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

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ASFMRA Iowa Chapter Annual Meeting 2018

Ames, Iowa, January 31st, 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

China Ag center www.card.iastate.edu/china

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Center for China-US Agricultural Economics and Policy

CHINESE ACADEMY OF AGRICULTURAL SCIENCES

China Ag Center · Publications and Presentations

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.

Zhang, Wendong. 2015. "The Commonalities and Differences between Chinese and US Agriculture." *Agricultural Policy Review*. Center for Agricultural and Rural Development, Iowa State University.

The Economist

A corny tale

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.

Zhang, Wendong. 2017. "Update on Chinese Ag Economy." Iowa Institute for Cooperatives Member Summer Workshop, Huxley, IA, June 15, 2017.

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.

Zhang, Wendong. 2017. "What's Going On in China: Corn, GMO, Crop Insurance and High-Speed Rails." 2017 Crop Advantage Series, Okoboji, IA, January 5, 2017.


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Following 45
Followers 42.3M
Likes 23
Moments 5
onald J. Trump
Tweets
Tweets & replies
Media

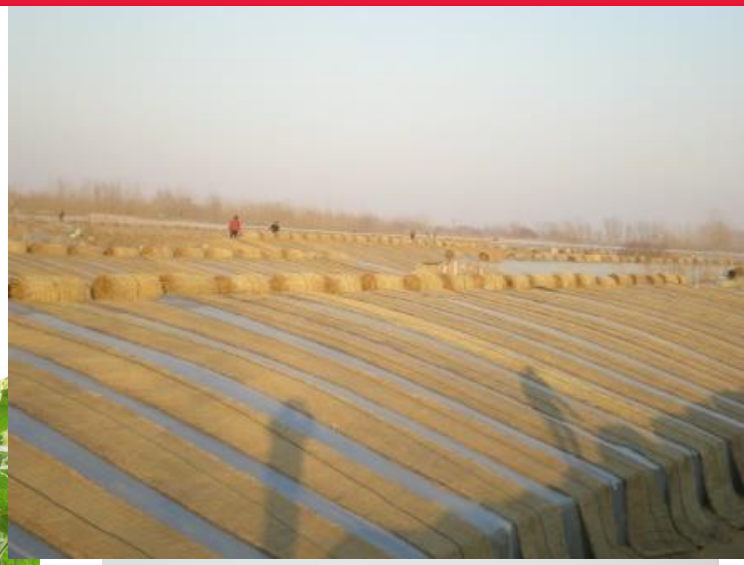

中美友谊屋
SINO - US
FRIENDSHIP HOUSE

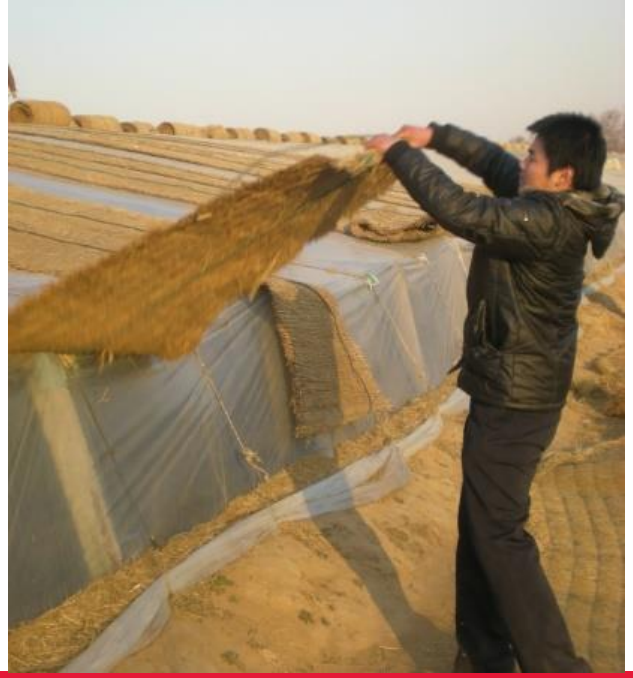

人民日報
RENMIN RIBAO
16
习近平任中共中央总书记中央军委主席
党的十八届一中全会产生中央领导机构
习近平同志主持会议并作重要讲话
人民日報
RENMIN RIBAO
26
习近平应约同美国总统特朗普通电话
习近平任中共中央总书记中央军委主席
党的十九届一中全会产生中央领导机构
习近平同志主持会议并作重要讲话

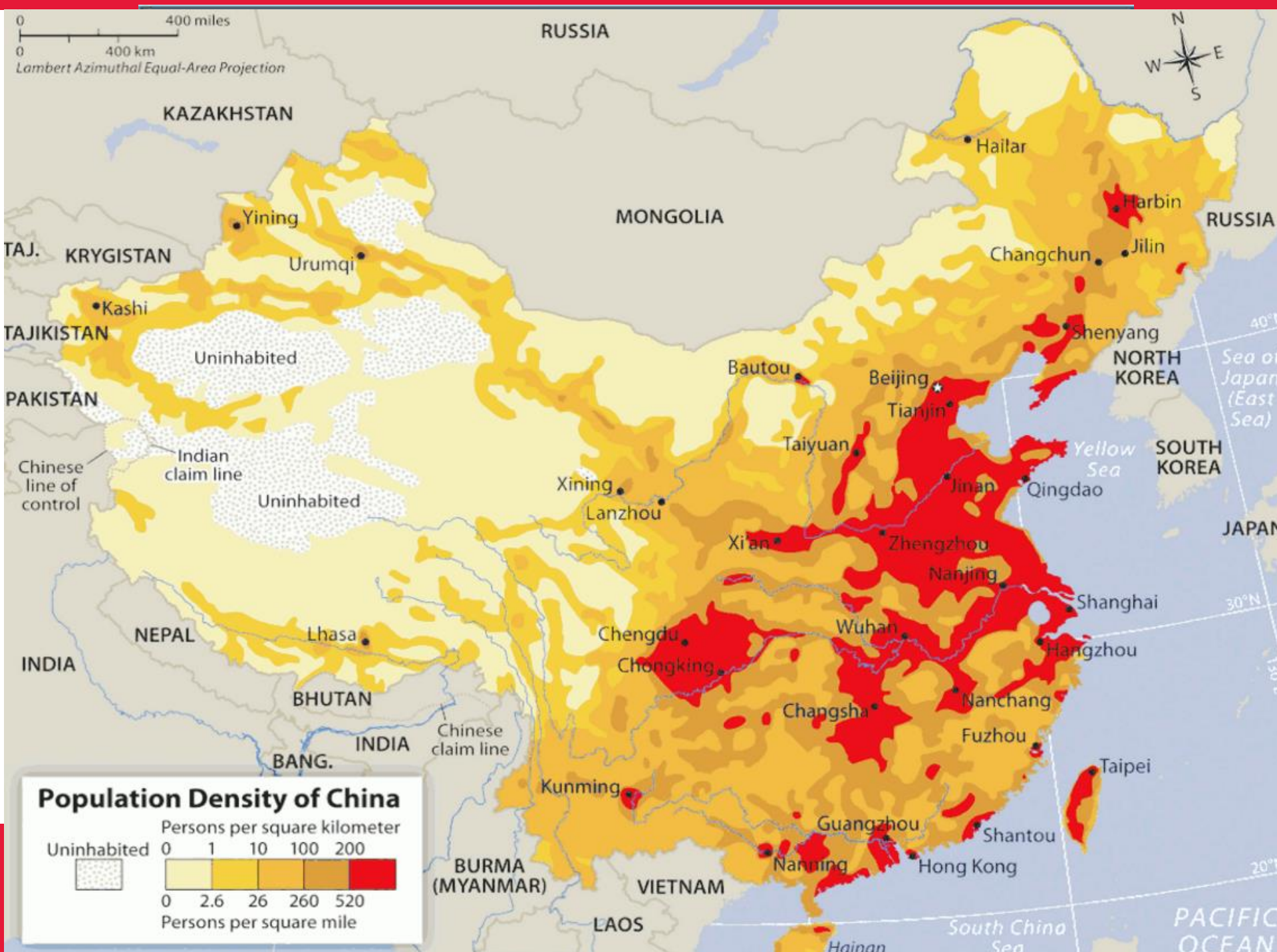
China's Provinces

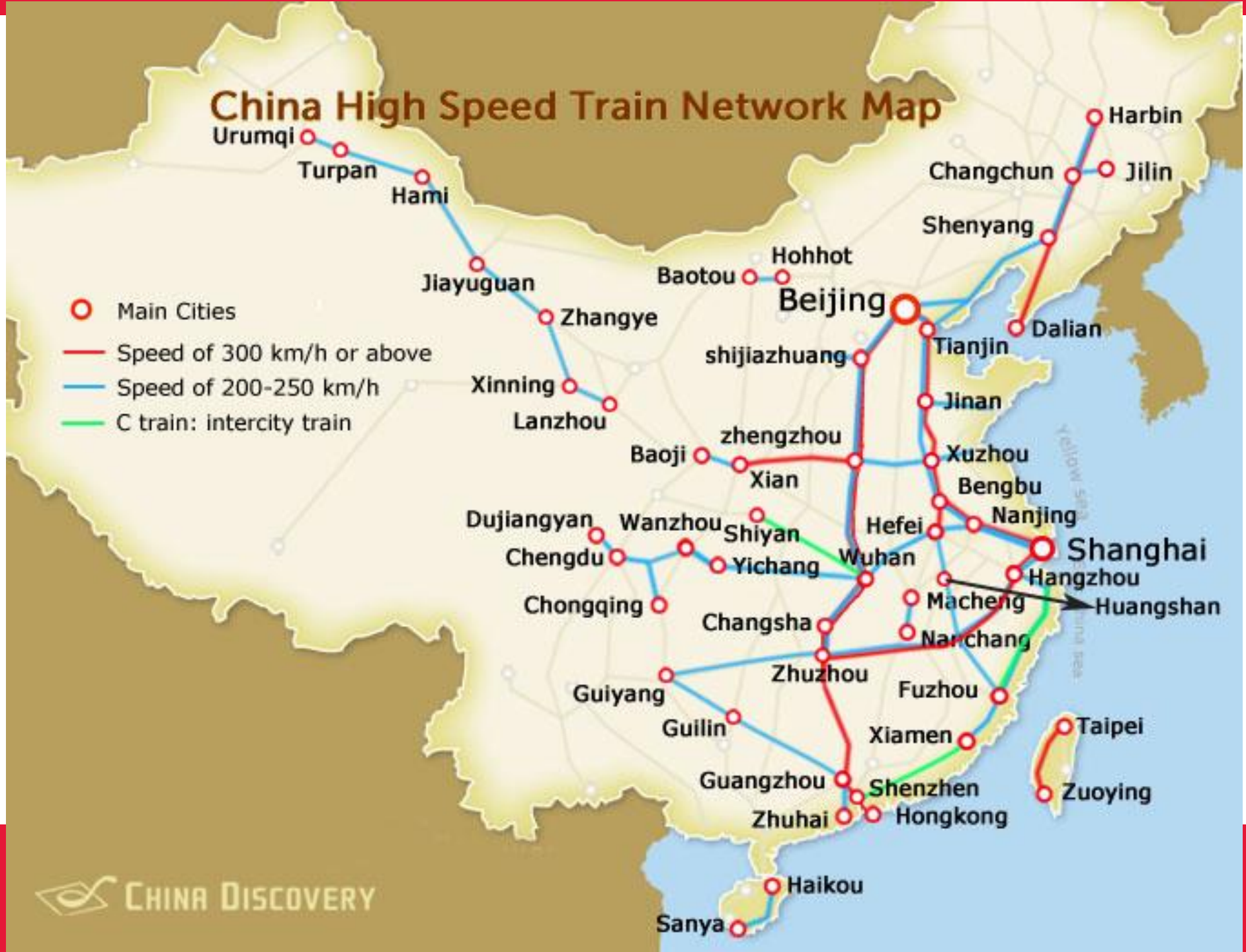
My hometown: Shenxian, Shandong Province

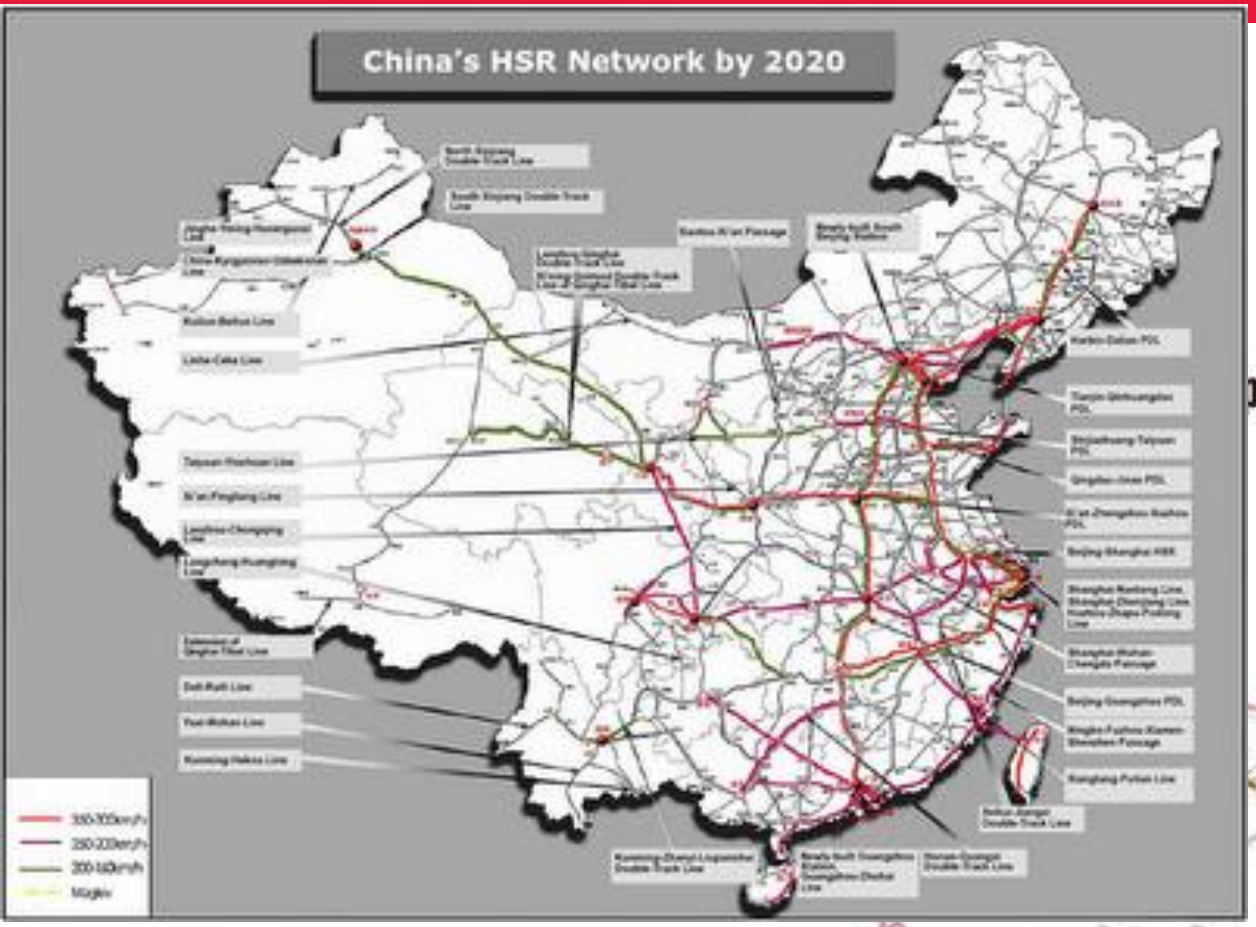
Greenhouse – plastic film - Shandong Province

