

What Does a Trade War with China Look Like?

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Iowa Institute of Cooperatives Summer Workshop
Huxley, Iowa, June 21st, 2018

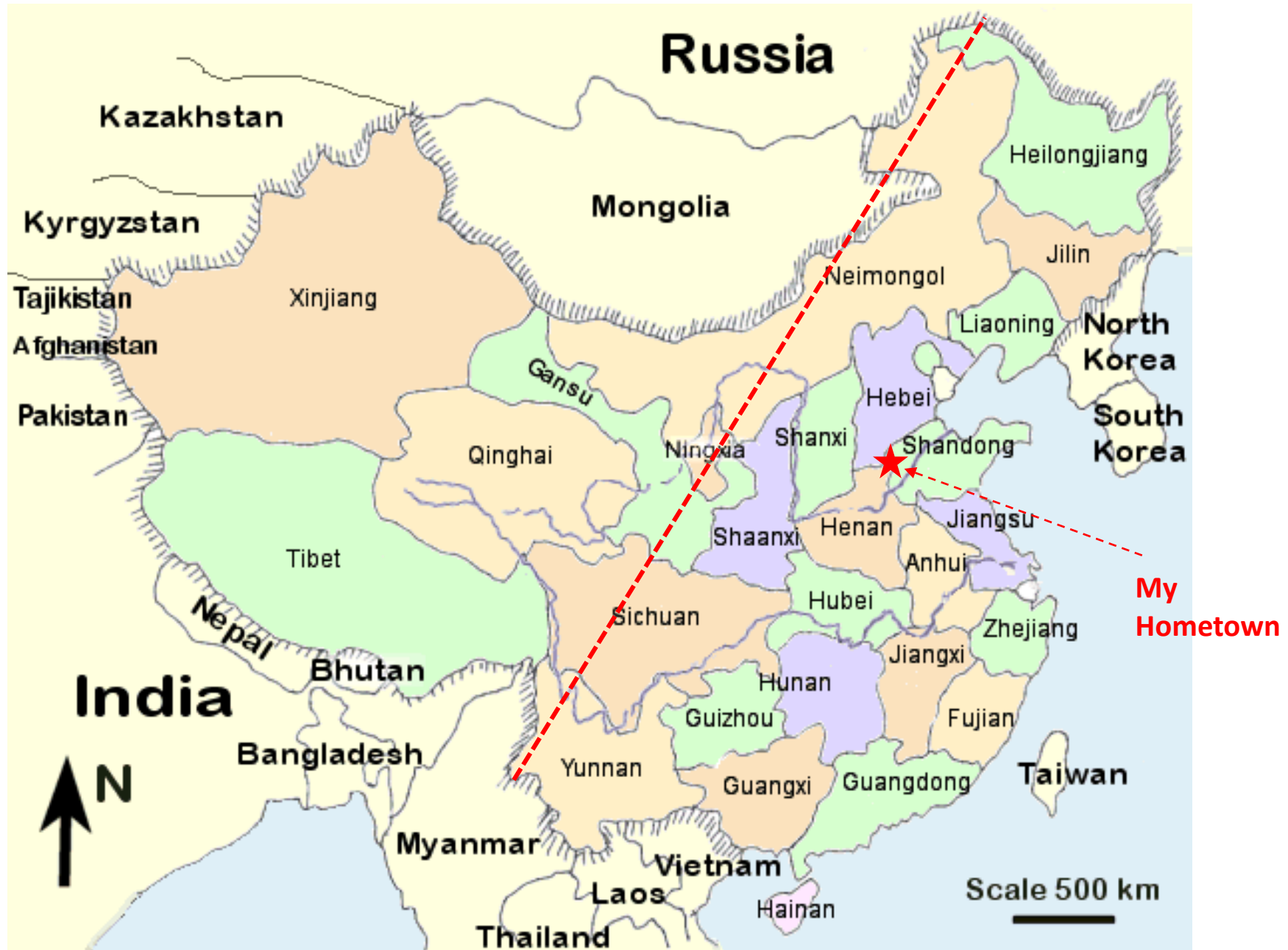
A Quick Introduction: Dr. Wendong Zhang

- 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:

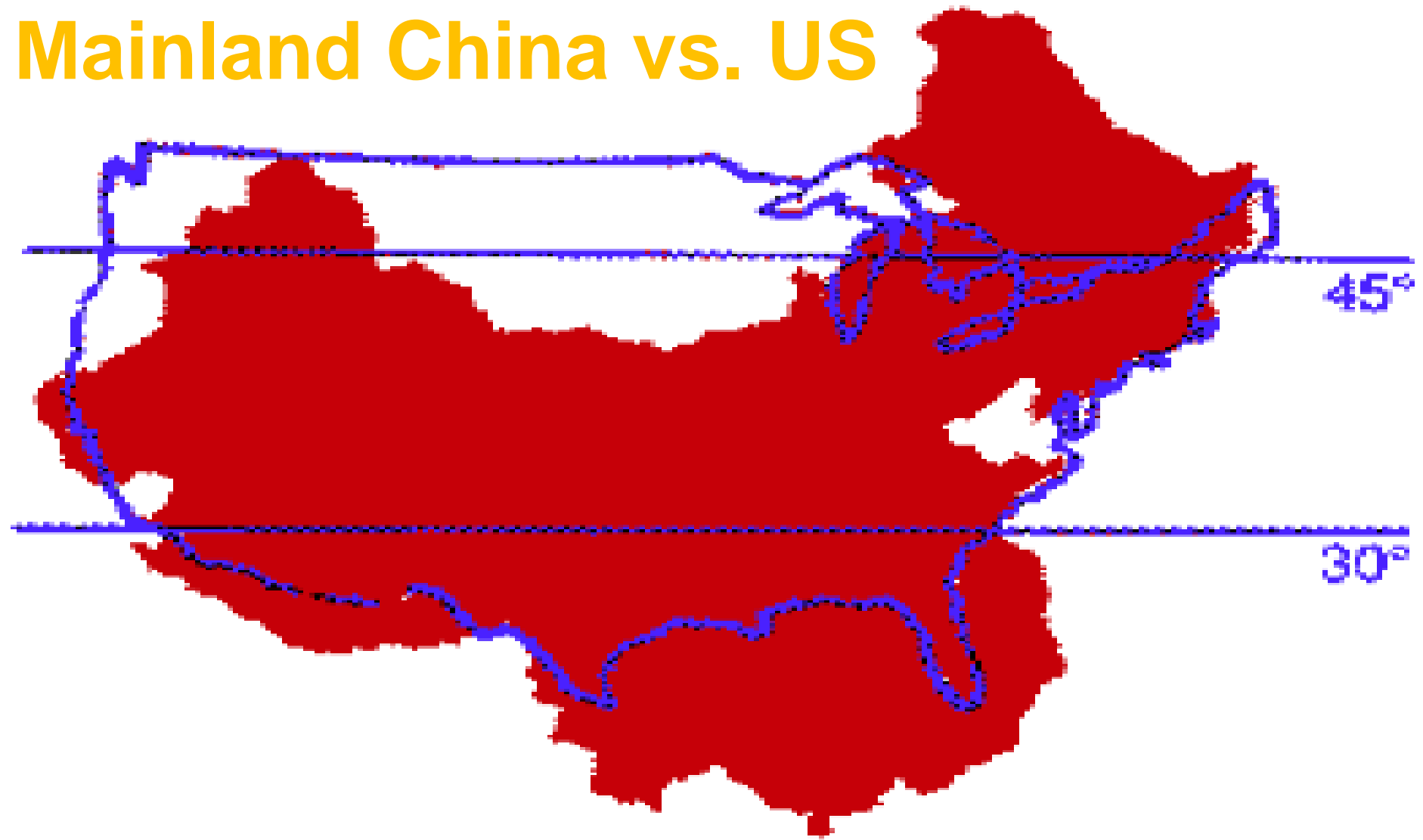
land value/ownership [www.card.iastate.edu/farmland/agriculture and the environment](http://www.card.iastate.edu/farmland/agriculture_and_the_environment)

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

China's Provinces



Mainland China vs. US



My hometown: Shenxian, Shandong Province

Greenhouse – plastic film - Shandong Province



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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.

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.

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

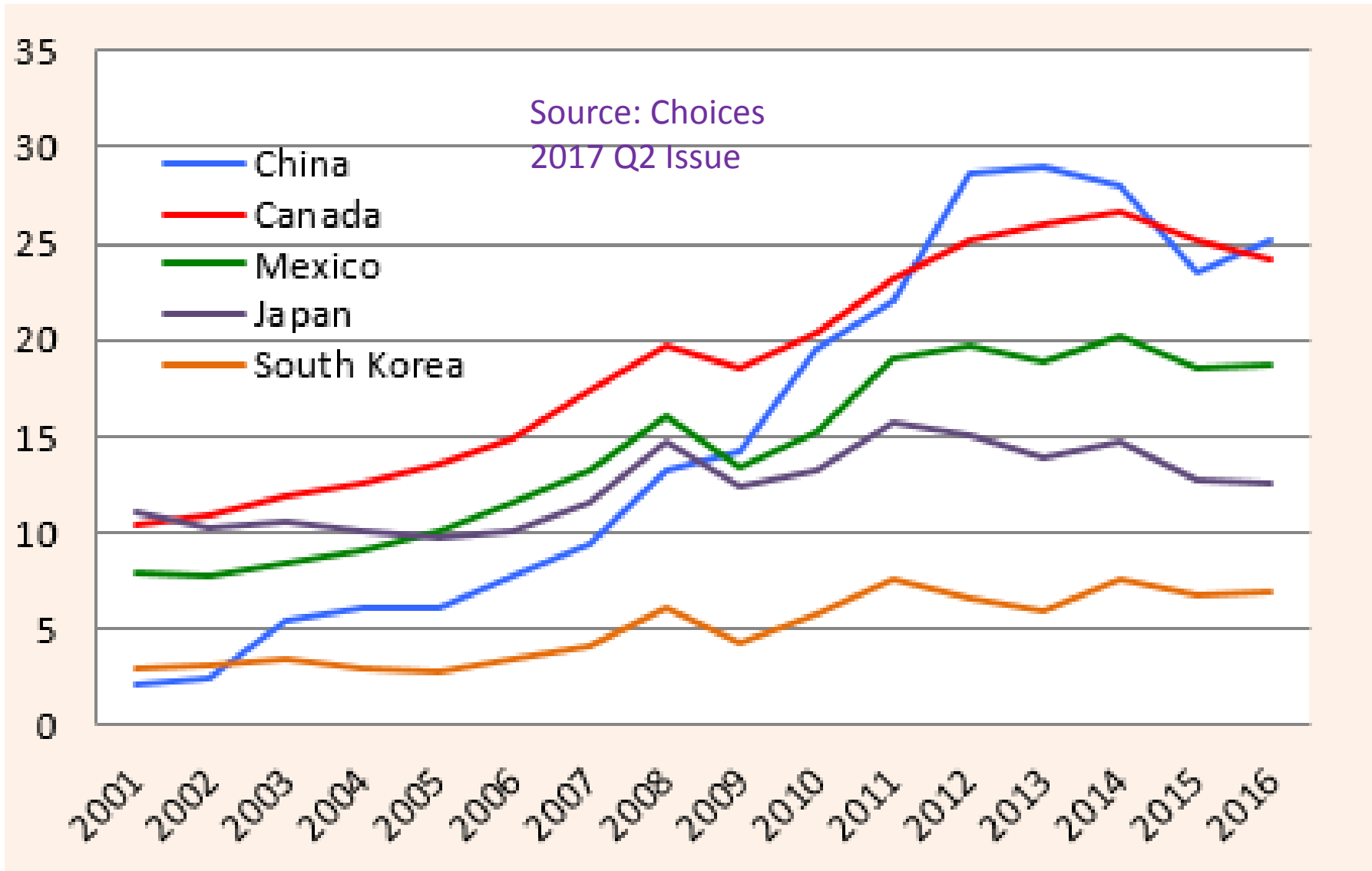
Lawrence, John, and Zhang, Wendong. 2017. ["Understanding the U.S. Farm Bill: Policy to Practice."](#) Presentation to the Chinese Ministry of Agriculture, Agricultural Trade Promotion Center Delegation, Ames, Iowa, May 30, 2017.

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.



