China Enters “New Era”: What It Means for US and Global Agriculture

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Growmark Invision Grower Meeting
Tama, Iowa, February 8th, 2018
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/](http://www.card.iastate.edu/farmland/)
  - agriculture and the environment
- China Ag center [www.card.iastate.edu/china](http://www.card.iastate.edu/china)
A corny tale

China imports a farm from Iowa

A slice of the Midwest outside Beijing

Presentations


Publications


Global Population Density
My hometown: Shenxian, Shandong Province

Greenhouse – plastic film - Shandong Province
Ag Drought Risk In China

Wu et al. 2011 Natural Hazards
## 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>
Chinese land is owned by collectives
(Contract Right Certificate)

Family Rep.

30-year term
With at least one 30-year renewal

All family members

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
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 2000
Source: BBVA Research, China National Bureau of Statistics
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:

- **U.S.** 2.0%
- **China** 6.5%

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP per capita (PPP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>United States $37,283</td>
</tr>
</tbody>
</table>

U.S. GDP per capita was 20.2 times that of China.

- 2004 Urbanized population:
  - United States 79.8%
  - China 41.1%

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

- 2016 Urbanized population:
  - United States 81.8%
  - China 56.8%

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

Even on a purchasing power parity basis, the Chinese person still had a consumption surplus relative to the U.S. —

**2016 GDP per capita (PPP)**

- United States $53,417
- China $14,275

U.S. GDP per capita was 3.7 times that of China.
China’s 2016 provincial GDP per capita as % of Iowa
2016
Area planted (Yield, Bu/acre)
US: 90 mil. acres (48)
Iowa: 10 mil. acres (56)
China: 16 mil. acres (26)

China Corn

2016
Area planted (Yield, Bu/acre)
US: 88 mil. acres (154)
Iowa: 14 mil. acres (188)
China: 91 mil. acres (88)

China Soybean
2016 Production

**US:** 25 Bil. lbs
**Iowa:** 9 Bil. lbs
**China:** 117 Bil. lbs

**China Pork**

2016 Production

**US:** 26 Bil. lbs
**Iowa:** 1.2 Bil. lbs
**China:** 15 Bil. lbs

**China Beef**
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
- 50% Soybeans
- >20% Cherries
- >30% Grapes

Share of China in US Ag Exports

- >50% Sorghum: 75%
- >50% Rice: 0%
- 50% Wheat: 5%
- 15% Corn: 2%
- 15% Dairy: 10%
- 15% Poultry: 1%
- 20% Pork: 16%
- 12-15% Apples: 15%
- 16% Tree Nuts: 62%
- 0% Beef: 0%

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></td>
<td>Pakistan 15%</td>
</tr>
<tr>
<td>Beef ($2.42 Bil.)</td>
<td>0%</td>
<td>22%</td>
<td>28%</td>
<td></td>
<td>U-21%</td>
</tr>
<tr>
<td>Poultry ($1.11 Bil.)</td>
<td></td>
<td>79%</td>
<td></td>
<td></td>
<td>A-9%</td>
</tr>
<tr>
<td>Corn ($0.87 Bil.)</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
<td>Ukraine: 79%</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
Share of food in rural China’s per capita consumption basket is declining, offset by higher value purchases.
Ibs per capita Meat Consumption by Country 2016

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

Urban annual per capita consumption expenditure

Food: Meat, Poultry & Related
HS: Durable Consumer Goods
Transport & Communication: Communication
Food: Dining Out
Transport & Communication: Transport
RS: Recreation Service

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CHINA CONSUMPTION TRENDS | 2017

BBVA RESEARCH

CARD
Center for Agricultural and Rural Development
Of Maize and Markets: China’s New Corn Policy

Wu and Zhang 2016
Ag Policy Review

Dollars per bushels

Source: http://www.quandl.com/
Of Maize and Markets: China’s New Corn Policy


Wu and Zhang 2016
Ag Policy Review

Pork producing regions
Corn producing regions
Both pork and corn producing regions
China Corn Yield

2015 Soybean Yield
US: 48 Bu/acre
Iowa: 56 Bu/acre
China: 26 Bu/acre

China Soybean Yield

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Extension and Outreach
Of Maize and Markets: China’s New Corn Policy

Wu and Zhang 2016
Ag Policy Review

Source: USDA FAS Grain: world markets and trade
China sets 2020 target for nationwide ethanol use to cut corn stocks

China’s Ethanol Trial

China’s Ethanol Industry in 2016

4th largest producer – 1 Bil gal.
- After US, Brazil and EU
- Corn ethanol 64%
- Also uses cassava, sorghum, corn stover
- Imported 225 mil. gal, mainly from U.S.
- Tariff rose from 5% to 30%

China consumes 40 bil. gal gasoline; 1 bil. gal ethanol in 2016
China’s projected corn import potential and the role of ethanol

Li Hayes Zhang 2017
Ag Policy Review
GMO in China: Controversy/Divide
China Wants GMOs. The Chinese People Don't.

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.
GMO in China: Controversy/Divide

Yongyuan Cui

Larry King in China; Key opponent voice of GMO

GMO corn illegal
China OKs two GMO products for import

07/17/17 2:45 PM  By Steve Davies

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.
China's cities lead the world in bike-sharing schemes

Number of shared bicycles by city and bike-sharing company ('000)

<table>
<thead>
<tr>
<th>City</th>
<th>Bikes ('000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai (all schemes)</td>
<td>450</td>
</tr>
<tr>
<td>Beijing, Shenzhen, Guangzhou</td>
<td>100</td>
</tr>
<tr>
<td>London (Santander Cycles)</td>
<td>13.6</td>
</tr>
<tr>
<td>New York City (Citi Bike)</td>
<td>10</td>
</tr>
<tr>
<td>Washington DC (Capital Bike)</td>
<td>3.7</td>
</tr>
<tr>
<td>San Francisco (Bay Area)</td>
<td>1.03</td>
</tr>
</tbody>
</table>

Sources: Shanghai Municipal Communist Party Committee; companies named above: SPIN

China's 'Uber for bikes' model is going global

Verification

- Mobile
- Deposit
- ID
- Start riding

Name: Please enter full name
ID: Enter Chinese ID number

Verify

Don't have Chinese Identity card, Click here.
A corny tale

China imports a farm from Iowa

A slice of the Midwest outside Beijing

Presentations


Iowa Farmland Value Portal

#ISUlandvalue

2% increase since Nov 2016

http://bit.ly/LandResults2017
Thank You!

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