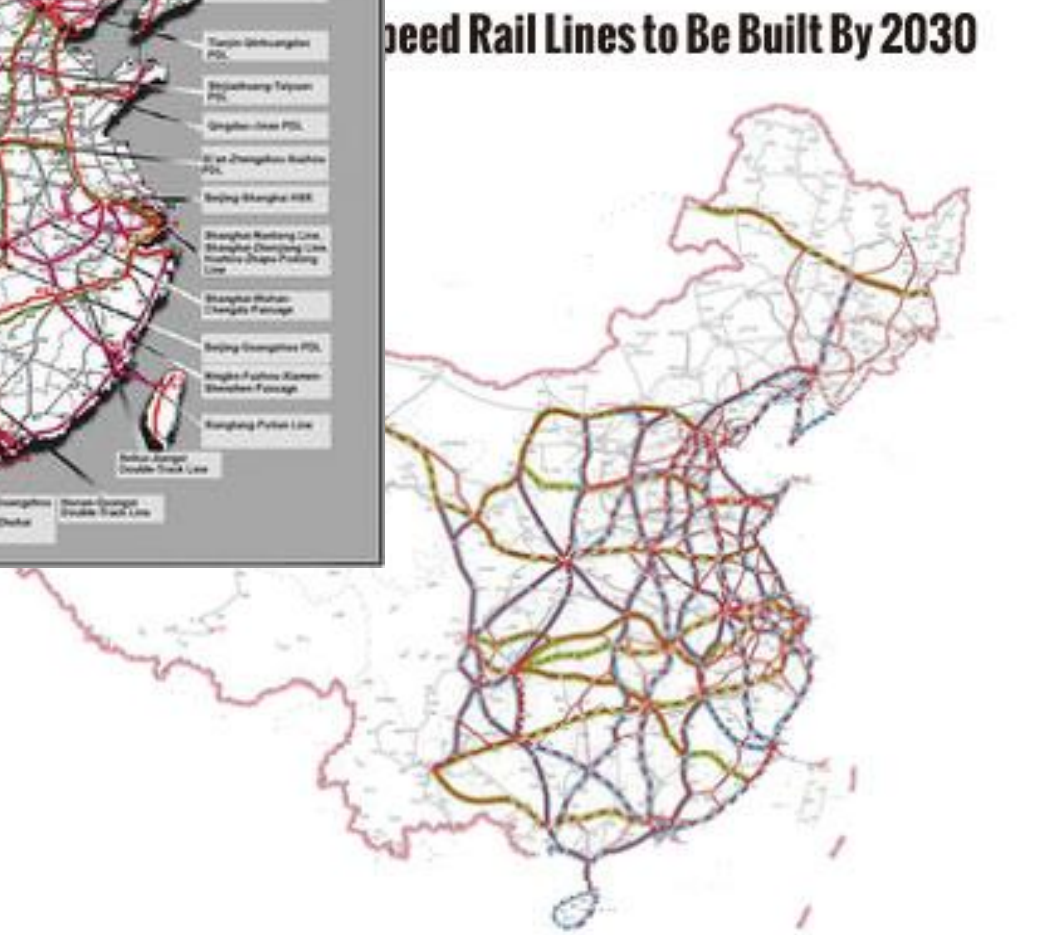





0 400 miles
0 400 km
Lambert Azimuthal Equal-Area Projection
RUSSIA
KAZAKHSTAN
MONGOLIA
TAJ.
KRYGISTAN
TAJIKISTAN
PAKISTAN
NEPAL
INDIA
BHUTAN
BANG.
BURMA (MYANMAR)
LAOS
VIETNAM
NORTH KOREA
SOUTH KOREA
JAPAN
Yellow Sea
South China Sea
PACIFIC OCEAN
Hainan
Chinese line of control
Indian claim line
Chinese claim line
Uninhabited
Uninhabited
Hailar
Harbin
Jilin
Changchun
Shenyang
Yining
Urumqi
Kashi
Bautou
Beijing
Tianjin
Taiyuan
Jinan
Qingdao
Xining
Lanzhou
Xi'an
Zhengzhou
Nanjing
Shanghai
Hangzhou
Wuhan
Chengdu
Chongking
Lhasa
Nanchang
Changsha
Fuzhou
Taipei
Kunming
Guangzhou
Shantou
Nanning
Hong Kong
Population Density of China
Persons per square kilometer
Uninhabited
0 1 10 100 200
0 2.6 26 260 520
Persons per square mile


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
Urumqi
Turpan
Hami
Jiayuguan
Zhangye
Xinning
Lanzhou
Baotou
Hohhot
Beijing
Harbin
Changchun
Jilin
Shenyang
Dalian
Tianjin
shijiazhuang
Jinan
zhengzhou
Baoji
Xian
Xuzhou
Bengbu
Nanjing
Hefei
Shanghai
Dujiangyan
Wanzhou
Shiyan
Chengdu
Yichang
Wuhan
Hangzhou
Huangshan
Chongqing
Macheng
Changsha
Nanchang
Zhuzhou
Guiyang
Fuzhou
Guilin
Xiamen
Taipei
Guangzhou
Shenzhen
Zuoying
Zhuhai
Hongkong
Haikou
Sanya
Yellow Sea
East China Sea
CHINA DISCOVERY





Source: National Development and Reform Comission

Future of High-Speed Rail in China

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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

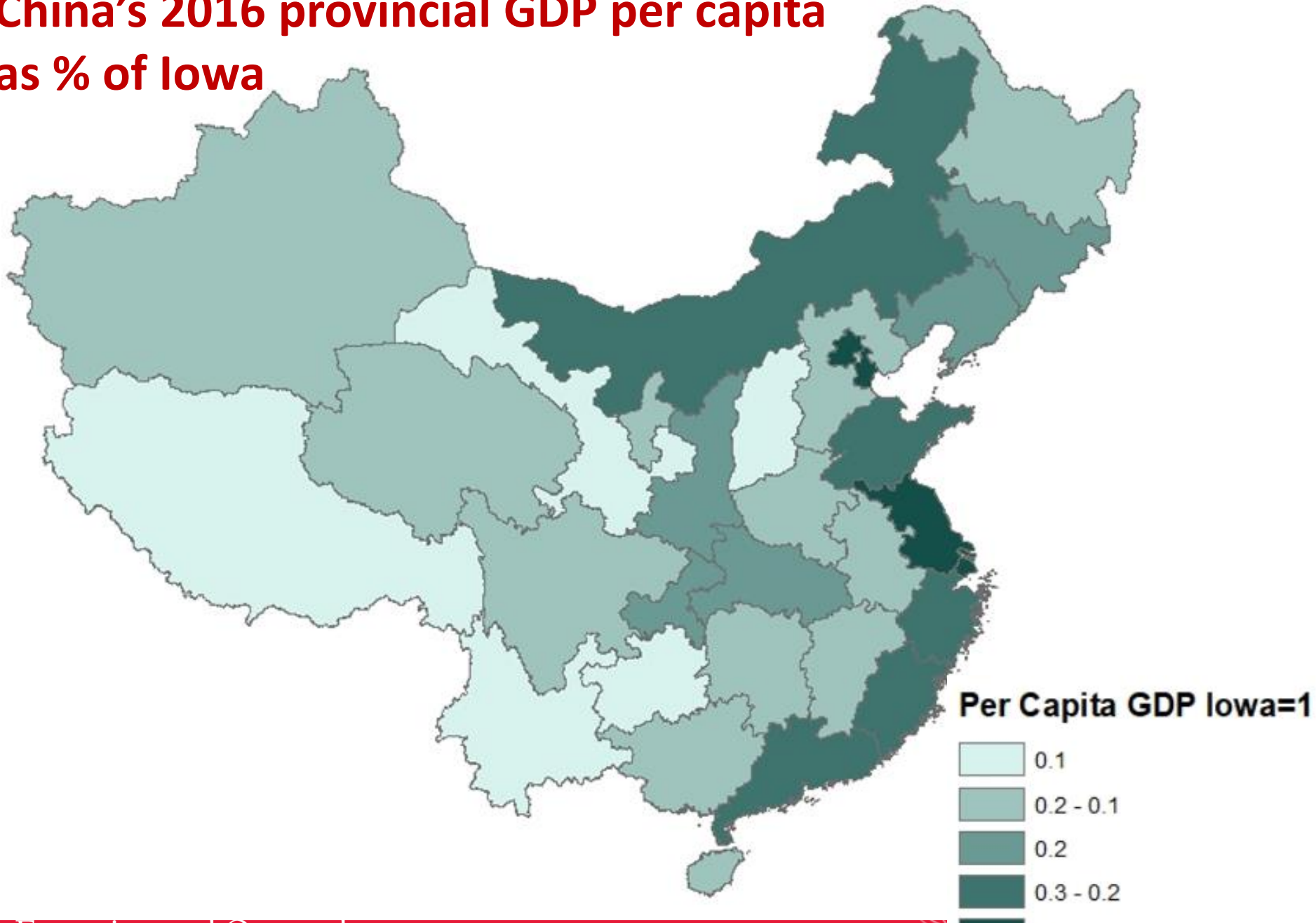
79 mn
College graduates

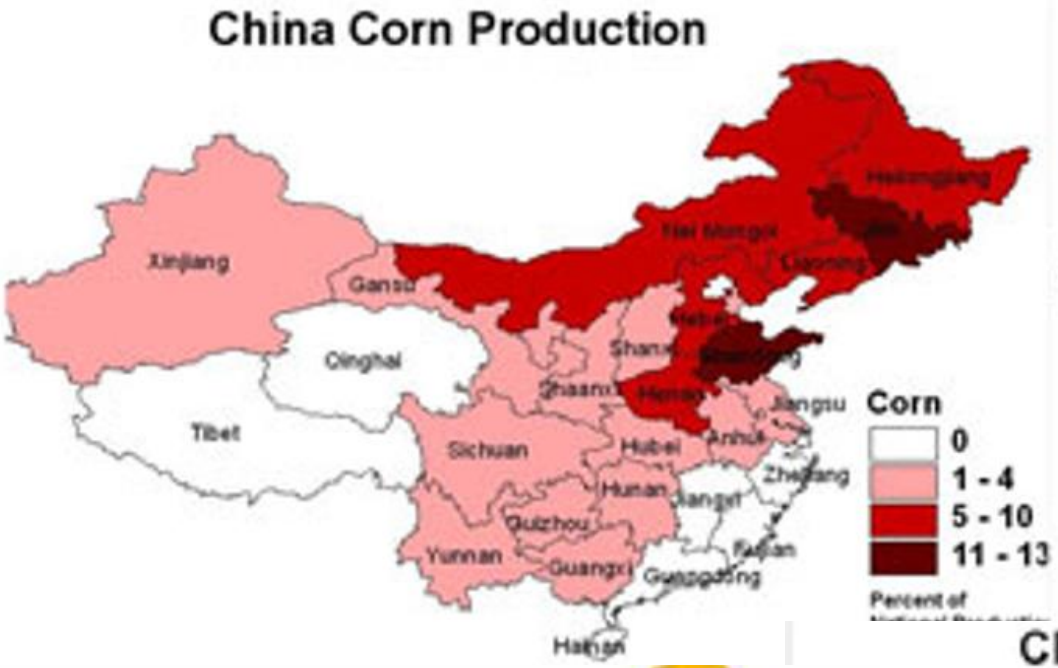
1042 mn
Smartphone subscribers

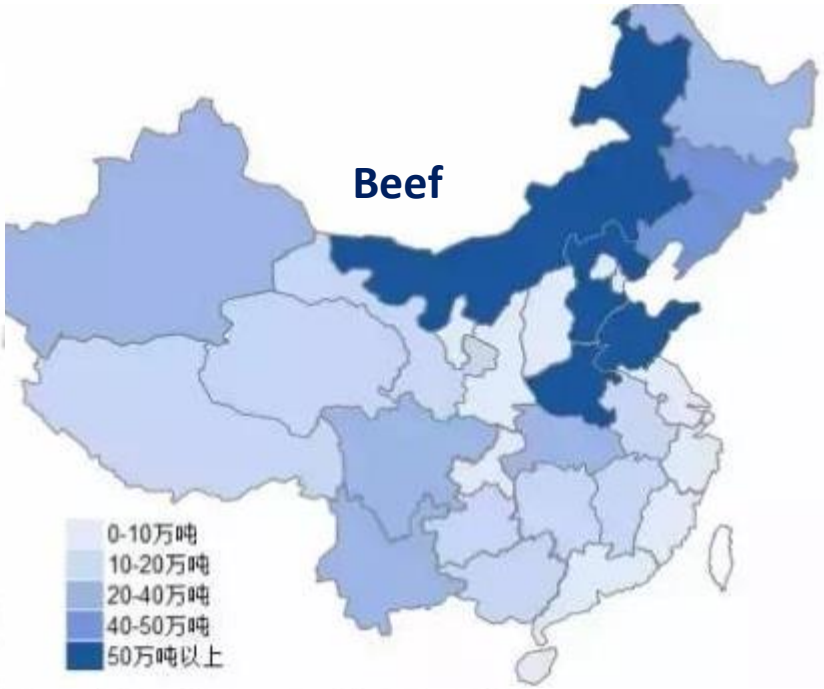
US$ 606 bn
Online retail market size

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 Corn Production
Xinjiang
Gansu
Qinghai
Tibet
Sichuan
Yunnan
Guizhou
Hubei
Hunan
Anhui
Jiangsu
Zhejiang
Fujian
Guangdong
Guangxi
Hainan
Corn
0
1 - 4
5 - 10
11 - 13


Beef
0-10万吨
10-20万吨
20-40万吨
40-50万吨
50万吨以上


Pork
http://www.caaa.cn


China Soybeans Production
Xinjiang
Gansu
Qinghai
Tibet
Sichuan
Yunnan
Guizhou
Hubei
Hunan
Anhui
Jiangsu
Zhejiang
Fujian
Guangdong
Guangxi
Hainan
Soybeans
0
1 - 4
5 - 8
9 - 30
Percent of
National Production

