

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

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2018 Land Investment Expo

West Des Moines, Iowa, January 26th, 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/agriculture and the environment](http://www.card.iastate.edu/farmland/agriculture_and_the_environment)

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Publications

Minghao Li, Wendong Zhang, Dermot Hayes, Riley Arthur, Yantao Yang, and Xiudong Wang. 2017. ["China's New Nationwide E10 Ethanol Mandate and Its Global Implications."](#) *Agricultural Policy Review*. Center for Agricultural and Rural Development, Iowa State University.

Wu, Qianrong, and Wendong Zhang. 2016. ["Of Maize and Markets: China's New Corn Policy."](#) *Agricultural Policy Review*. Center for Agricultural and Rural Development, Iowa State University.

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A corny tale

The
Economist

China imports a farm from Iowa

A slice of the Midwest outside Beijing

Presentations

Zhang, Wendong. 2017. ["Recent Developments in China and its Impacts on US Agriculture."](#) 2017 Pro-Ag Outlook, November 17, 2017.

Zhang, Wendong. 2017. ["From Northeast China to the Midwest."](#) AMMO Club, November 6, 2017.

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Lawrence, John, and Zhang, Wendong. 2017. ["Understanding the U.S. Farm Bill: Policy to Practice."](#) Presentation to the Chinese Ministry of Agriculture, Agricultural Trade Promotion Center Delegation, Ames, Iowa, May 30, 2017.

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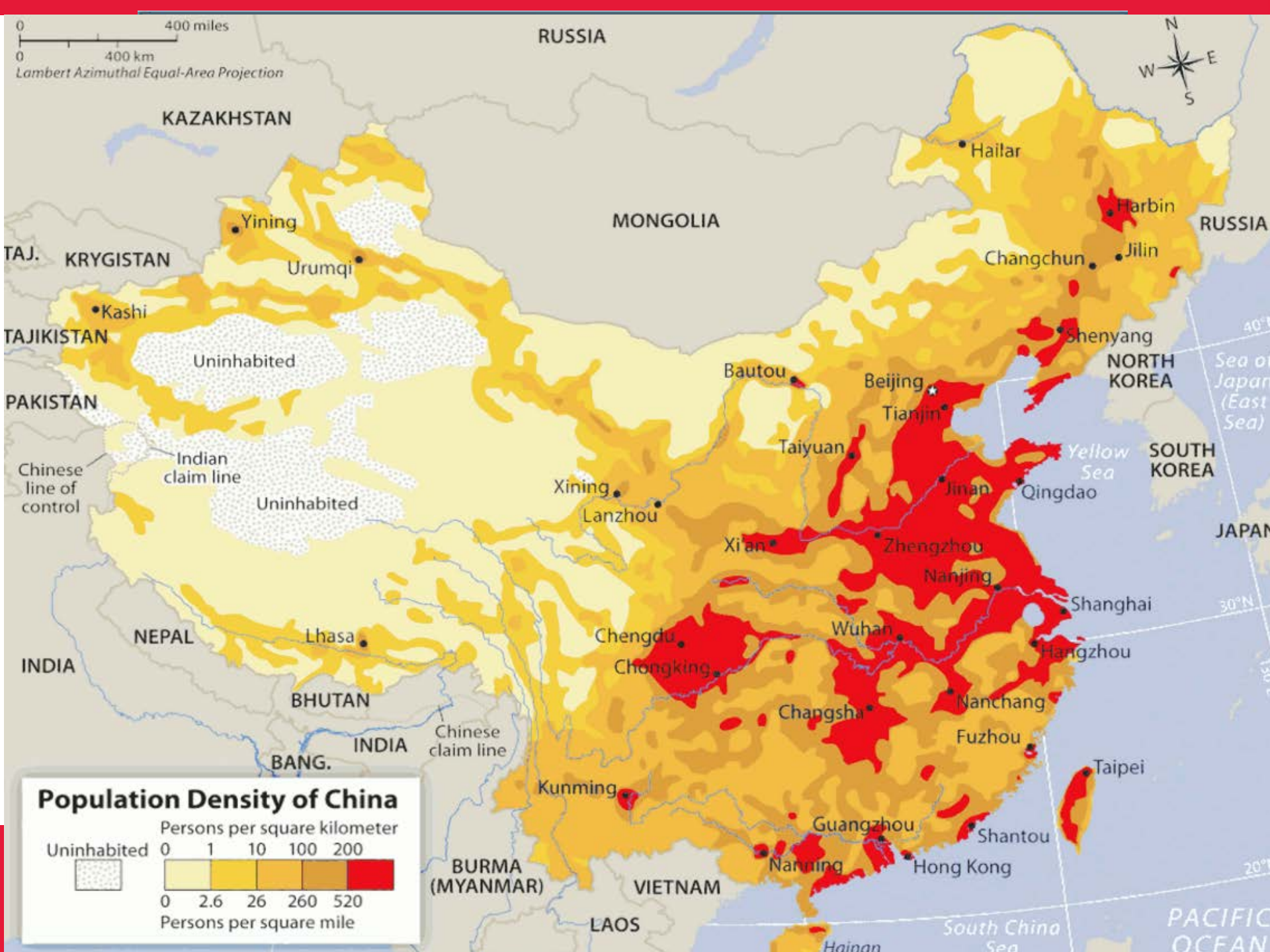
China's Provinces



My hometown: Shenxian, Shandong Province

Greenhouse – plastic film - Shandong Province





China High Speed Train Network Map

- Main Cities
- Speed of 300 km/h or above
- Speed of 200-250 km/h
- C train: intercity train



This map illustrates the projected high-speed rail (HSR) network in China by the year 2020. The network is shown as a dense web of lines across the country, with a legend in the bottom left corner indicating line types and speeds:

- 350 km/h
- 250 km/h
- 200 km/h
- Major

Key lines and stations labeled on the map include:

- North China:** Beijing-Tianjin-Jing-Jin-Ji, Beijing-Shanghai, Beijing-Harbin, Beijing-Kowloon, Beijing-Tsingtao, Beijing-Liaoning, Beijing-Taipei, Beijing-Hong Kong, Beijing-Guangzhou, Beijing-Shenzhen, Beijing-Xinjiang, Beijing-Tibet, Beijing-Mongolia, Beijing-Russia, Beijing-Korea, Beijing-Japan, Beijing-USA, Beijing-Europe, Beijing-Africa, Beijing-Oceania.
- East China:** Shanghai-Hangzhou, Shanghai-Nanjing, Shanghai-Wuxi, Shanghai-Zhuzhou, Shanghai-Chongqing, Shanghai-Kunming, Shanghai-Lanzhou, Shanghai-Urumqi, Shanghai-Xi'an, Shanghai-Tianjin, Shanghai-Beijing, Shanghai-Hong Kong, Shanghai-Taipei, Shanghai-Japan, Shanghai-Korea, Shanghai-USA, Shanghai-Europe, Shanghai-Africa, Shanghai-Oceania.
- Central China:** Zhengzhou-Kunming, Zhengzhou-Lanzhou, Zhengzhou-Xi'an, Zhengzhou-Tianjin, Zhengzhou-Beijing, Zhengzhou-Hong Kong, Zhengzhou-Taipei, Zhengzhou-Japan, Zhengzhou-Korea, Zhengzhou-USA, Zhengzhou-Europe, Zhengzhou-Africa, Zhengzhou-Oceania.
- South China:** Guangzhou-Shenzhen, Guangzhou-Hong Kong, Guangzhou-Taipei, Guangzhou-Japan, Guangzhou-Korea, Guangzhou-USA, Guangzhou-Europe, Guangzhou-Africa, Guangzhou-Oceania.
- West China:** Chengdu-Kunming, Chengdu-Lanzhou, Chengdu-Xi'an, Chengdu-Tianjin, Chengdu-Beijing, Chengdu-Hong Kong, Chengdu-Taipei, Chengdu-Japan, Chengdu-Korea, Chengdu-USA, Chengdu-Europe, Chengdu-Africa, Chengdu-Oceania.
- Northwest China:** Lanzhou-Xi'an, Lanzhou-Tianjin, Lanzhou-Beijing, Lanzhou-Hong Kong, Lanzhou-Taipei, Lanzhou-Japan, Lanzhou-Korea, Lanzhou-USA, Lanzhou-Europe, Lanzhou-Africa, Lanzhou-Oceania.
- Southwest China:** Kunming-Lanzhou, Kunming-Xi'an, Kunming-Tianjin, Kunming-Beijing, Kunming-Hong Kong, Kunming-Taipei, Kunming-Japan, Kunming-Korea, Kunming-USA, Kunming-Europe, Kunming-Africa, Kunming-Oceania.

Source: National Development and Reform Commission



China's demographics – large is beautiful

1.39 bn

Population
54% urban

453 mn

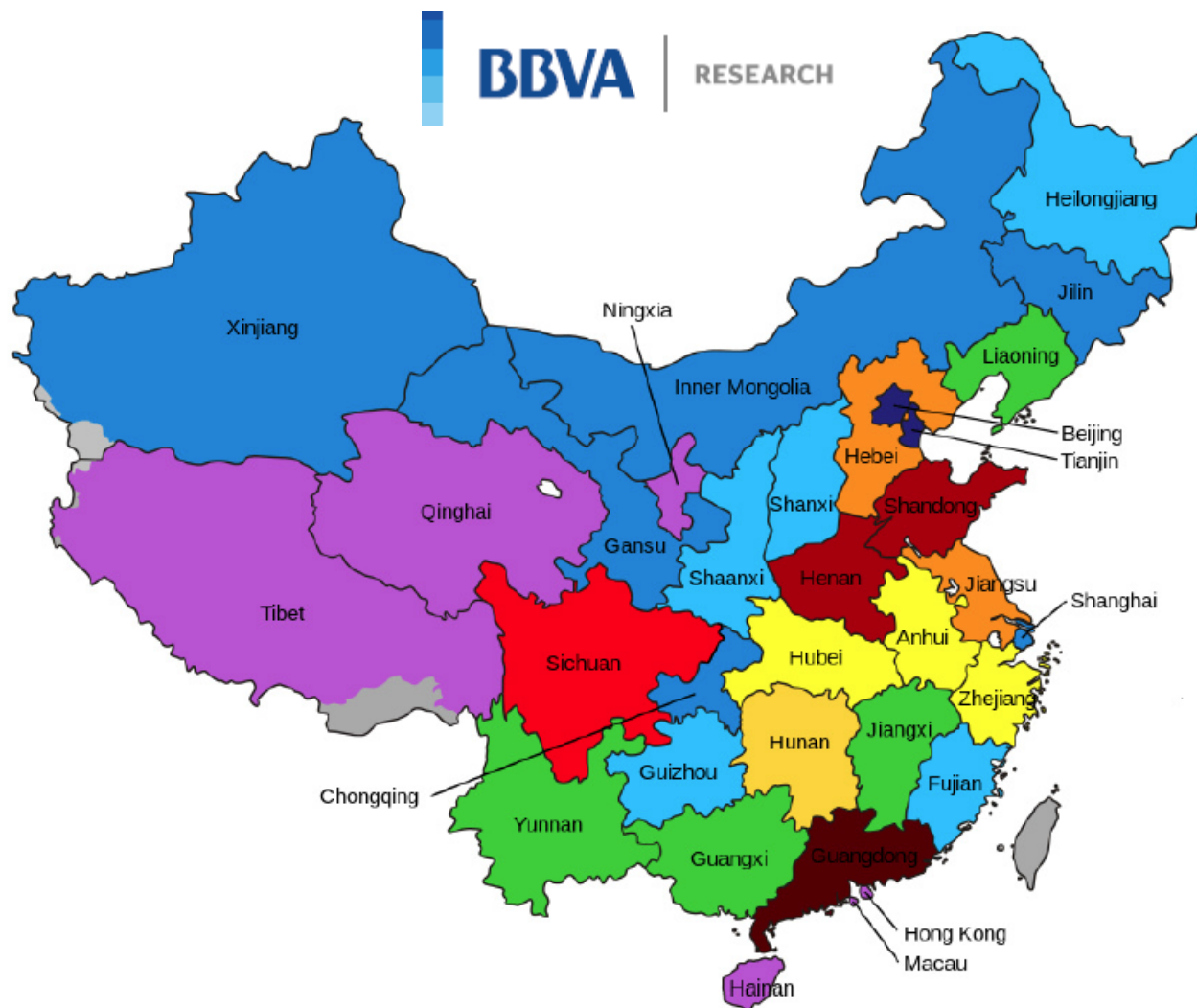
Households

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

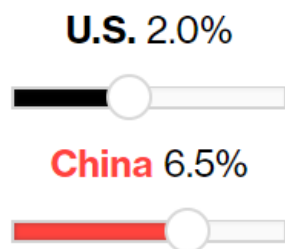
Online retail
market size

Note : Millennials are those born in the 1990s & 1990s, Gen Z : born after 2000s

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:



Bloomberg

1992
GDP per capita (PPP)
\$37,283
United States
\$1,846
China

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

2004
Urbanized population
79.8%
United States
41.1%
China

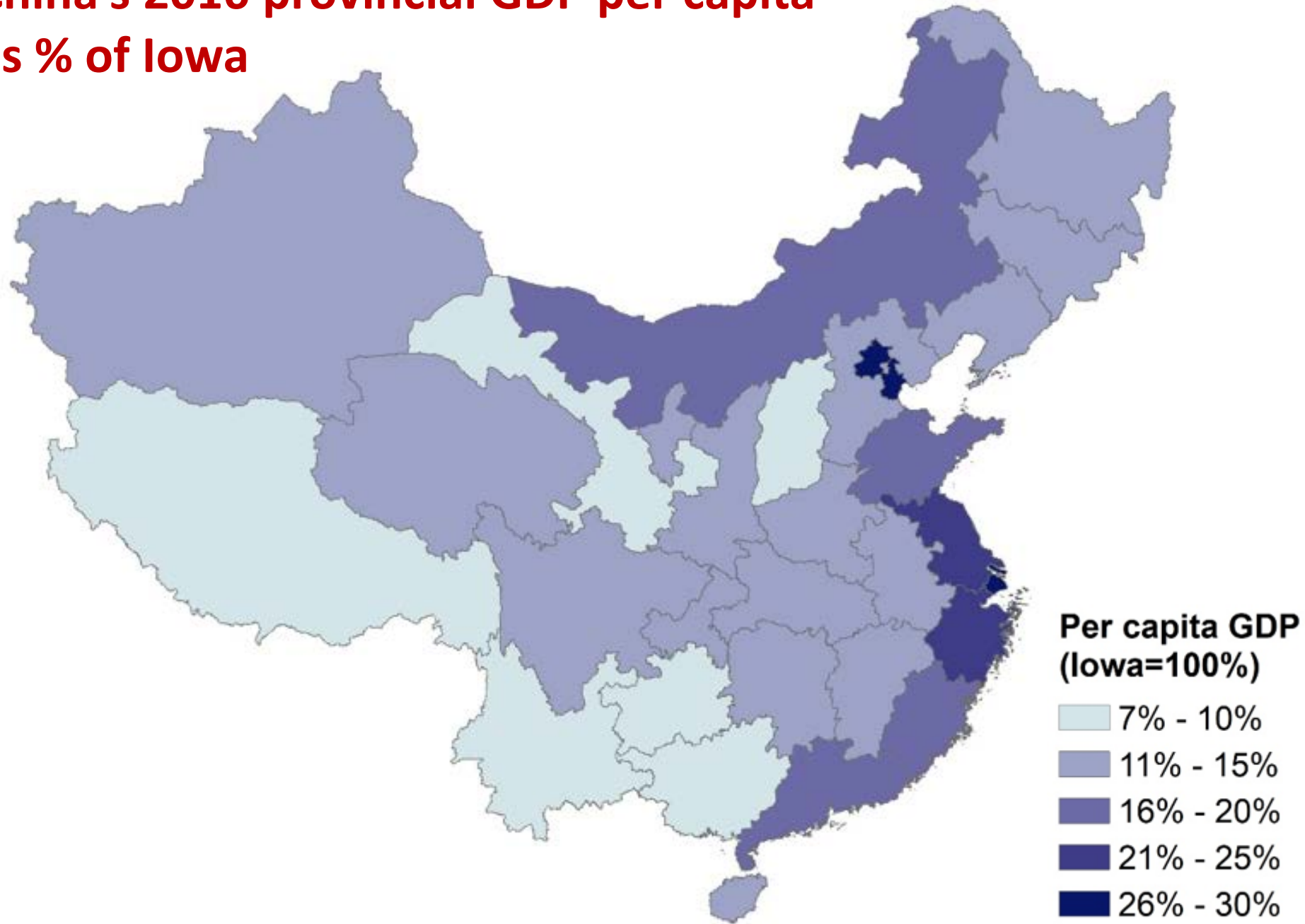
Urbanization in China was lower than that of the U.S. in 1910

2016
GDP per capita (PPP)
\$53,417
United States
\$14,275
China
U.S. GDP per capita was 3.7 times that of China

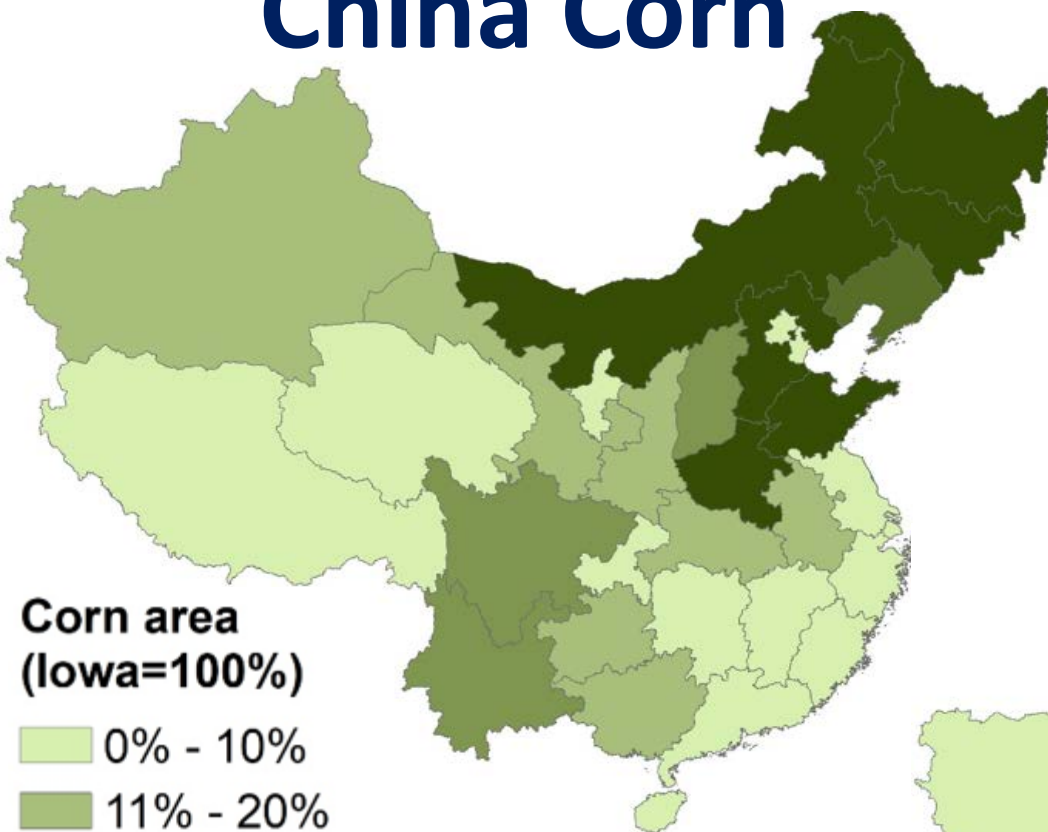
2016
Urbanized population
81.8%
United States
56.8%
China

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

China's 2016 provincial GDP per capita as % of Iowa



China Corn



2016

Area planted (Yield, Bu/a):

US: 88 mil. acres (154)

Iowa: 14 mil. acres (188)

China: 91 mil. acres (88)

2016

Area planted

(Yield, Bu/acre)

US: 90 mil. acres (48)

Iowa: 10 mil. acres (56)

China: 16 mil. acres (26)

Soybean area (Iowa=100%)