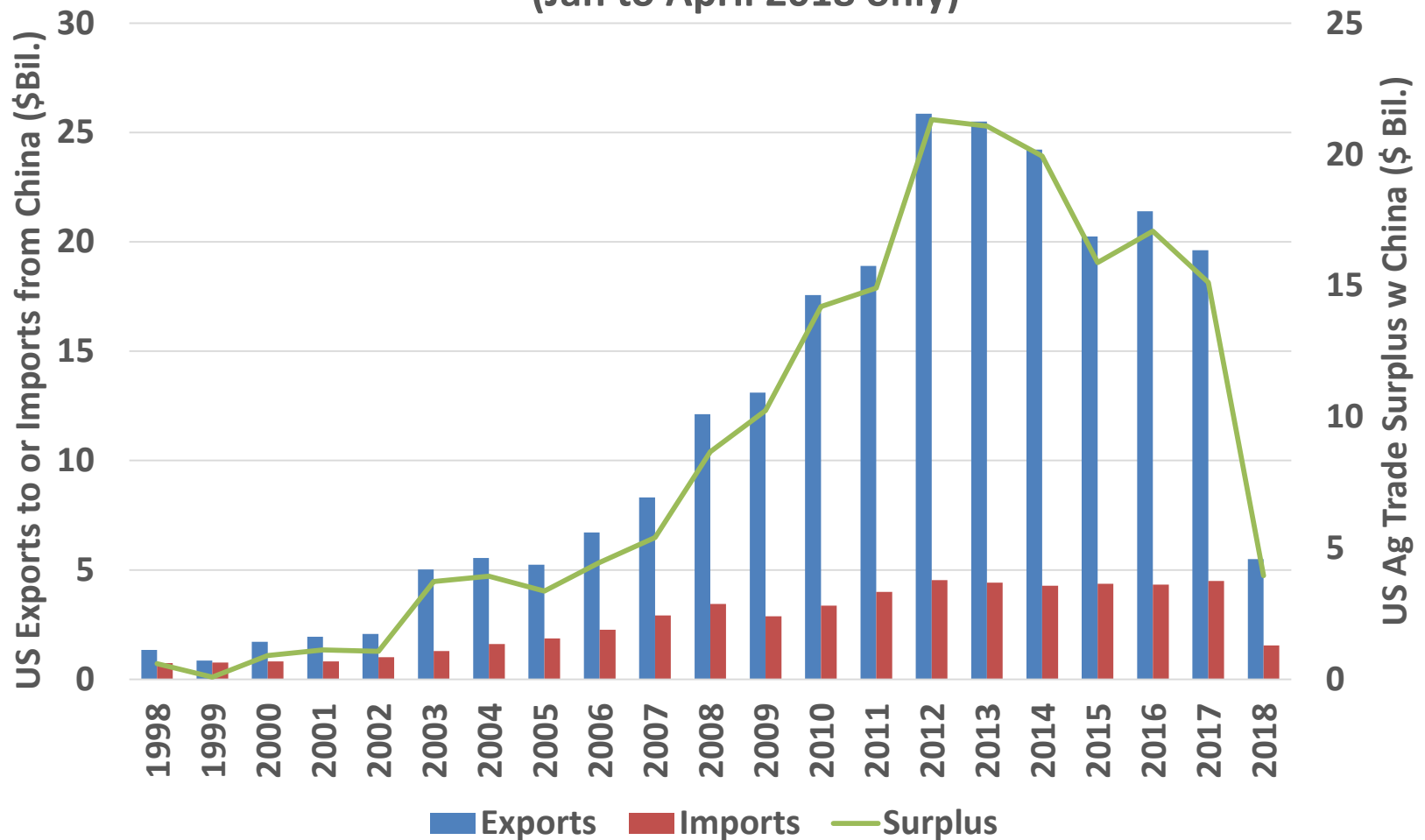
Why Care About China?

Reason 1: China is a huge market for US



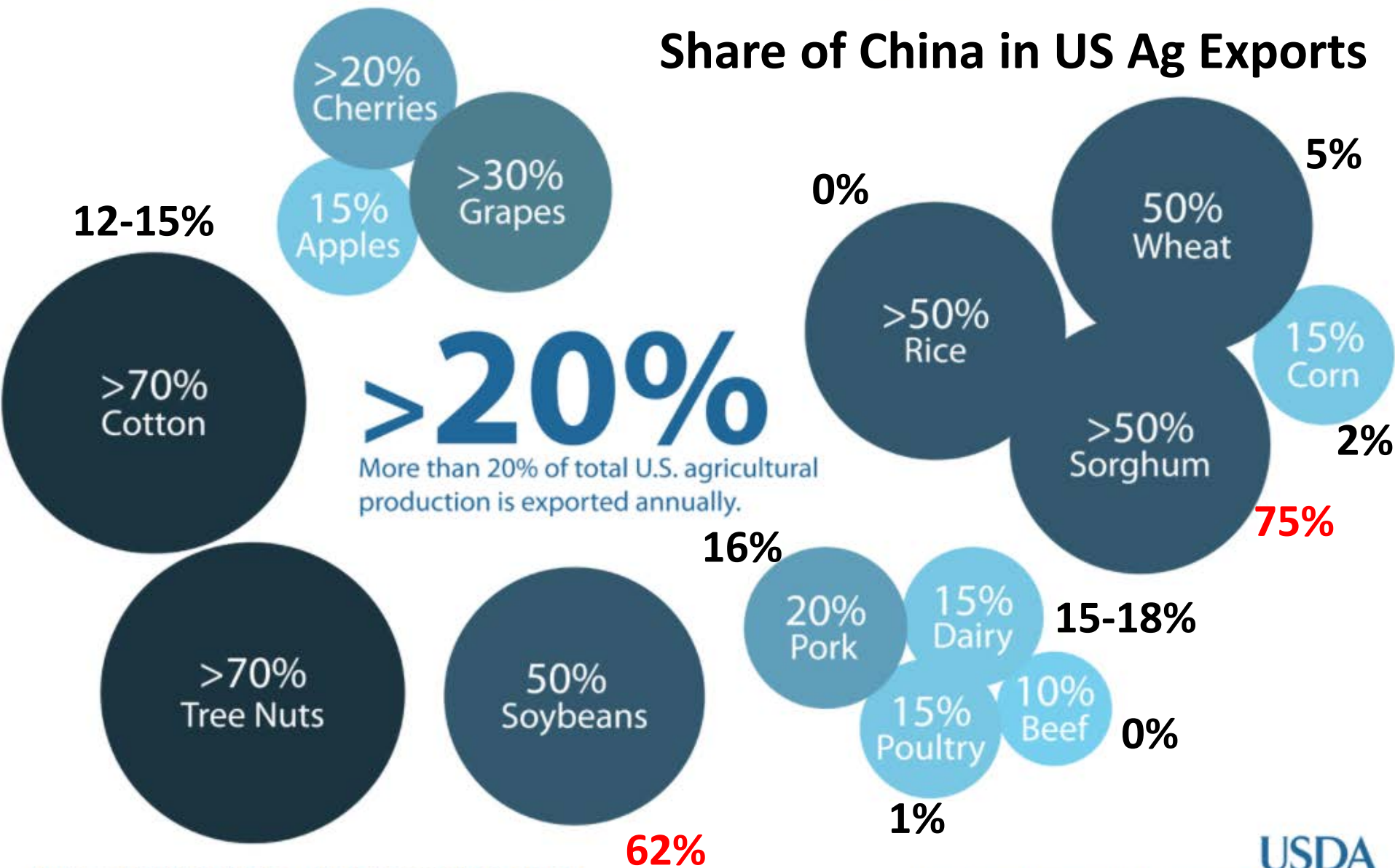
US holds a large and consistent ag trade surplus with China

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



Share of U.S. Agriculture Exported in 2016

Share of China in US Ag Exports



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

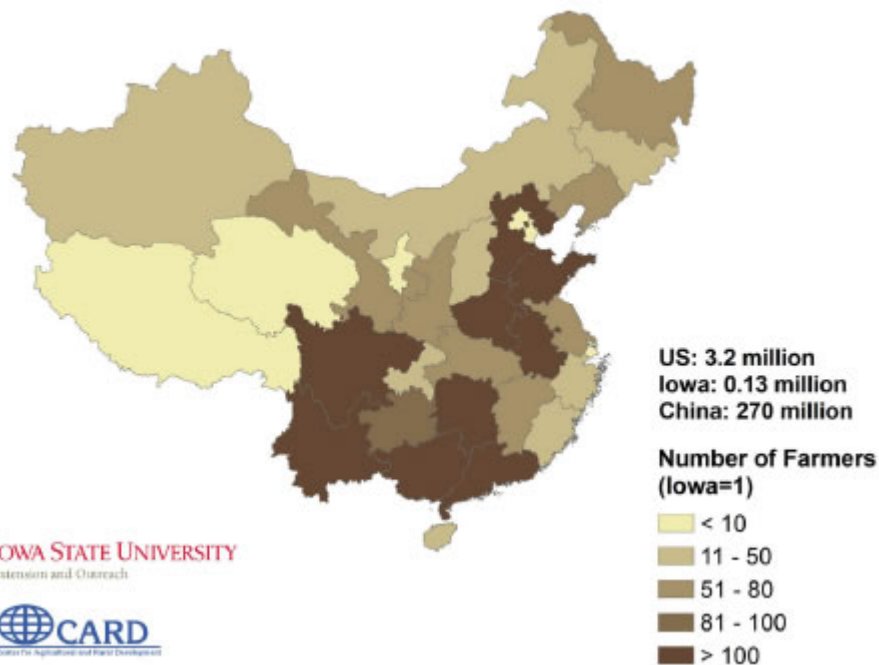
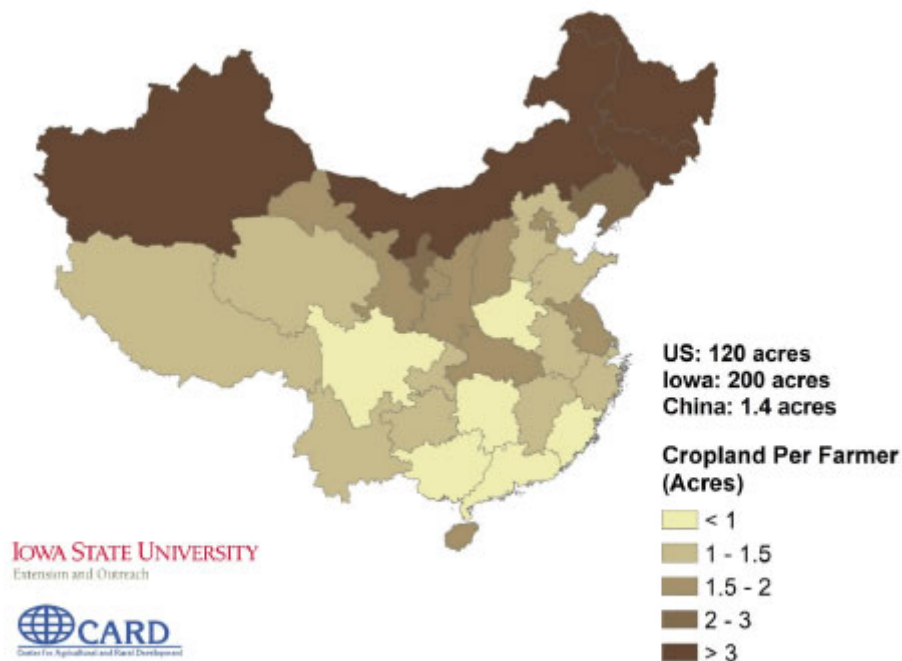


Figure 2. Crop land per farmer in China in acres

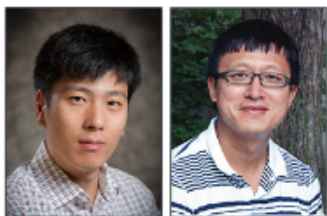


Because crop land per farmer is so small in China, using Iowa as the unit here would create too many decimal points. We use acres instead.

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

Average Farm Size
China: 2 Acres
US: > 400 Acres





China Corn Yield





Corn Yield
(Iowa=100%)

 No data

 11% - 40%

 41% - 45%

 46% - 50%

 51% - 60%

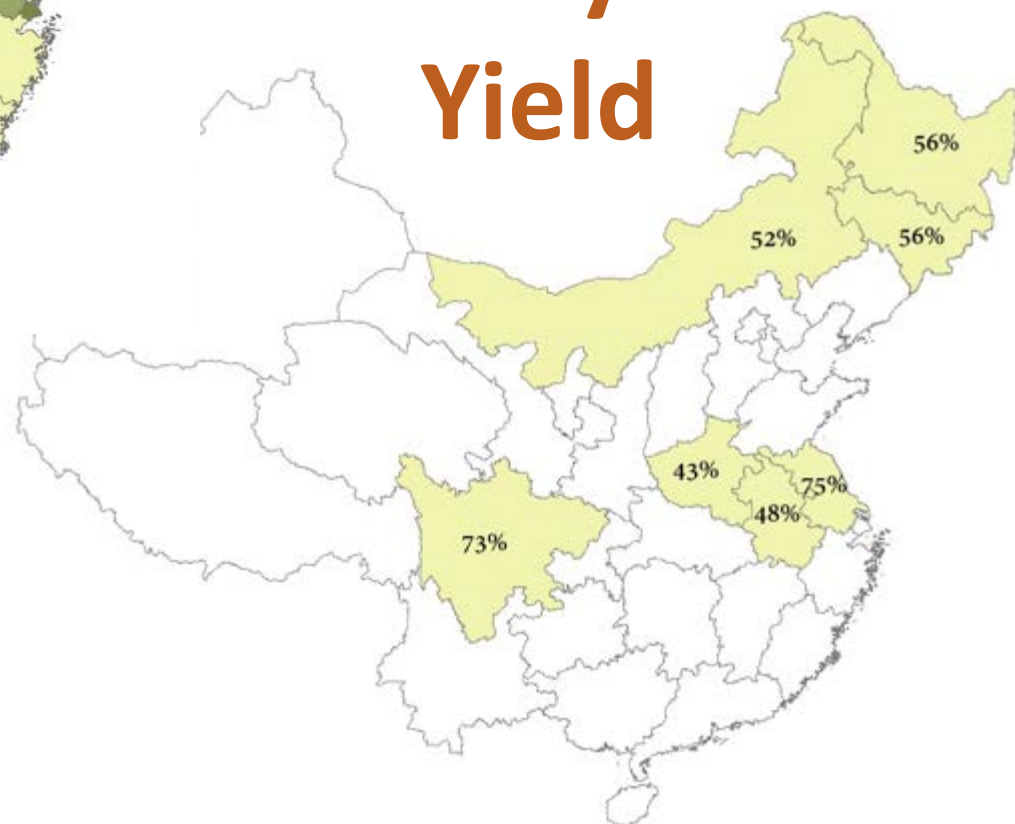
2015 Soybean Yield

US: 48 Bu/acre

Iowa: 56 Bu/acre

China: 26 Bu/acre

China Soybean Yield



Why Care About China?