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

Zhang 2015 Ag Policy Review

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

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

Landesa
Rural Development Institute

United States Department of Agriculture
Foreign Agricultural Service

China

United States Department of Agriculture
Foreign Agricultural Service

$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

>20% Cherries

15% Apples

>30% Grapes

12-15%

>70% Cotton

>20%

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

0%

>50% Rice

5%

50% Wheat

15% Corn

2%

>50% Sorghum

75%

16%

20% Pork

15% Dairy

15-18%

15% Poultry

10% Beef

0%

1%

>70% Tree Nuts

50% Soybeans

62%

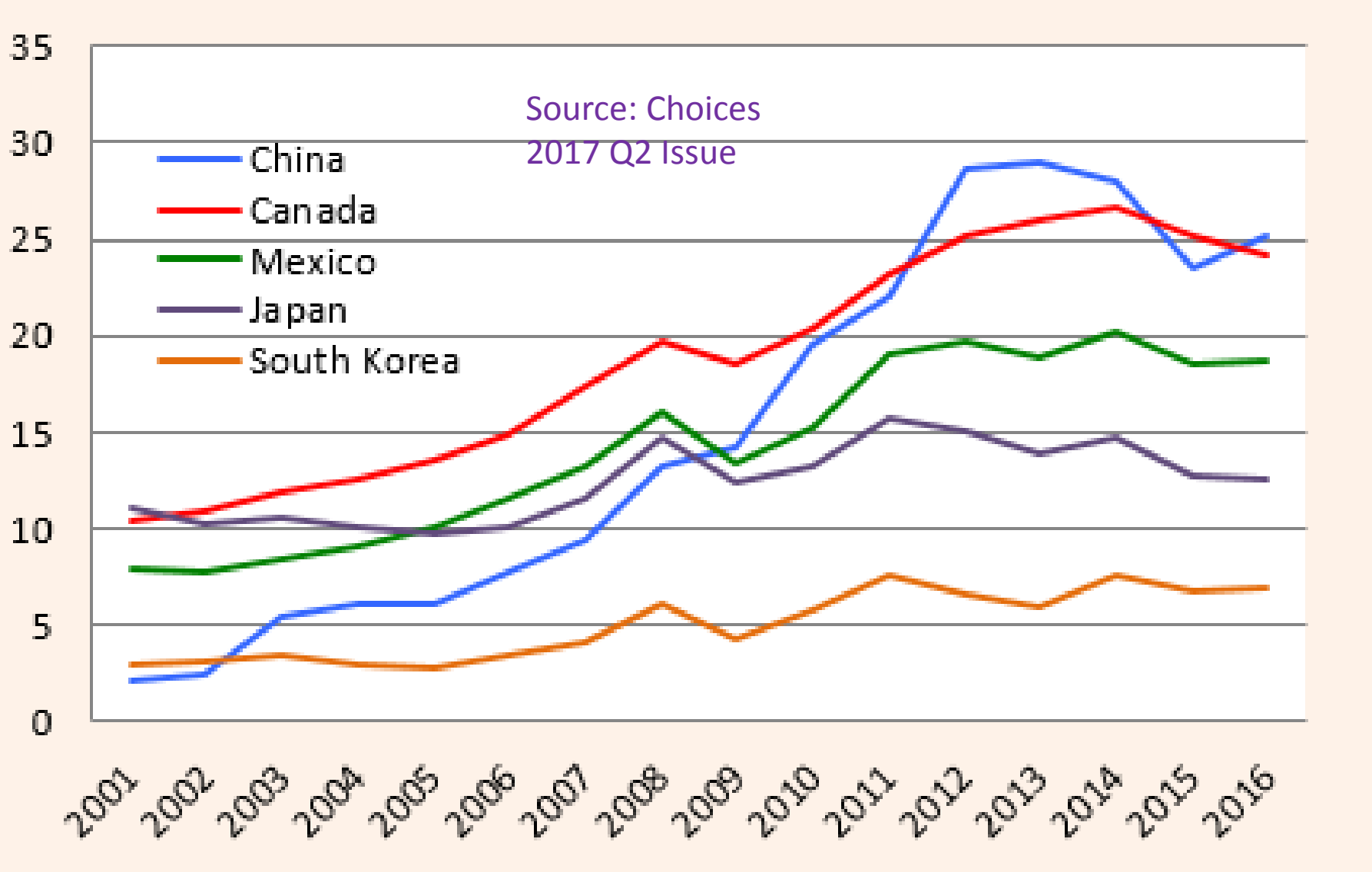
Twitter: @USDAForeignAg Website: www.fas.usda.gov

Source: USDA-FAS Global Agricultural Trade System (GATS)

United States Department of Agriculture
Foreign Agricultural Service

USDA

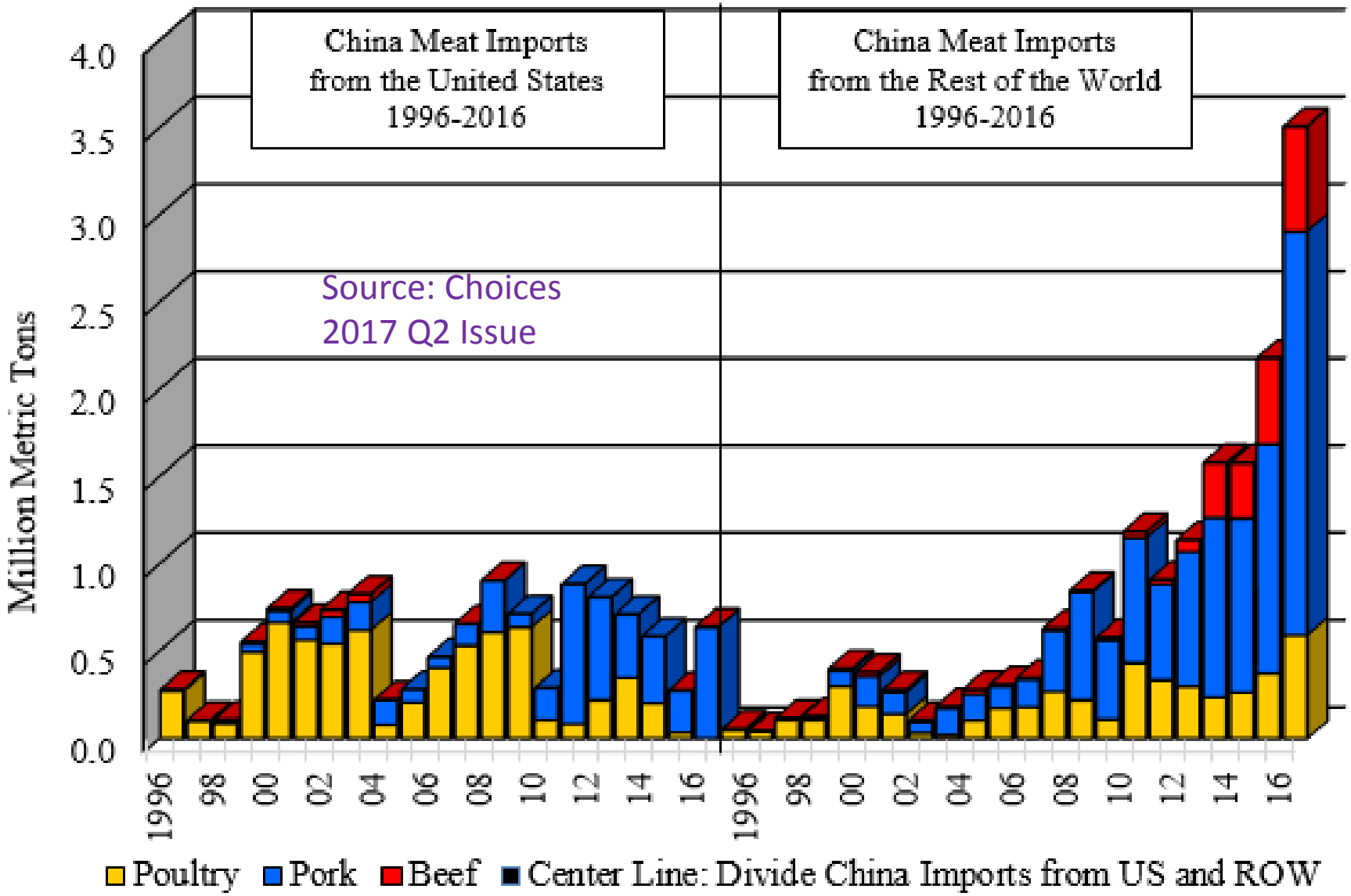
US Ag Exports by Destination Country 2001-2016 ($ Billion)



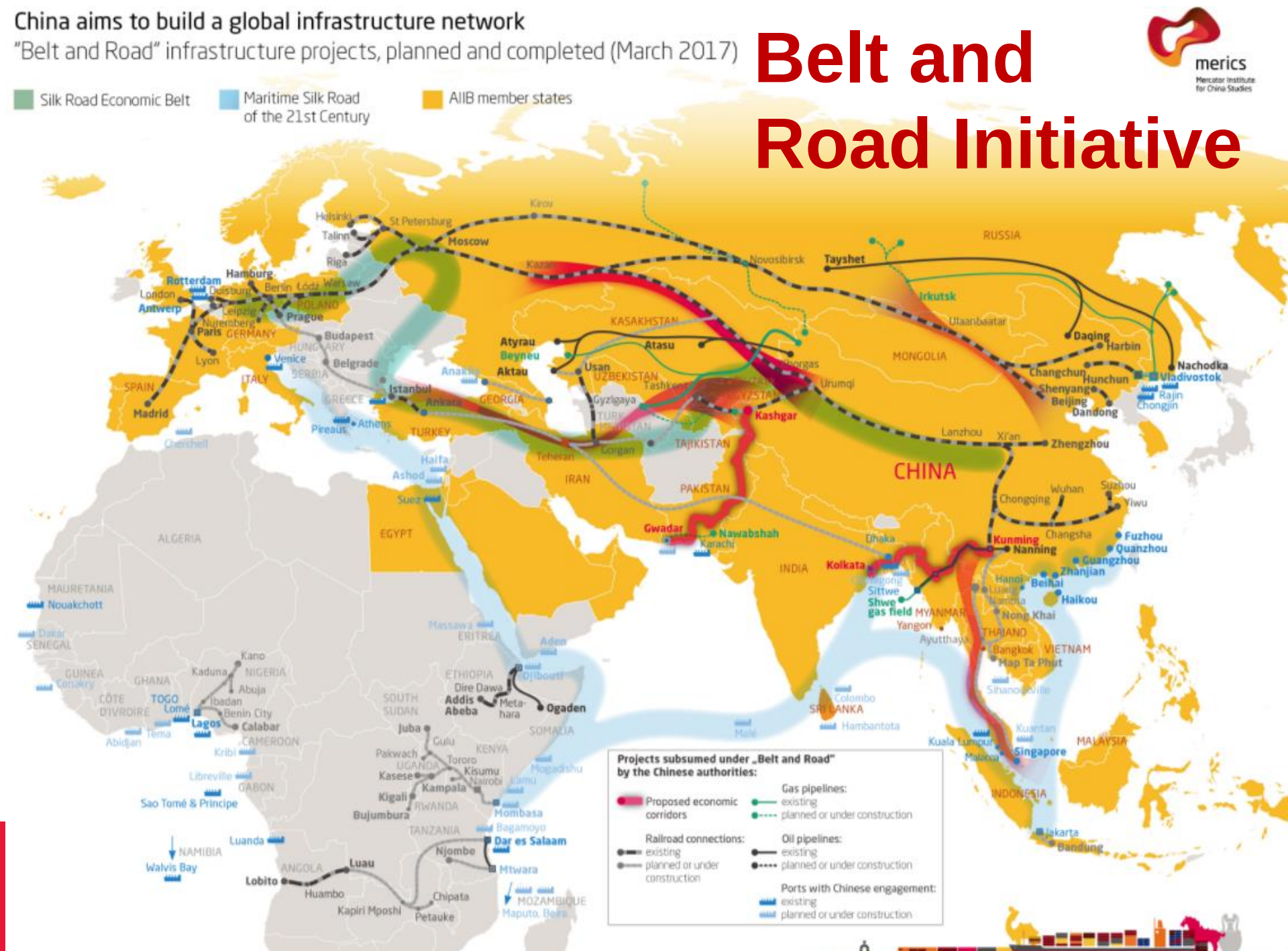
China's Top Ag Imports Sources

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%			

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



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:

U.S. 2.0%

China 6.5%

1992
GDP per capita (PPP)

$37,283
United States

$1,846
China

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

2016
GDP per capita (PPP)

$53,417
United States

$14,275
China

U.S. GDP per capita was **3.7 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
Urbanized population

