

What Does Trade Disruptions with China Mean for Iowa and US Agriculture

Wendong Zhang

Assistant Professor of Economics and Extension
Economist

wdzhang@iastate.edu, 515-294-2536

Pro-Ag Outlook Meeting

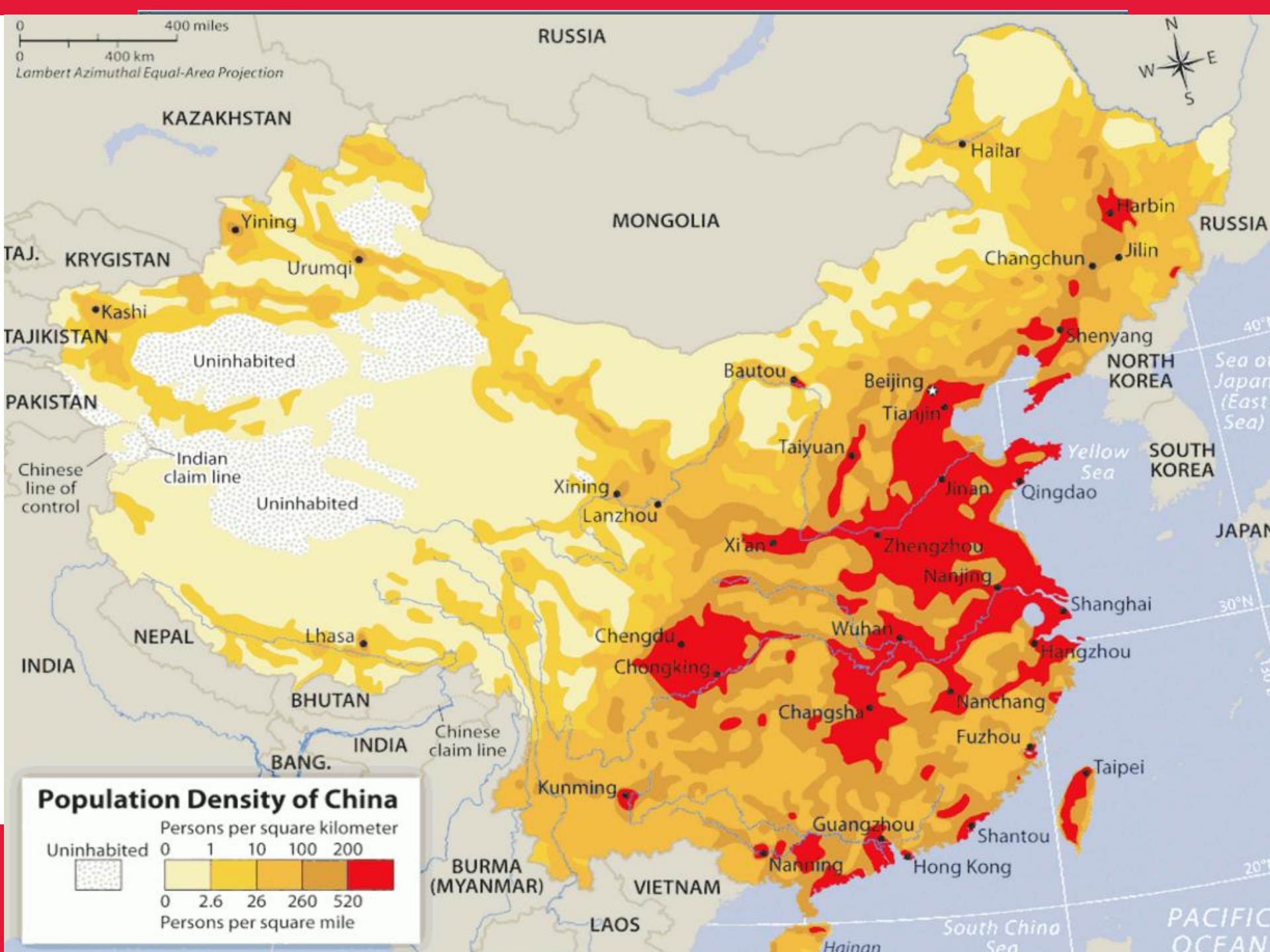
November 2018

A Quick Introduction: Dr. Wendong Zhang

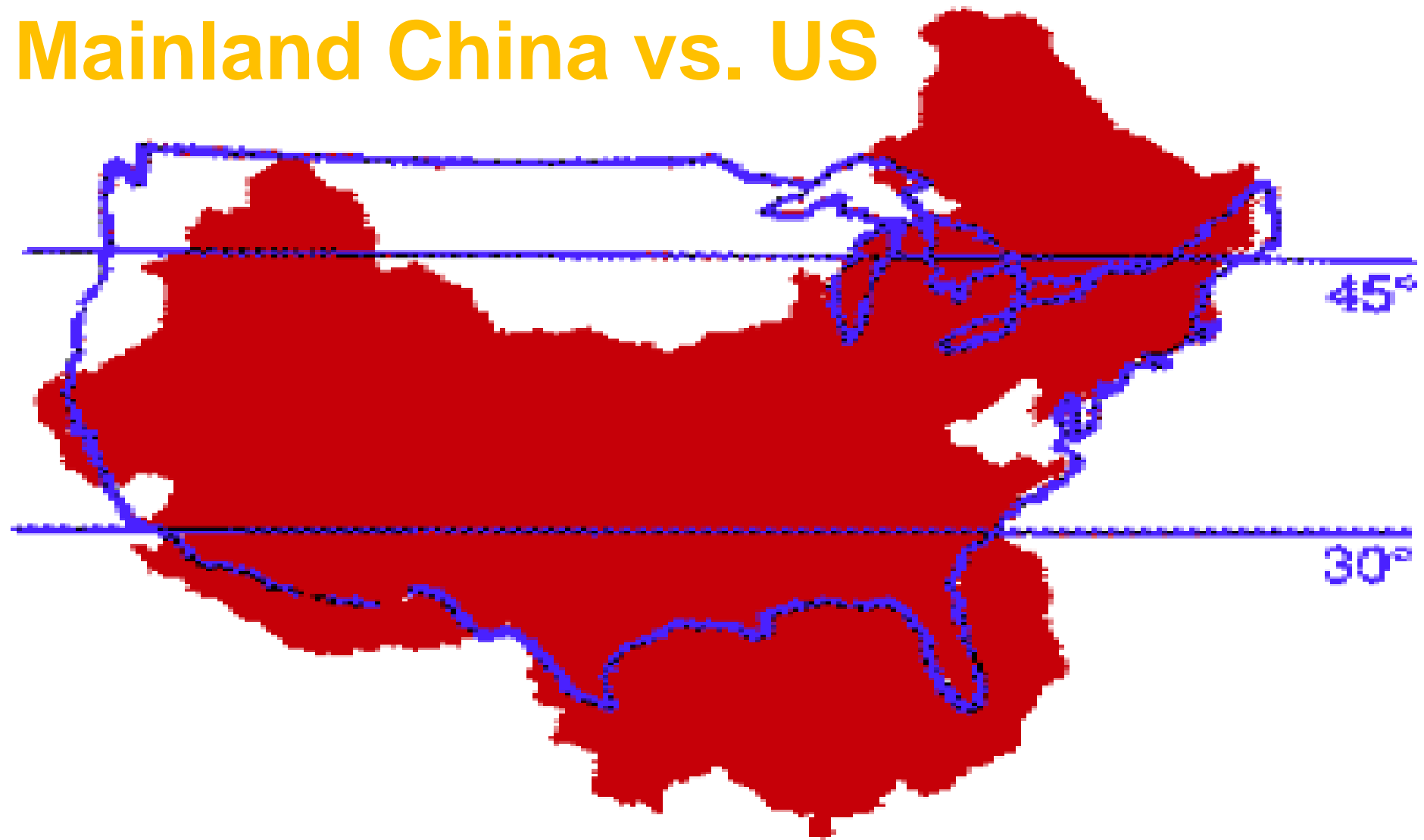
- Grown up in a rural county in NE China
- Attended college in Shanghai and Hong Kong
- Ph.D. in Ag Econ in 2015 from Ohio State
- 2012 summer intern at USDA-ERS on farm economy and farmland values
- Research and extension interests:

land value/ownership [www.card.iastate.edu/farmland/agriculture and the environment](http://www.card.iastate.edu/farmland/agriculture_and_the_environment)

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



Mainland China vs. US



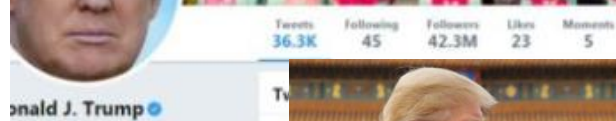
My hometown: Shenxian, Shandong Province

Greenhouse – plastic film - Shandong Province



IOWA STATE UNIVERSITY
Extension and Outreach

CARD
Cultural and Rural Development



Under Secretary of Agriculture for Farm and Foreign Agricultural Services

Incumbent

Assumed office
March 6, 2018



WORLD NEWS
OCTOBER 1, 2018 / 10:14 AM / A MONTH AGO

Trump, China's Xi may meet at G20 summit: White House adviser



September 2018
18-PB 25

The Impact of the 2018 Trade Disruptions on the Iowa Economy

- Overall losses in **Iowa's Gross State Product** are calculated to be \$1 to \$2 billion (off of a Gross State Product of \$190 billion).
- Overall losses to Iowa's **Soybean** industry of \$159 to \$891 million, with an average revenue loss across all models of \$545 million (Iowa soybeans are a \$5.2 billion industry).
- Overall losses to Iowa's **Corn** industry of \$90 to \$579 million, with an average revenue loss across all models of \$333 million (Iowa corn is an \$8.5 billion industry).
- Overall losses to Iowa's **Pork/Hog** industry of \$558 to \$955 million, with an average revenue loss across all models of \$776 million (the Iowa pork/hog industry is a \$7.1 billion industry).
- A 2% drop in **Ethanol** prices resulting in approximately \$105 million in lost revenues to Iowa ethanol producers.
- Revenue losses in these industries translate into **additional lost labor income** across the state. Labor income declines from the impacts to the corn, soybean, and hog industries range from \$366 to \$484 million without federal offsets and \$245 to \$364 million with federal offsets.
- Iowa **tax revenue losses** (personal income and sales taxes) range from \$111 to \$146 million. Federal offsets would reduce tax losses to \$75 to \$110 million.

Trade Dispute Impacts – Price Changes

Cash Crop Prices	05/31/2018	08/15/2018	% Change	Source
Corn	\$ 3.52	\$ 3.21	-8.8%	USDA-AMS
Soy	\$ 9.48	\$ 7.83	-17.4%	USDA-AMS
Ethanol	\$ 1.41	\$ 1.35	-4.3%	USDA-AMS

Trade Dispute Impacts – Iowa Revenue Loss

Commodity	Price damage w elasticity	Per-unit price drop due to China trade dispute	Iowa production	Revenue loss due to China trade dispute (mil. Dollars)
Corn	-4%	- \$ 0.13	2.60 bil. bu	-\$ 325 mil.
Soy	-10%	- \$ 0.95	0.58 bil. bu	-\$ 551 mil.
Ethanol	-2%	- \$ 0.03	4.20 bil. gal.	-\$ 105 mil.
Hog	-11%	-\$8.72/cwt or - \$18/head	43 mil.	-\$795 mil.

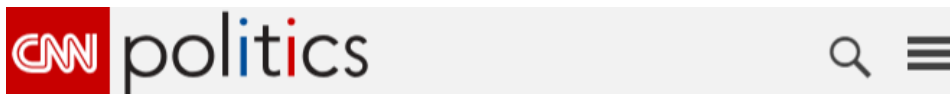


What can Iowa farmers expect from ARC/PLC and the Trade Assistance Package in 2018?