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

1992
GDP per capita (PPP)

\$37,283

United States

\$1,846

China

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

Bloomberg

2016

GDP per capita (PPP)

\$53,417

United States

\$14,275

China

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

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

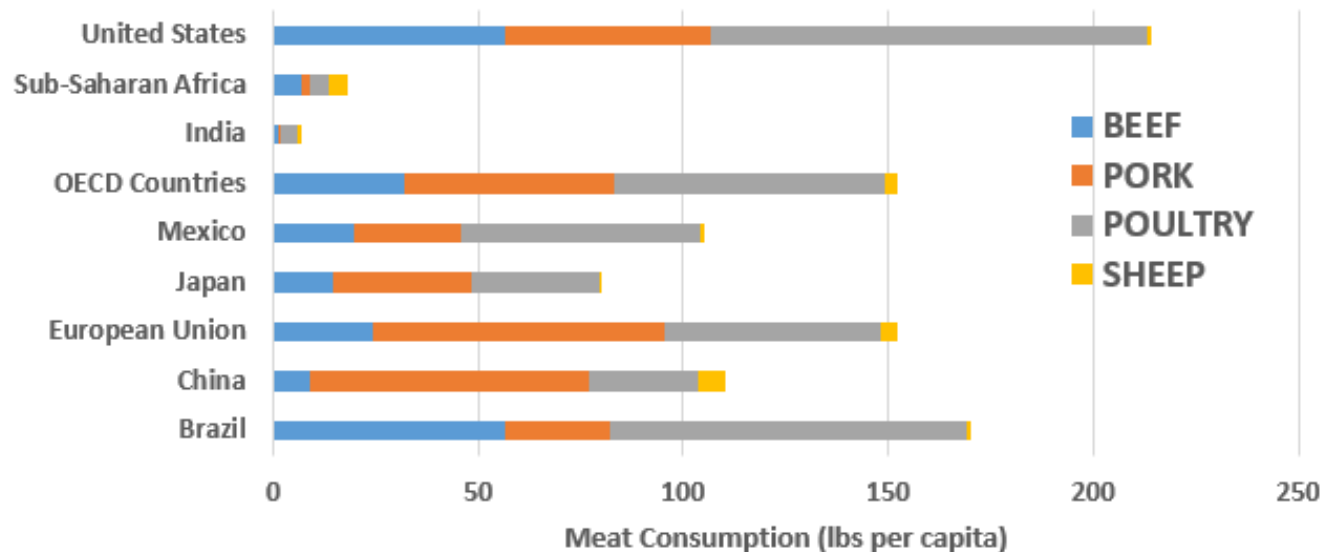
U.S. 2.0%



China 6.5%



Per-capita Meat Consumption by Country 2016 - OECD



[illegible]

Source: National Development and Reform Commission

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 wants to maintain the status quo and avoid dispute escalations. As the two cases above demonstrate, China tends to target agricultural commodities with trade flows comparable to U.S. targets in order to send a clear message. At the same time, China

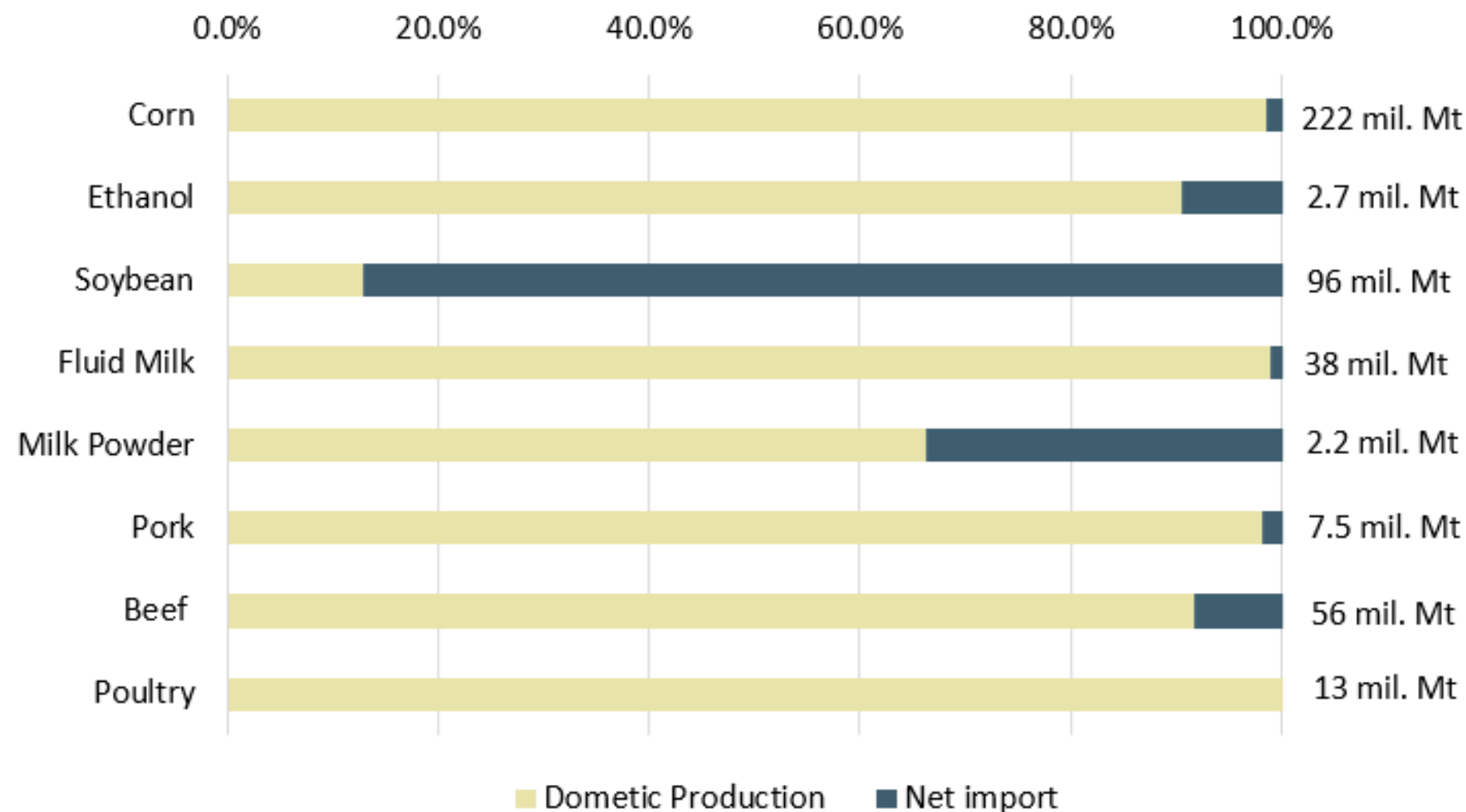
Target Products That Are Substitutable

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

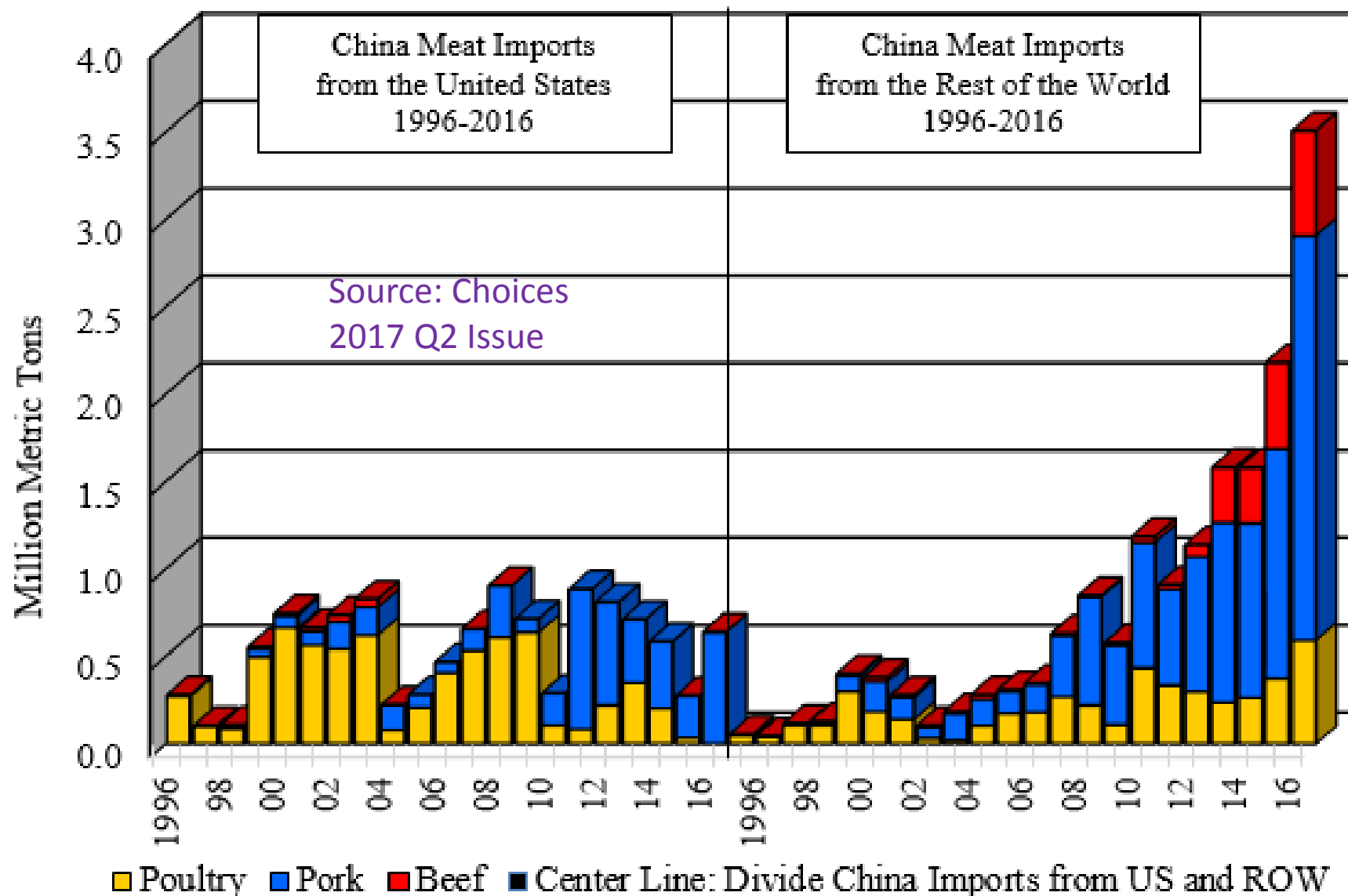
Inflict Economic and Political Costs

From the perspective of China's government, the ultimate goal of retaliatory tariffs is to inflict economic loss on politically influential interest groups in the United States, turning them into lobbyists for easing trade restrictions. For retaliation measures to be effective, China's market as an export destination for targeted commodities has to be important for U.S. producers, as is the case for broiler products and sorghum. Furthermore, the Chinese government has long recognized the political significance of the U.S. agricultural industry, which partly explains why it targets U.S. agricultural exports in trade spats.

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



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



Silk Road Economic Belt Maritime Silk Road of the 21st Century AIIB member states



Seasonality of Soybean Imports by China

If the disputes were resolved before harvest, we might be OK

(Tariff effective July 6th)

Due to the opposing harvest periods for soybeans in North versus South America, China is able to secure most of its soybean purchases from Brazil from now through October, when the new U.S. crop will be available for export. But China's massive monthly soybean needs mean the country may struggle to rely on South America alone for long.