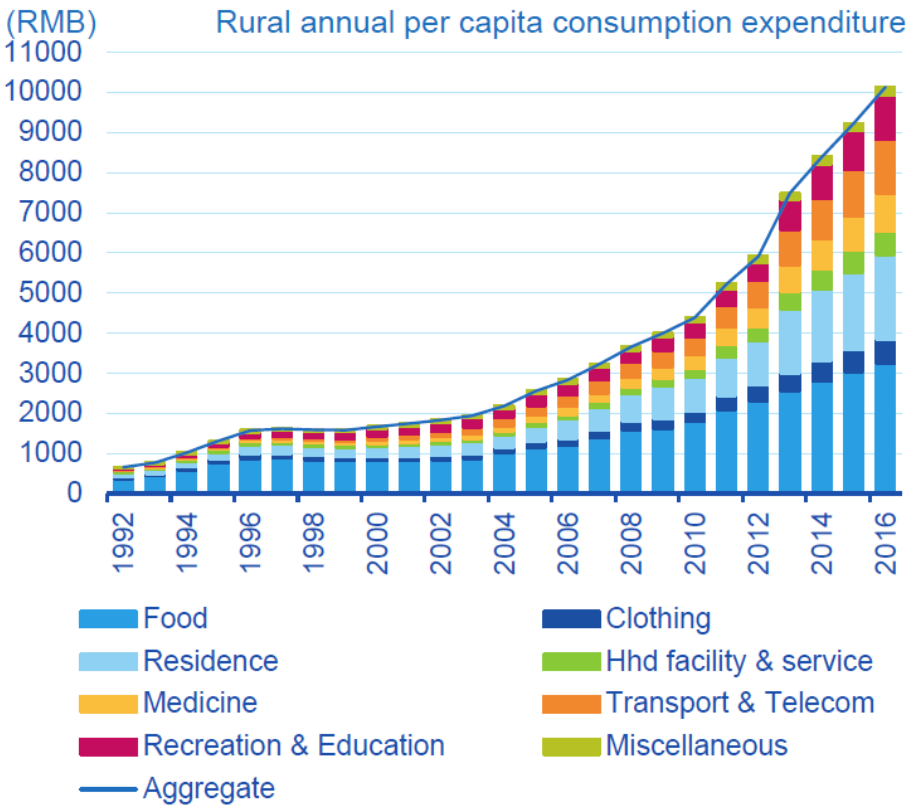
81.8%
United States

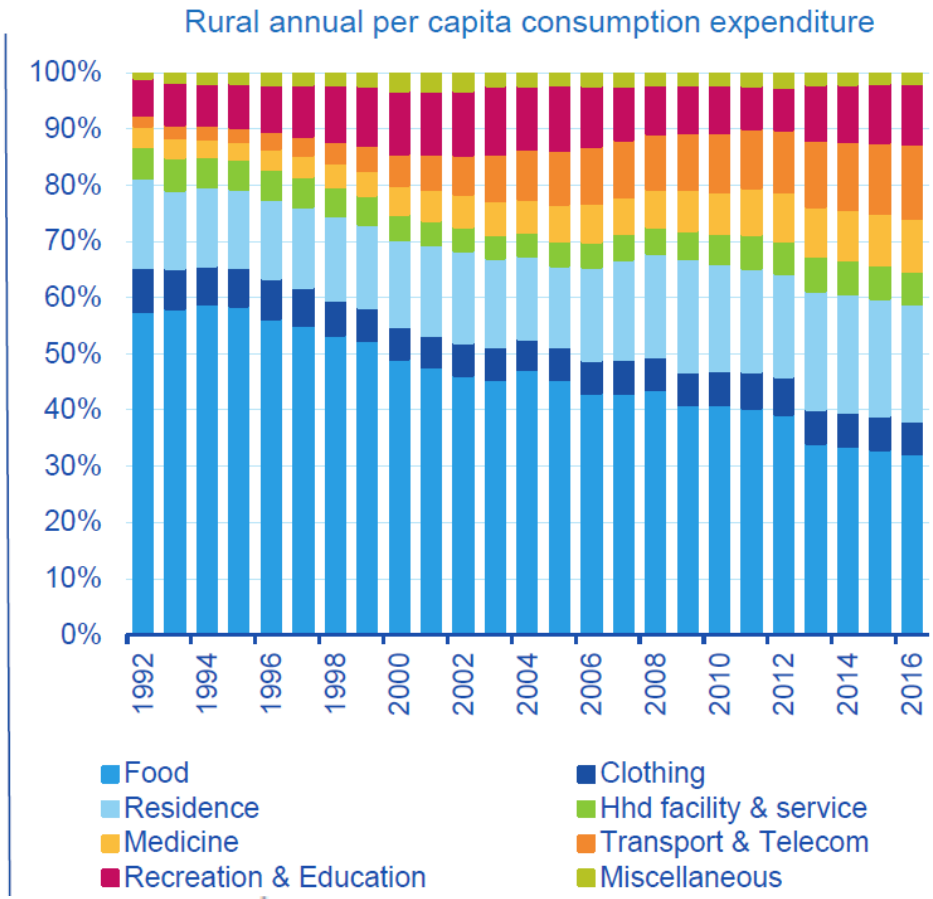
56.8%
China

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

Bloomberg

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





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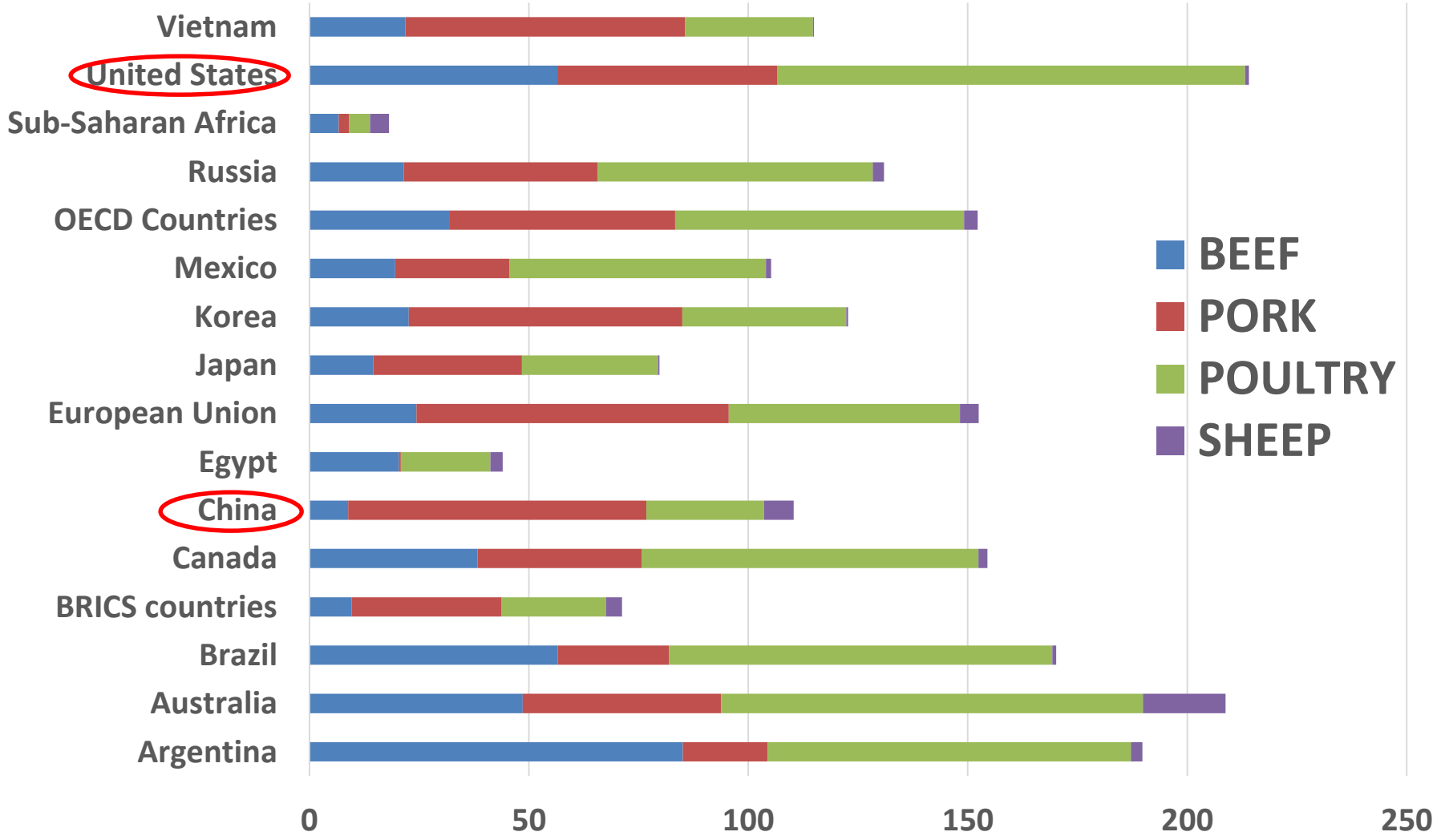
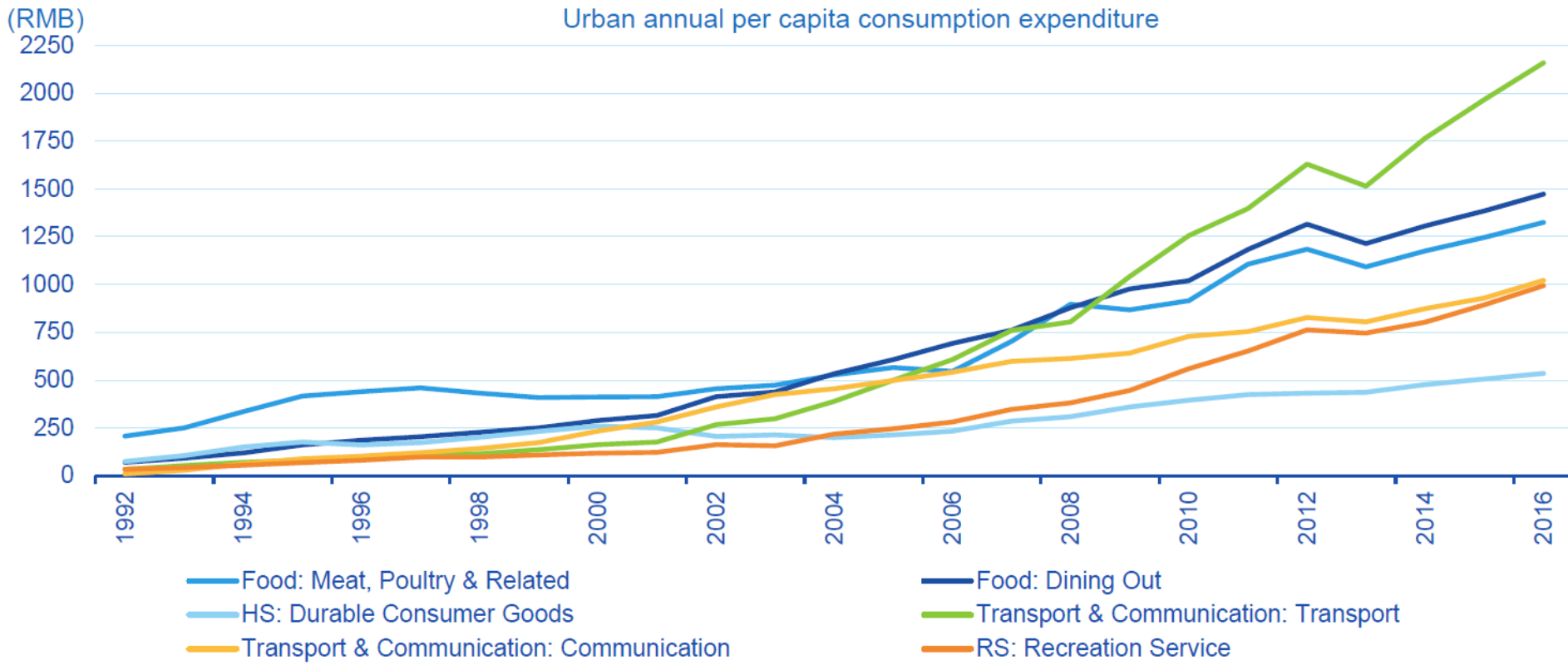
lbs per capita Meat Consumption by Country 2016



Source: OECD

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



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.

China OKs two GMO products for import

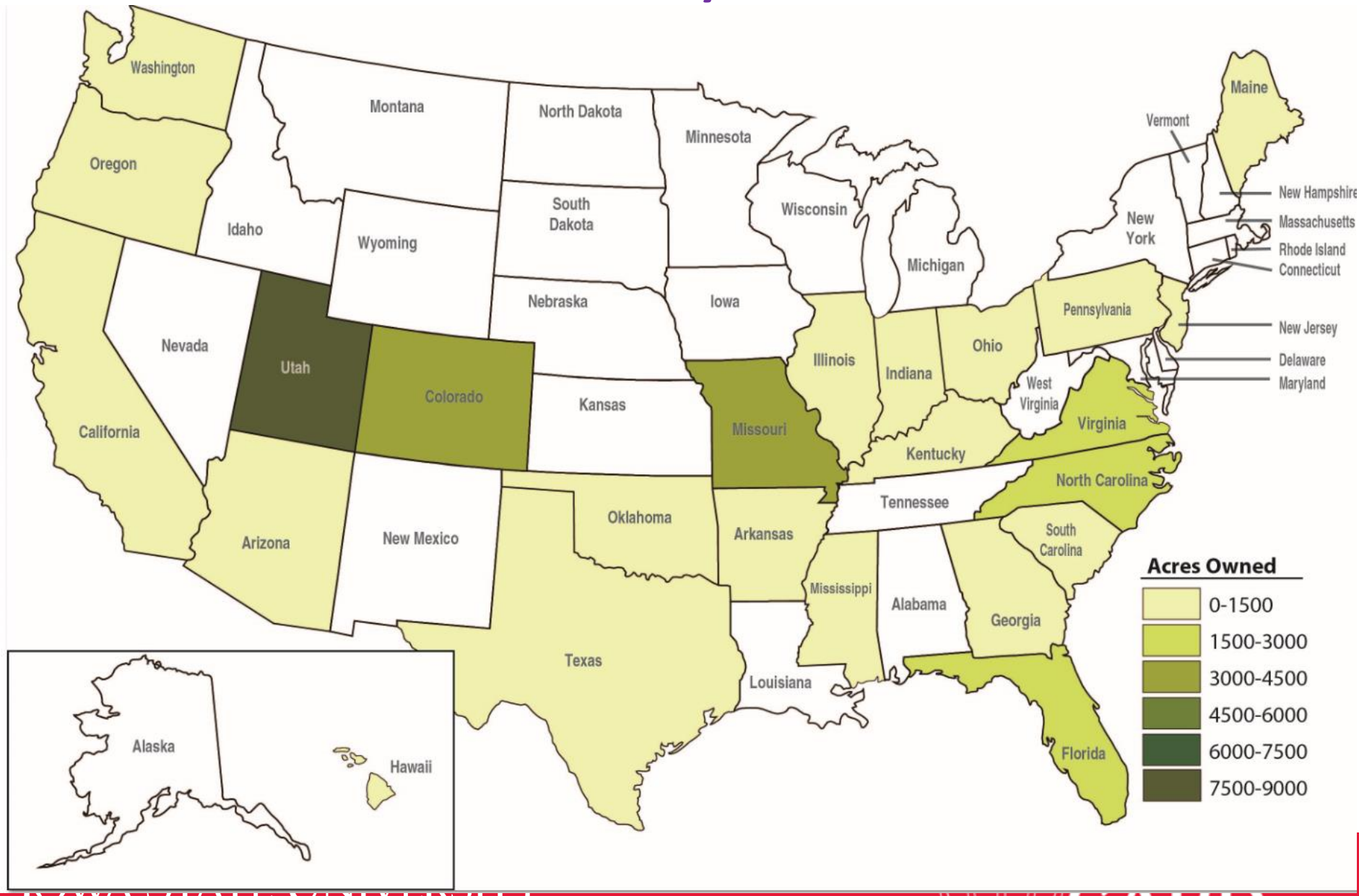
07/17/17 2:45 PM By Steve Davies

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.

Farmland Acres Owned by Chinese Owners as of 2016



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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

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WeChat 宁宁

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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

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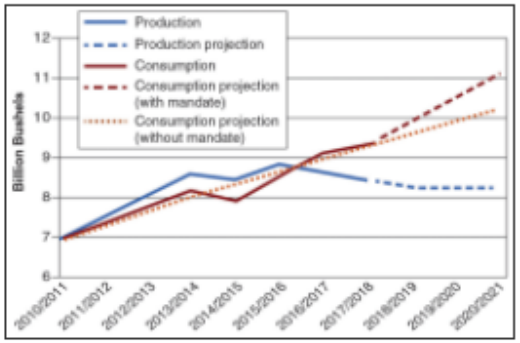


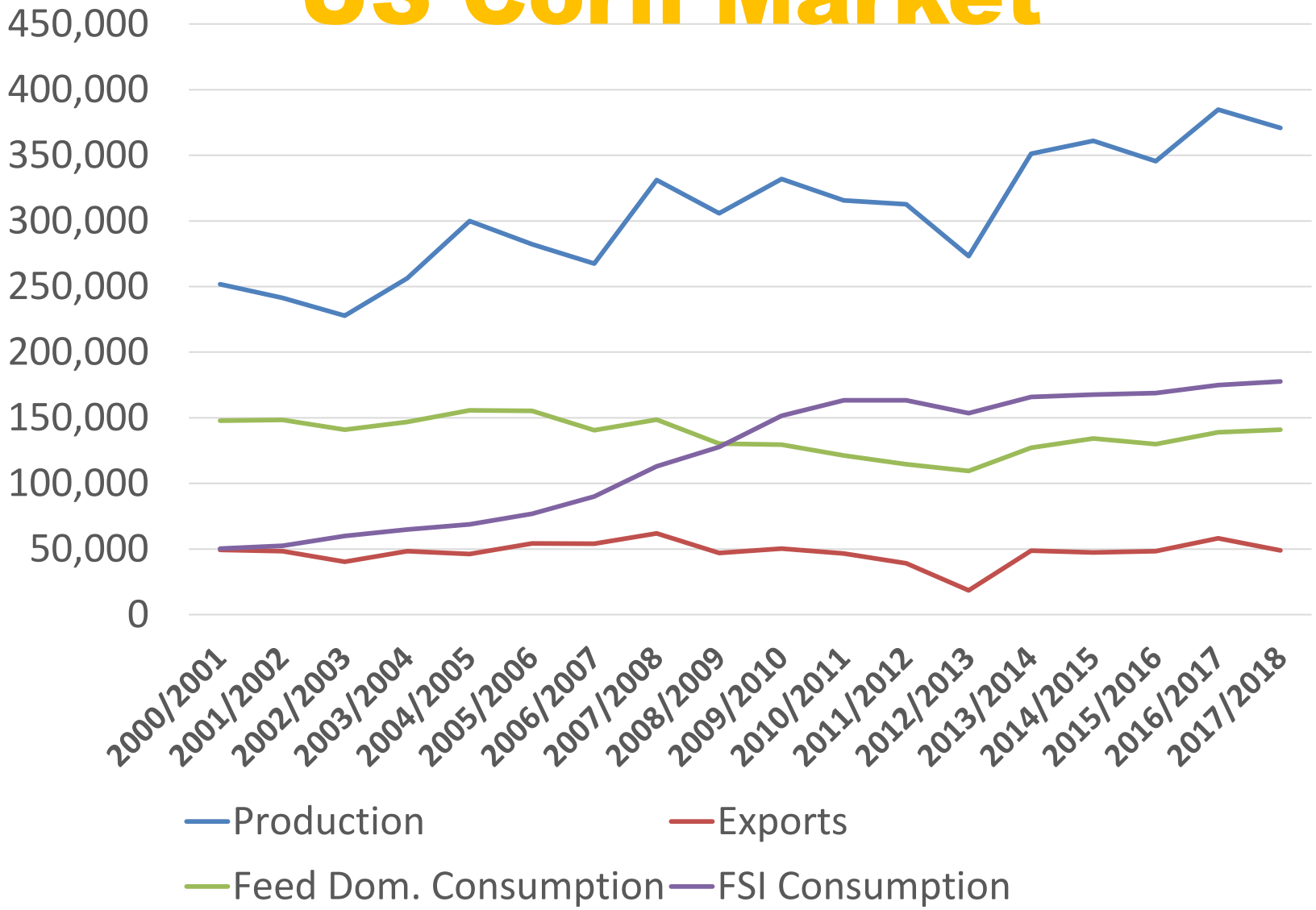
Minghao Li, Wendong Zhang, Dermot Hayes, Riley Arthur, Yantao Yang, and Xiudong Wang. 2017. "China's New Nationwide E10 Ethanol Mandate and Its Global Implications." *Agricultural Policy Review.* Center for Agricultural and Rural Development, Iowa State University.