By Alejandro Plastina, extension economist, 515-294-6160, plastina@iastate.edu and Chad Hart, extension economist, 515-294-9911, chart@iastate.edu;
Iowa State University

September 2018

Ag Decision Maker



Trump administration will impose tariffs on \$200 billion in Chinese goods

By Donna Borak, Katie Lobosco and Kevin Liptak
Updated 6:53 AM ET, Tue September 18, 2018



US-China trade dispute

+ Add to myFT

China retaliates against new US tariffs as trade war escalates

Beijing slaps duties of up to 10 per cent on \$60bn of American imports

Extension and Outreach

Table 1. Market Facilitation Program Payment Details

Commodity	Payment Rate	Estimated Total Payments
Corn	\$0.01 per bushel	\$96 million
Cotton	\$0.06 per pound	\$276.9 million
Dairy	\$0.12 per hundredweight	\$127.4 million
Pork	\$8.00 per head	\$290.3 million
Sorghum	\$0.86 per bushel	\$156.8 million
Soybeans	\$1.65 per bushel	\$3.63 billion
Wheat	\$0.14 per bushel	\$119.2 million



CARD

Center for Agricultural and Rural Development

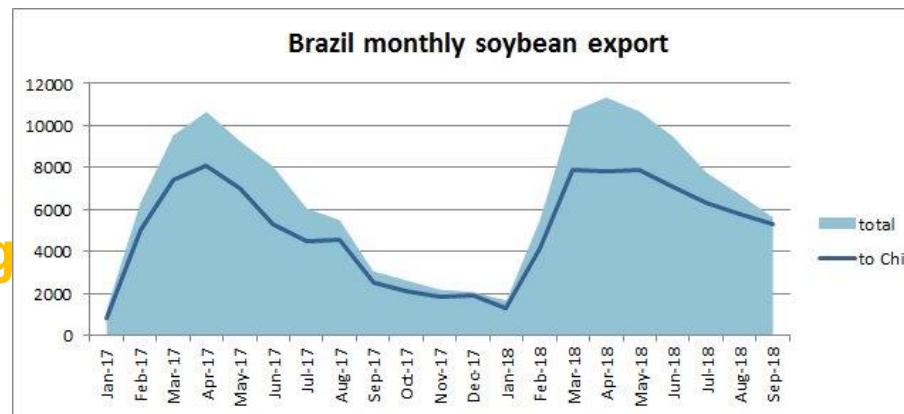


Bolsonaro wins Brazilian presidency

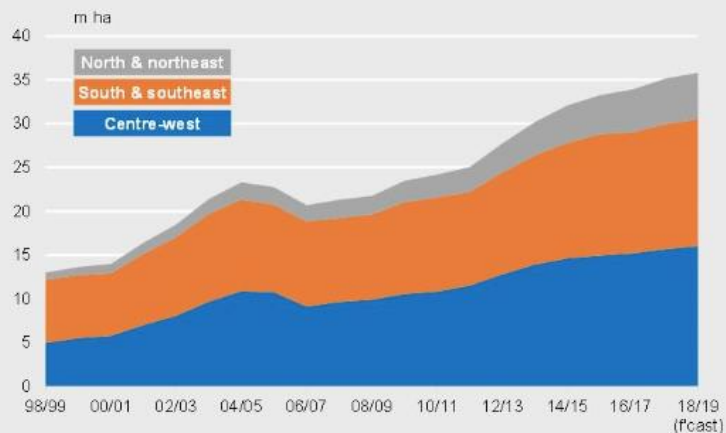
The former military officer is the latest in a global wave of far-right nationalists to surge at the ballot box.

[washingtonpost.com](https://www.washingtonpost.com)

Soy Stats Worrying

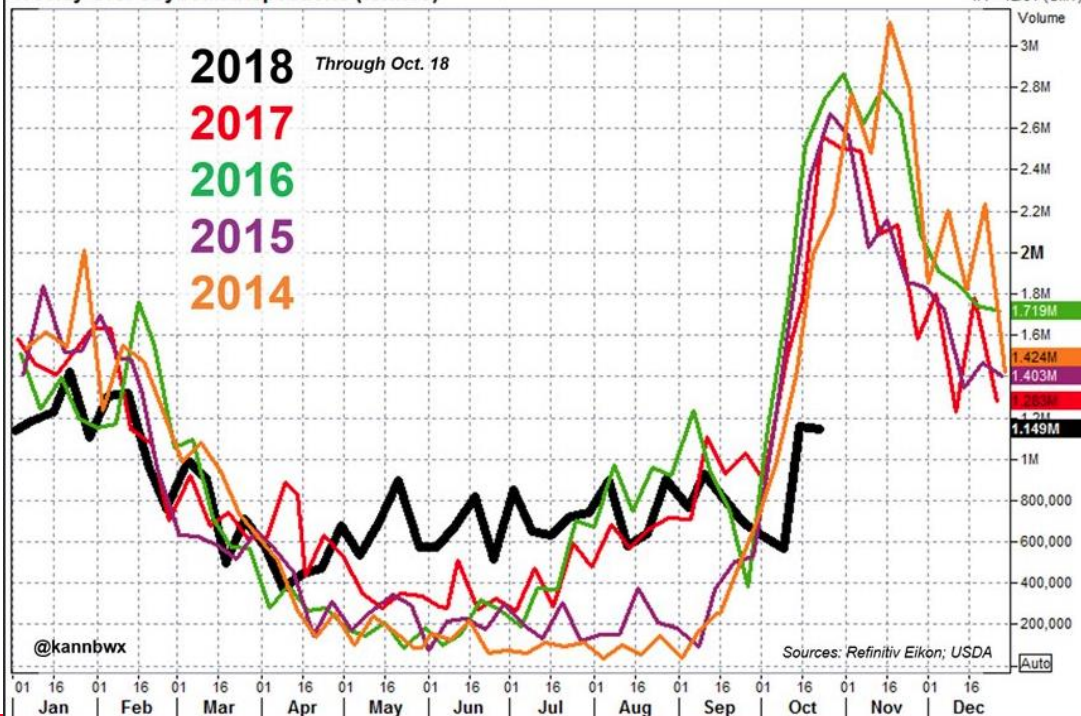


Soyabeans: Brazilian area by region*



* Source: Conab, IGC estimates

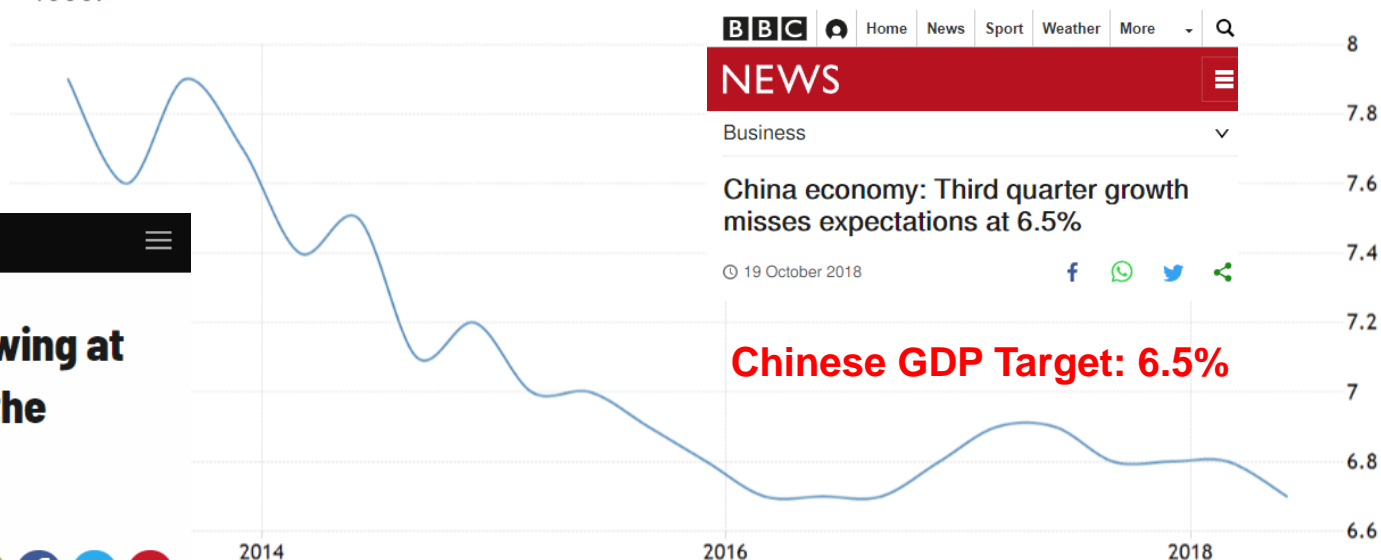
Weekly U.S. Soybean Inspections (tonnes)



**Will China
be hurt
enough to
talk?
Maybe...**

China GDP Annual Growth Rate 1989-2018 | Data | Chart | Calendar

The Chinese economy advanced 6.7 percent year-on-year in the second quarter of 2018, easing from a 6.8 percent growth in the previous period and matching market consensus. It was the weakest pace of expansion since the third quarter of 2016 amid intensifying tariff battle with the US and efforts to deleverage debt and financial risks. GDP Annual Growth Rate in China averaged 9.61 percent from 1989 until 2018, reaching an all time high of 15.40 percent in the first quarter of 1993 and a record low of 3.80 percent in the fourth quarter of 1990.



SOURCE: TRADINGECONOMICS.COM | NATIONAL BUREAU OF STATISTICS OF CHINA

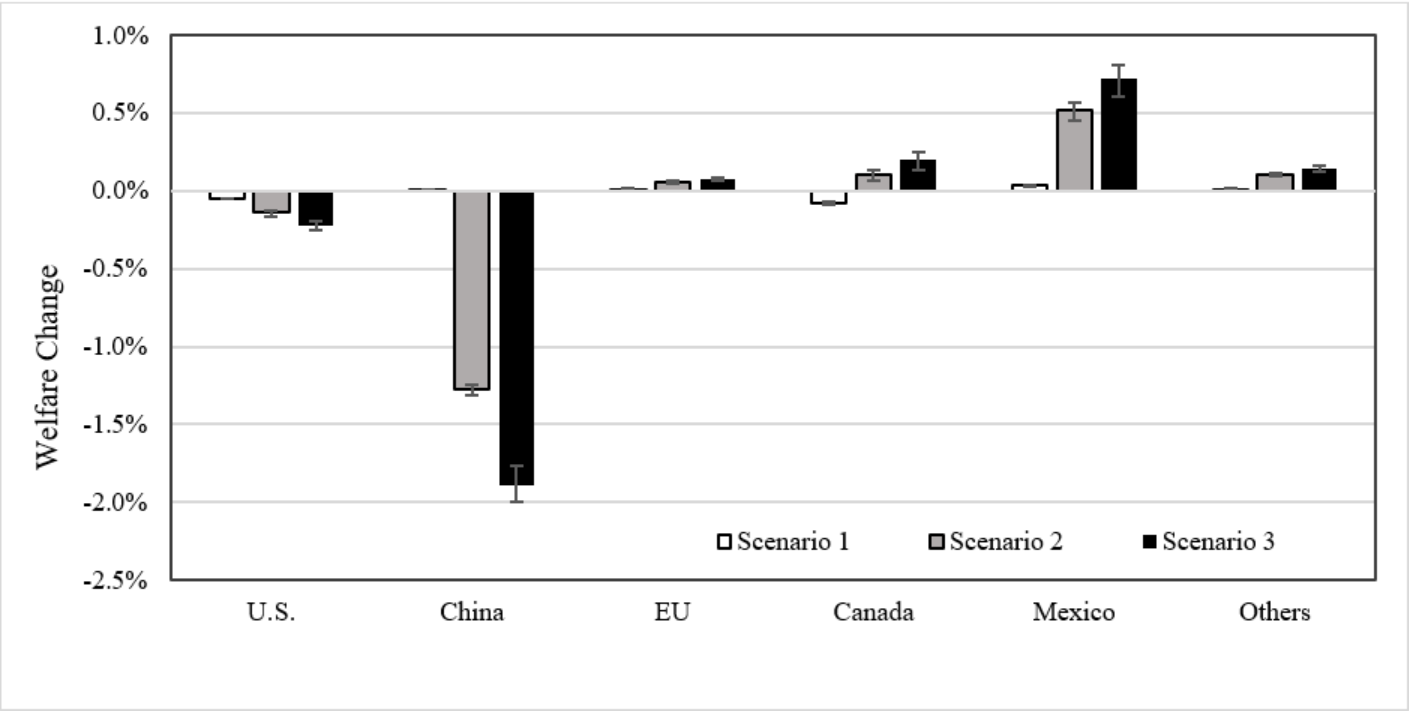
**China's economy is growing at
its slowest pace since the
financial crisis**

By Daniel Shane, [CNN Business](#)

Updated 2:49 AM ET, Fri October 19, 2018



Figure 1. Welfare changes in selected countries.