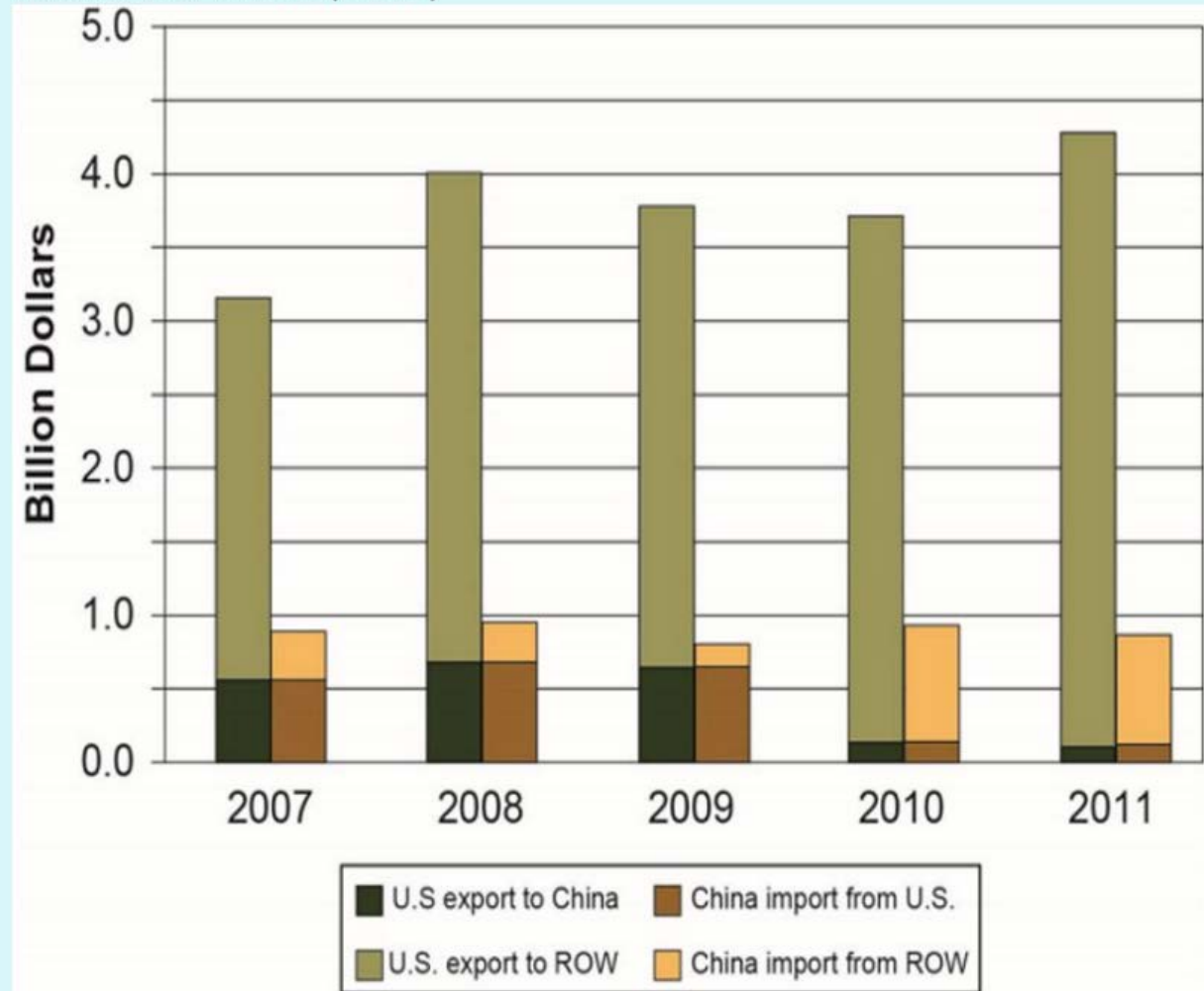


Source: China Customs, Thomson Reuters Eikon

Why Care About China?

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

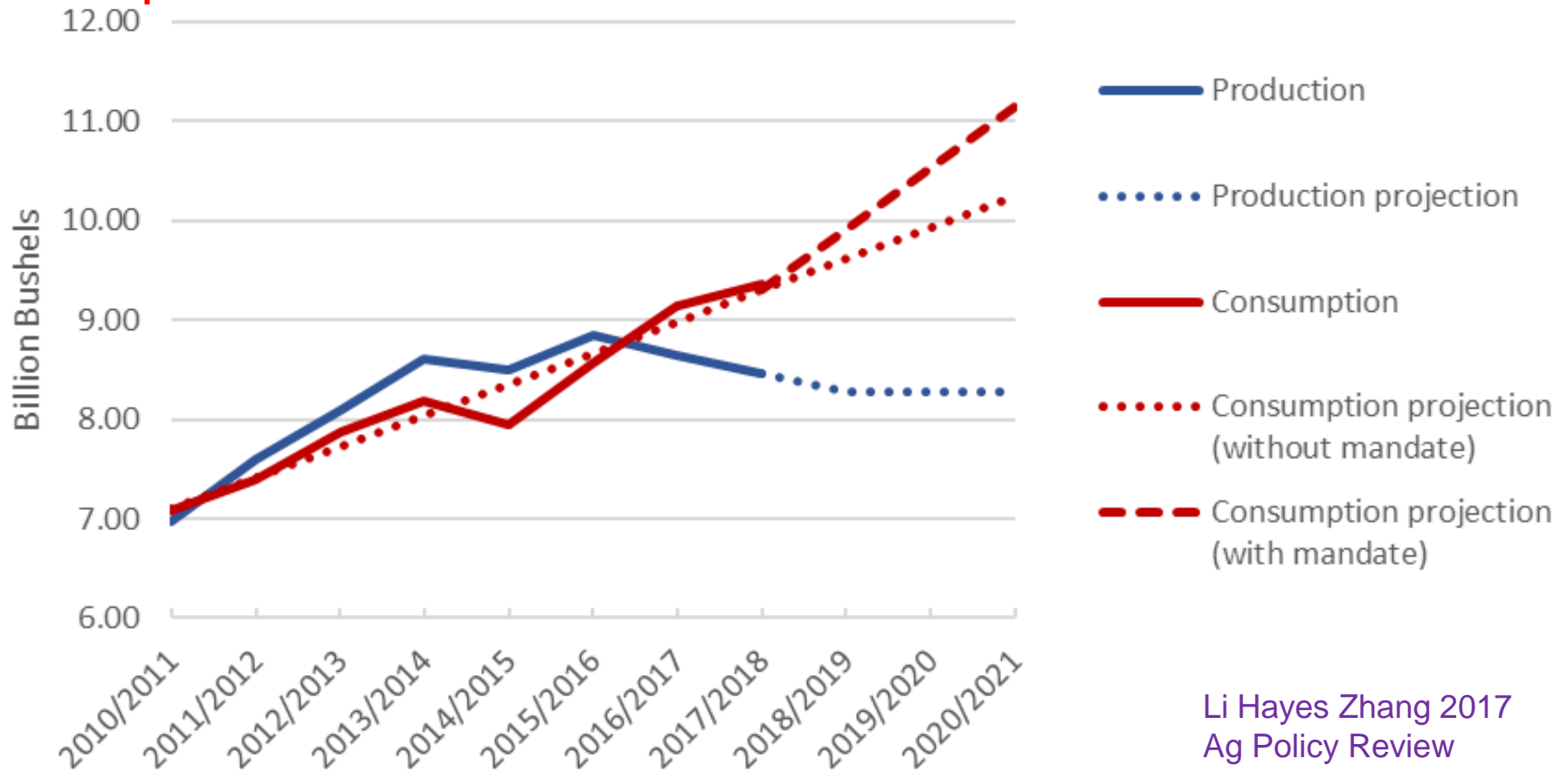
Figure 1. Chicken Trade between the United States, China, and the Rest of the World (ROW)



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



Li Hayes Zhang 2017
Ag Policy Review

China's projected corn import potential under the new 2020 E10 ethanol mandate

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

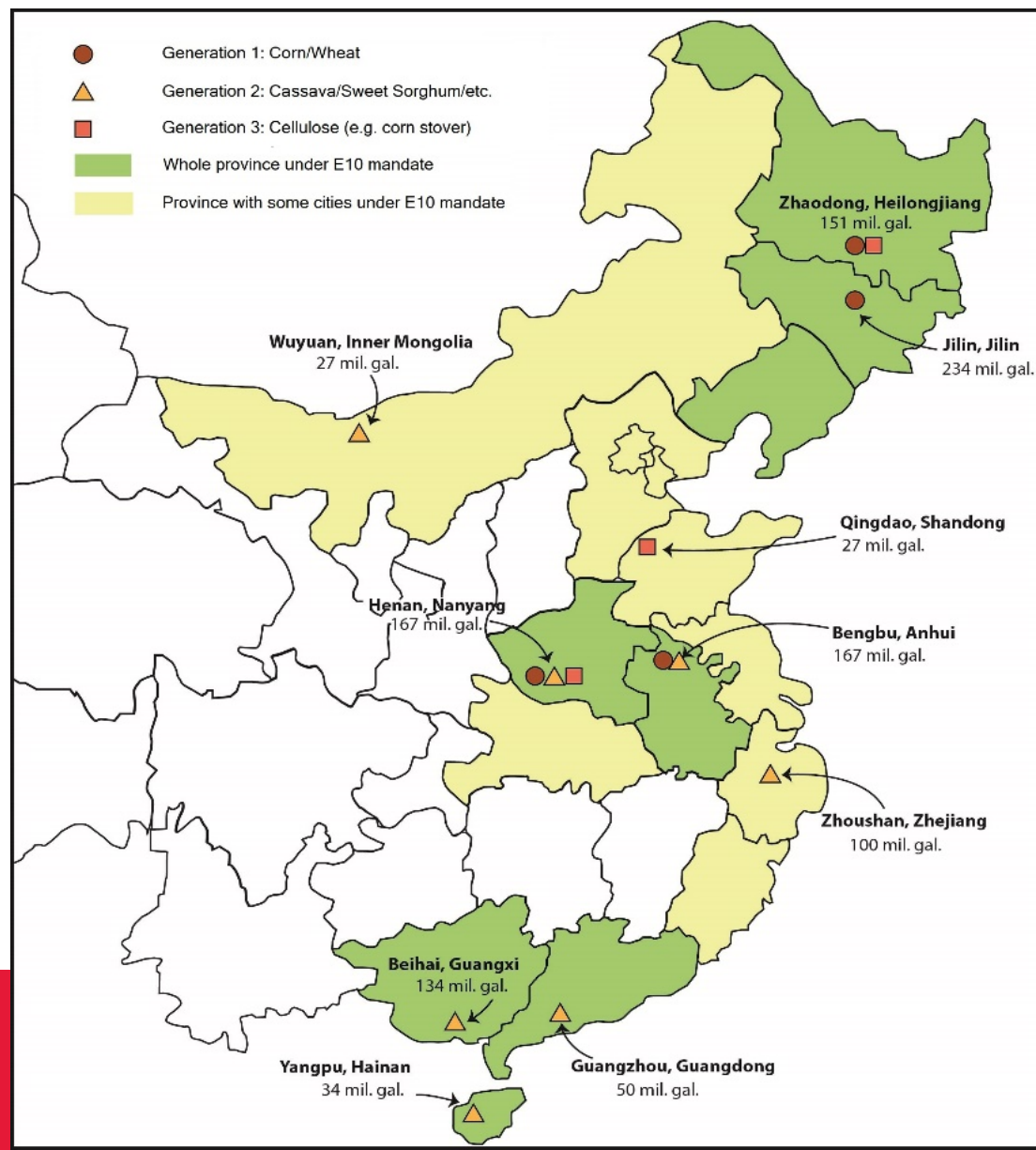
China's Ethanol Trial

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



What a World w/o Trade War Look Like?

