and soybeans in the next few years.
China OKs two GMO products for import

WASHINGTON, July 17, 2017 - China has approved two more genetically modified products for import, which should leave four products awaiting decisions from the Chinese Ministry of Agriculture (MOA). But Dow AgroSciences said today that the ministry is “now indicating that Enlist soybeans is not covered” by a 100-day economic action plan initiated by the U.S. and Chinese governments in April.

The ministry has approved Syngenta’s Agrisure Duracade corn, engineered to be resistant to corn rootworm, and Monsanto’s Roundup Ready corn. Dow received import approval last month for Enlist corn, which China approved along with a Monsanto soybean variety, Vistive Gold. At the time, Dow said it had received inquiries from China’s National Biosafety Committee about Enlist soybeans and planned to address those questions quickly.

Today, Dow AgroSciences said it “understands Enlist soybeans was considered one of ‘the eight pending biotechnology traits’ by the U.S. Department of Commerce for the 100-day initiative referenced in the (U.S.-China) joint release on May 10,” which provided a progress report on the 100-day plan.
Farmland Acres Owned by Chinese Owners as of 2016

The map shows the distribution of farmland acres owned by Chinese owners across the United States. Each state is color-coded to indicate the range of acres owned:

- Light yellow: 0-1500 acres
- Light green: 1500-3000 acres
- Medium green: 3000-4500 acres
- Dark green: 4500-6000 acres
- Very dark green: 6000-7500 acres
- Black: 7500-9000 acres

States with the highest concentration of farmland acres owned by Chinese owners include California, Arizona, and Colorado.

China announced the plan to implement a nationwide E10 (gasoline with 10% ethanol) mandate, by 2020. This mandate will require the fuel ethanol consumption in China to increase by four times. Even if China manages to build enough refineries in the short time, feedstock supply, which is mostly corn, will eventually run into shortage, creating opportunities for ethanol and/or corn importers.


Before 2016, Chinese farmers is protected by a price support program that kept domestic price at about 2~3 times the US price. This support price not only incurred huge cost in payments, but also built up a corn stock that’s more than half of the world’s total stock. Starting from 2016, China switched from the price support to a producer support determined by acres planted. This is a sign that China is downplaying the strategic role of corn, which suggests the possibility of a transition towards greater involvement in the global marketplace.
2018/19 Margins w/ 2017 Costs
(2018 Costs slightly lower)
Average NFI and Adjusted Farm Cash Income (AFCI = NFI + Depreciation)

Source: Iowa Farm Costs and Returns. Ag Decision Maker File C1 - Various years.
China Soybean Import

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China’s projected corn import potential and the role of ethanol

Li Hayes Zhang 2017
Ag Policy Review
China’s projected corn import potential and the role of ethanol

Li Hayes Zhang 2017
Ag Policy Review

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Estimated Returns to Farrow to Finish, Iowa
Past and Projected with Basis Adjusted Futures

2013 = +$6.21 [-$25.60 to +$24.57]
2014 = +$61.85 [+$.13.15 to +$107.25]
2015 = +$7.93 [-$18.40 to +$26.25]
2016 = -$1.26 [-$35.52 to +$32.92]
2017 = +$11.95 [-$12.68 to +$47.62]
2018' = +$15.63 [-$9.98 to +$36.47]
So why are land values going up?

- Livestock profitability
- Loose monetary policy in the absence of inflation
- China
Topography
Agricultural Resources

• China has gone below the politically sensitive 120 million hectares (296 million acres), has at most 275 million acres, a lot of which is poor quality land that cannot be mechanized and should not be farmed

• The US has about 360 million acres in crops and about 400 million acres of pasture, total agricultural area of almost a billion acres

• China has introduced tradable development permits to maintain its crop area
Crop Land Reform in China

- China has begun to take seriously its red line on the minimum amount of crop land
- If you wish to use one acre for development you have to “create” a crop acre somewhere else
- It is allowing permits to be traded
- This has increased the opportunity cost of land in existing livestock buildings and made it difficult to build new buildings
Chinese Sow Numbers (000 Head)
Source USDA FAS PS&D and China GAIN Report
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A slice of the Midwest outside Beijing

**Presentations**


Thank You!

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