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.

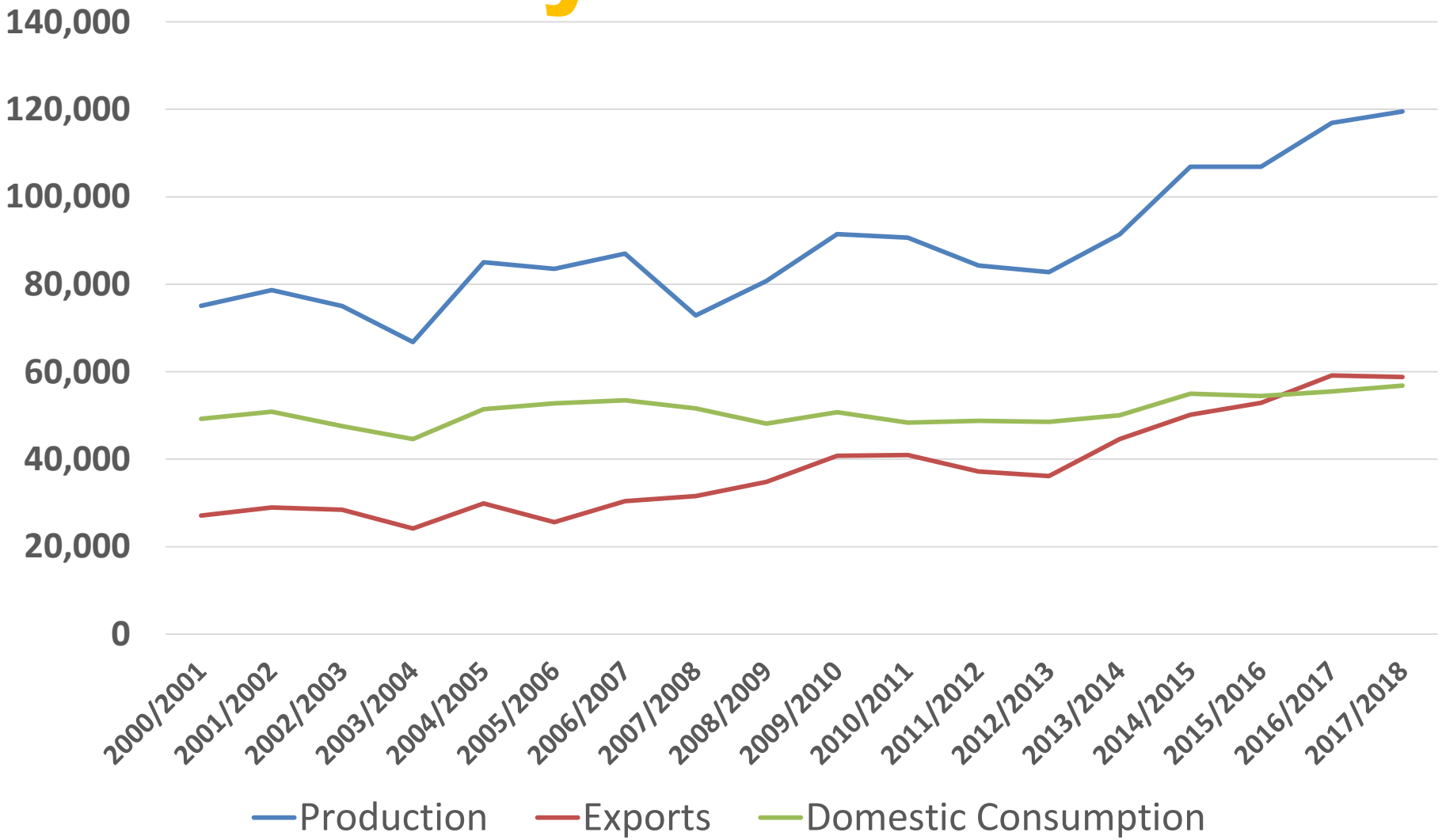
Wu, Qianrong, and Wendong Zhang. 2016. "Of Maize and Markets: China's New Corn Policy." *Agricultural Policy Review.* Center for Agricultural and Rural Development, Iowa State University.

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.

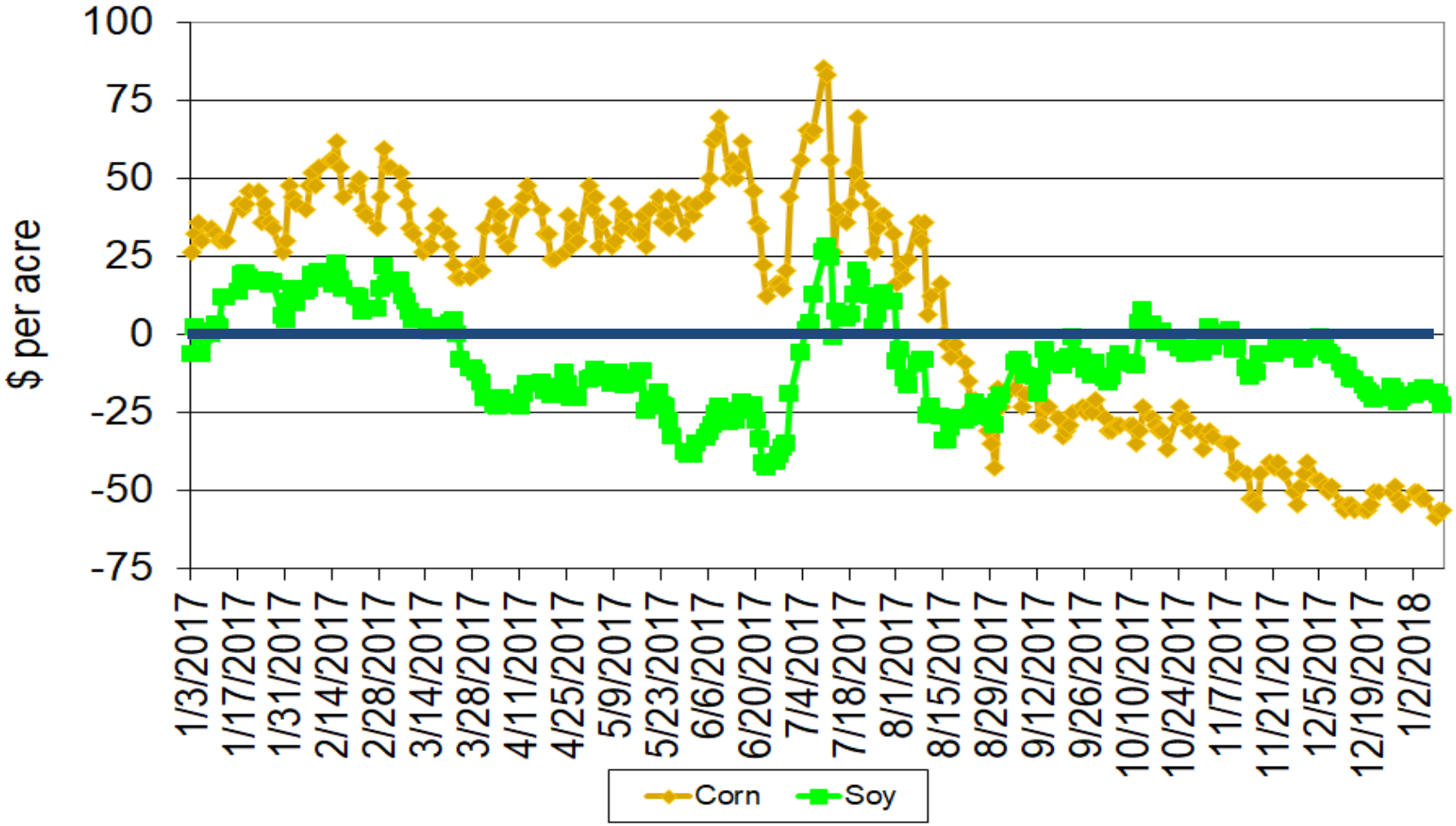
US Corn Market



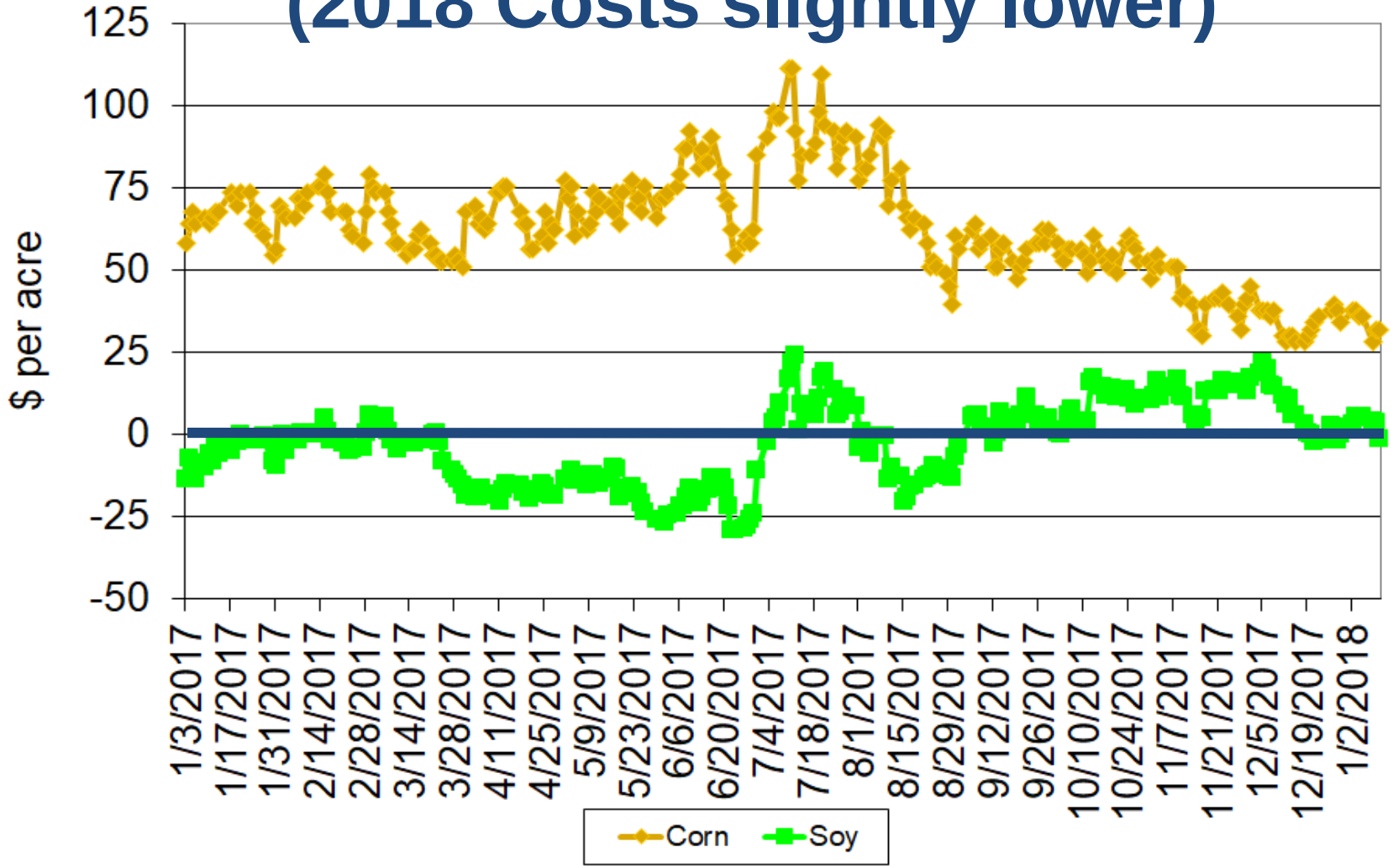
US Soybean Market



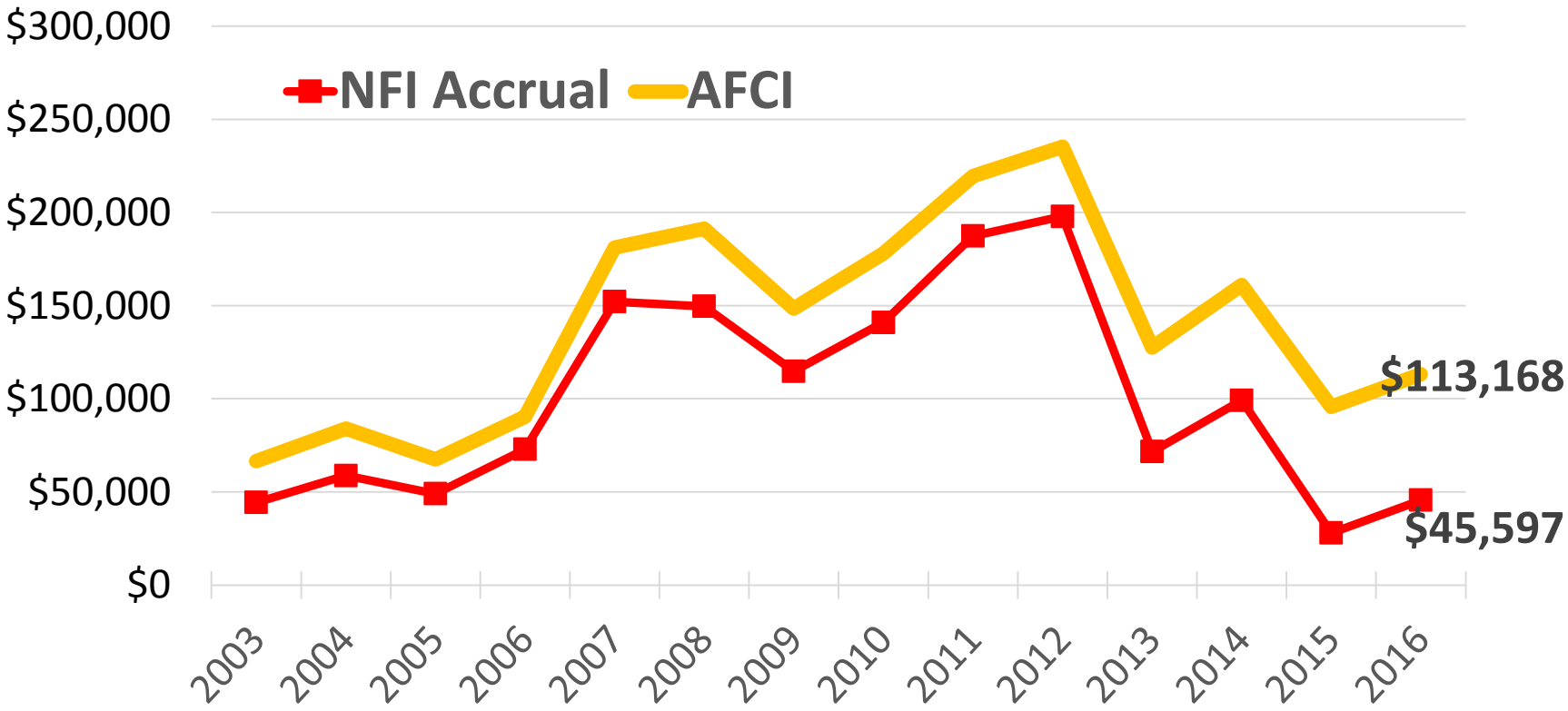
2017/2018 Margins @ Actual Yields and Basis