< 5%

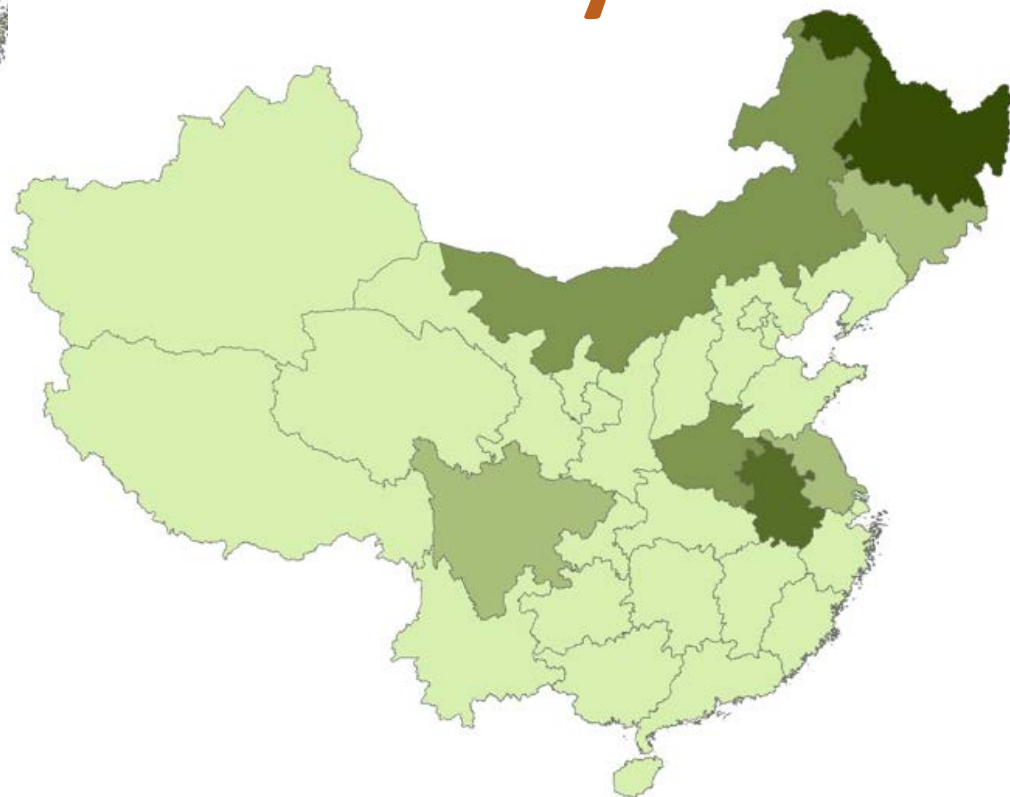
6% - 10%

11% - 20%

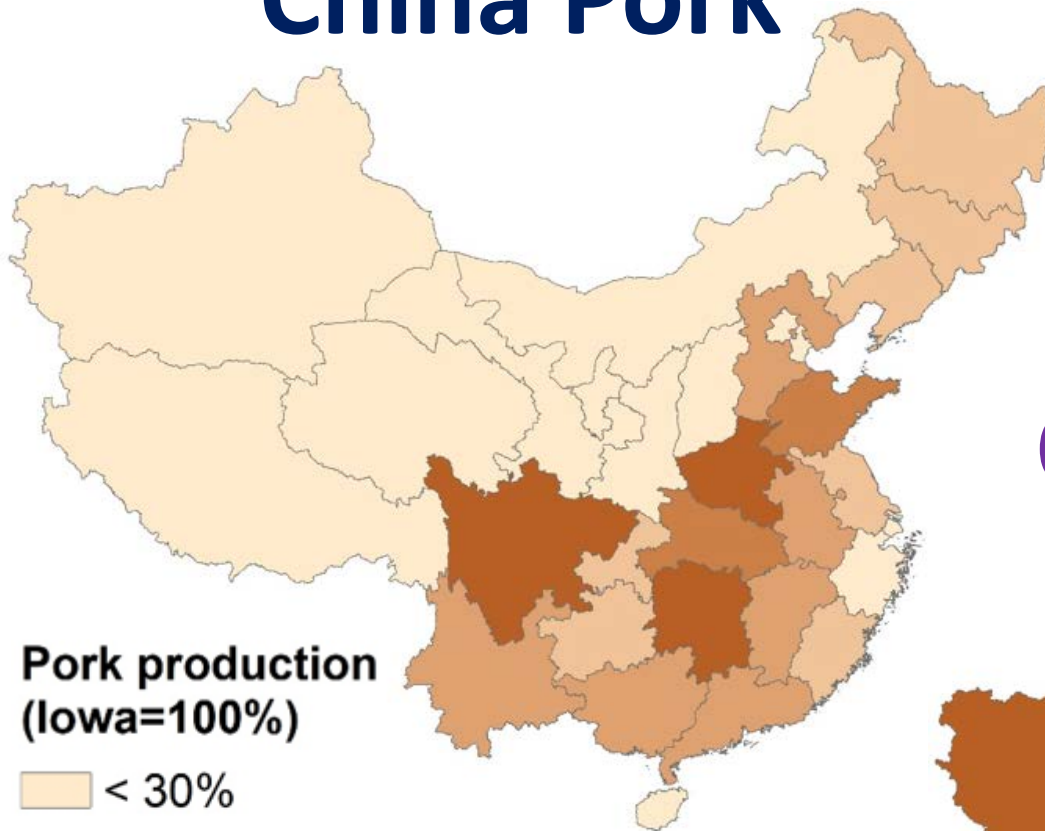
21% - 25%

26% - 65%

China Soybean



China Pork



2016 Production

US: 25 Bil. lbs

Iowa: 9 Bil. lbs

China: 117 Bil. lbs

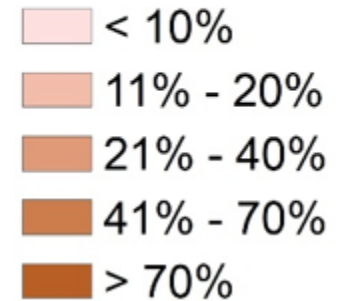
2016 Production

US: 26 Bil. lbs

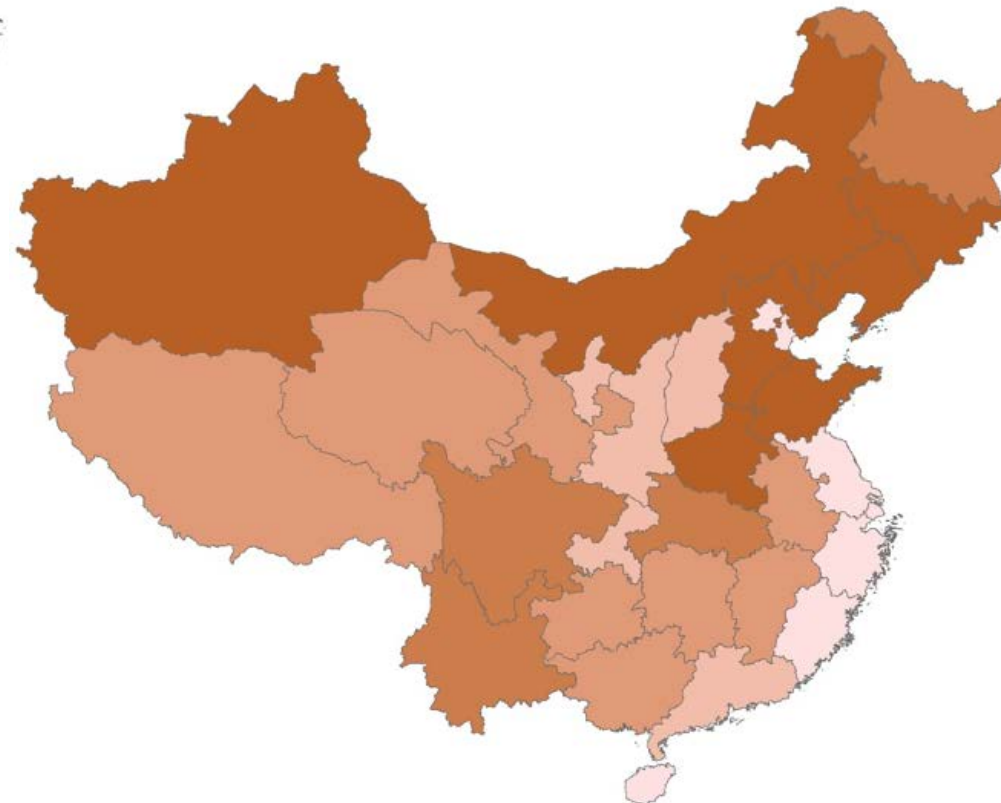
Iowa: 1.2 Bil. lbs

China: 15 Bil. lbs

**Beef production
(Iowa=100%)**



China Beef



China vs. US

prev

	China	US
Total Population	1350.4 million	318.9 million
Gross agricultural production	555.2 billion \$	232.4 billion \$
Share of Agriculture in Total GDP	10.0%	1.3%
Share of Agriculture in Employment	35.0%	2.0%

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

Chinese land is owned by collectives (Contract Right Certificate)

Total land size

Number of parcels

Family Rep.

30-year term

With at least one
30-year renewal

All family
members

发包方 全 称	美兰县灵山乡 (盖章)			承包地总 面积(亩)	2.05	承包地块 总数(块)	8块
承包方代 表姓名	吴乾洪			地块 名称	面积 (亩)	等级	地类
承包方 住 址	美兰县灵山乡 东村 村宅组			秧田	0.32		水田
土地承 包合同 编号				四 至			
承包期限	1998年1月1			东: 水沟 南: 乾荣			
承包方式	家庭承包			西: 亚花 北: 陈明			
承包土 地用途	农业用地			东: 好豆 南: 路			
承包方土地承包经营				西: 陈明 北: 好妹			
姓 名	性 别	年 龄		东: 陈有 南: 世金			
吴乾洪	男	51		西: 提屯 北: 公路			
林桂兰	女	54		东: 好风 南: 陈明			
吴坤森	男	24		西: 陈风 北: 乾荣			
吴亚玉	女	23		东: 陈有 南: 乾洪			
				西: 世昌 北: 水沟			
				东: 陈有 南: 乾洪			
				西: 提屯 北: 水			
				东: 水沟 南: 好荣			
				西: 黑田 北: 正兰			
				东: 提屯 南: 才金			
				西: 提屯 北: 乾荣			