Table 1. Decline of Selected U.S. Exports to China from Peak Values

	2017 value (\$million)	Peak value (Year) (\$million)	Percent change
<i>Cotton</i>	976	3,429 (2012)	-72%
<i>Distiller Grains</i>	63	1,632 (2015)	-96%
<i>Coarse Grains (ex. corn)</i>	836	2,115 (2015)	-60%
<i>Corn</i>	142	1,310 (2012)	-89%
<i>Wheat</i>	349	1,283 (2013)	-73%
<i>Poultry</i>	36	722 (2008)	-95%
<i>Soybean Oil</i>	24	395 (2010)	-94%
<i>Ethanol</i>	42	313 (2016)	-87%
<i>Others</i>	21,626	25,927	-17%
<i>Total</i>	24,095	37,125	-35%

Source: USDA FAS Database

The Export Potential to China if China removes trade barriers

Table 4. Predicting China's Import Potential using Domestic Supply and Demand Elasticities

	Increase in import quantity			Increase in import value (\$billion)		
	Low	Middle	High	Low	Medium	High
Corn	16.8 MMT	33.6 MMT	50.4 MMT	3.8	7.5	11.3
Wheat	13.2 MMT	26.4 MMT	39.6 MMT	3.6	7.2	10.8
Beef	0.3 MMT	0.7 MMT	1.0 MMT	1.2	2.4	3.6
Pork	3.0 MMT	6.0 MMT	8.9 MMT	6.2	12.4	18.5
Chicken	0.7 MMT	1.3 MMT	2.0 MMT	5.1	10.2	15.3
Cotton	55 TMT	110 TMT	165 TMT	0.11	0.22	0.33
Ethanol	0.11 Mil. L	0.22 M. L	0.33 Mil. L	0.08	0.15	0.22
Distiller grains	0.66 TMT	1.33 TMT	2.0 TMT	0.18	0.36	0.54
Others				0.87	1.7	2.6

Note: Projections for corn, wheat, beef, pork, and chicken are from the domestic elasticity method; projections for cotton, ethanol, distiller grains, and others are from the import elasticity method. See text for descriptions.

MMT: Million Metric Ton; TMT: Thousand Metric Ton; Mil. L: Million Liters

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

Iowa Farmland Ownership Survey



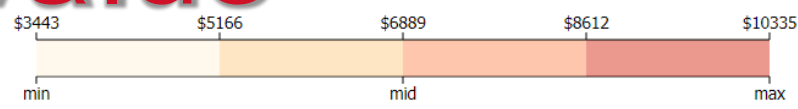
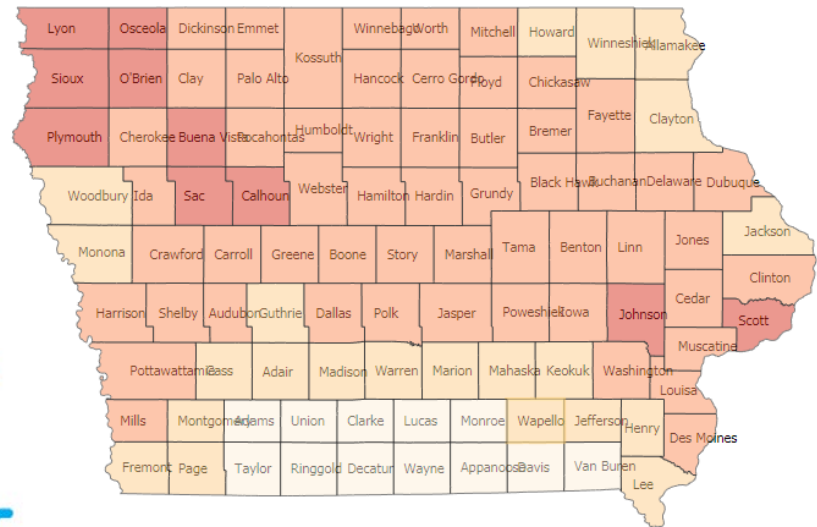
#ISUlandvalue

June 28

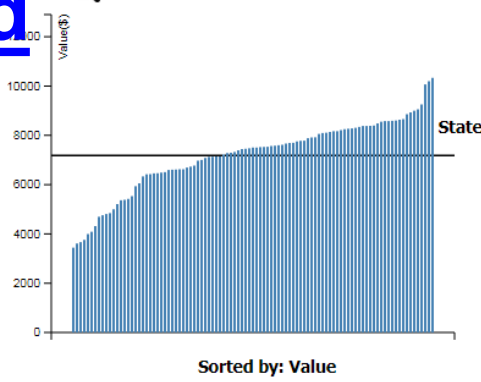
News Conference



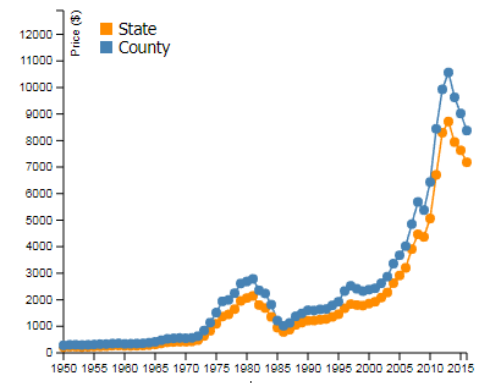
<http://bit.ly/ISU2017Owner>



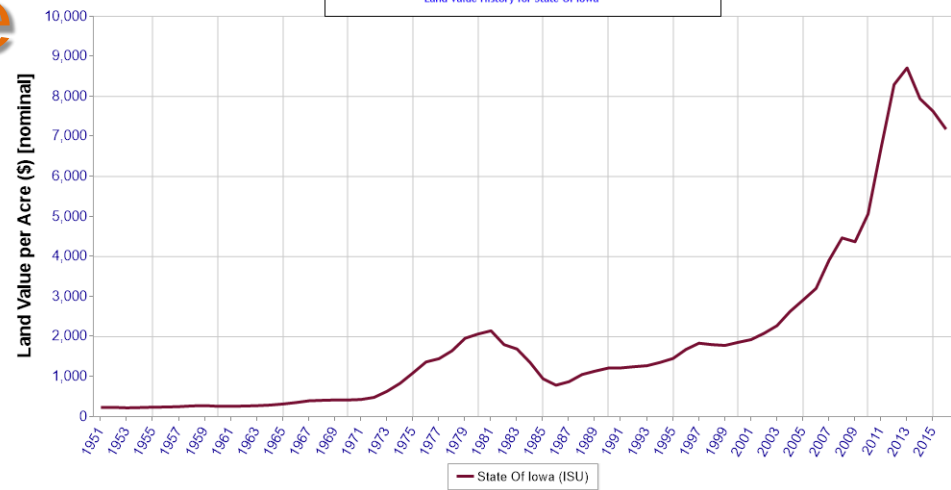
Iowa County Land Value in 2016



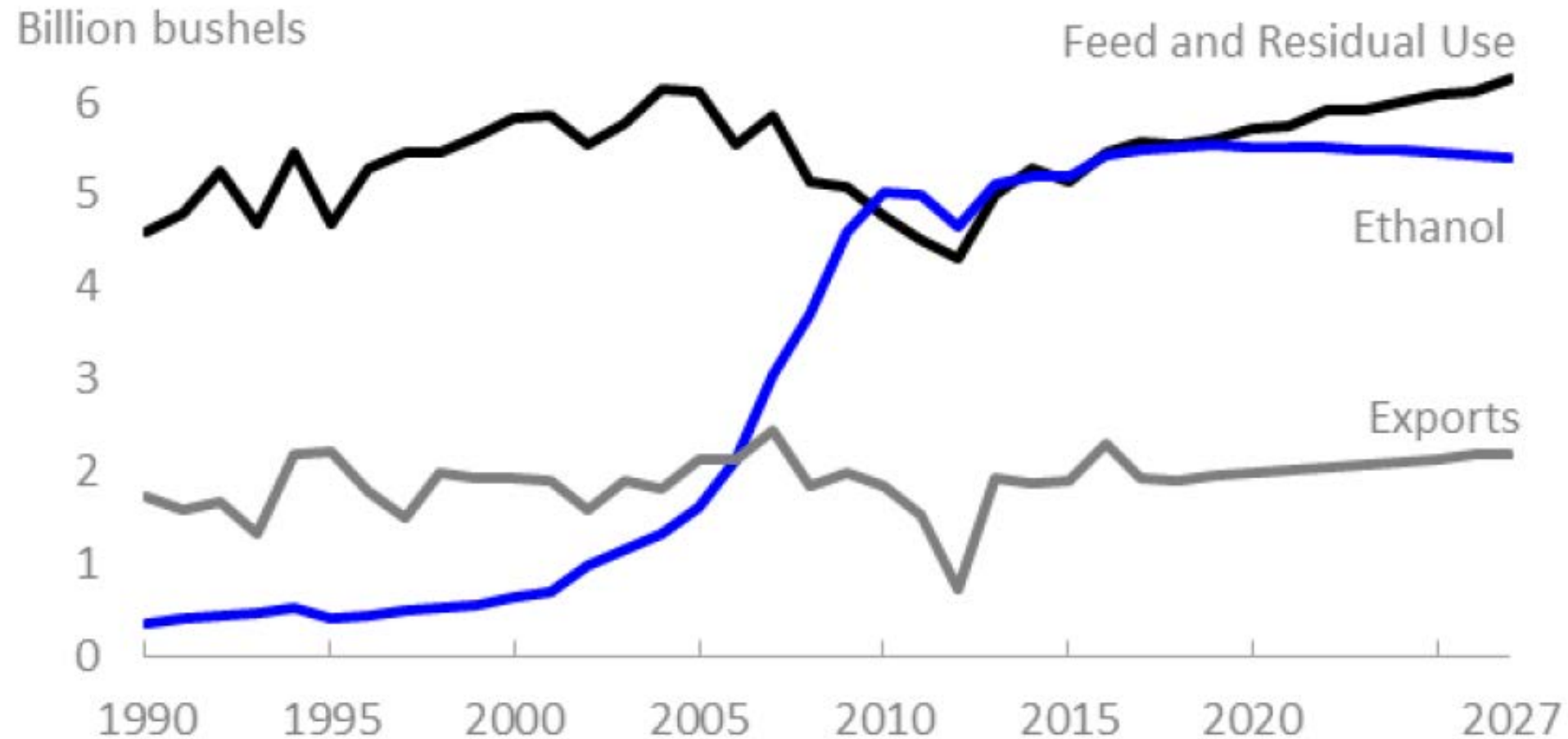
Land Value Trend in County: Story



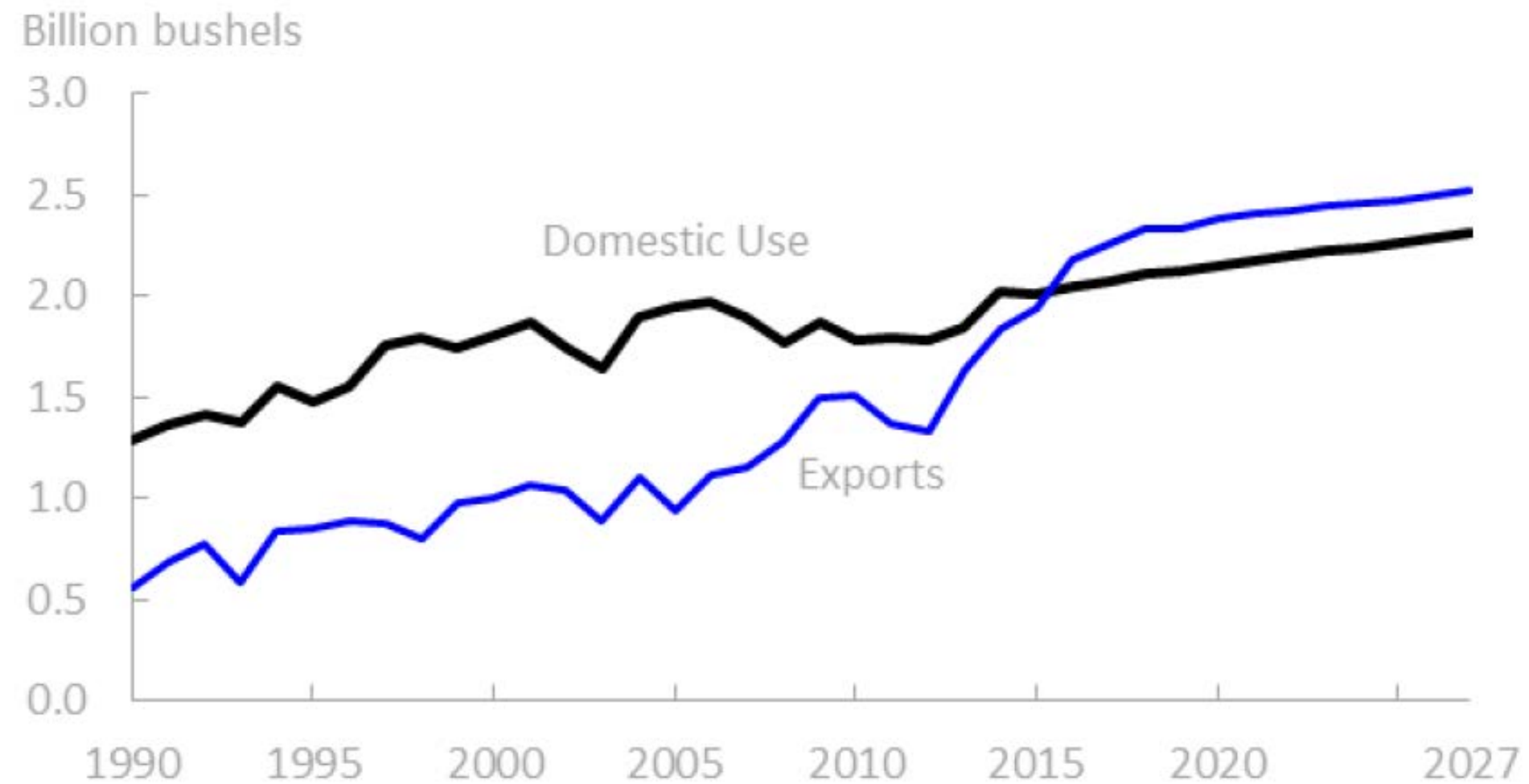
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Land Value History for State Of Iowa