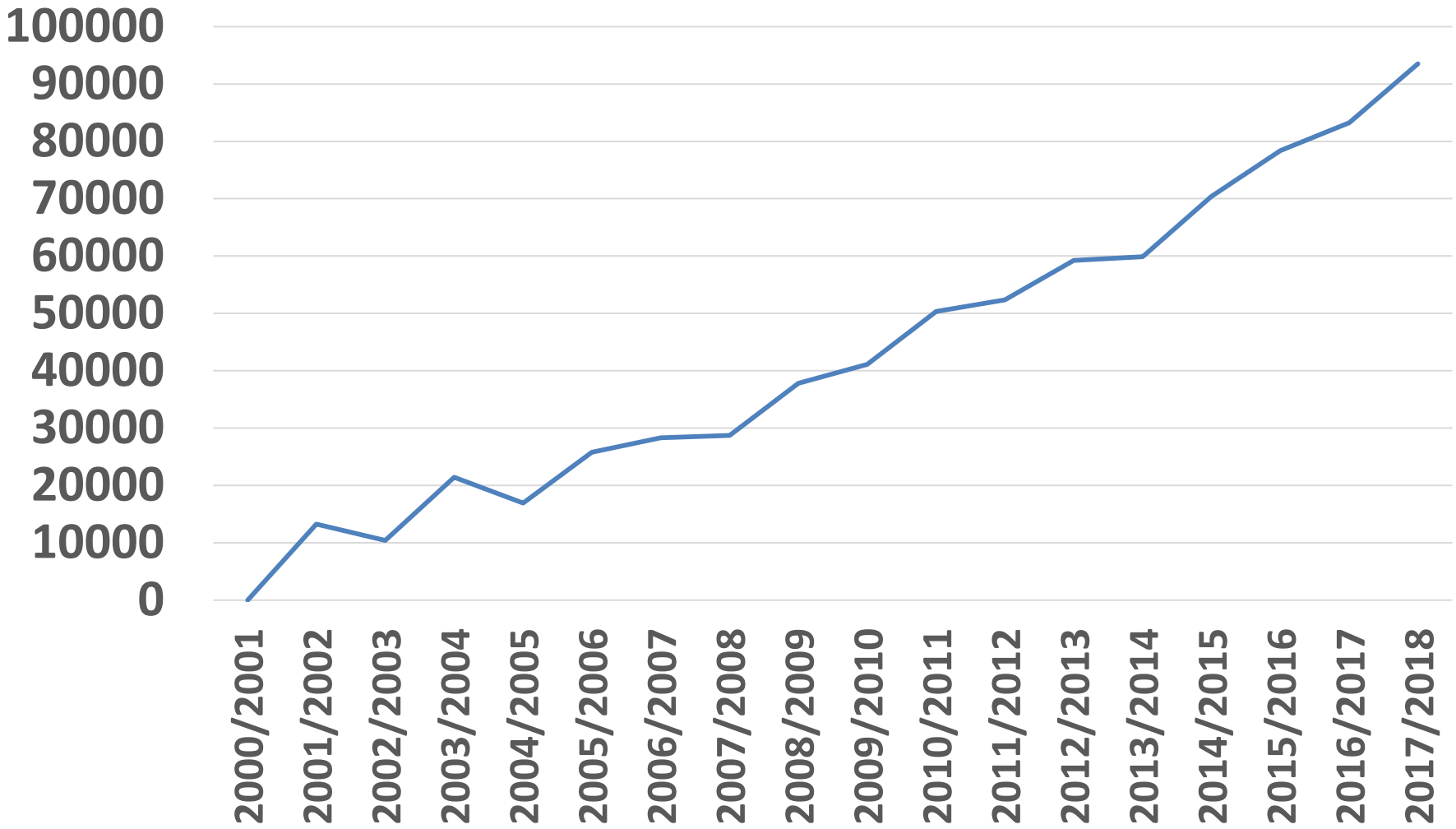
2018/19 Margins w/ 2017 Costs (2018 Costs slightly lower)



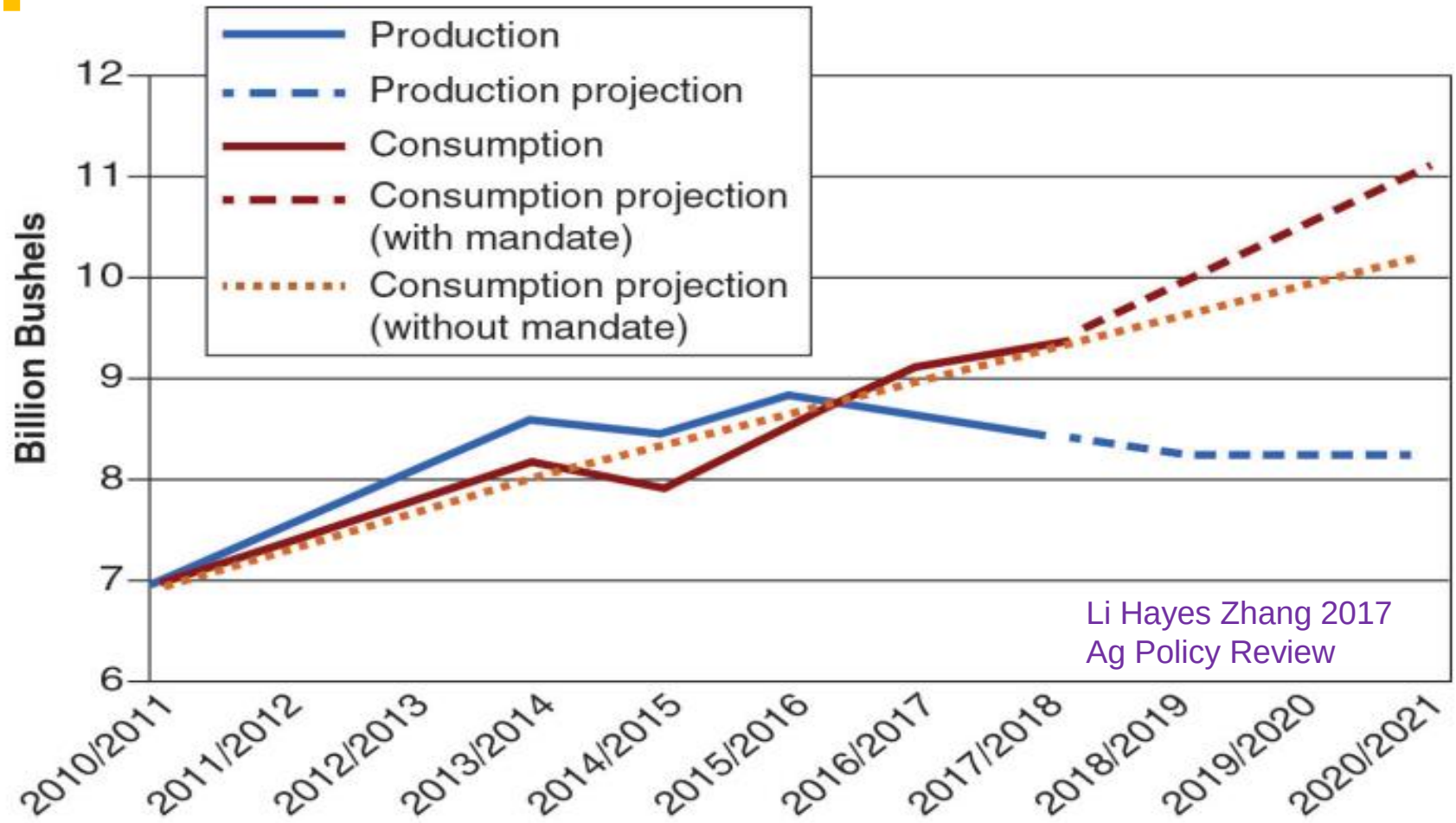
Average NFI and Adjusted Farm Cash Income (AFCI = NFI + Depreciation)