**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**



United States Department of Agriculture Foreign Agricultural Service

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



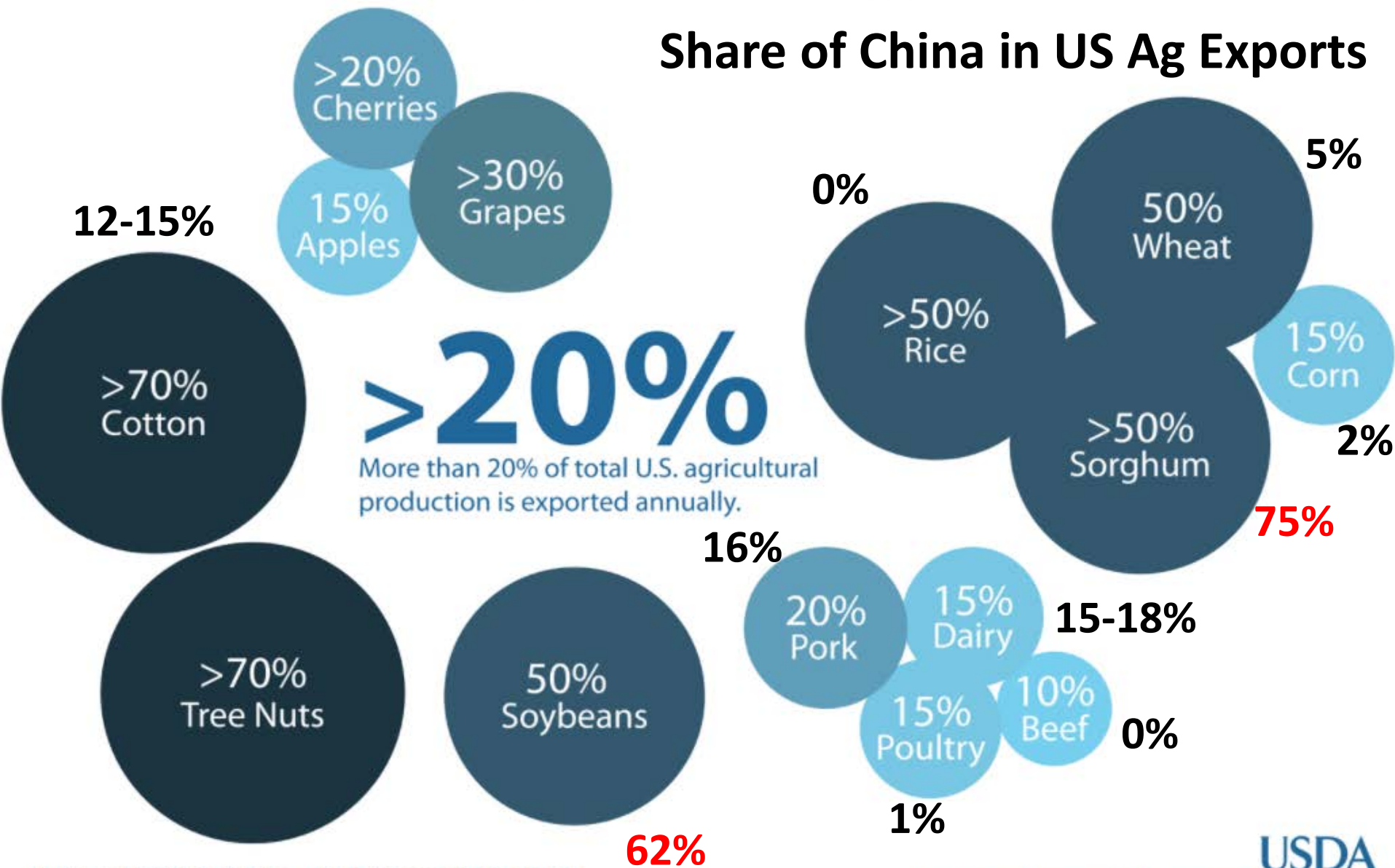
#1

Among U.S.
Agricultural Export
Markets, 2016

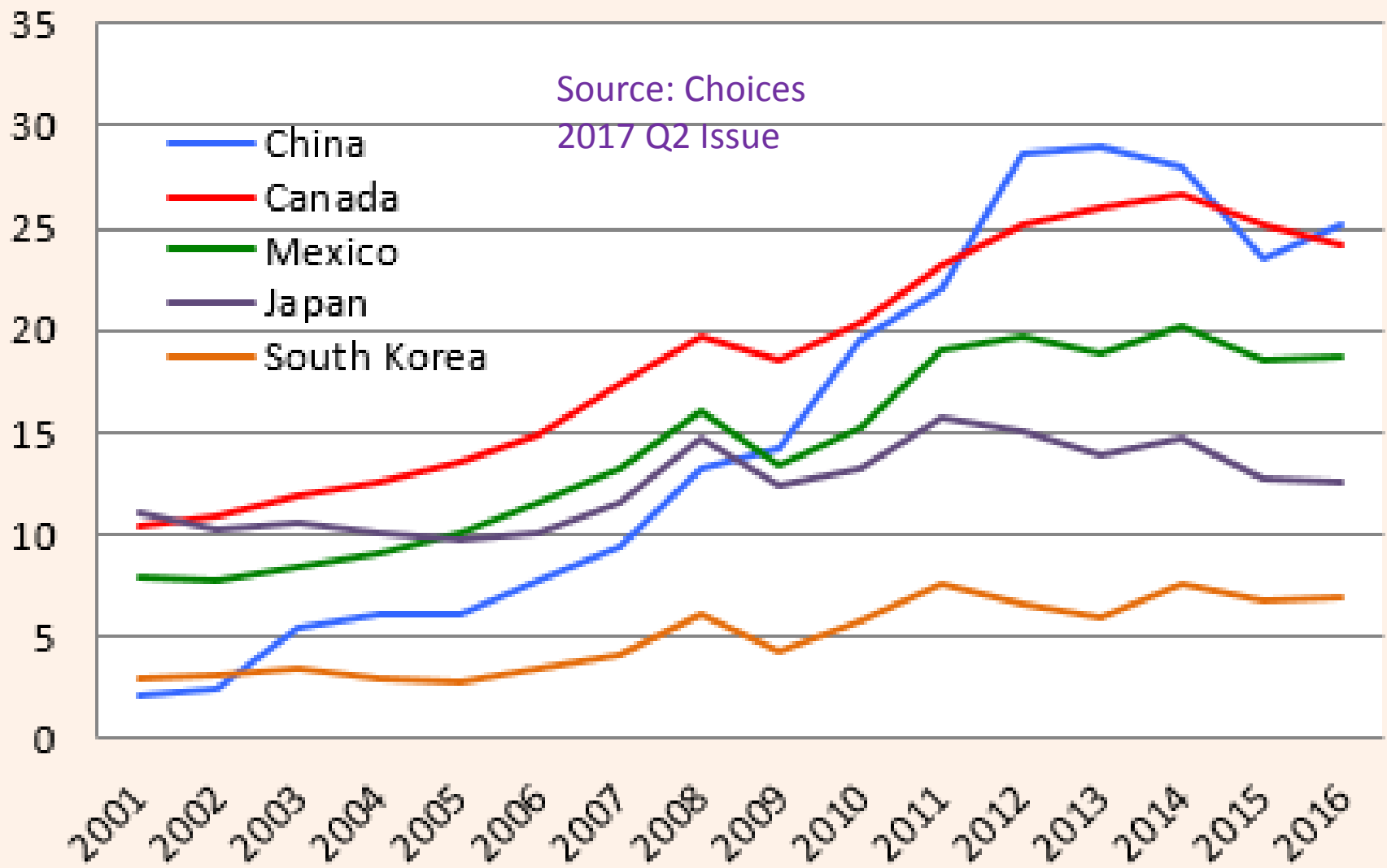
Source: FAS Global Agricultural Trade System (GATS) BICO HS- 6

Share of U.S. Agriculture Exported in 2016

Share of China in US Ag Exports



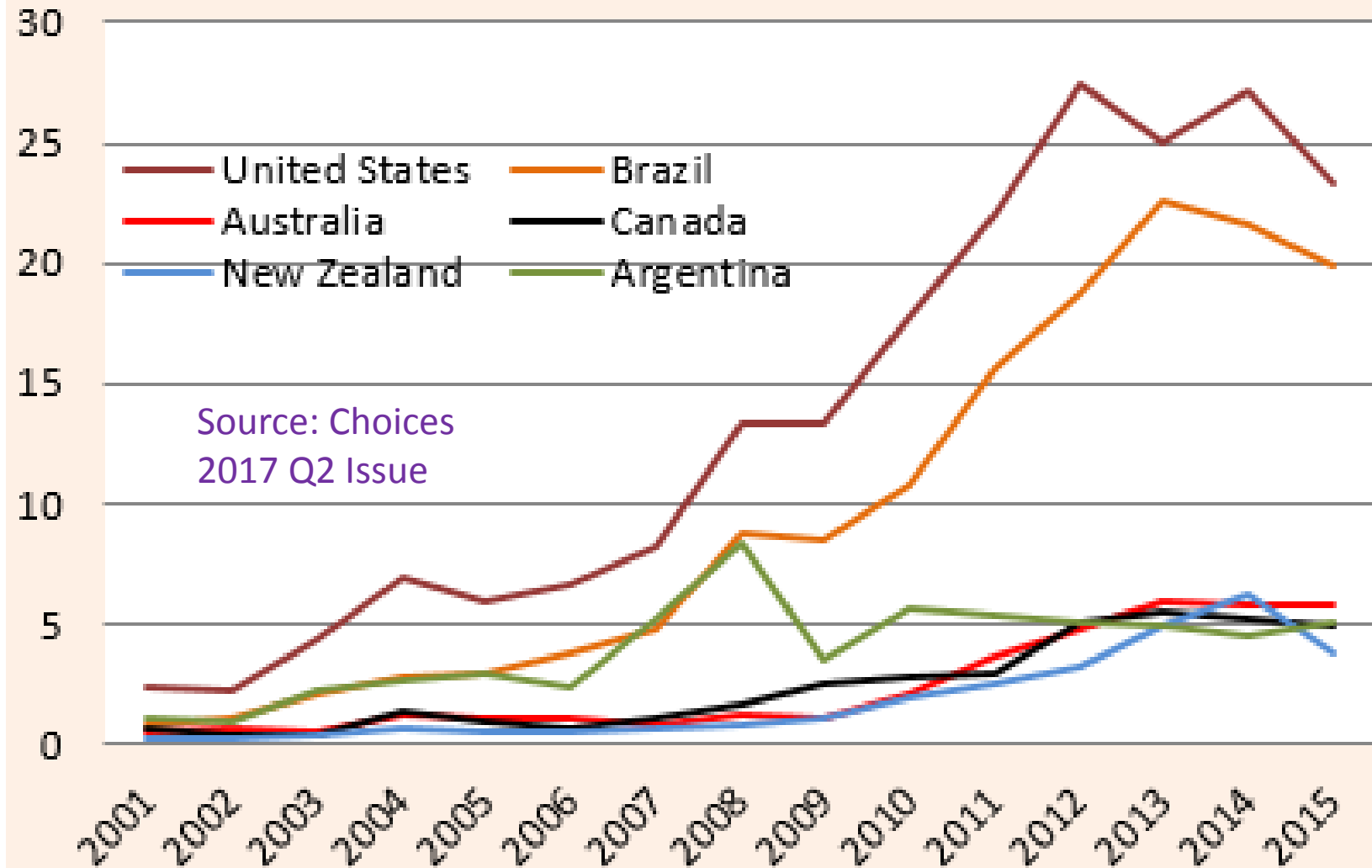
US Ag Exports by Destination Country 2001-2016 (\$ Billion)



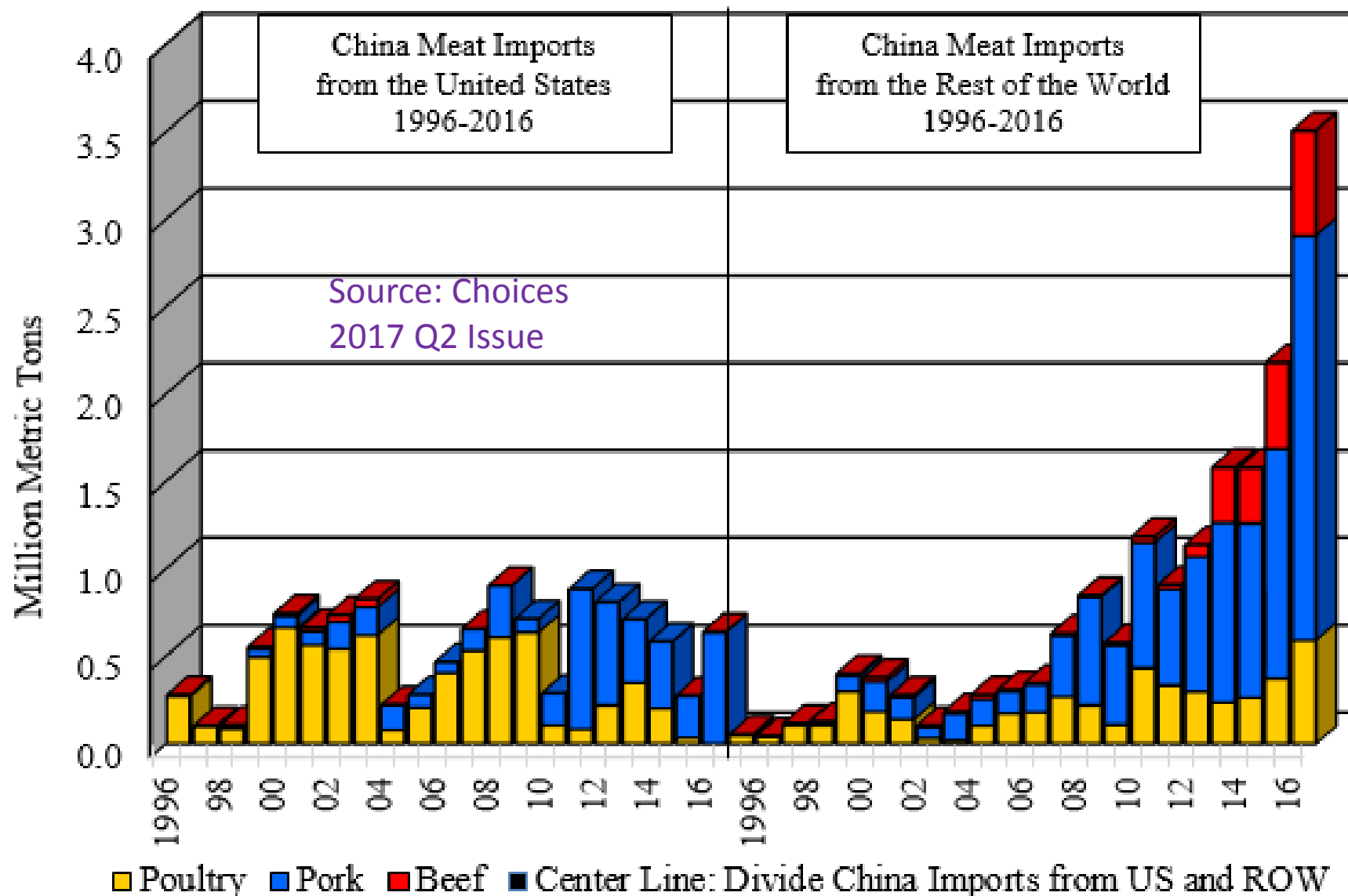
China's Top Ag Imports Sources

Commodity (2016 value of China ag imports)	USA	Brazil	Europe	Australia	Argentina or Uruguay
Soybean (\$34.4 Bil.)	38%	47%			A-10%
Pork (\$2.32 Bil.)	13%		50%	Canada: 11%	
Ethanol (\$0.38 Bil.)	70%	11%	Pakistan 15%		
Beef (\$2.42 Bil.)	0%	22%		28%	U-21%
Poultry (\$1.11 Bil.)		79%			A-9%
Corn (\$0.87 Bil.)	10%	Ukraine: 79%			