Impacts of trade disruptions in 2018 on global economy

**Edward Balistreri, Minghao Li,
Dermot Hayes, Wendong Zhang**

Will China be hurt enough to talk? Maybe...

Scenario 2: Tariff increases in scenario 1 and additional tariff increases between the United States and China, including the \$50 billion round and the \$200 billion/\$60 billion round of tariff increases. The scenario reflects the current tariffs (as in October 2018).

Scenario 3: Tariff increases in scenario 1 and 2, and additional tariff increases that are scheduled to happen at the end of 2018, i.e., the U.S. tariffs on \$200 billion Chinese products will increase by another 15%, and China’s retaliatory tariffs will increase by 0~15%.

Will China be hurt enough to talk? Maybe...

SHANGHAI SE COMPOSITE INDEX

SHI:SHH

PRICE (CNY)	TODAY'S CHANGE	SHARES TRADED	1 YEAR CHANGE	52 WEEK RANGE
2,542.10	↓ -56.74 / -2.18%	134.24k	↓ -25.60%	2,449.20 - 3,587.03

Data delayed at least 15 minutes, as of Oct 29 2018 07:13 BST.

Summary Charts Historical prices



S&P 500 INDEX

INX:IOM

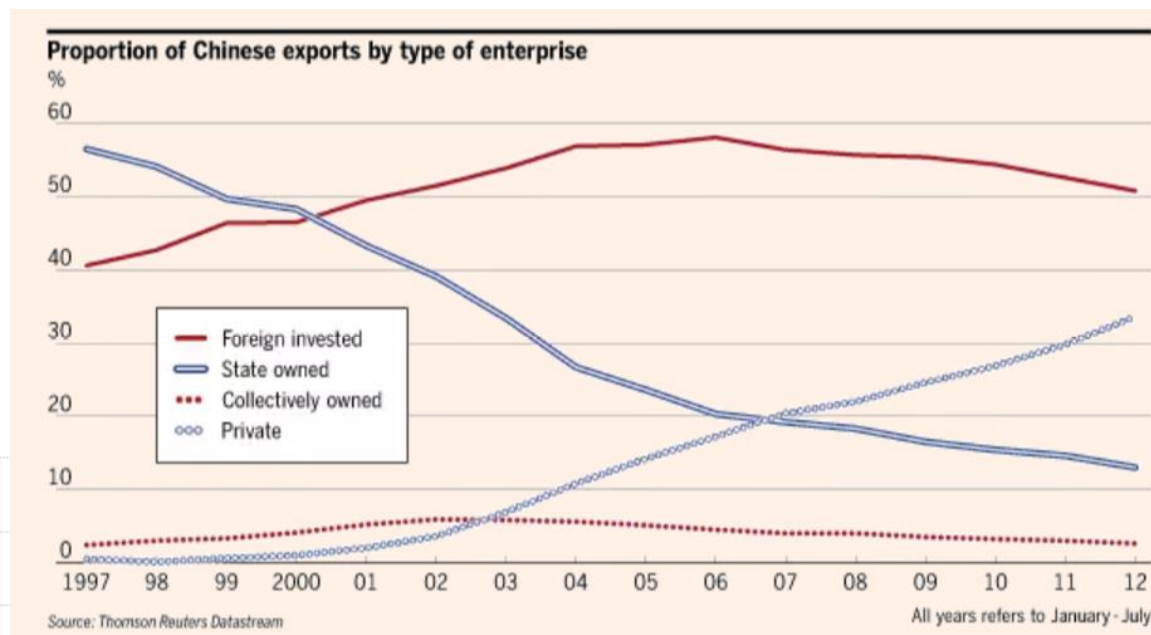
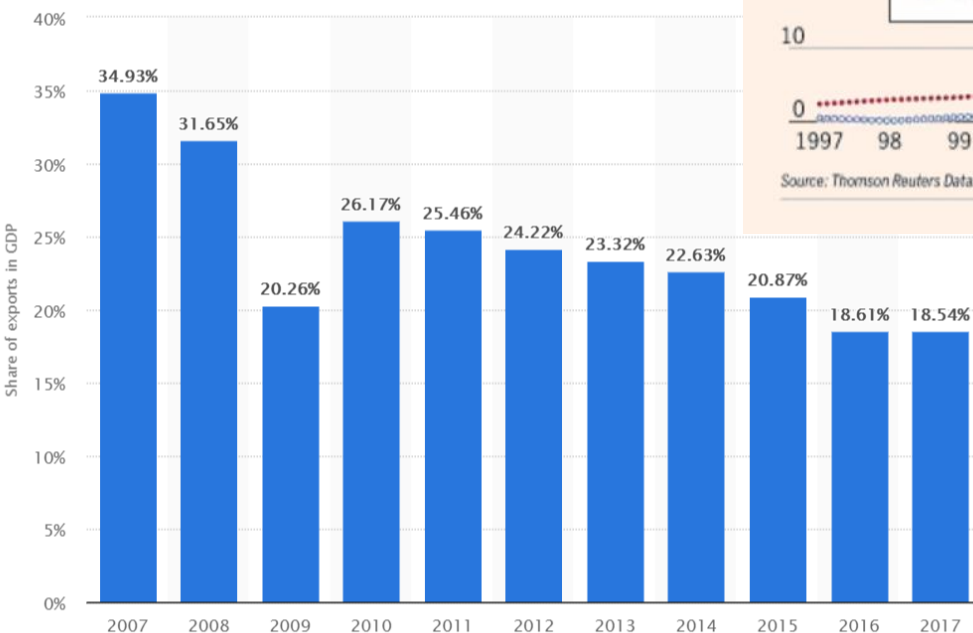
PRICE (USD)	TODAY'S CHANGE	SHARES TRADED	1 YEAR CHANGE	52 WEEK RANGE
2,641.25	↓ -17.44 / -0.66%	2.95bn	↑ 2.33%	2,532.69 - 2,940.91

Data delayed at least 15 minutes, as of Oct 29 2018 20:20 BST.

Summary Charts Historical prices



Will China be hurt enough to talk? But...



who makes China's exports
FINANCIAL TIMES

Will China be hurt enough to talk? But...

China does not want to manipulate RMB, but trade concerns de facto result in a cheaper currency which facilitates exports

U.S. Dollar/Chinese Yuan (^USDCNY)

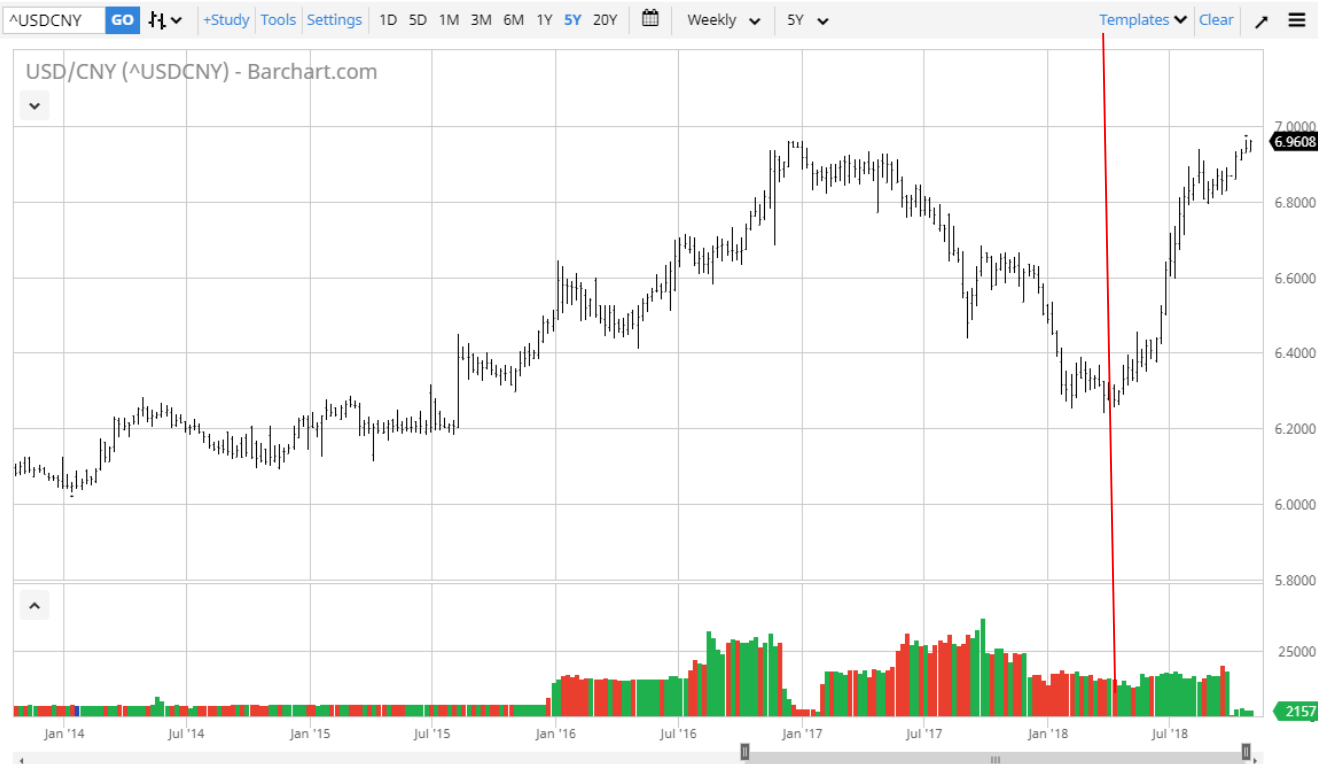
6.9608 +0.0183 (+0.26%) 12:05 CT [FOREX]