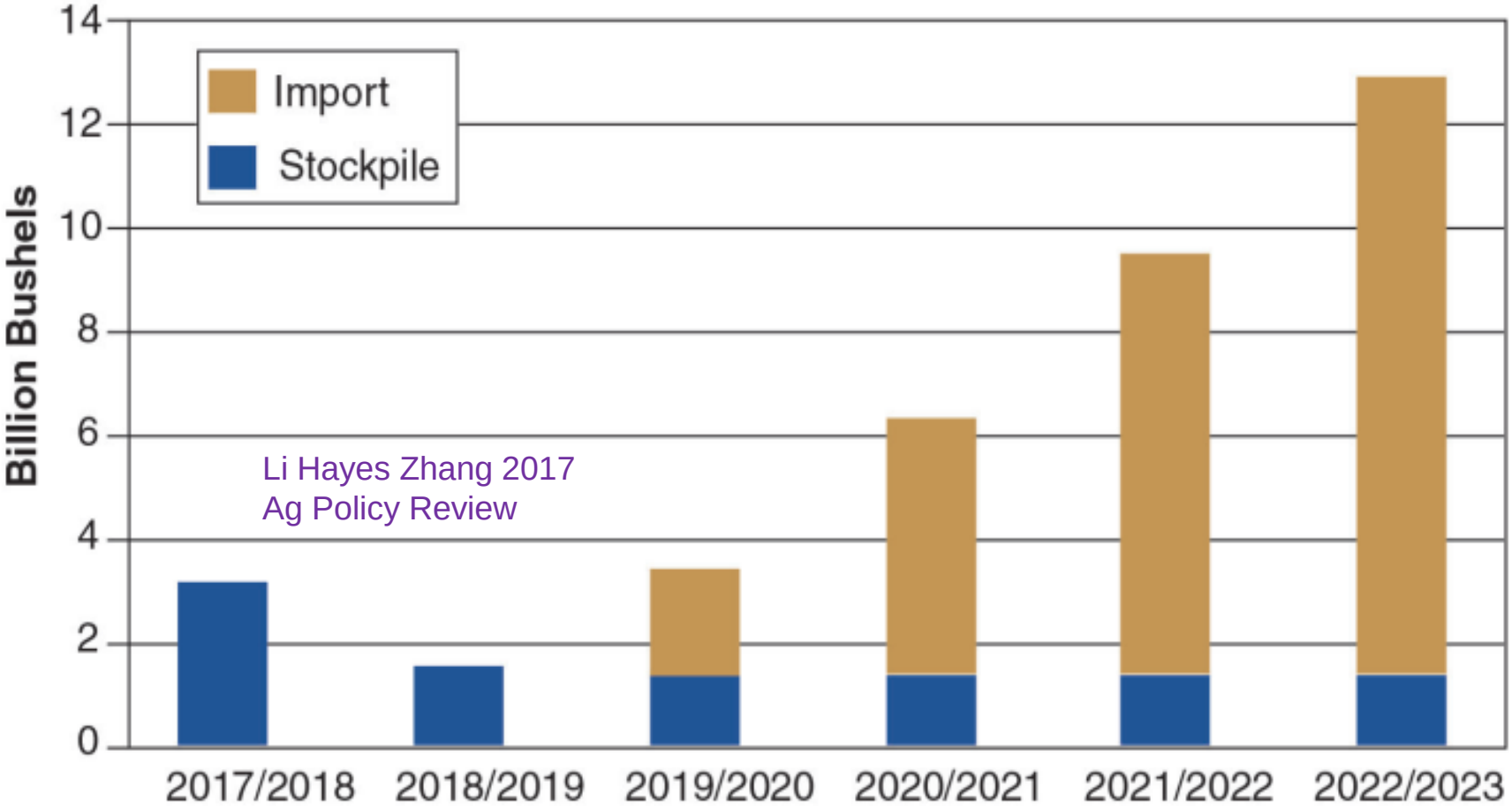
China Soybean Import



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

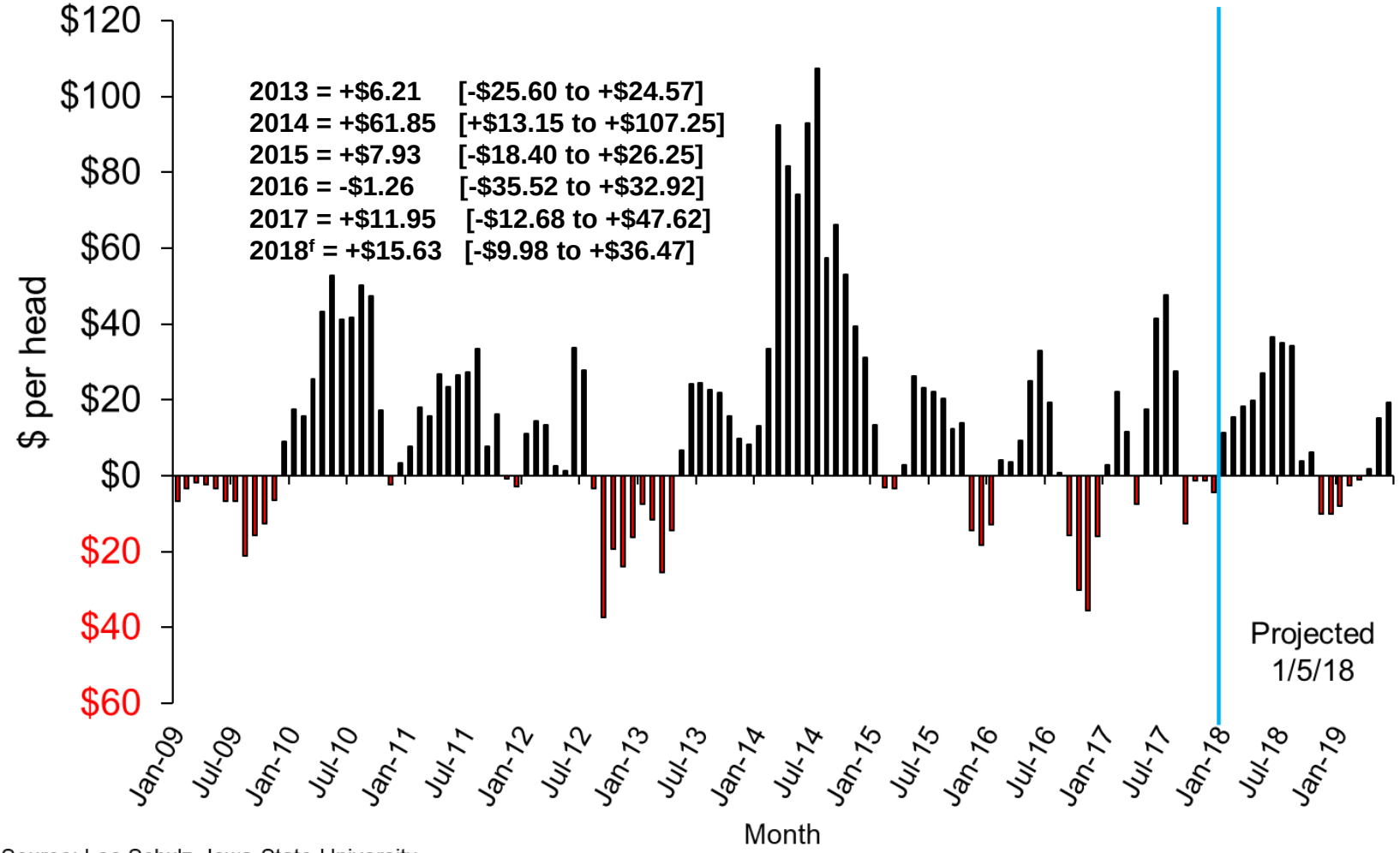


China's projected corn import potential and the role of ethanol



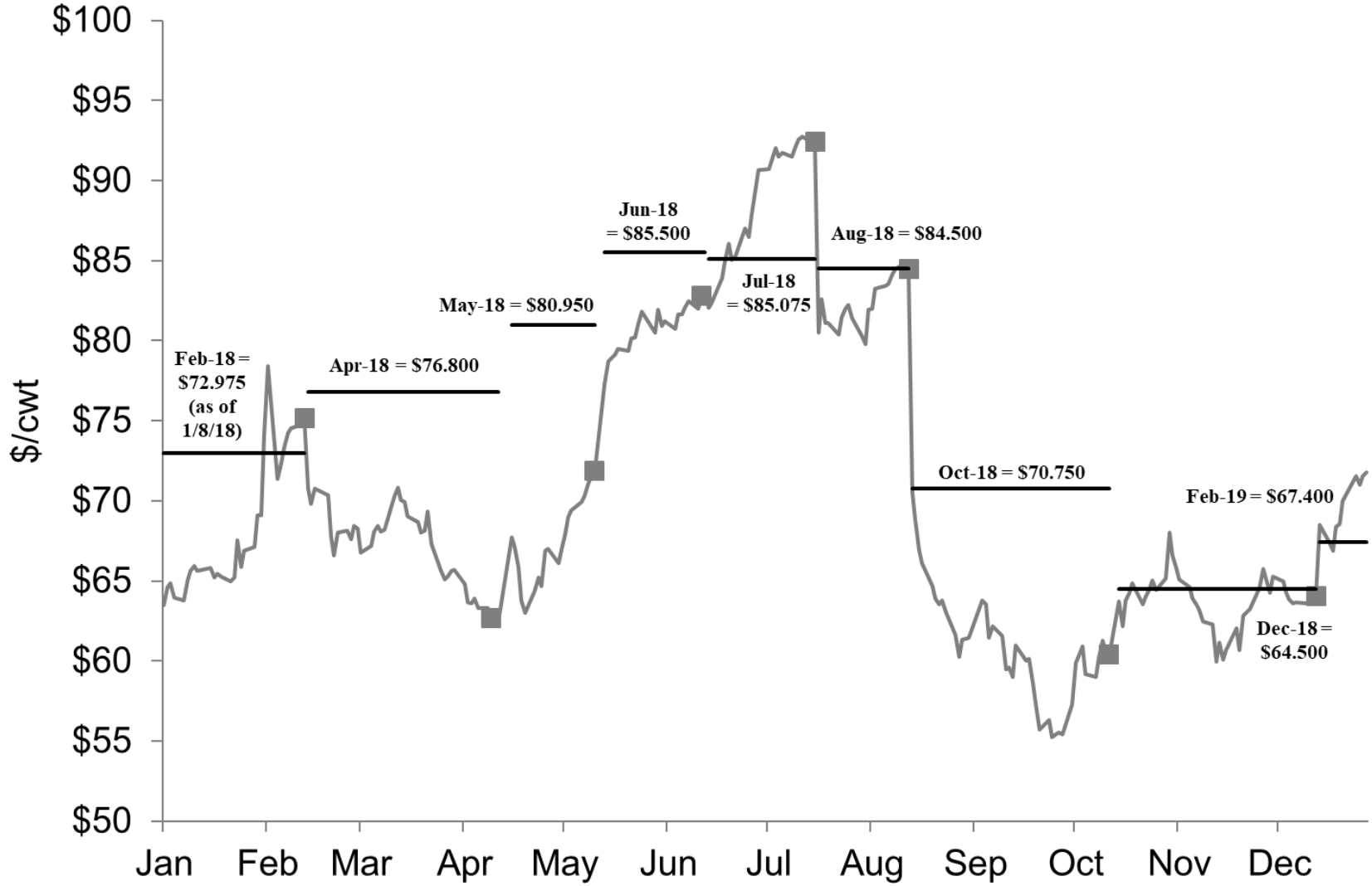
Estimated Returns to Farrow to Finish, Iowa

Past and Projected with Basis Adjusted Futures



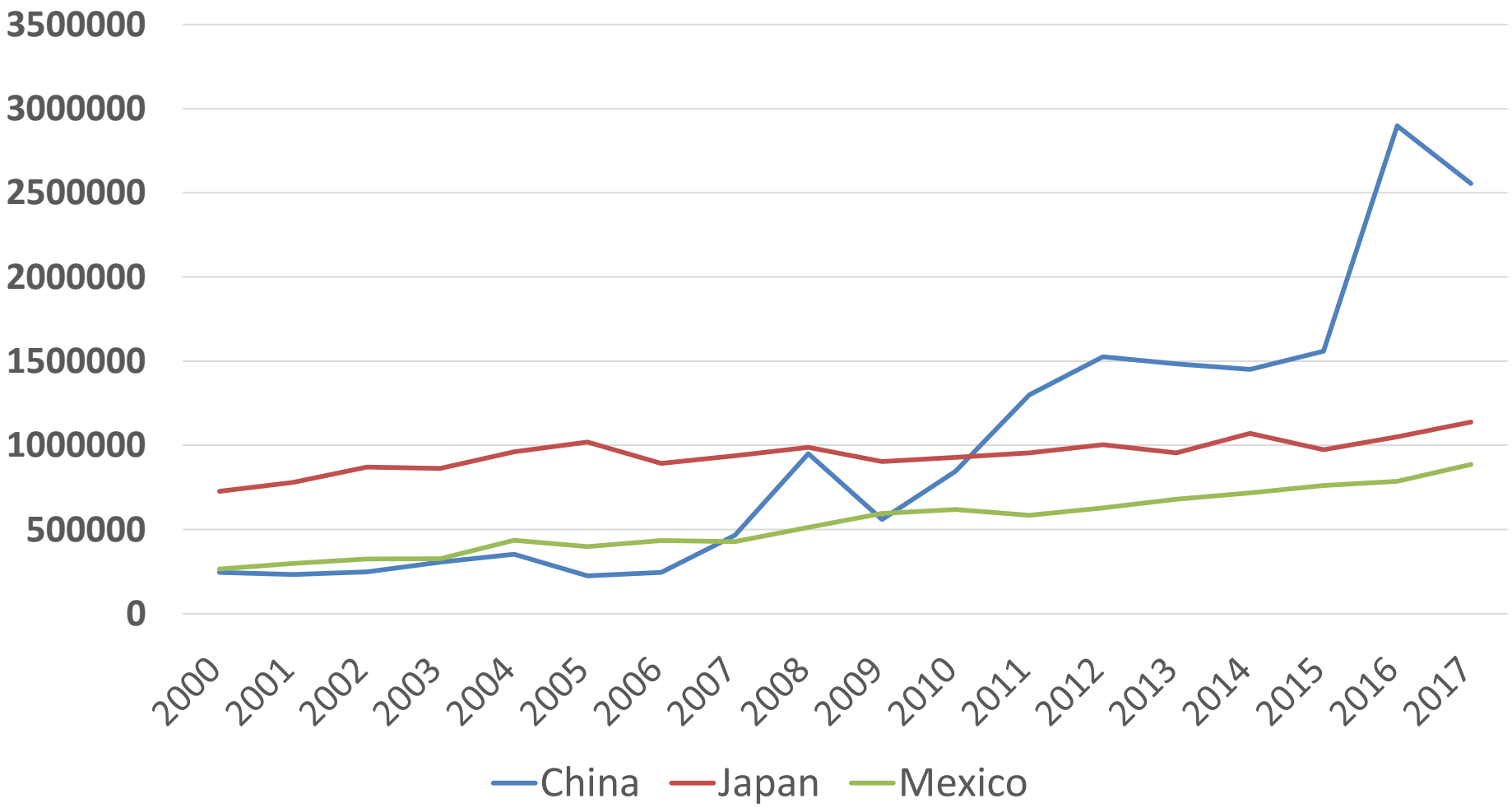
Source: Lee Schulz, Iowa State University

Daily CME Lean Hog Futures, 2017 & 2018 Contracts



Source:
CME Group

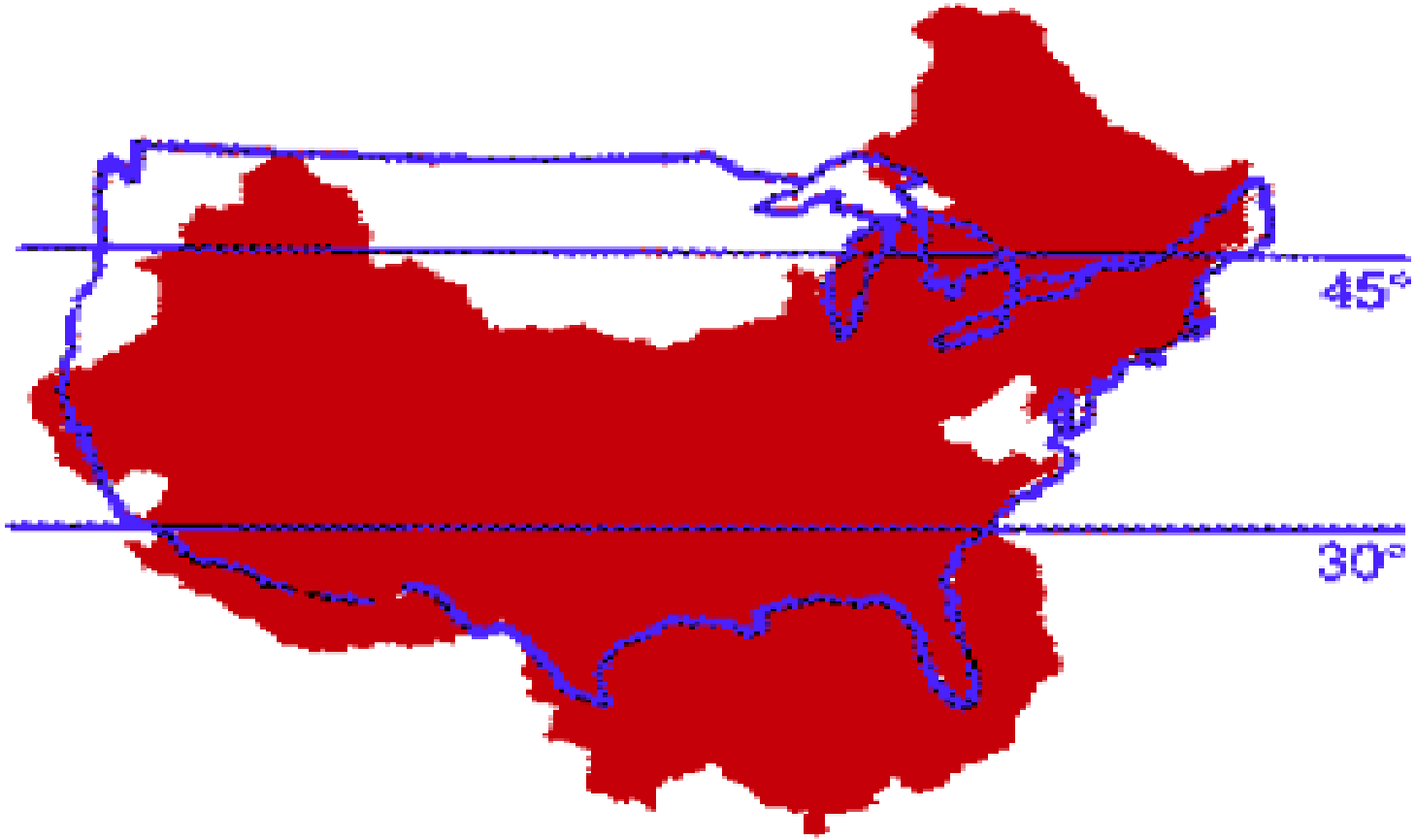
US Pork Imports (Year Ending October)