China's Ag Imports by Source Country 2001-2015 (\$ Billion)



US Loses Market Share as China Increases Meat Imports from the World

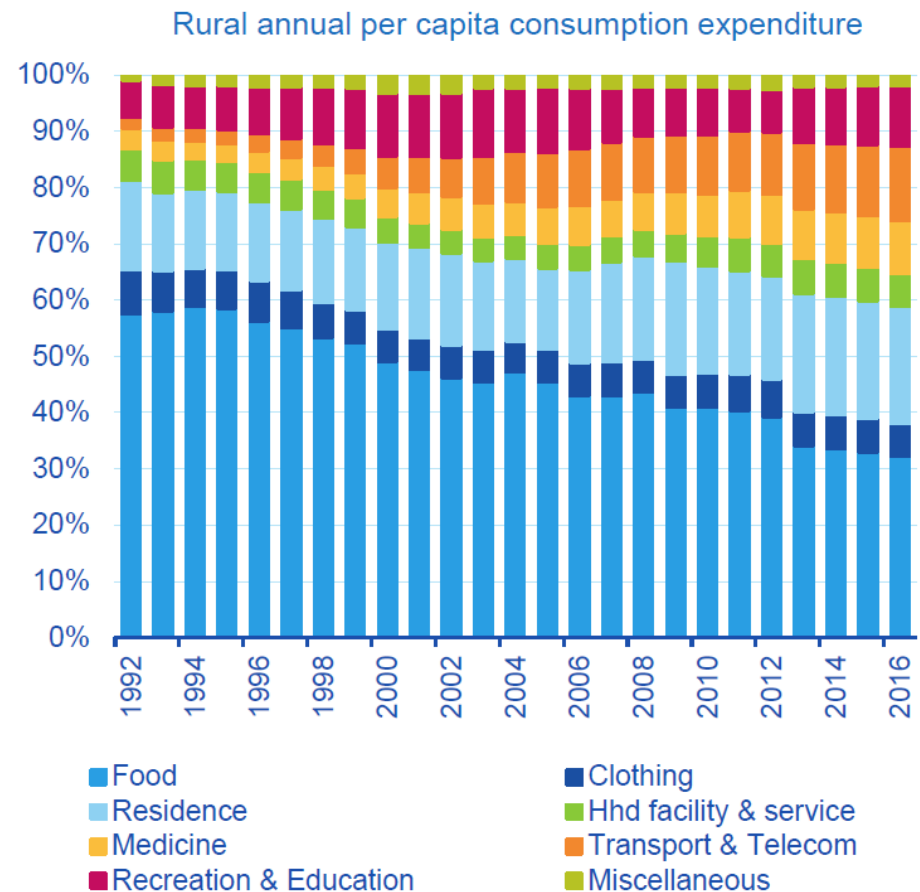
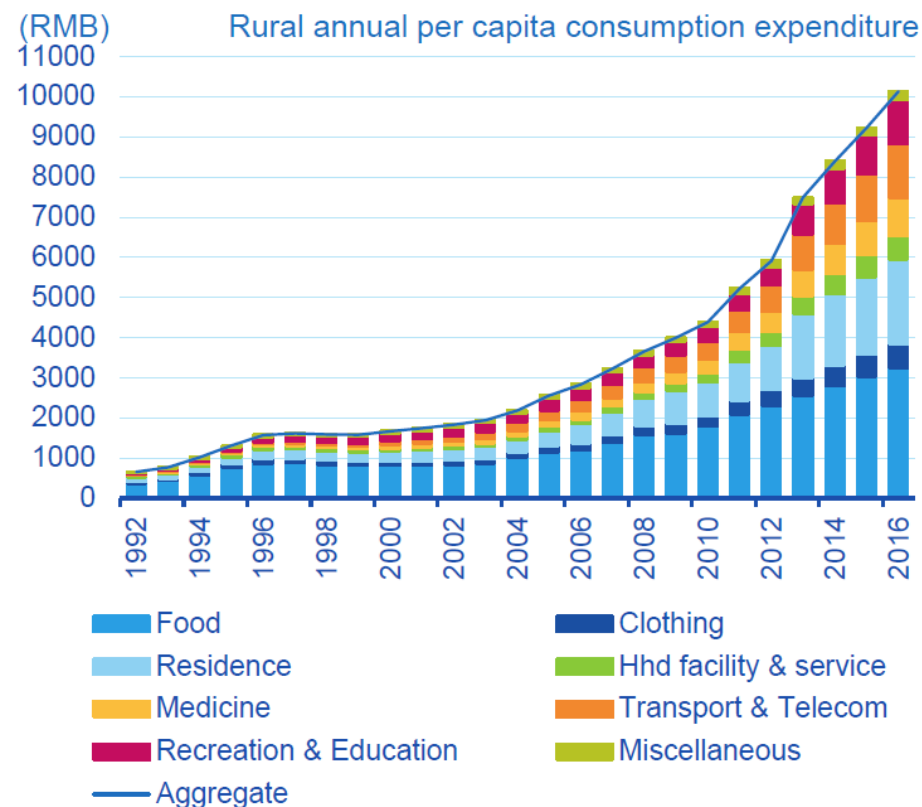


China aims to build a global infrastructure network
"Belt and Road" infrastructure projects, planned and completed (March 2017)

Belt and Road Initiative

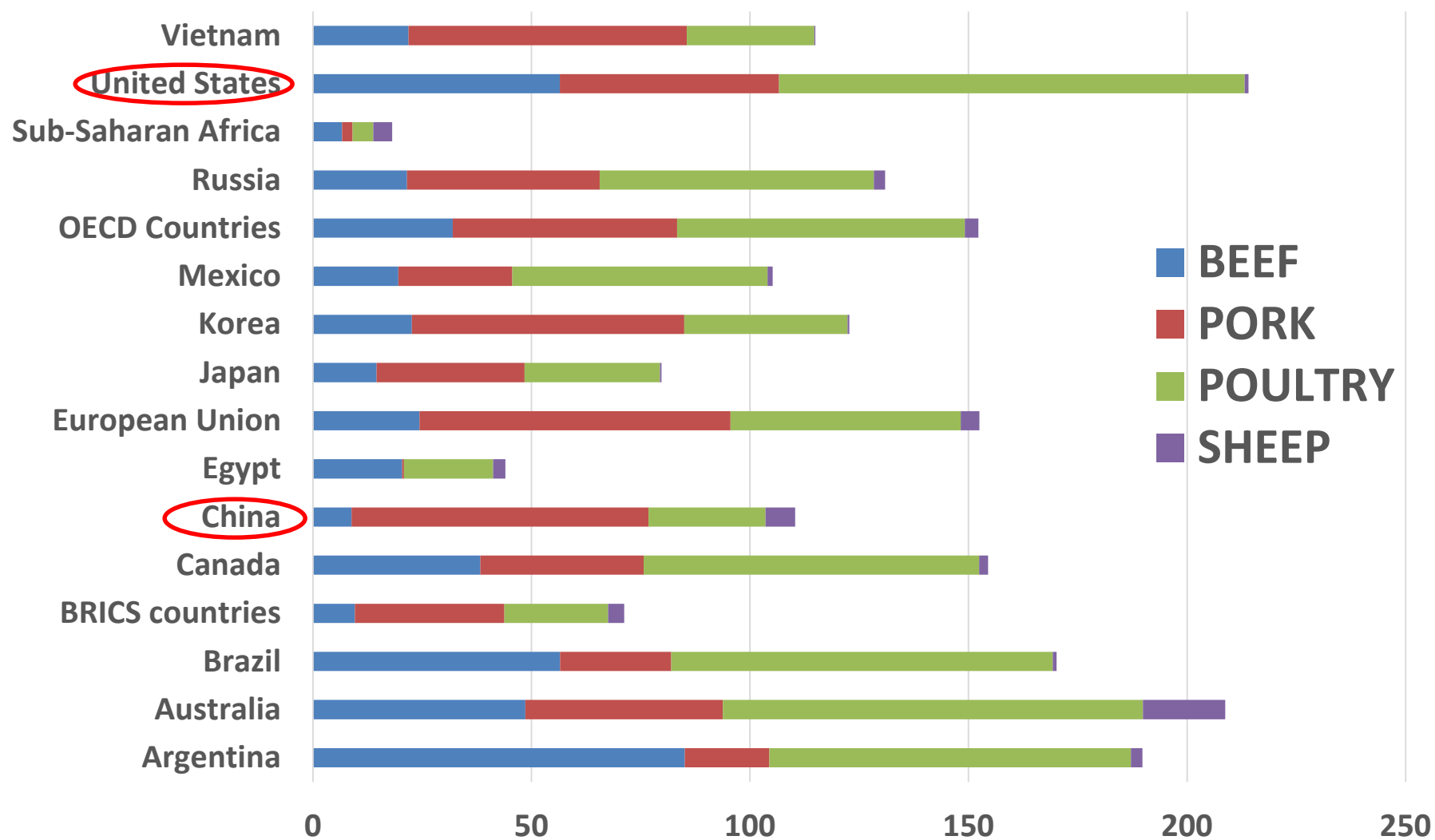


Share of food in rural China's per capita consumption basket is declining, offset by higher value purchases