6.9608 x N/A 6.9630 x N/A

INTERACTIVE CHART for Mon, Oct 29th, 2018

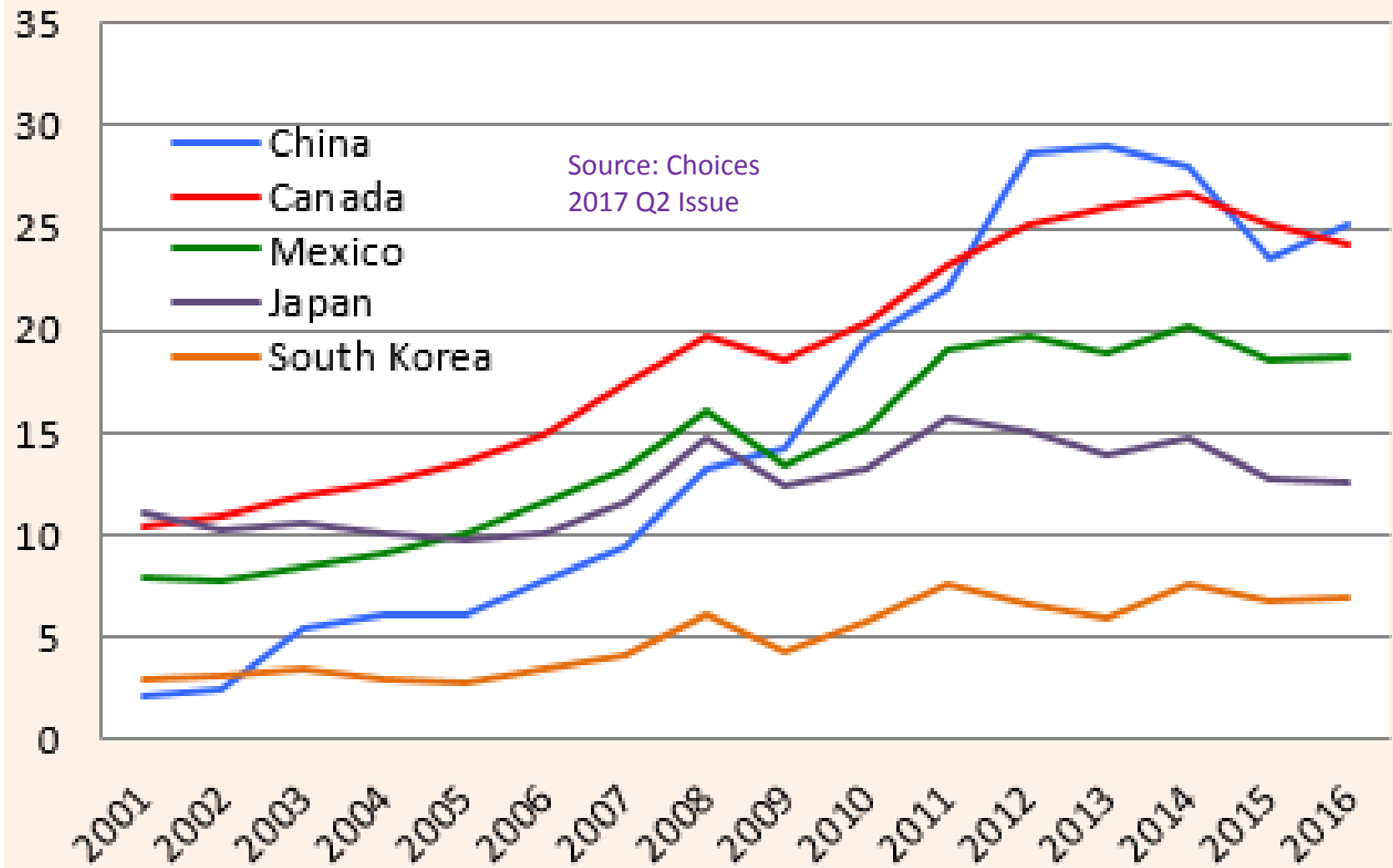
barchart
Try Premier

Alerts Watch Share Help



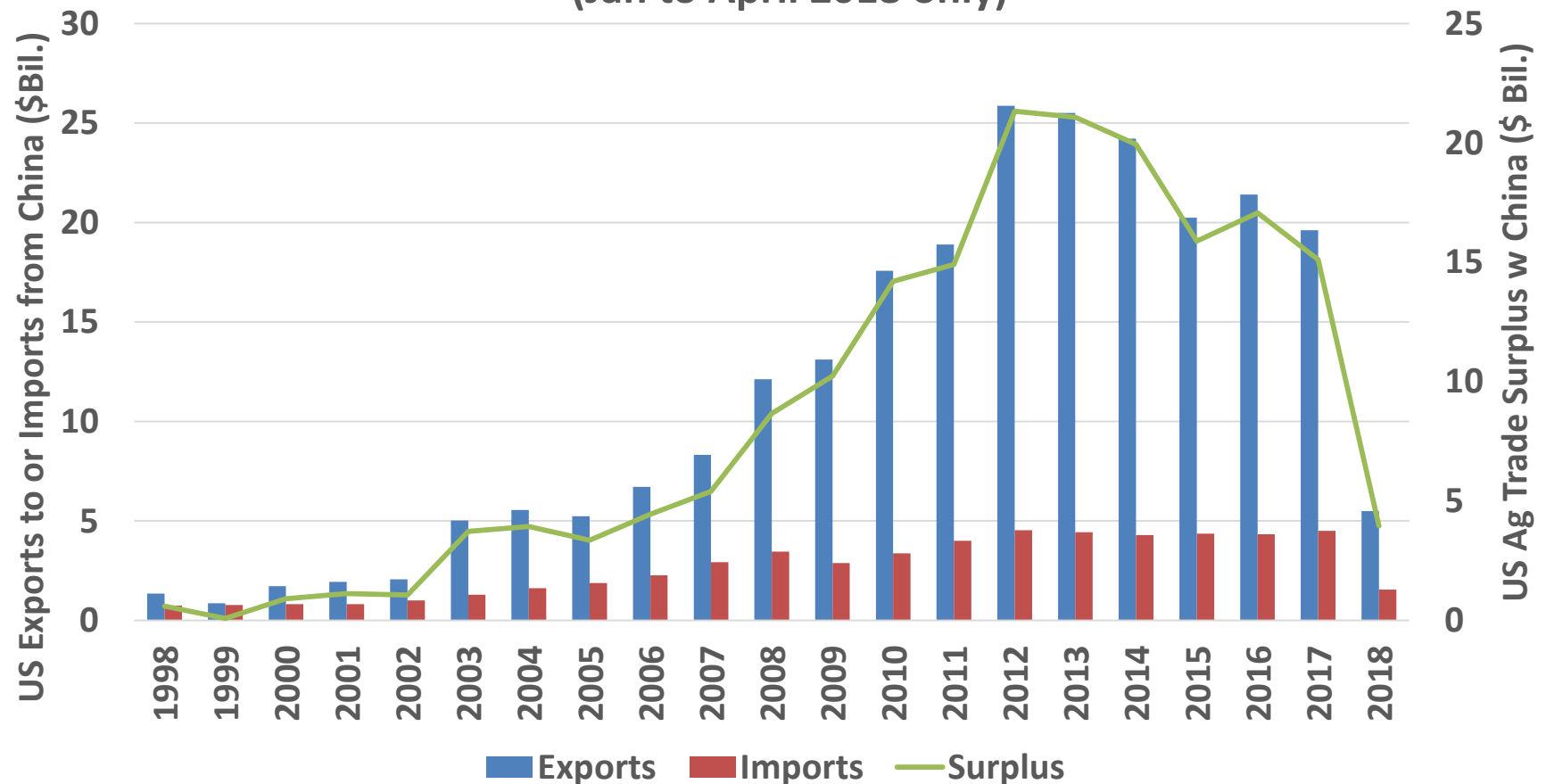
Why Care About China?

Reason 1: China is a huge market for US

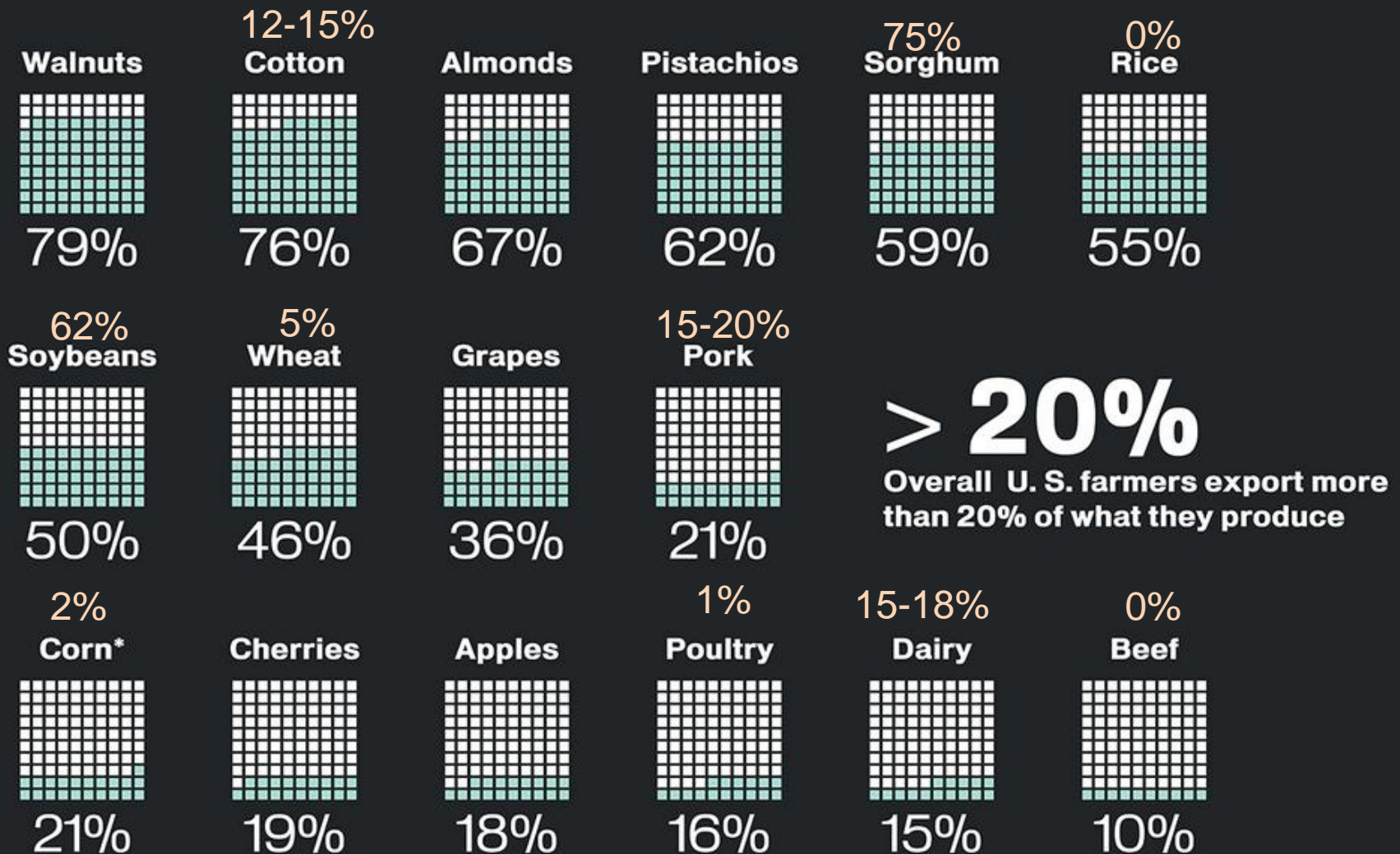


US holds a large and consistent ag trade surplus with China

US Ag Trade with China 1998-2018
(Jan to April 2018 only)



Percentage of U.S. Agricultural Production Exported



*Including ethanol, DDGS, and HFCS exports

Source: USDA-Foreign Agricultural Service, Production, Supply and Distribution System

Reference years: Marketing Year 2015/16 - 2017/18

United States Department of Agriculture
Foreign Agricultural Service



Why Care About China?