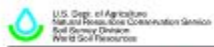
Corn Use for the Next Decade



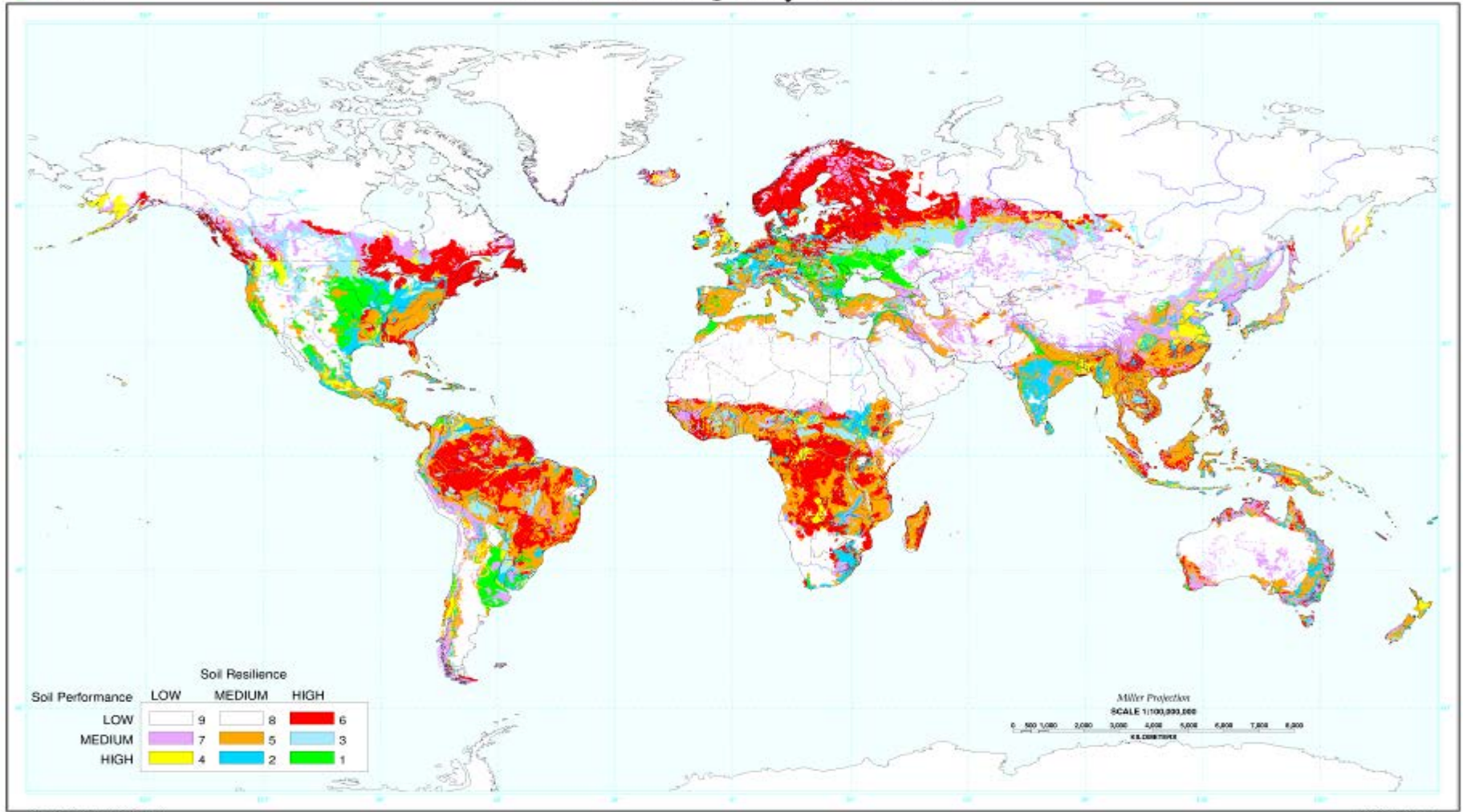
Soybean Use for the Next Decade



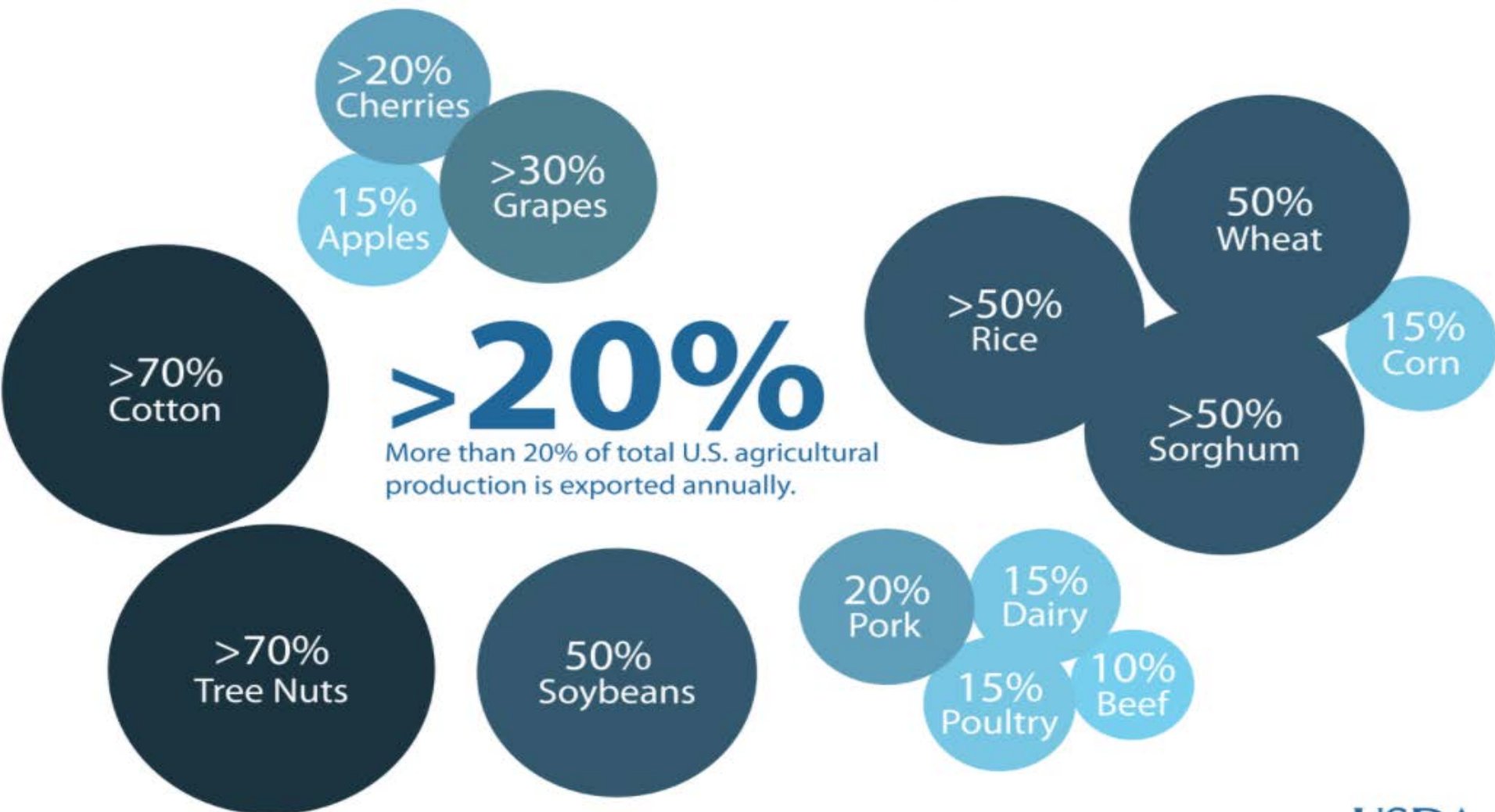
Arable Land



Inherent Land Quality Assessment



Share of U.S. Agriculture Exported in 2016



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

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

United States Department of Agriculture
Foreign Agricultural Service



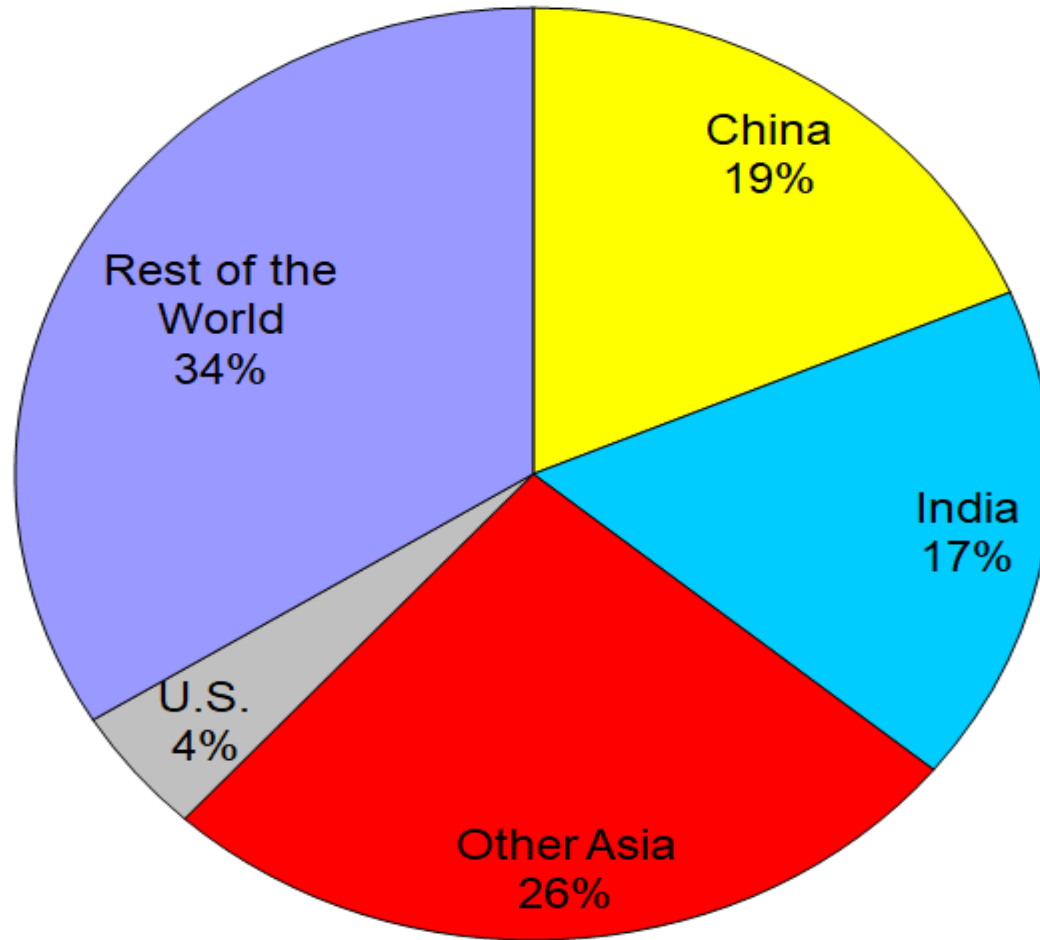
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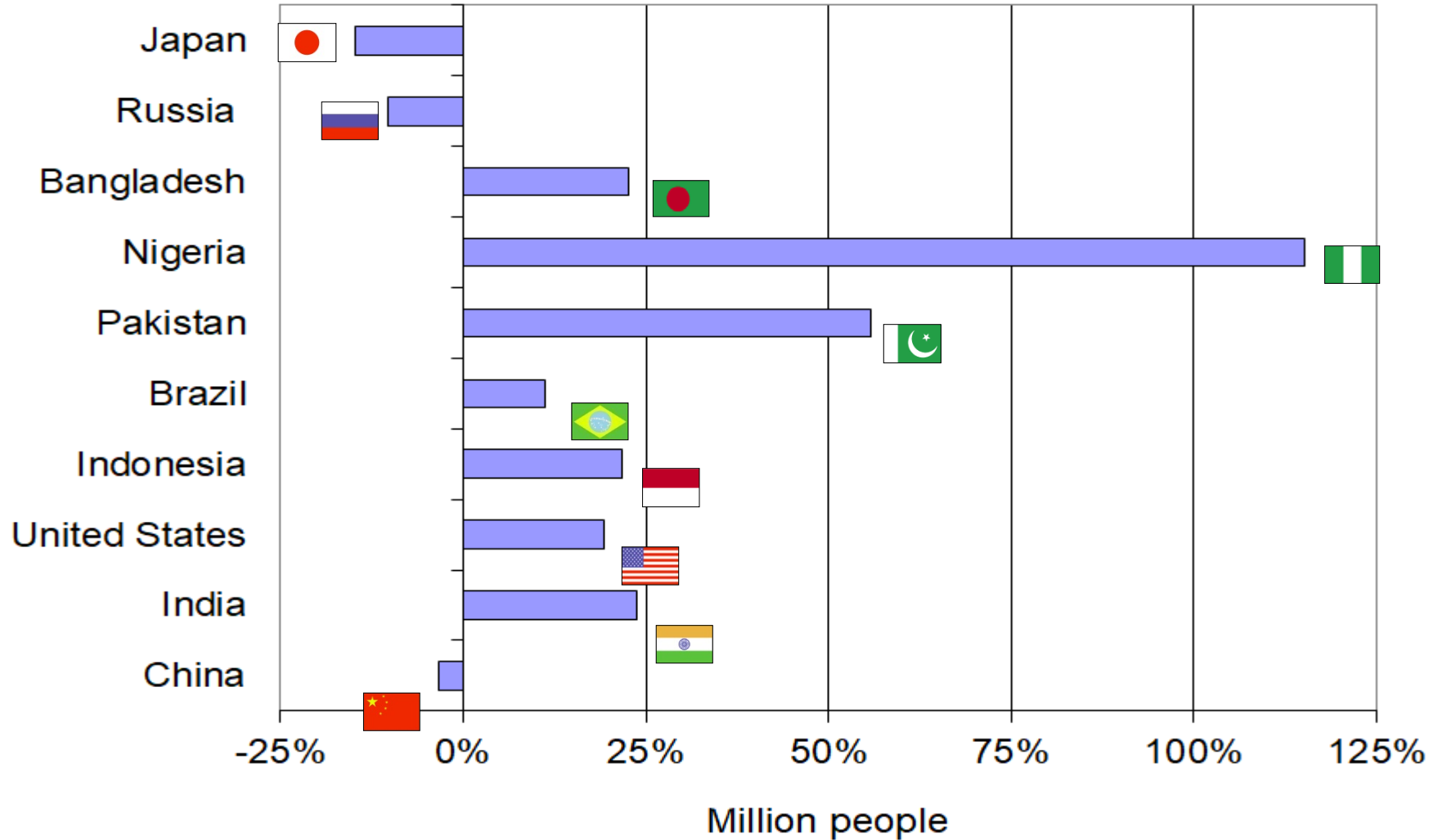
Why do U.S. farmers need export markets?