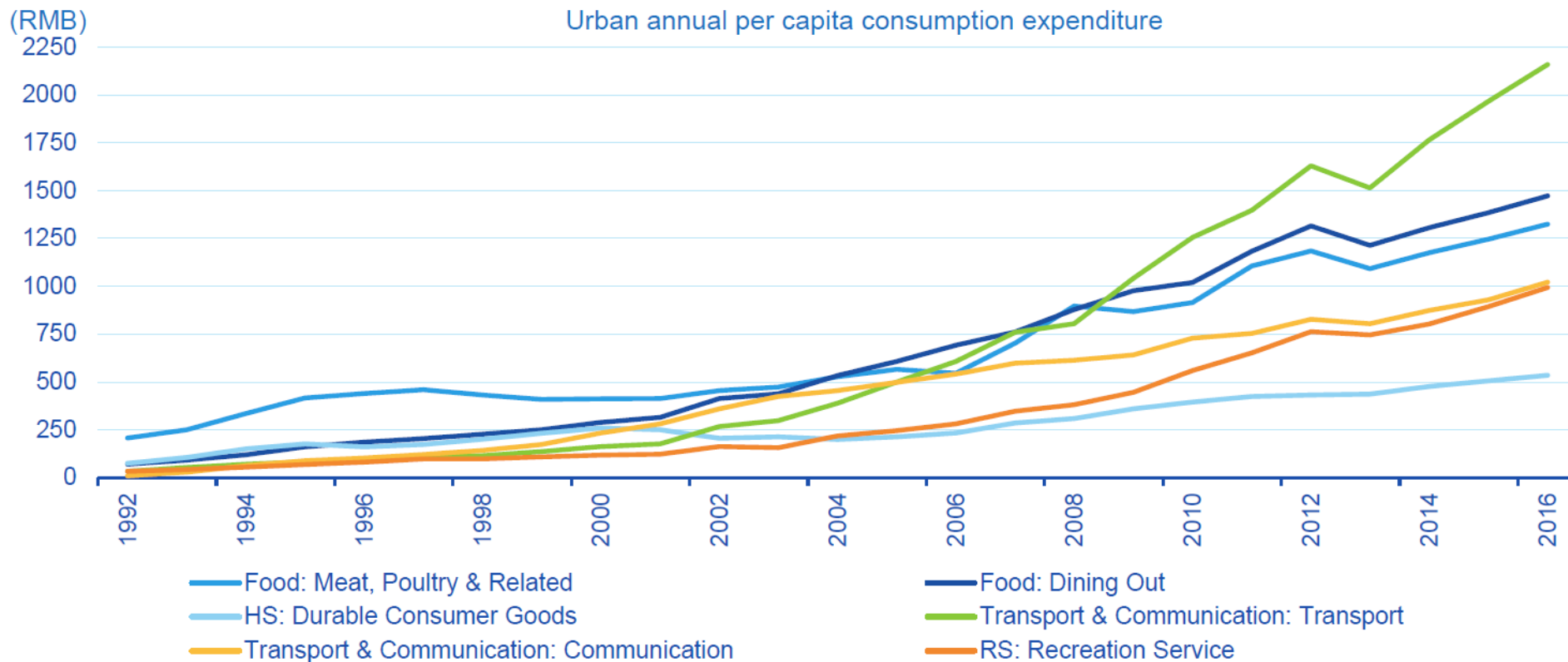


CHINA CONSUMPTION TRENDS | 2017

lbs per capita Meat Consumption by Country 2016



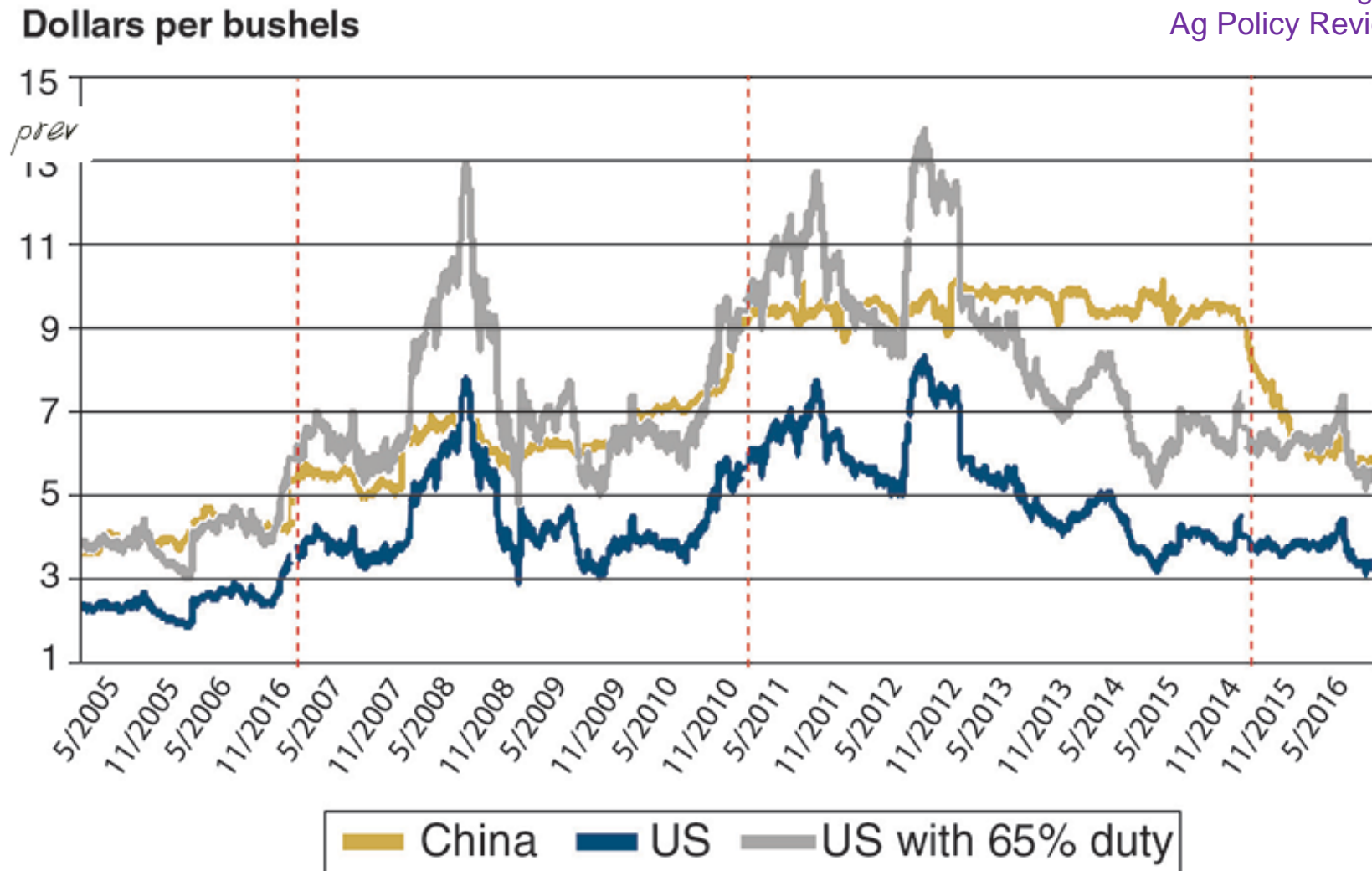
Urban Chinese prefer to travel, stay connected, buy protein rich food, durable goods & recreation