Reason 2: Ag is comparative advantage for US, not for China

Figure 1. Number of farmers in Chinese provinces compared to Iowa

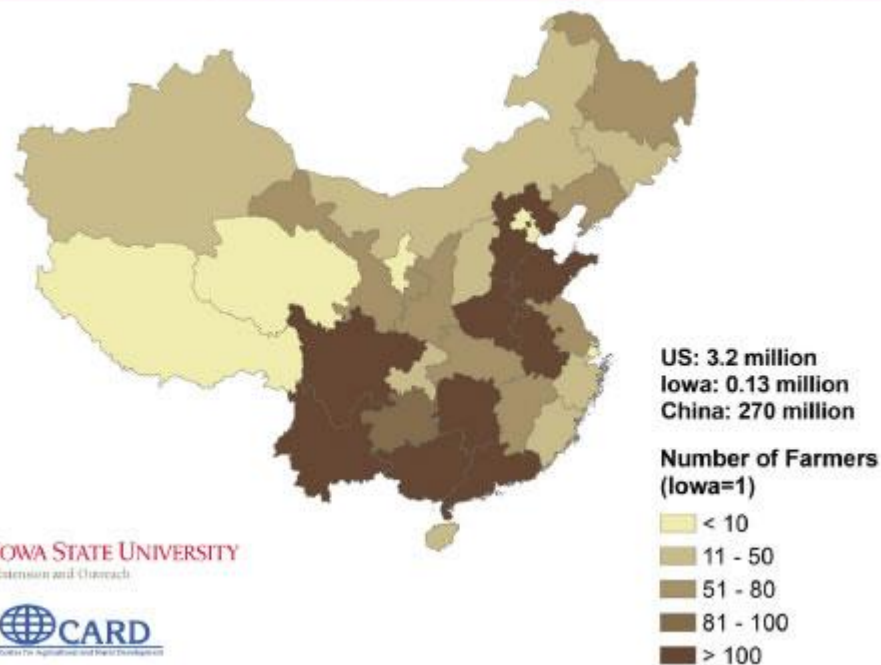
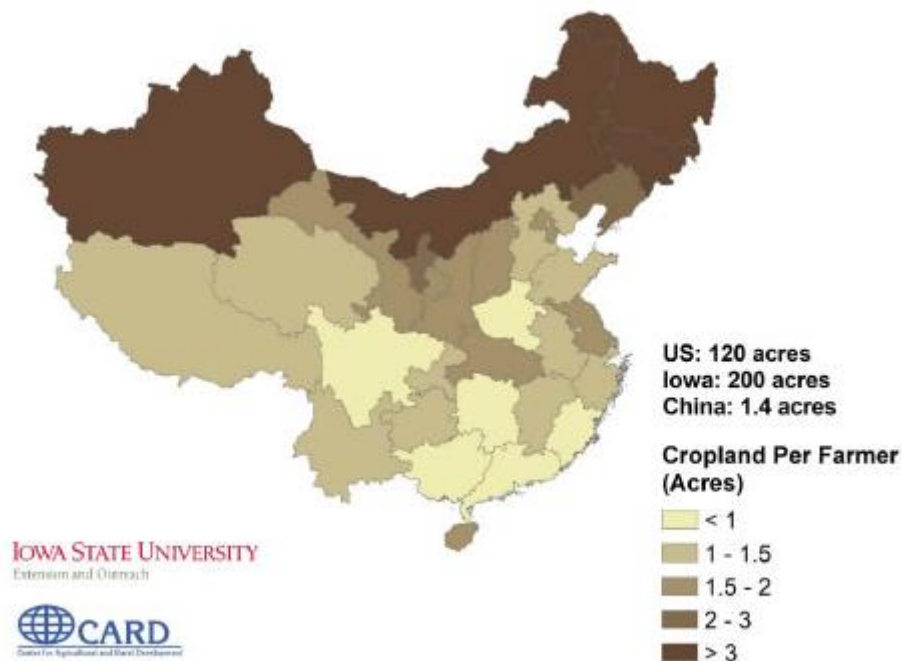


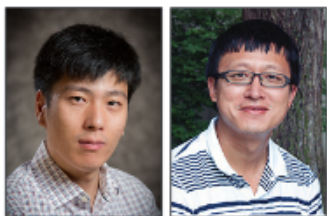
Figure 2. Crop land per farmer in China in acres



Because crop land per farmer is so small in China, using Iowa as the unit here would create too many decimal points. We use acres instead.

Navigating the Chinese agricultural economy through the lens of Iowa

By Wendong Zhang, extension economist, 515-294-2536, wdzhang@iastate.edu; Minghao Li, postdoctoral researcher, Center for Agricultural and Rural Development, Iowa State University





China Corn Yield





Corn Yield
(Iowa=100%)

 No data

 11% - 40%

 41% - 45%

 46% - 50%

 51% - 60%

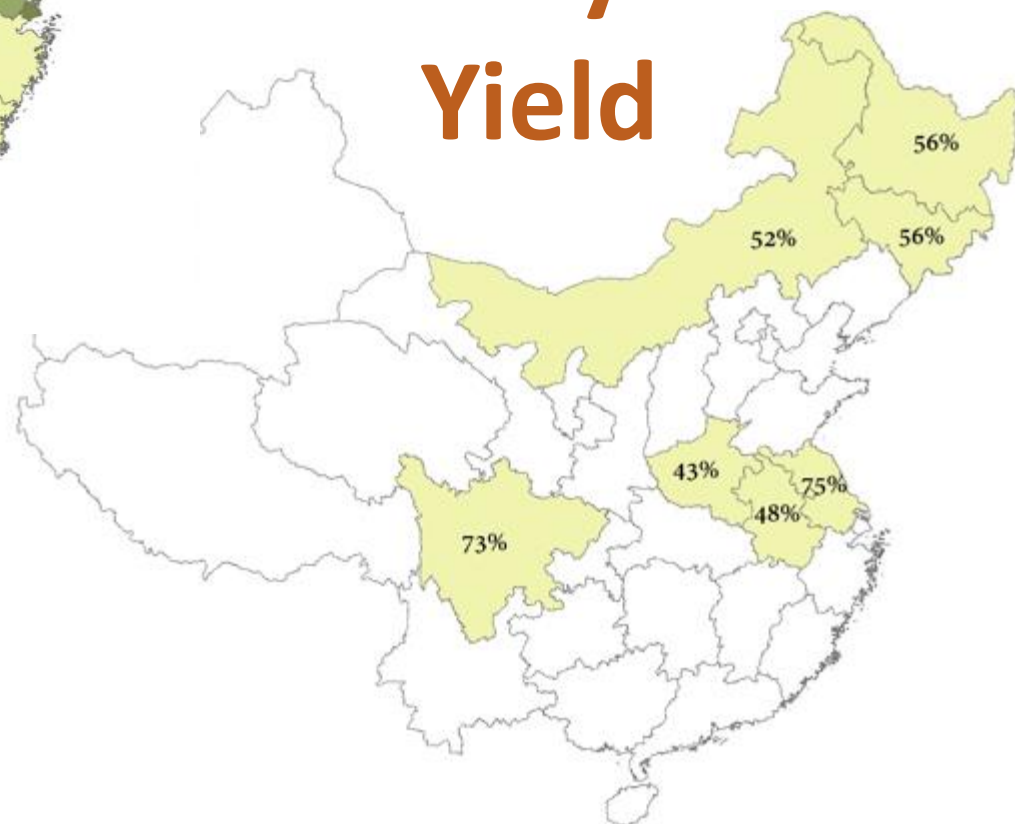
2015 Soybean Yield

US: 48 Bu/acre

Iowa: 56 Bu/acre

China: 26 Bu/acre

China Soybean Yield



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

2016
GDP per capita (PPP)
\$53,417
United States
\$14,275
China

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

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

Bloomberg

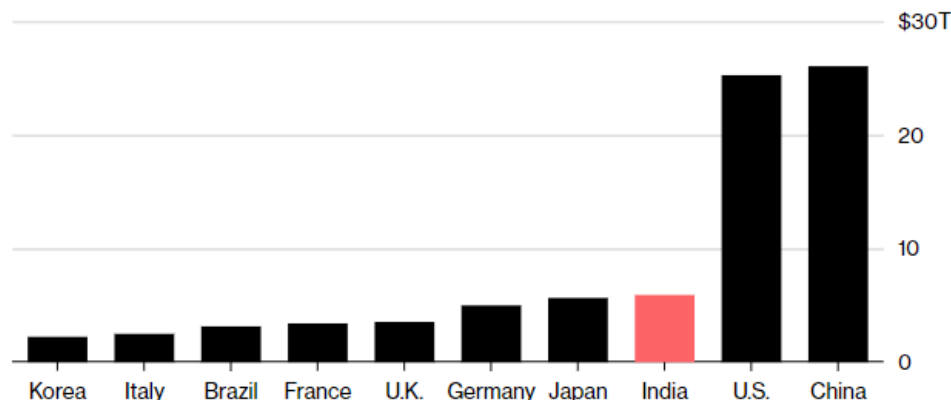
Why Care About China?

Reason 3: Chinese People Are Getting Richer, and will need more protein and better environment

New Giant

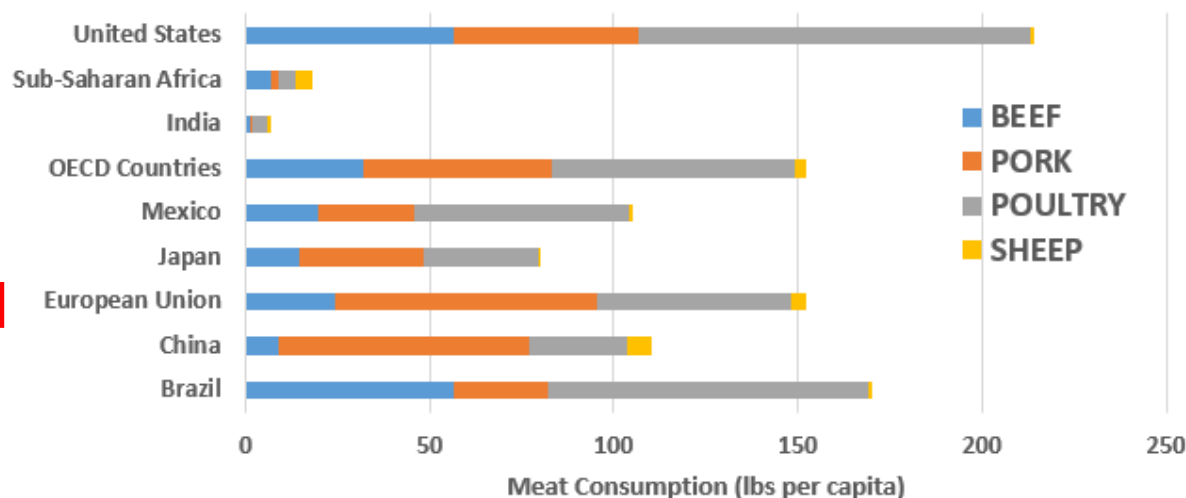
India is set to be third-largest economy in just over a decade

■ Estimated GDP in 2030



Source: HSBC

Per-capita Meat Consumption by Country 2016 - OECD



**88 percent of the next billion entrants
into the middle class will be in Asia**

By 2030, Asia could represent 2/3
of the global middle class population.



BROOKINGS



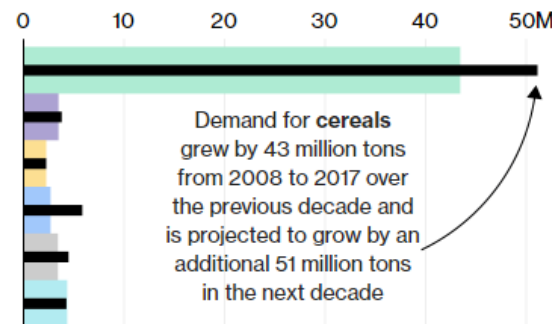
What the New Middle Class Want?

Africa: More Cereal
India: More Dairy
**China: More of
Everything**

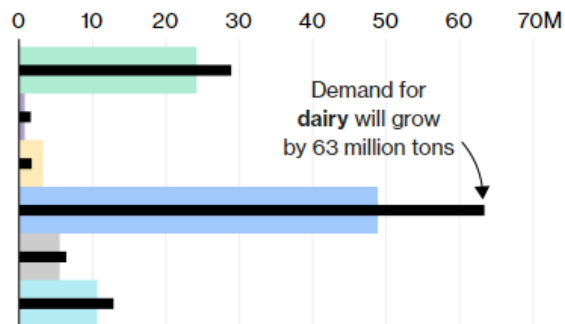
Food Demand Growth Compared by decade, in tons

■ Cereal ■ Meat ■ Fish ■ Fresh dairy ■ Sugar ■ Vegetable oils ■ 2018-2027

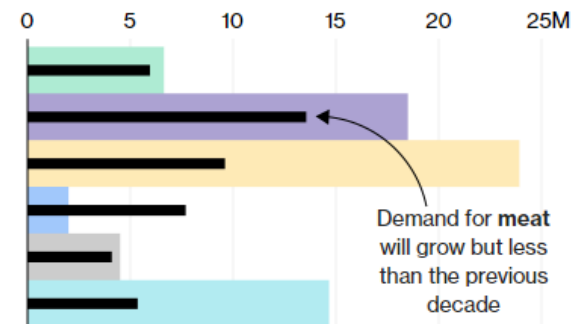
Sub-Saharan Africa



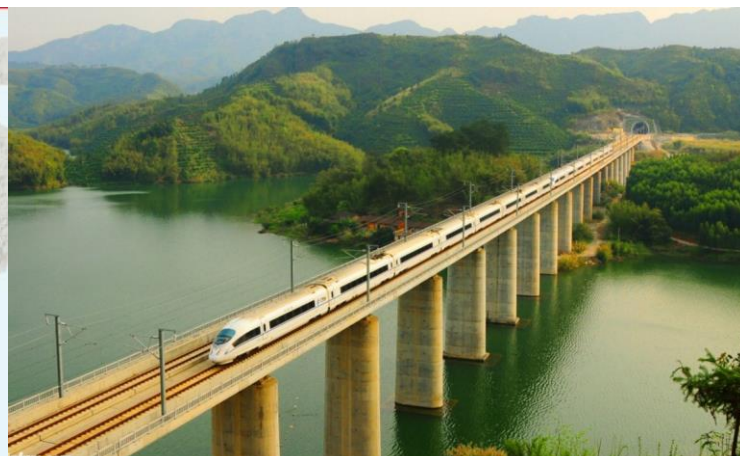
India



China



China Leads High-Speed Rail in the World



Why Care About China?