- **That's where the customers are**
- **That's where the economic growth is**
- **That's where the consumption growth is**
- **We produce surpluses**
- **We only eat high on the hog**
- **Exports are crucial to farm income**

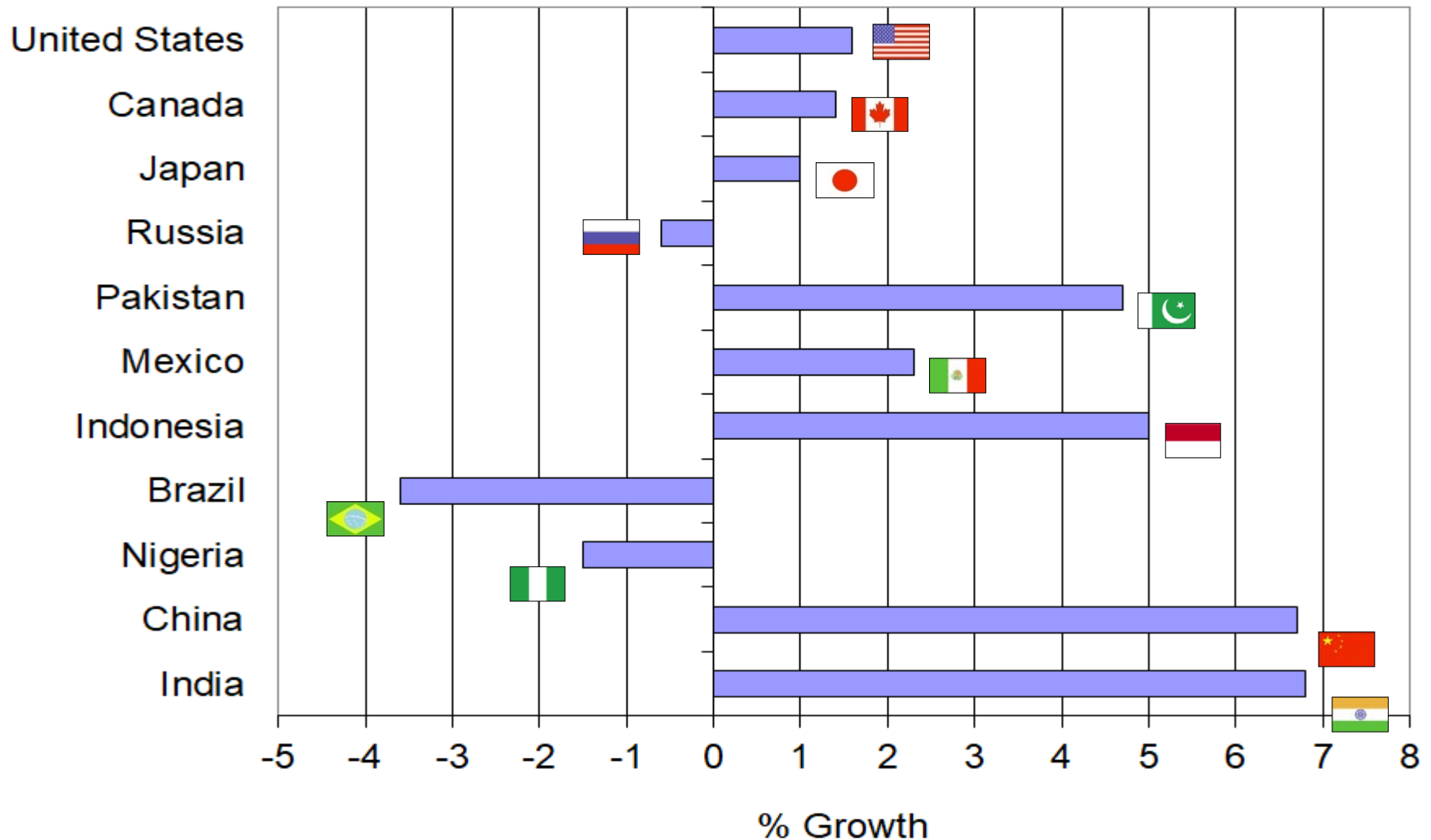
96% of the world's population lives outside the US