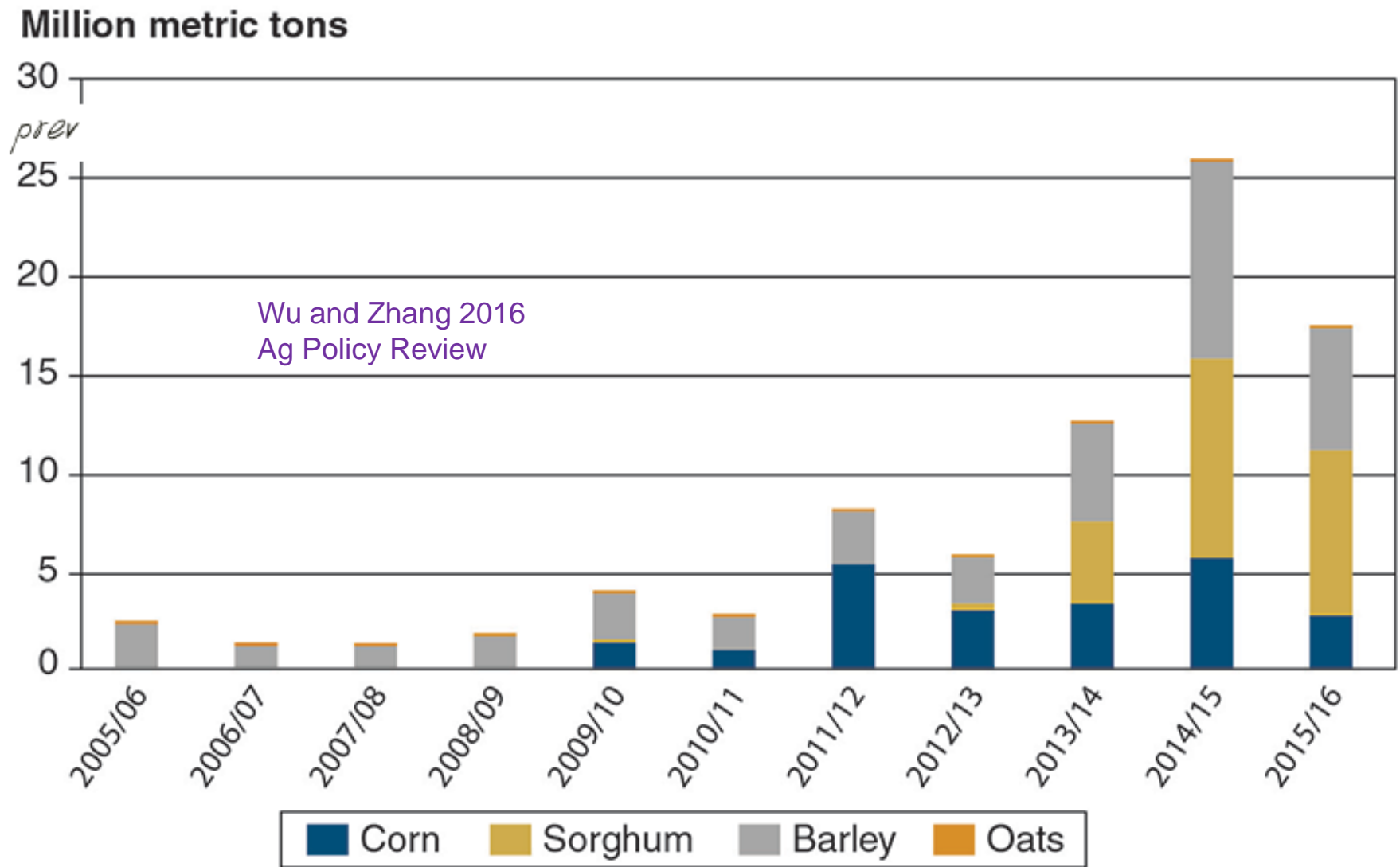
CHINA CONSUMPTION TRENDS | 2017

Of Maize and Markets: China's New Corn Policy

Wu and Zhang 2016
Ag Policy Review

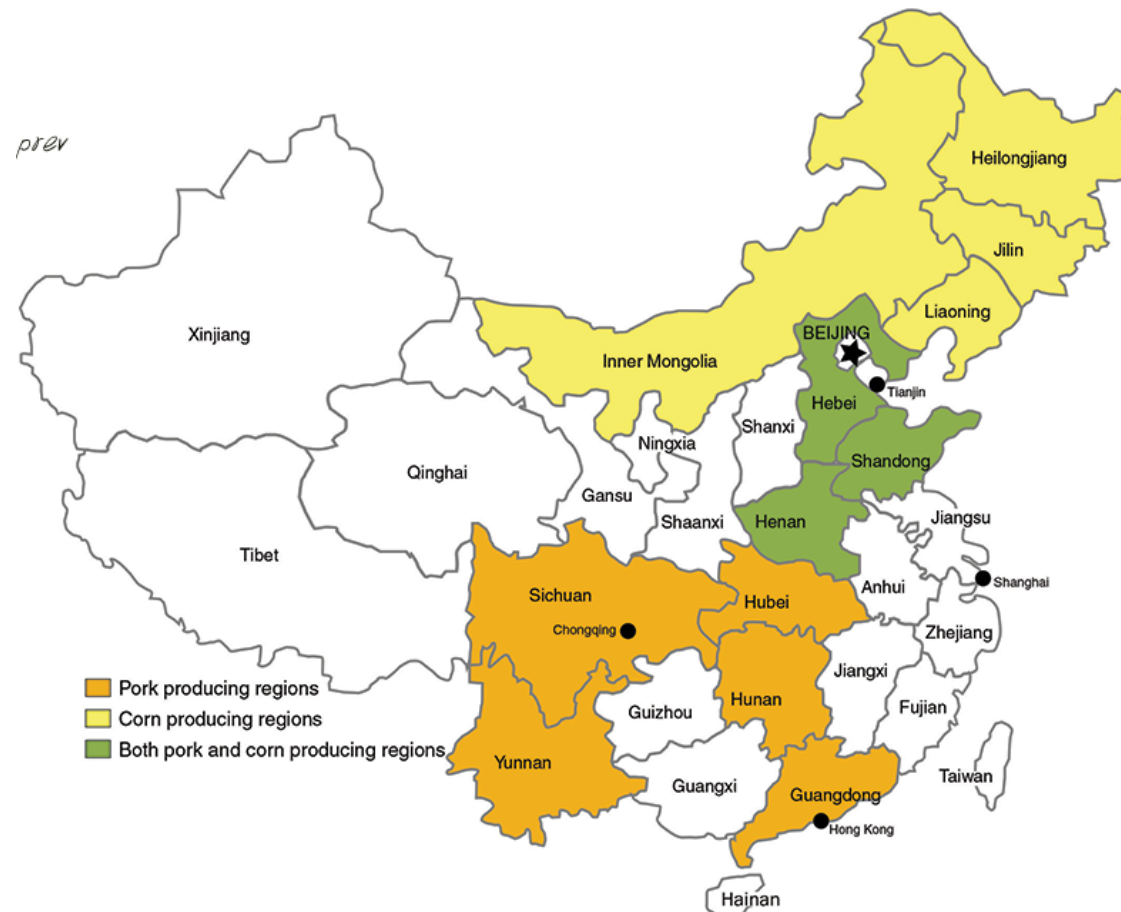


Of Maize and Markets: China's New Corn Policy



Source: USDA FAS Grain: world markets and trade

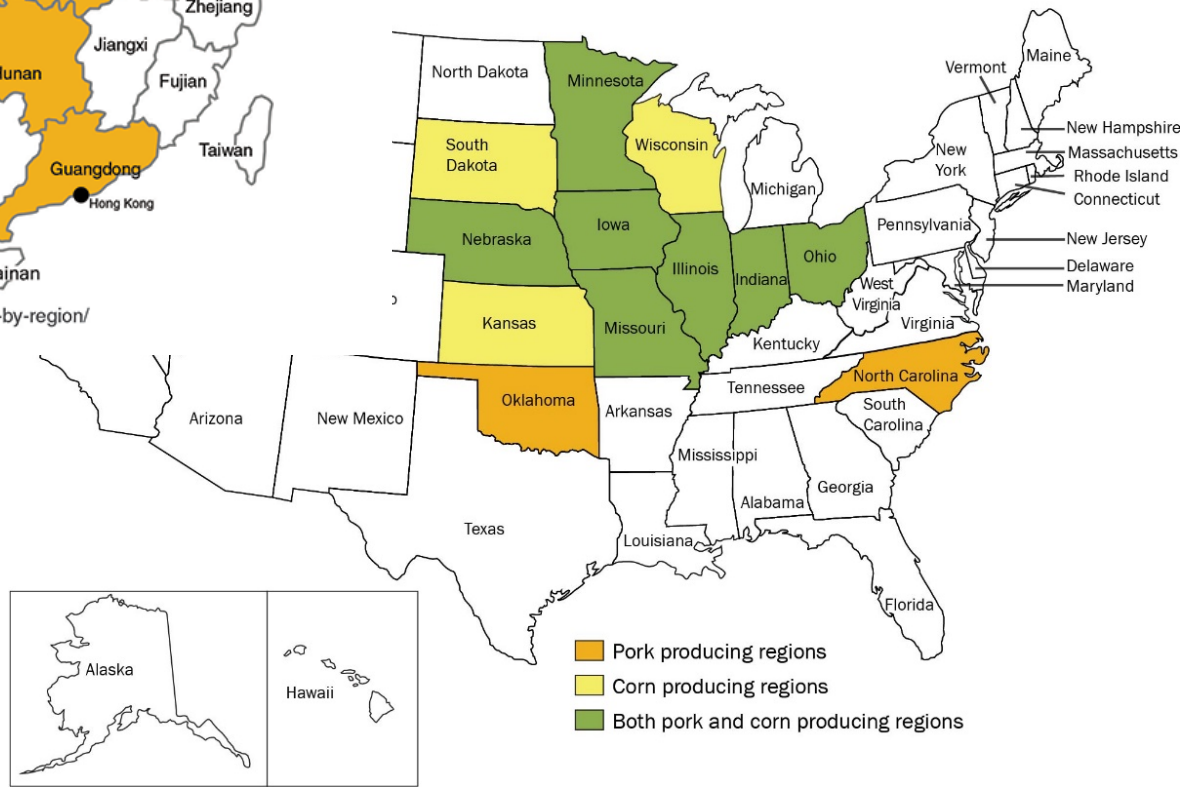
Of Maize and Markets: China's New Corn Policy



Sources: <https://www.statista.com/statistics/242632/corn-production-in-china-by-region/>
<http://chinaag.org/services/production/>



Wu and Zhang 2016
Ag Policy Review



China sets 2020 target for nationwide ethanol use to cut corn stocks

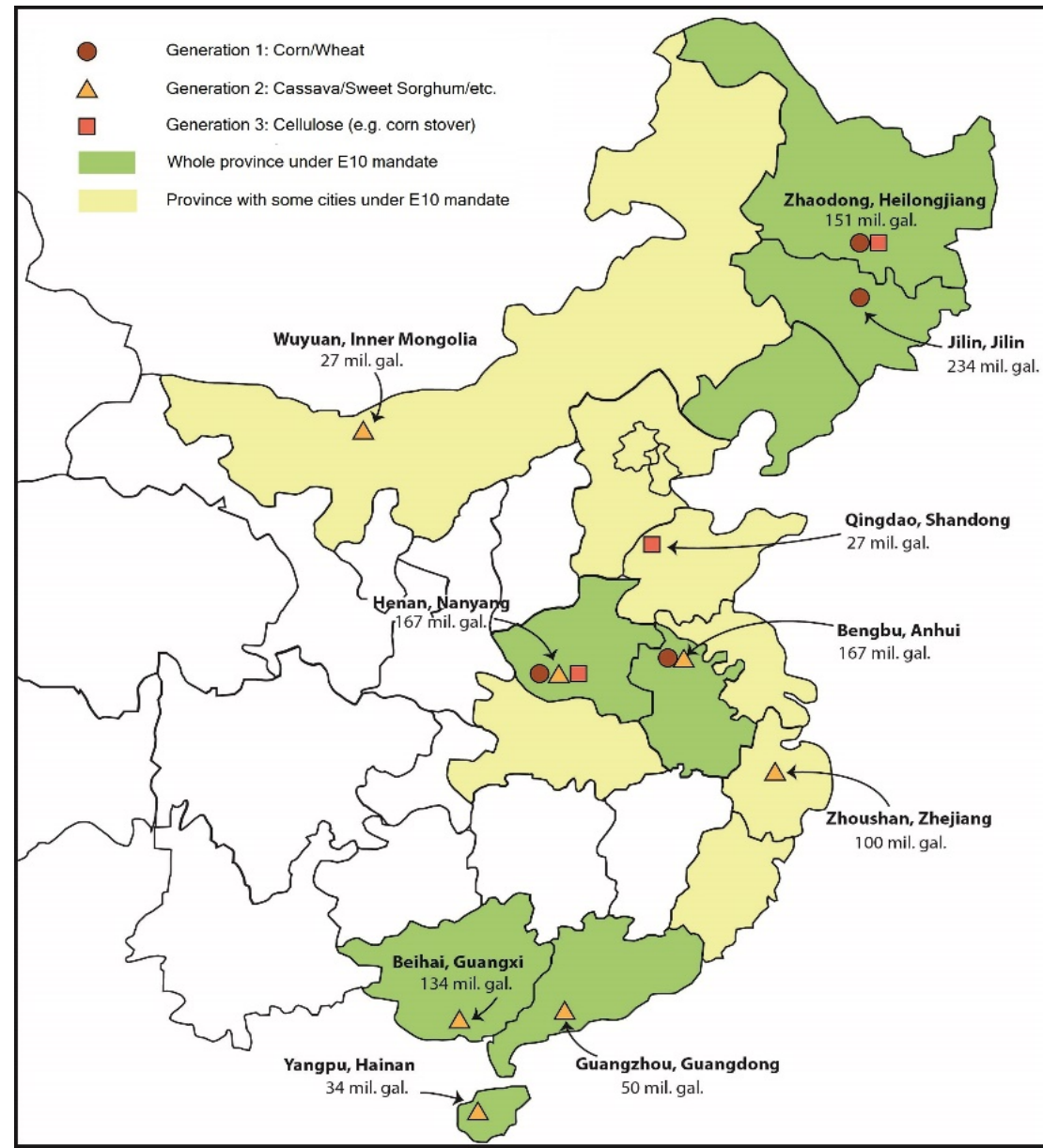
China's Ethanol Trial

China's Ethanol Industry in 2016

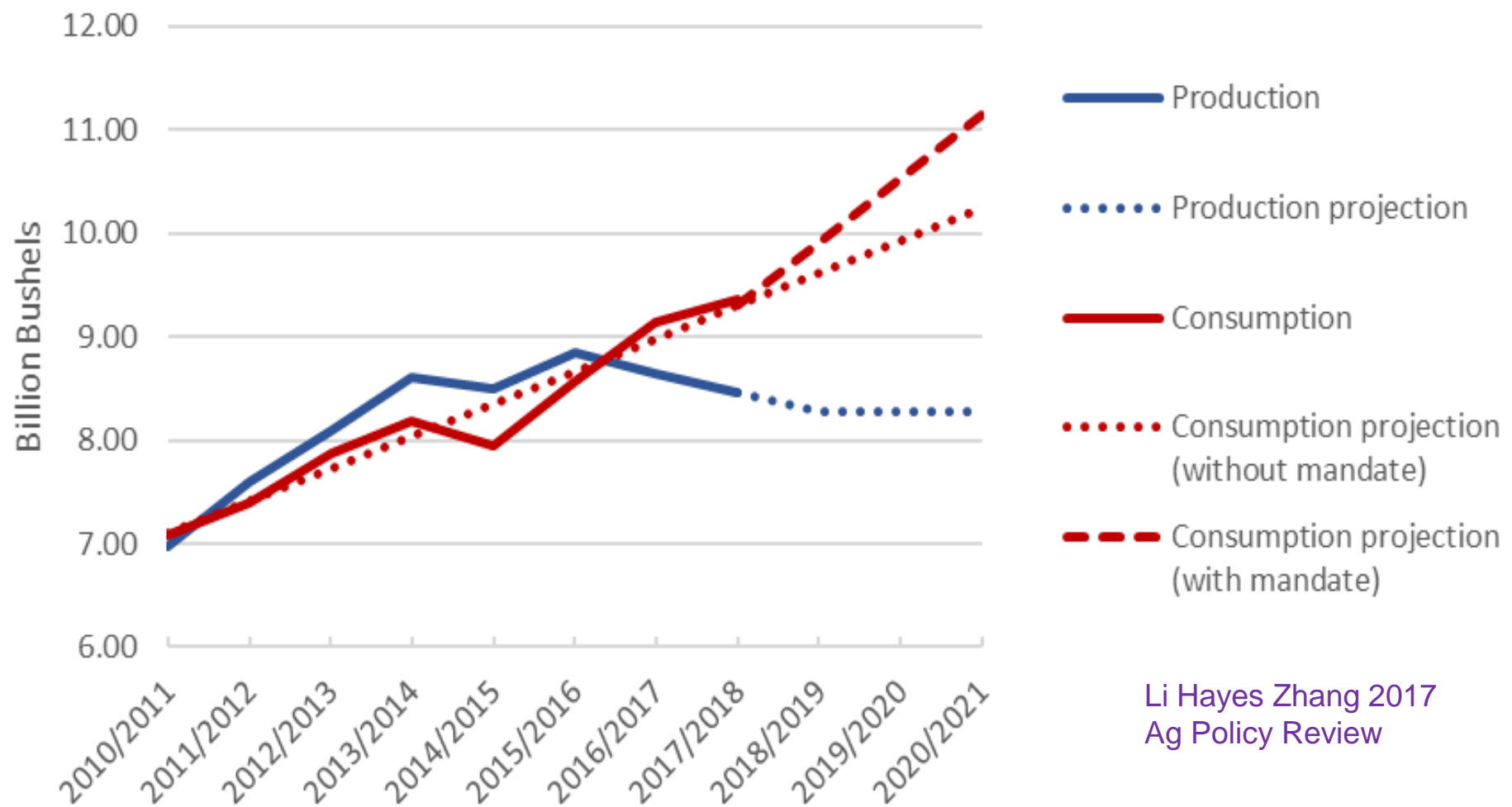
4th largest producer – 1 Bil gal.