Reason 4: China will retaliate, diversify and find other suppliers if possible

Commodity (2016 value of China ag imports)	USA	Brazil	Europe	Australia	Argentina or Uruguay
Soybean (\$34.4 Bil.) (China increased production by 9% in 2018)	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 Import Sources

China can produce 97% of its pork, but only 15% of its soybean demand domestically
China provided about US\$200/acre subsidy to increase soy production (up 9% 2018)

What Have We Learned from China's Past Trade Retaliation Strategies?

Minghao Li, Wendong Zhang, and Chad Hart

JEL Classifications: Q17, F10

Keywords: Agricultural Commodities, China, Tariff, Trade Retaliation

Proportional, Restrained Response

Currently, China has a huge overall trade surplus with the United States, and thus naturally has no incentive to change the status quo and avoid dispute escalations. As the two cases above demonstrate, China targets U.S. agricultural commodities with trade flows comparable to U.S. targets in order to send a clear message.

Target Products That Are Substitutable

In these two cases, China chose commodities that are easily substitutable across production and domestic production. Half of the U.S. broiler products were chicken feet, a replacement for which is commonly used for feed and can be replaced by corn or other coarse grains. In terms of

Inflict Economic and Political Costs

From the perspective of China's government, the ultimate goal of retaliatory tariffs is to pressure politically influential interest groups in the United States, turning them into lobbyists. For retaliation measures to be effective, China's market as an export destination for U.S. products must be important for U.S. producers, as is the case for broiler products and sorghum. For this reason, the U.S. government has long recognized the political significance of the U.S. agricultural industry and why it targets U.S. agricultural exports in trade spats.

UPDATE 1-CHINA SAYS NEW ANIMAL FEED STANDARDS WILL CUT CHUNK OUT OF APPETITE FOR SOY

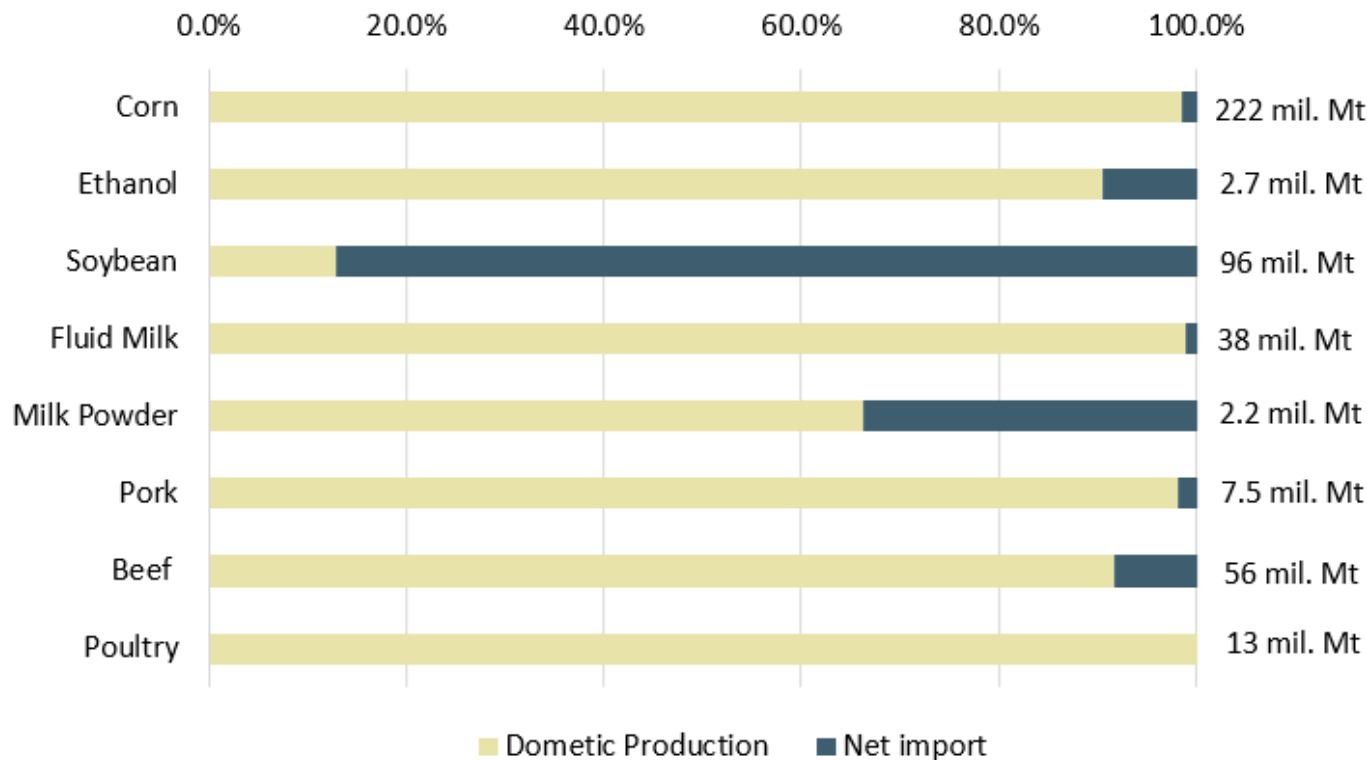
10/28/2018

China's Feed Industry Association on Friday approved new standards for feed for pigs and chickens, lowering the protein levels in pig feed by 1.5 percentage points and those for chickens by one percentage point, the agriculture ministry said in a statement that day. It did not say when the new standards would take effect.

The ministry also said in the statement that China's overall yearly consumption of soymeal would fall by 11 million tonnes. The country used 71 million tonnes of soymeal to make animal feed in the 2017-18 crop year.

**China
now could
produce
97% of its
pork, but
only <20%
of its
soybean**

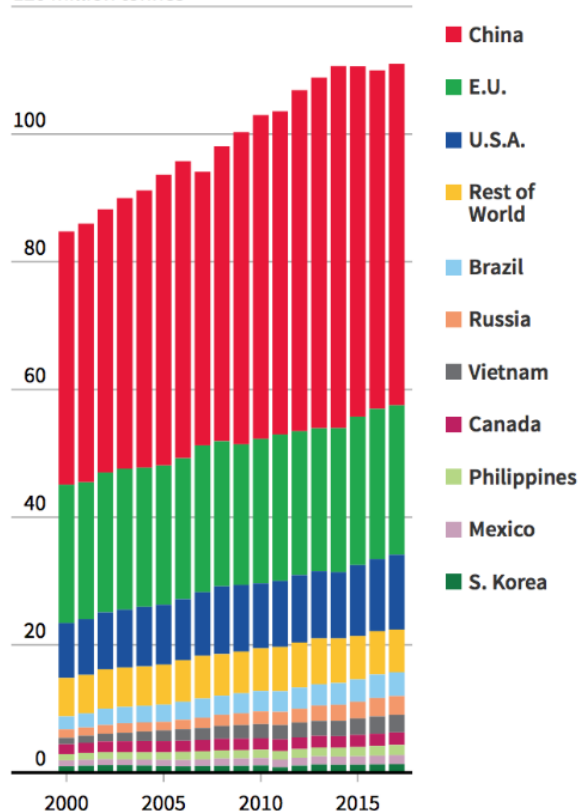
Total supply of selected ag. products in China (2013~17)



PORK OUTPUT BY COUNTRY

Pork output by top 10 producers plus rest of world

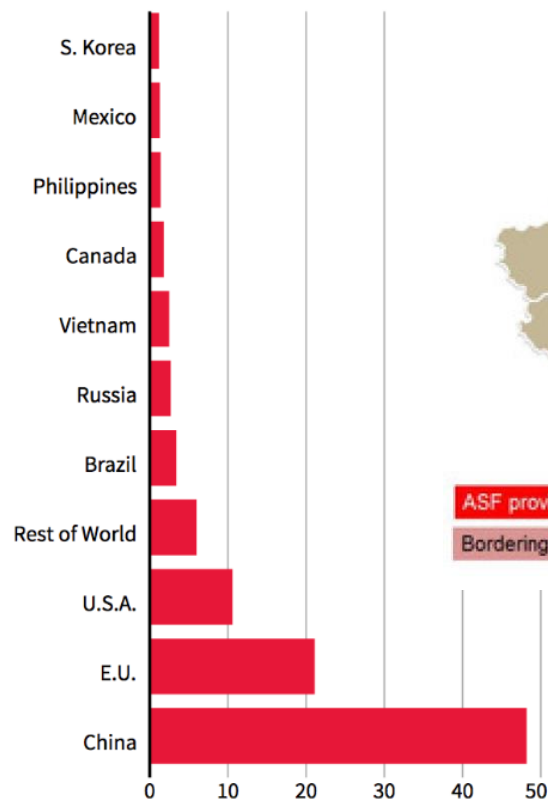
120 million tonnes



Source: United States Department of Agriculture
Josephine Mason | REUTERS GRAPHICS