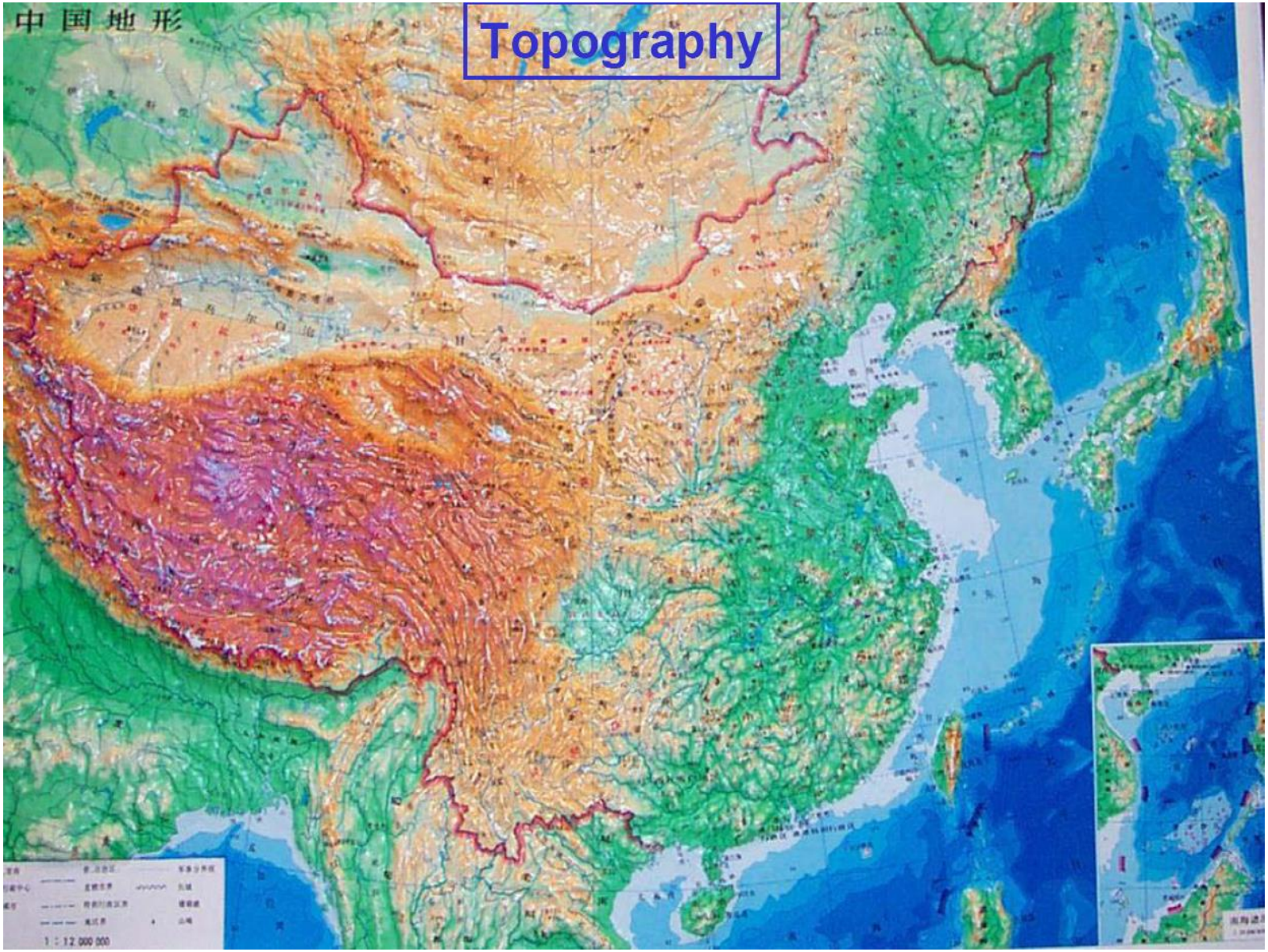


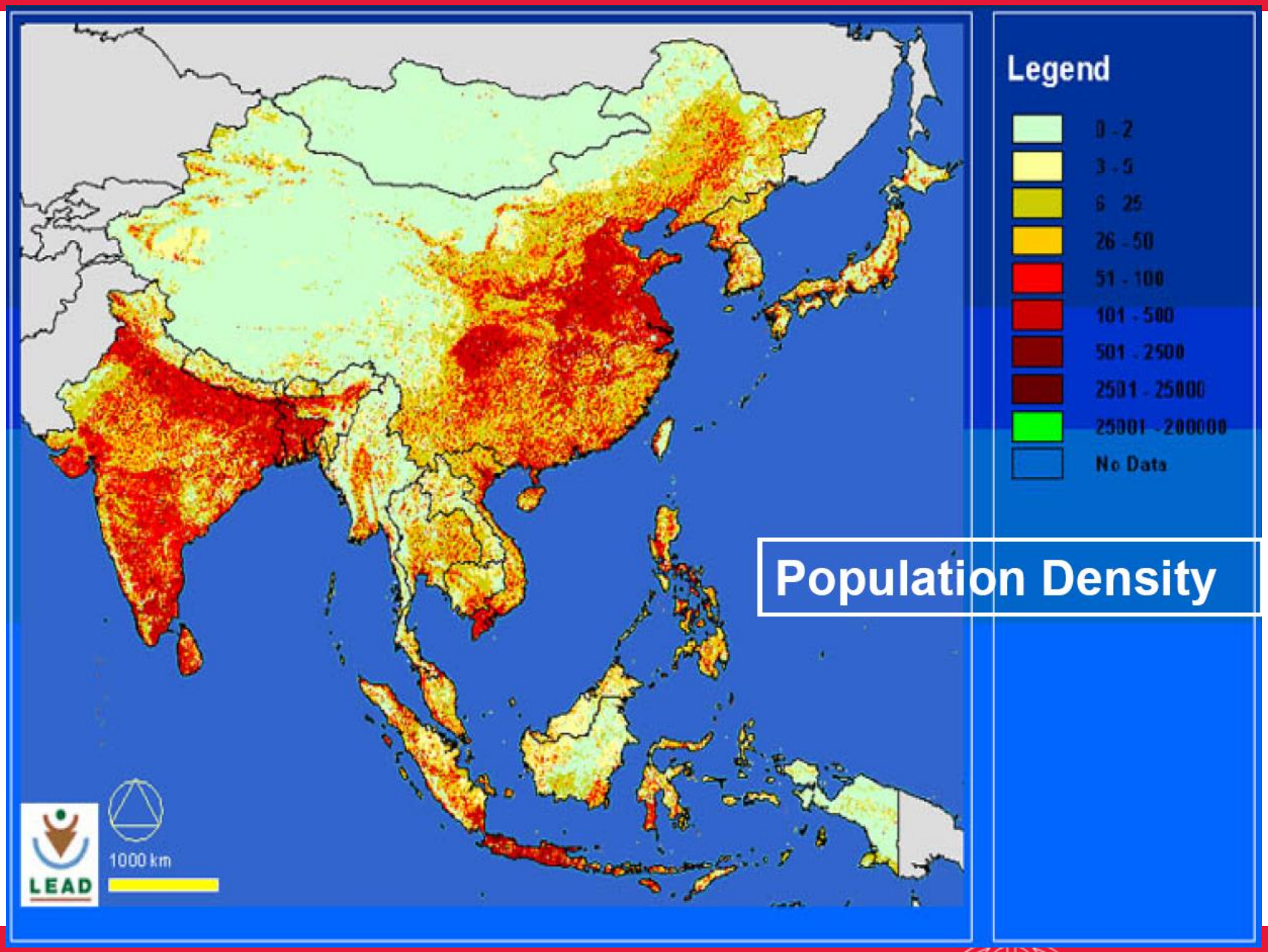
So why are land values going up?

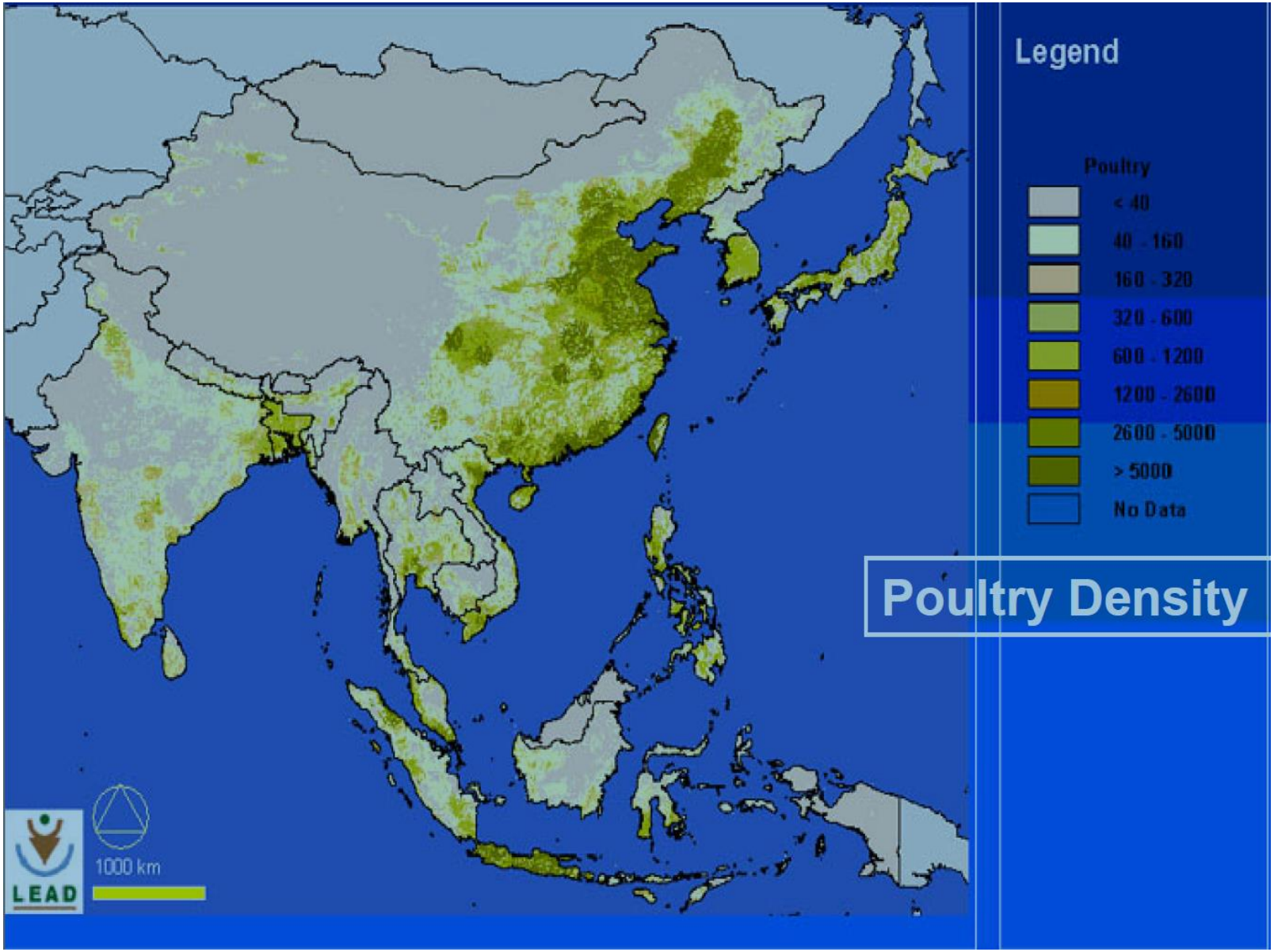
- Livestock profitability
- Loose monetary policy in the absence of inflation
- China

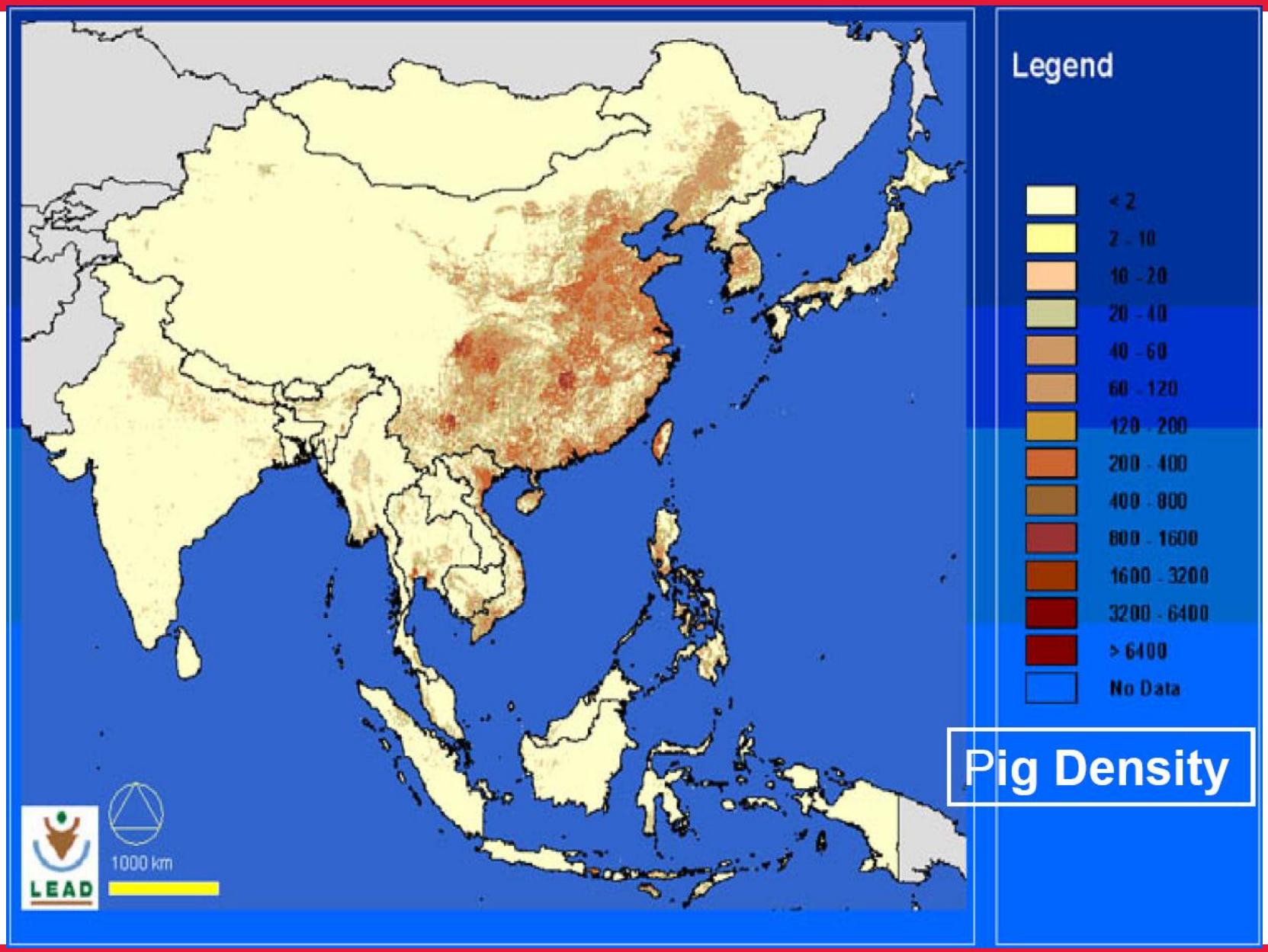
China-US Comparison




中国地形
Topography
1 : 12 000 000


Legend
0 - 2
3 - 5
6 - 25
26 - 50
51 - 100
101 - 500
501 - 2500
2501 - 25000
25001 - 200000
No Data
Population Density
1000 km
LEAD


Legend
Poultry
< 40
40 - 160
160 - 320
320 - 600
600 - 1200
1200 - 2600
2600 - 5000
> 5000
No Data
Poultry Density
1000 km
LEAD


Legend
< 2
2 - 10
10 - 20
20 - 40
40 - 60
60 - 120
120 - 200
200 - 400
400 - 800
800 - 1600
1600 - 3200
3200 - 6400
> 6400
No Data
Pig Density
1000 km
LEAD

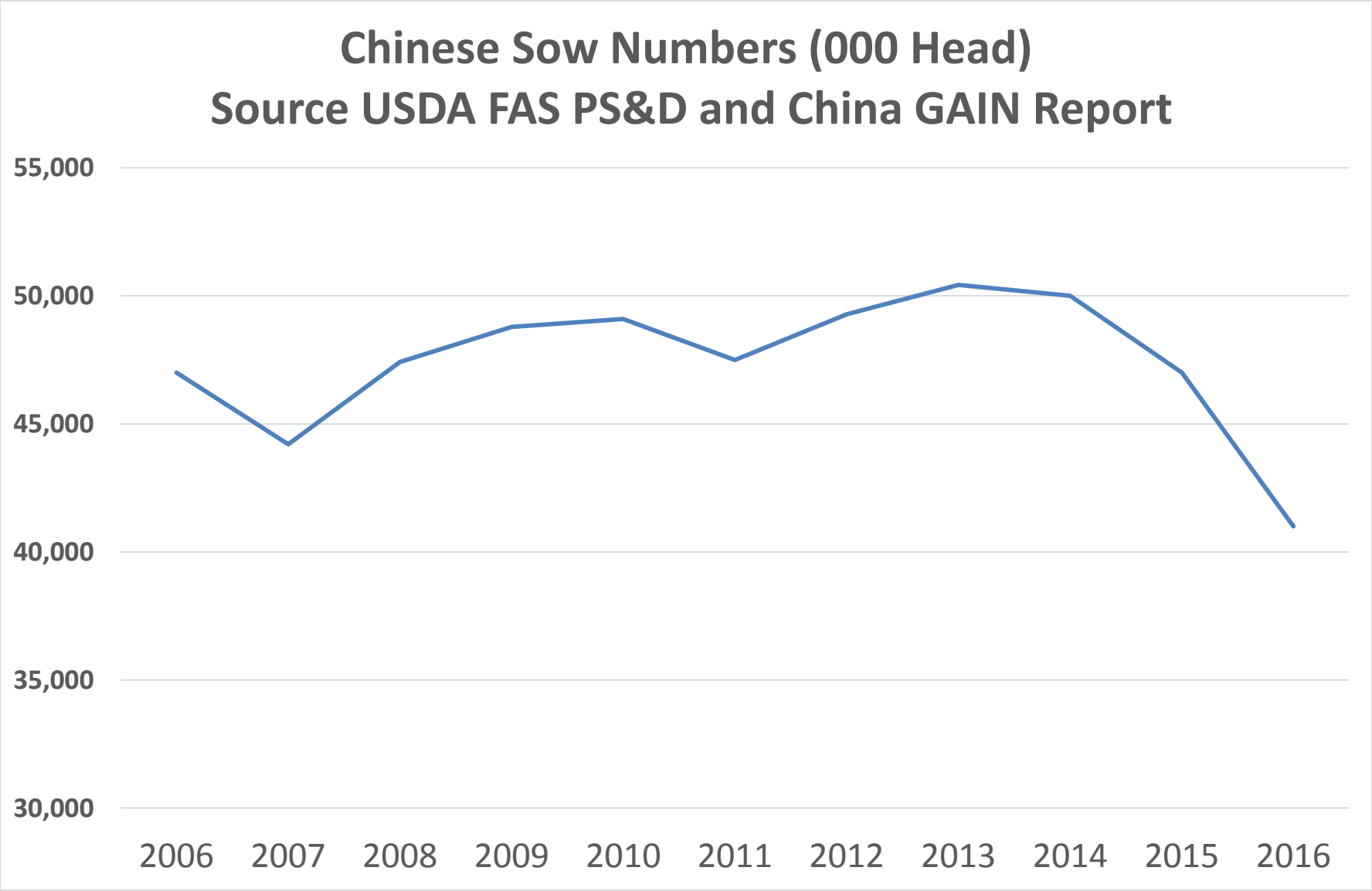
Agricultural Resources

- 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

A new sow barn

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
55,000
50,000
45,000
40,000
35,000
30,000
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016


Map of China Showing Environmental Control Zones
Heilongjiang
Inner Mongolia
Jilin
Ningxia
Liaoning
Xinjiang
Gansu
Beijing
Hebei
Tianjin
Shanxi
Shandong
Qinghai
Henan
Shaanxi
Jiangsu
Sichuan
Hubei
Anhui
Shanghai
Chongqing
Jiangxi
Zhejiang
Hunan
Guizhou
Fujian
Yunnan
Guangxi
Guangdong
Hainan
Development Control Zone
Moderate Development Zone
Potential Development Zone
Development Focus Zone

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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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The Economist

A corny tale

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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Zhang, Wendong. 2017. "What's Going On in China: Corn, GMO, Crop Insurance and High-Speed Rails." 2017 Crop Advantage Series, Okoboji, IA, January 5, 2017.

Thank You!

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