- 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



12 janv. Interviewed by Aressy Bra...

Samedi 08:27

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- 钱包
- 卡包
- 表情
- 设置

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城市服务

滴滴打车 京东精选

Q币充值 微信红包 吃喝玩乐

信用卡还款 腾讯公益 电影票

AA收款 机票火车票

广州服务

医院挂号 违章办理 港澳再次签证

路况实拍 机动车年审预约 机动车快撤理

身份证业务预约 招考查询 广州天气

出入境业务预约 婚姻业务预约 新生儿重名查

住房业务预约 机动车车船税 机动车年票

GMO in China: Controversy/Divide

China Wants GMOs. The Chinese People Don't.

BloombergView

73 SEP 27, 2016 8:00 PM EDT

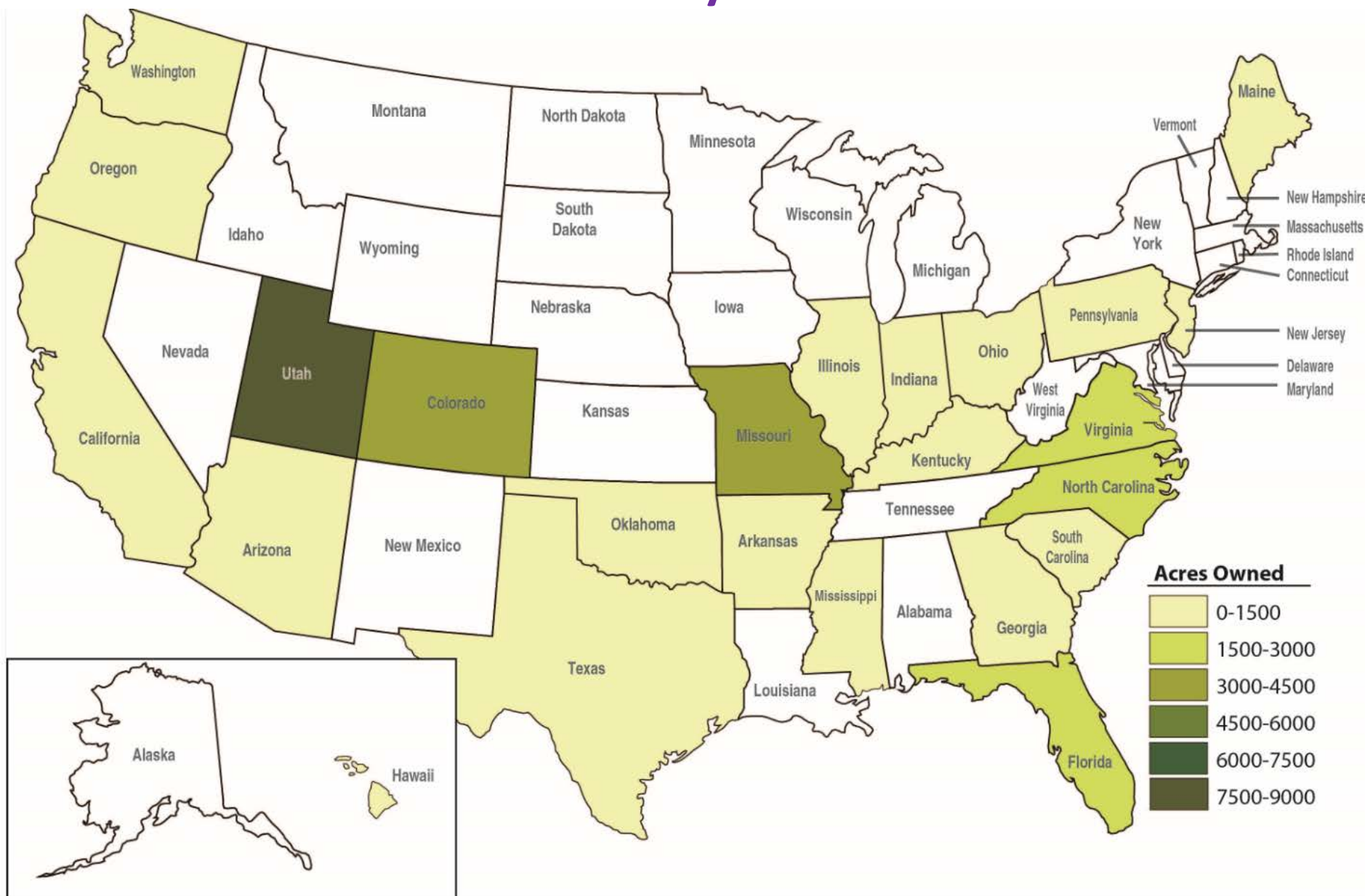
▶ After Decades Of Wariness, China To Grow GMOs



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.

Farmland Acres Owned by Chinese Owners as of 2016



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.

<https://www.card.iastate.edu/china>



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A corny tale

The
Economist

China imports a farm from Iowa

A slice of the Midwest outside Beijing

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

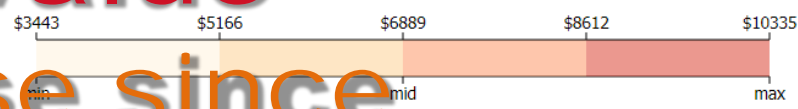
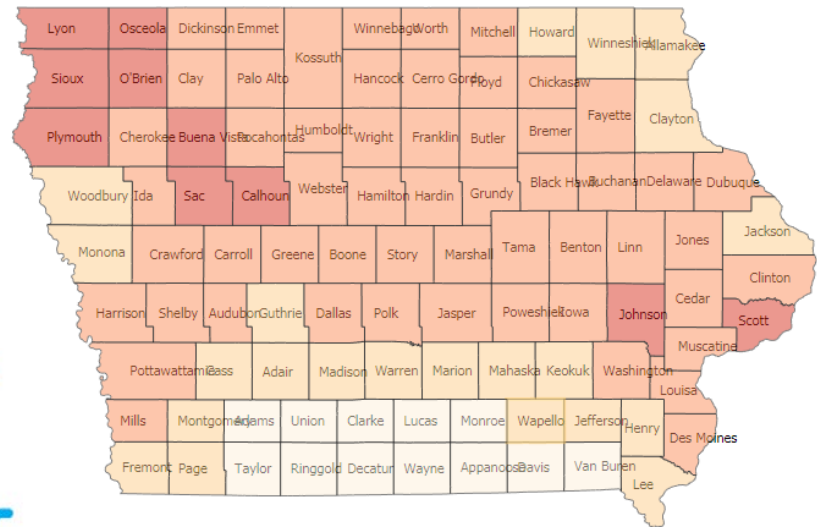
Iowa
Farmland
Value
Portal



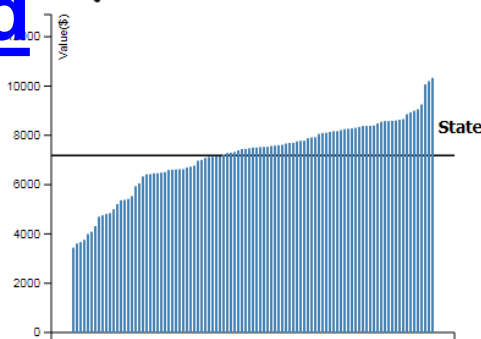
#ISUlandvalue
2% increase since
Nov 2016



<http://bit.ly/LandResults2017>

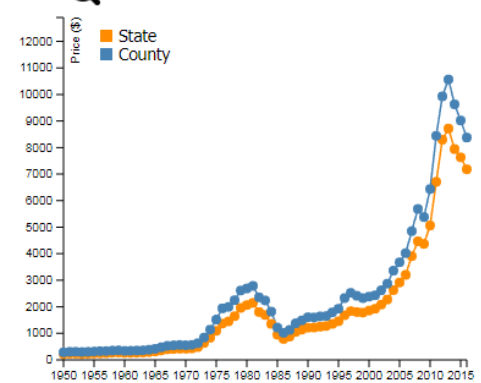


Iowa County Land Value in 2016

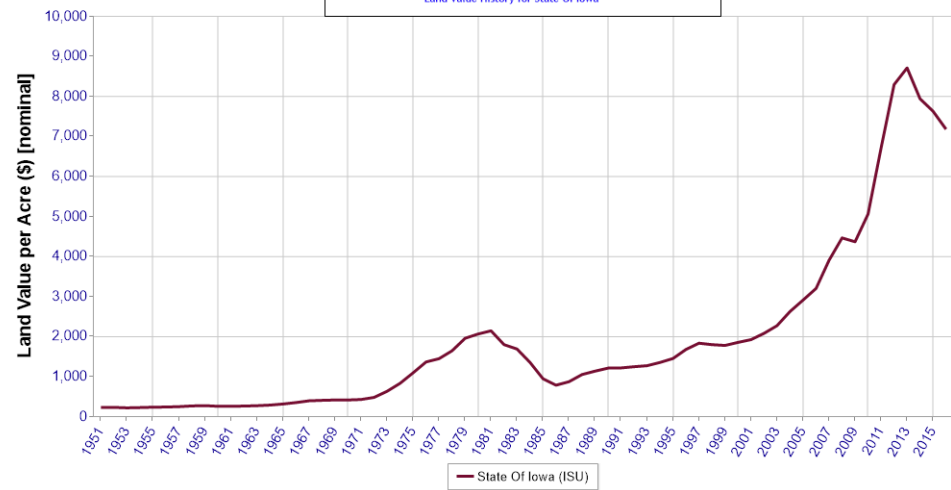


Sorted by: Value

Land Value Trend in County: Story



CARD IOWA STATE UNIVERSITY
Extension and Outreach
Land Value History for State Of Iowa





Thank You!

Wendong Zhang

Assistant Professor and Extension Economist

478C Heady Hall

Iowa State University

515-294-2536


wdzhang@iastate.edu


<http://www2.econ.iastate.edu/faculty/zhang>


China Corn Yield





Corn Yield
(Iowa=100%)

 No data

 11% - 40%

 41% - 45%

 46% - 50%

 51% - 60%

2016 Soybean Yield

US: 48 Bu/acre
Iowa: 56 Bu/acre
China: 26 Bu/acre

China Soybean Yield