TOP PORK PRODUCERS BY SHARE

In percent as share of total in 2017



China ASF



ASF provinces = 28% of herd

Bordering provinces = 27% of herd

55% of the swine herd is restricted

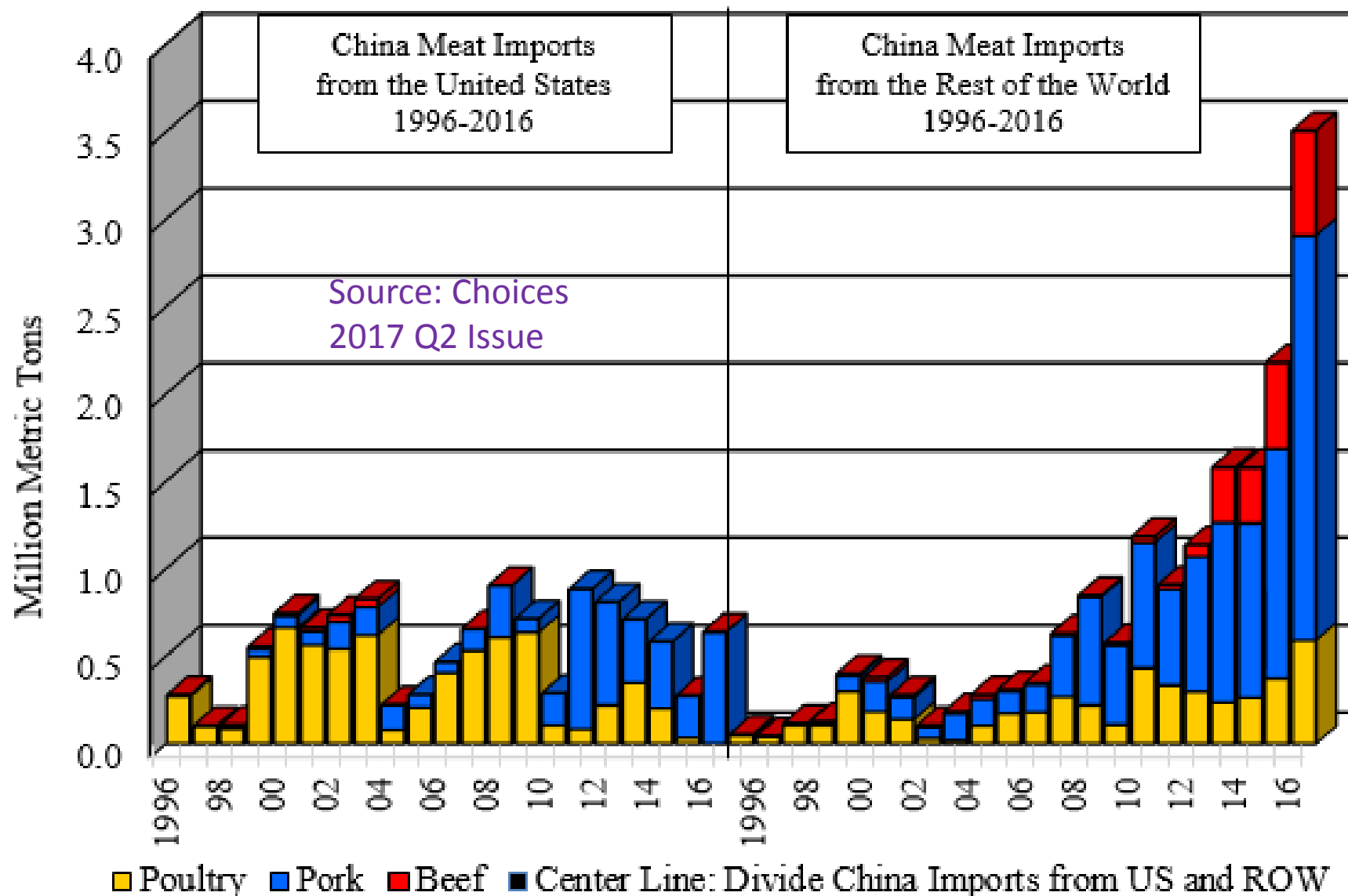
Global AgriTrends

ASF penetrates China's south

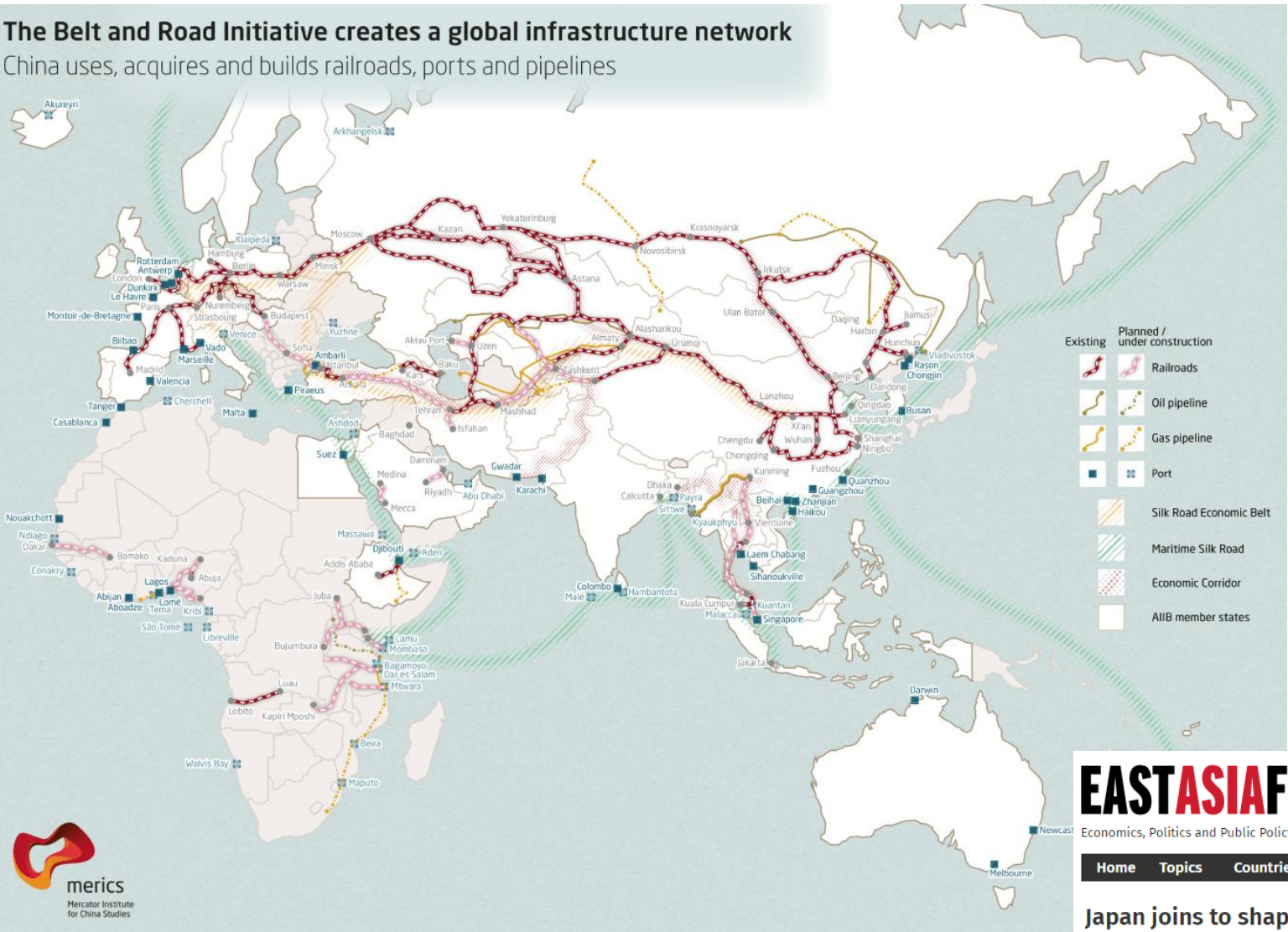
Yunnan province is one of China's largest for pork consumption and production. Also, Japan finds ASF virus in illegally imported sausages from China.

Oct 22, 2018

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



The Belt and Road Initiative creates a global infrastructure network
 China uses, acquires and builds railroads, ports and pipelines



China's Belt and Road Initiative



EASTASIAFORUM

Economics, Politics and Public Policy in East Asia and the Pacific

Home

Topics

Countries

Contributors

Quarterly

About

Japan joins to shape China's Belt and Road

28 October 2018

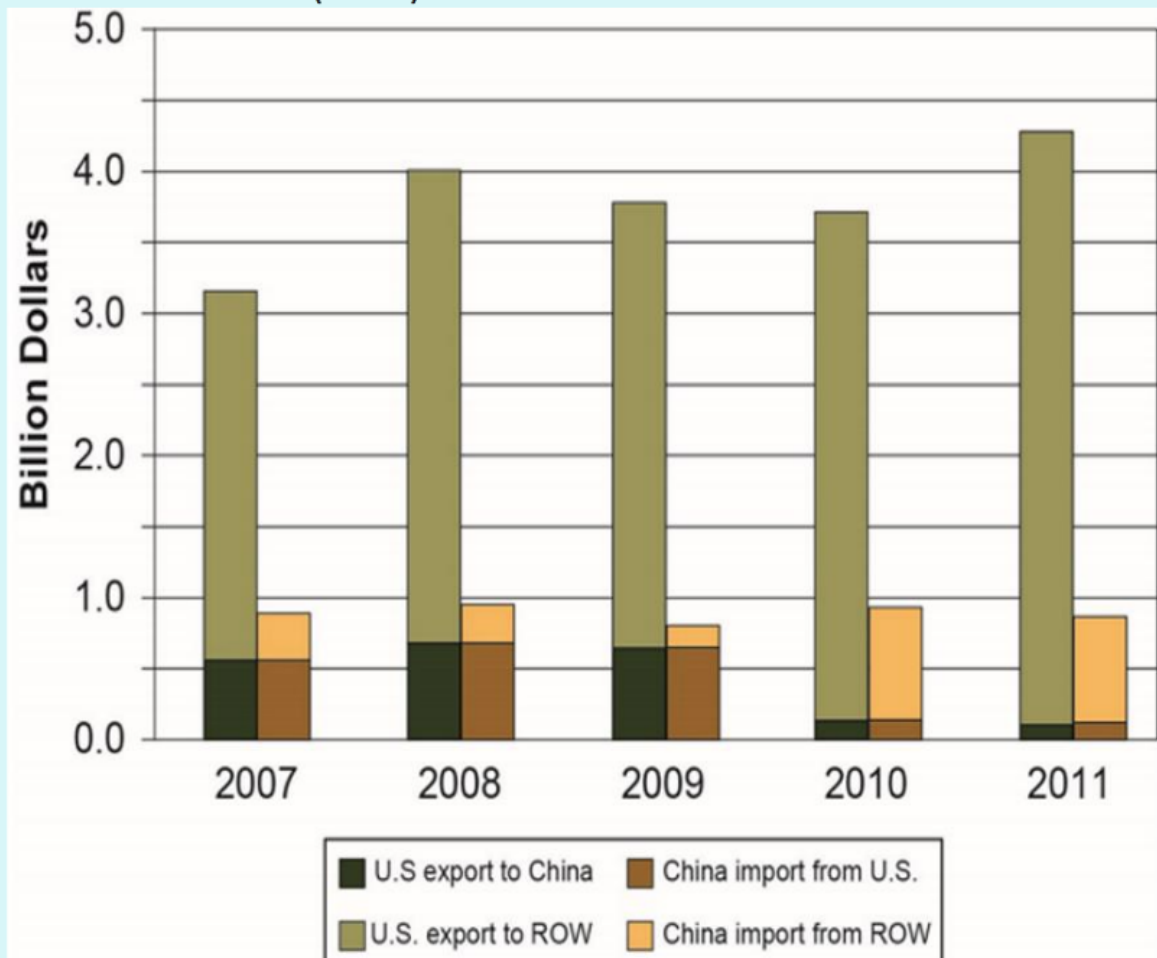
Author: Shiro Armstrong, ANU

Why Care About China?

Reason 5: Trade disputes with China have long-term impacts (chicken, beef)

with pork?

Figure 1. Chicken Trade between the United States, China, and the Rest of the World (ROW)



Sources: USDA-FAS (2018b), USDA (2018), and UN (2018).

Why Care About China?

Reason 6: Chinese Ag Policy Presents Future Demand that could be filled by our competitors

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 cannot produce enough ethanol domestically to fulfill the 2020 E10 ethanol mandate

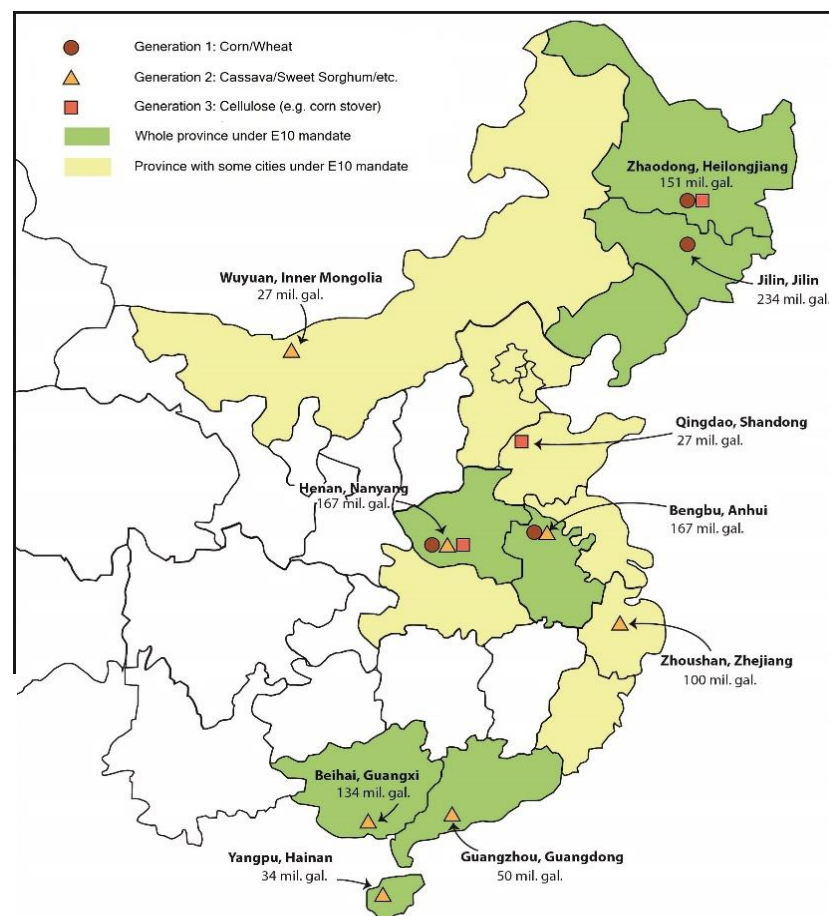
4th largest producer – 1 Bil gal.

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

China's Ethanol Trial





What can Iowa farmers expect from ARC/PLC and the Trade Assistance Package in 2018?

By Alejandro Plastina, extension economist, 515-294-6160, plastina@iastate.edu and Chad Hart, extension economist, 515-294-9911, chart@iastate.edu;
Iowa State University

Ag Decision Maker

CNN politics



Trump administration will impose tariffs on \$200 billion in Chinese goods

By Donna Borak, Katie Lobosco and Kevin Liptak
Updated 6:53 AM ET, Tue September 18, 2018

FINANCIAL TIMES myFT

US-China trade dispute

+ Add to myFT

China retaliates against new US tariffs as trade war escalates

Beijing slaps duties of up to 10 per cent on \$60bn of American imports

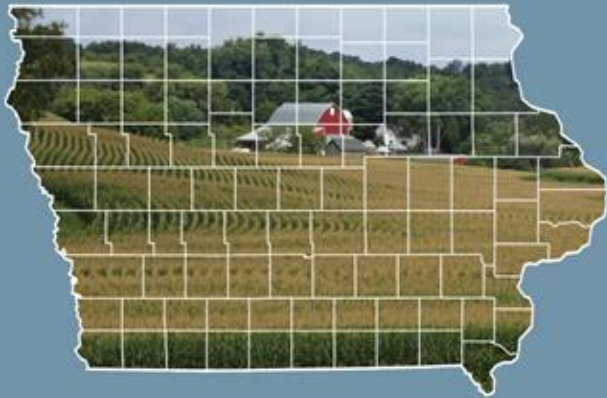
Table 1. Market Facilitation Program Payment Details

Commodity	Payment Rate	Estimated Total Payments
Corn	\$0.01 per bushel	\$96 million
Cotton	\$0.06 per pound	\$276.9 million
Dairy	\$0.12 per hundredweight	\$127.4 million
Pork	\$8.00 per head	\$290.3 million
Sorghum	\$0.86 per bushel	\$156.8 million
Soybeans	\$1.65 per bushel	\$3.63 billion
Wheat	\$0.14 per bushel	\$119.2 million

IOWA STATE UNIVERSITY
Extension and Outreach

 **CARD**
Center for Agricultural and Rural Development

Iowa Farmland Ownership and
Tenure Survey, 1982-2017:
A Thirty-Five Year Perspective



IOWA STATE UNIVERSITY
Extension and Outreach

IFA 1883 / August 2018

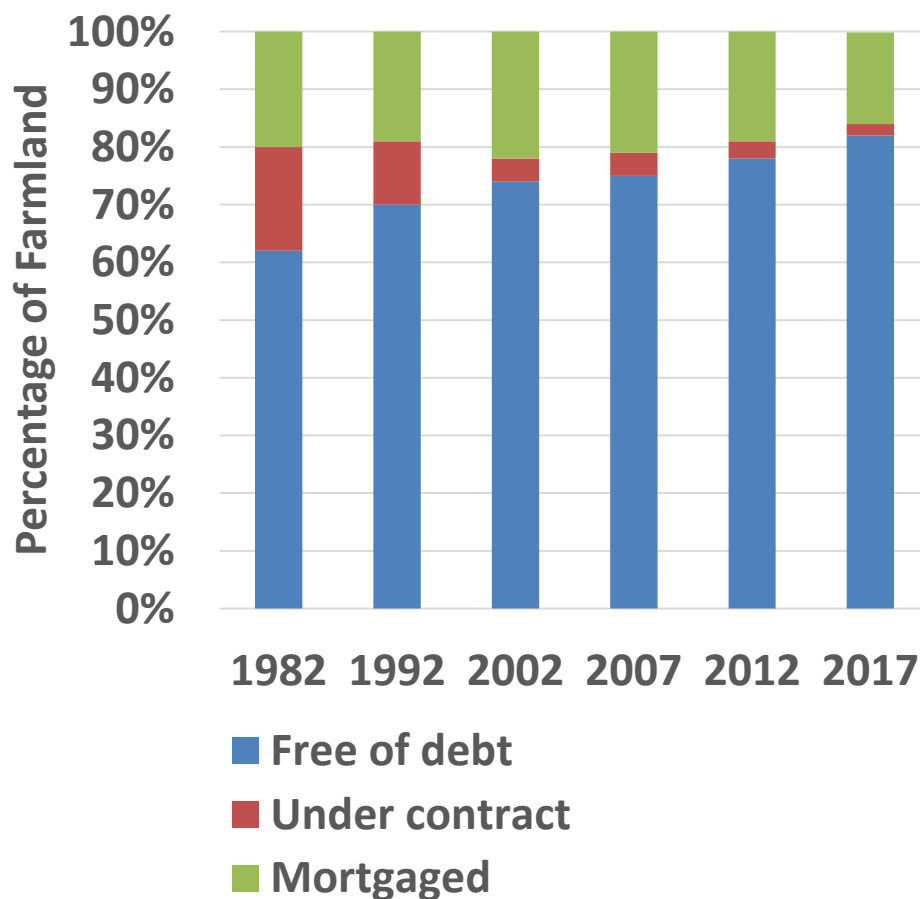
- 82% of Iowa land is debt-free
- 60% of land owned by owners 65+ years old, one-third of land owned by 75+ years old, 13% of land owned by women landowner 80+ years old
- Ownership continues to shift from sole ownership to trusts and corporations
- 53% of Iowa land rented out – mainly cash rent
- 34% of Iowa land owned by landlords with no farming experience, 23% of land owned by retired farmers who do not currently farm
- 29% of Iowa land owned primarily for family/sentimental reasons

(\$5 each print copy!)

<https://store.extension.iastate.edu/product/6492>

82% of Iowa Land Owned Free of Debt

Farmland Ownership Remains a Long-Term Commitment



Years Owned	2017	2012
> 50 Years	8%	20%
40-50 Years	12%	
30-40 Years	13%	15%
20-30 Years	20%	19%
10-20 Years	24%	21%
< 10 Years	24%	24%

Percent of Owner Willing to Help Tenant Adopt Cover Crops by Type July 2017

	Pay for a portion of cost to plant cover crops	Lower rent for tenants who plan to plant cover crops	Longer lease for tenants who plan to plant cover crops
Yes	20%	10%	5%
No	25%	7%	9%
Maybe	16%	1%	3%

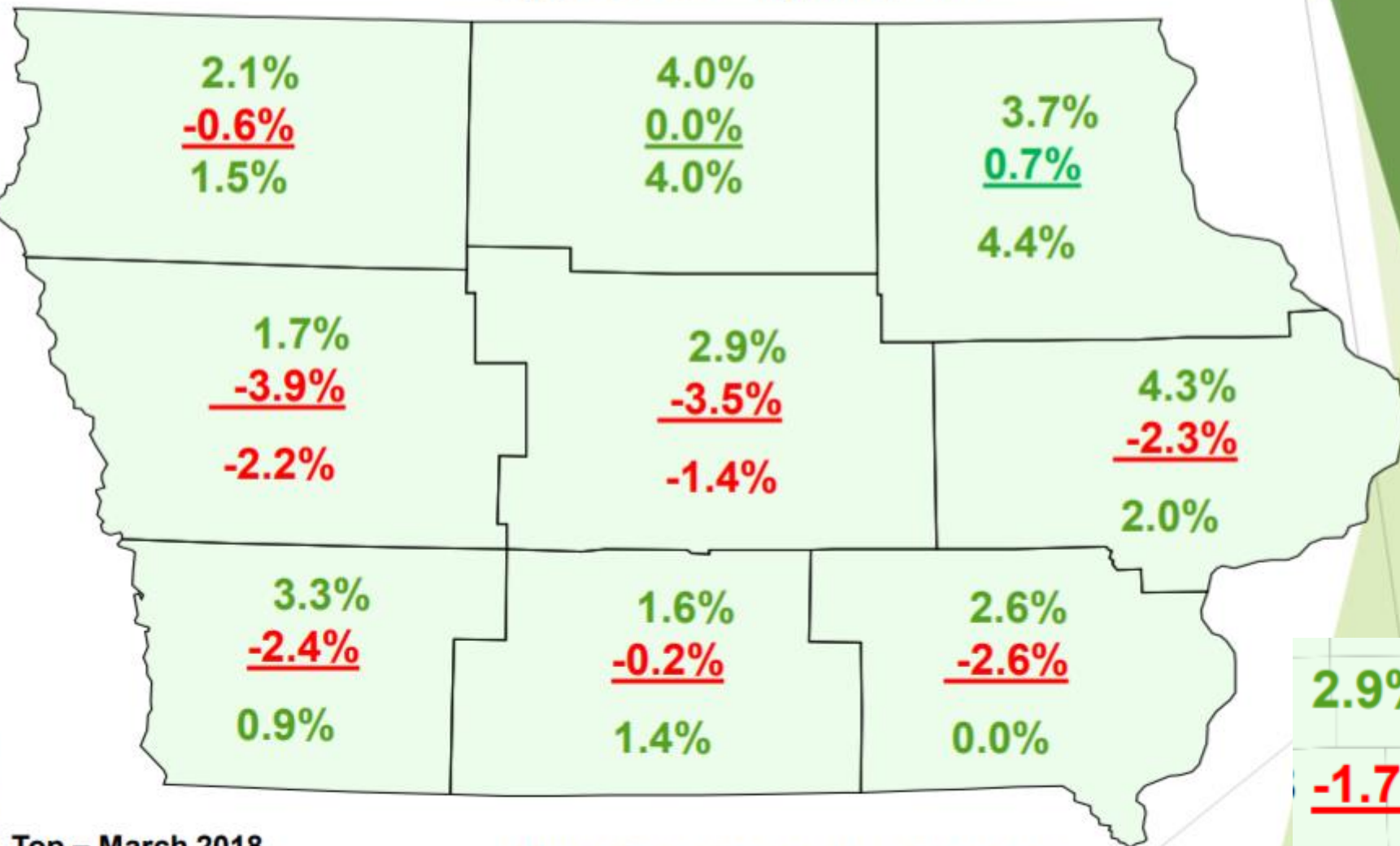
**Farmland values under double
downward pressure from interest rate
hikes and growing trade uncertainty**

**Land Value = net
income / interest rate**

REALTORS® Land Institute- Iowa Chapter

September 1, 2017

September 2017– September 2017



Top – March 2018

Bottom – September 2018

Nine Crop Reporting Districts

Thank You!

Wendong Zhang

Assistant Professor and Extension Economist

478C Heady Hall, Iowa State University

515-294-2536

wdzhang@iastate.edu

**2017 Iowa Farmland Ownership and Tenure
Survey report**

<https://store.extension.iastate.edu/product/6492>