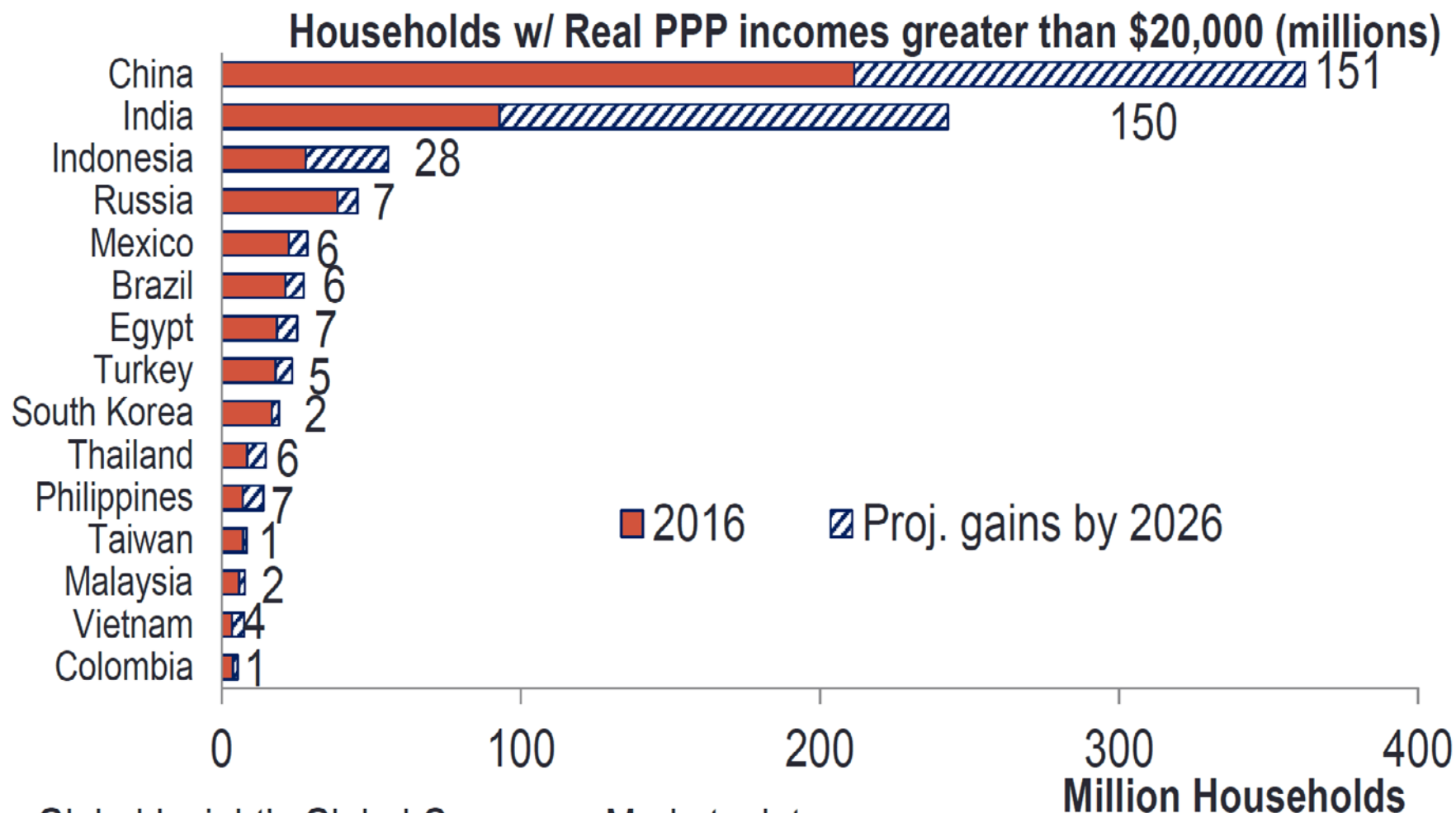
Population growth 2017 to 2050



Economic growth rates

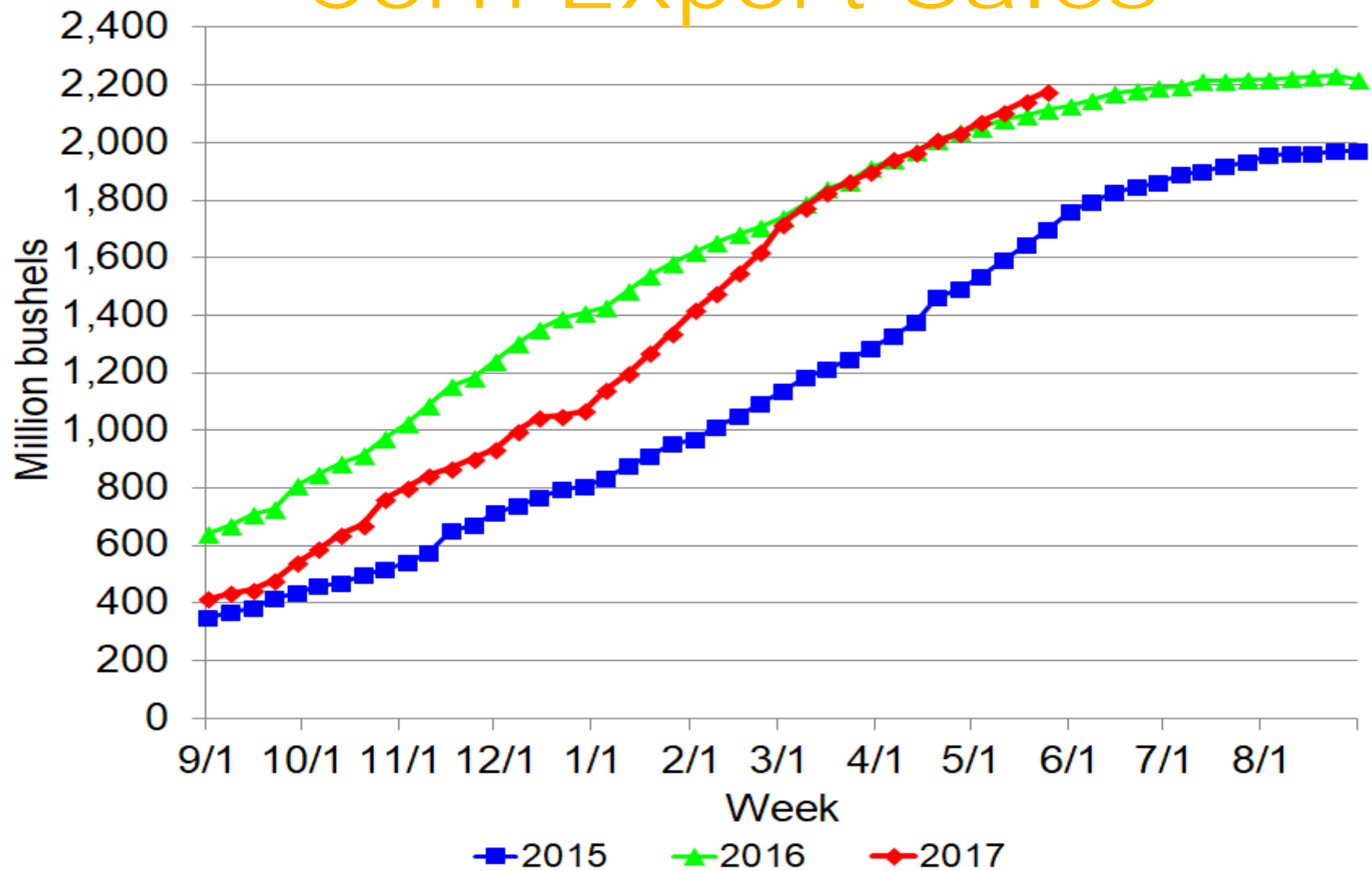


Income growth will drive increased global demand

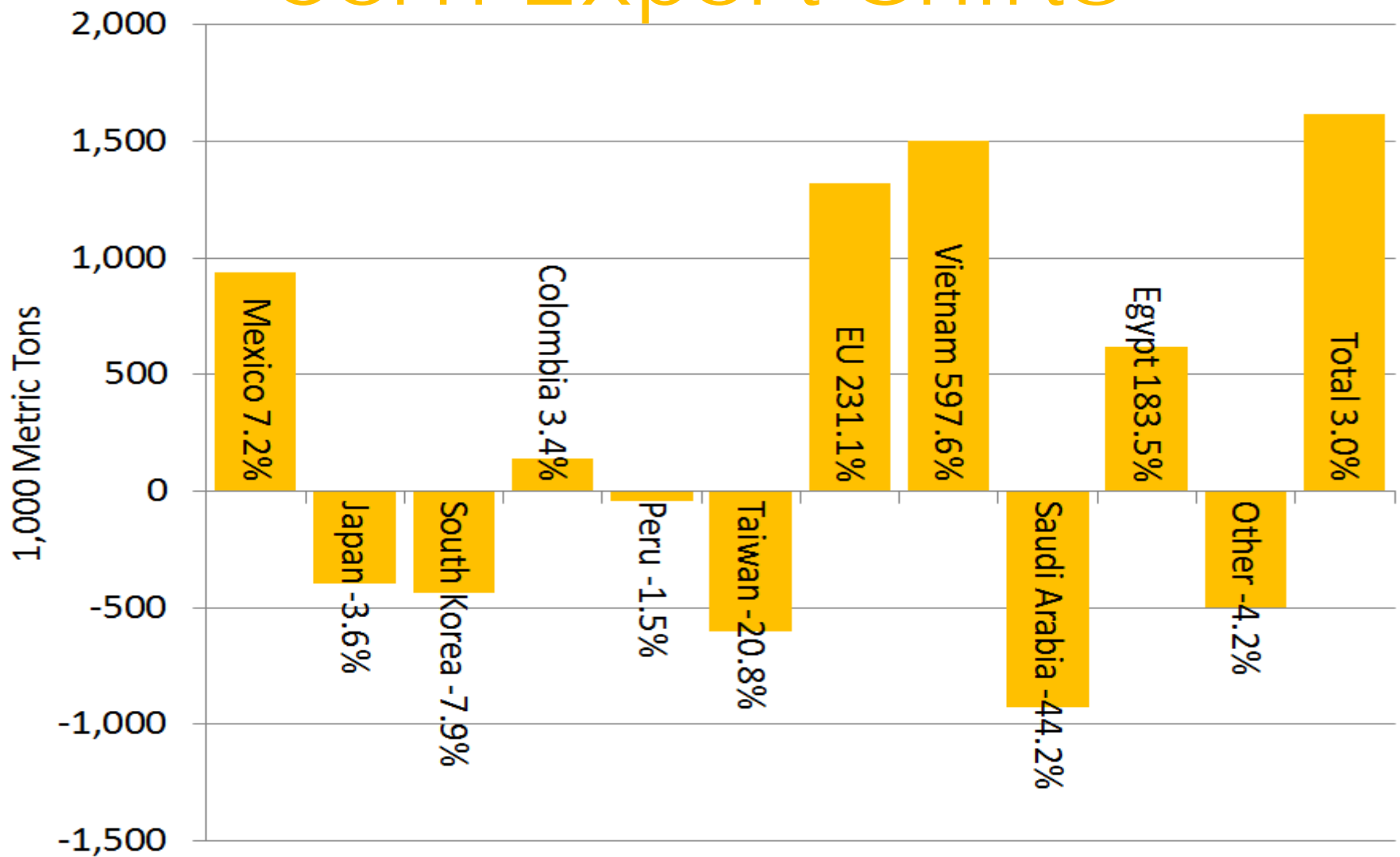


Data: Global Insight's Global Consumer Markets data.

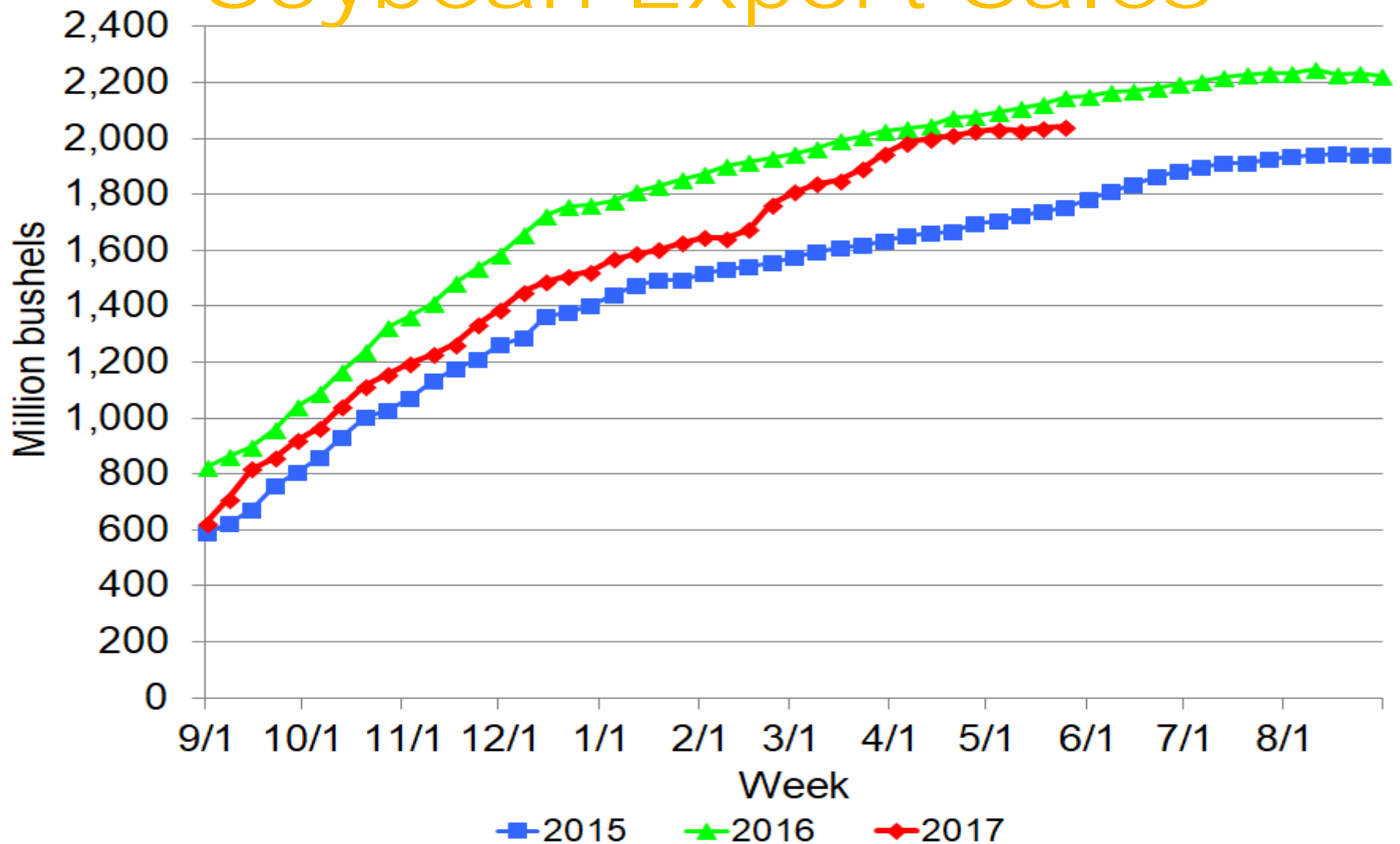
Corn Export Sales



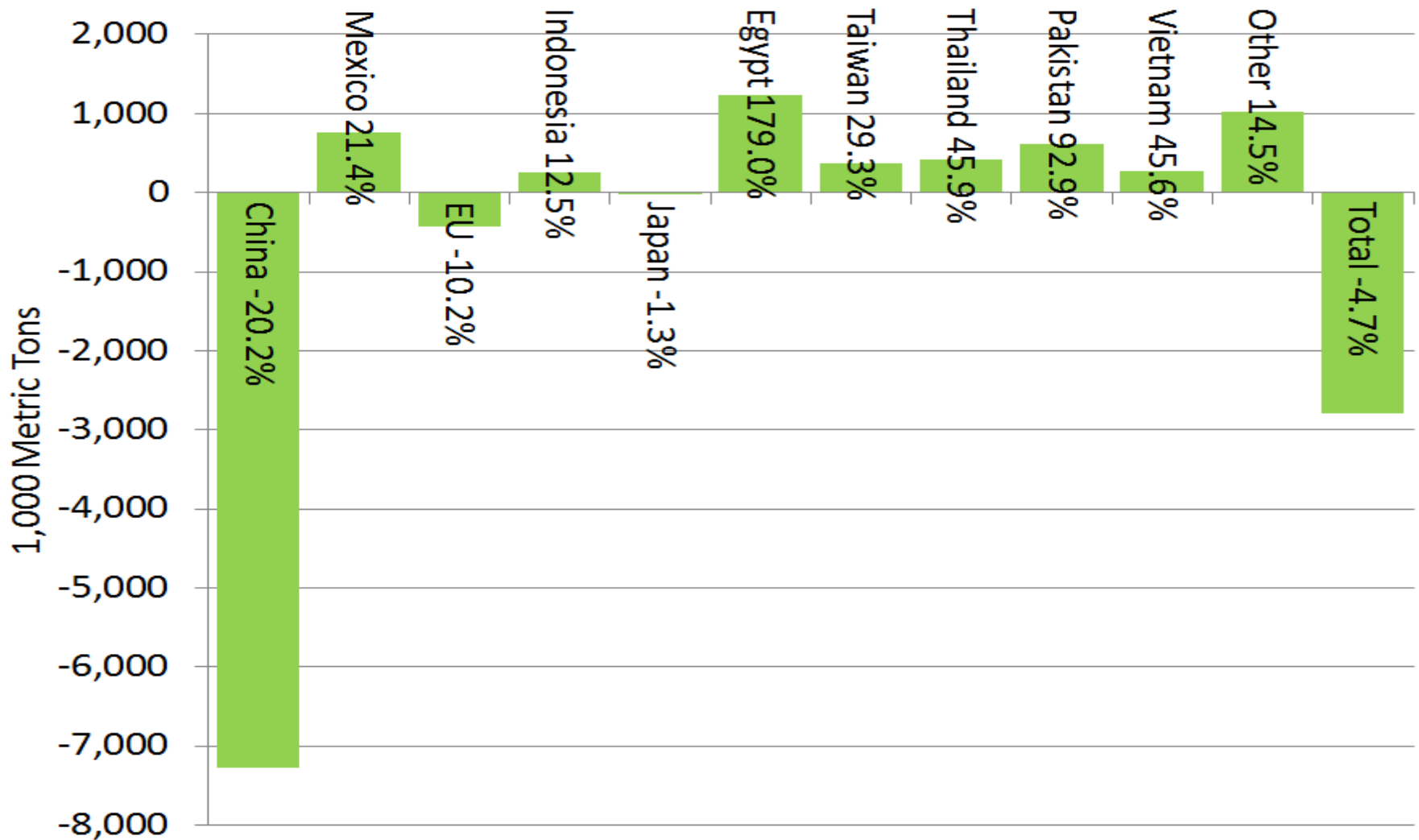
Corn Export Shifts



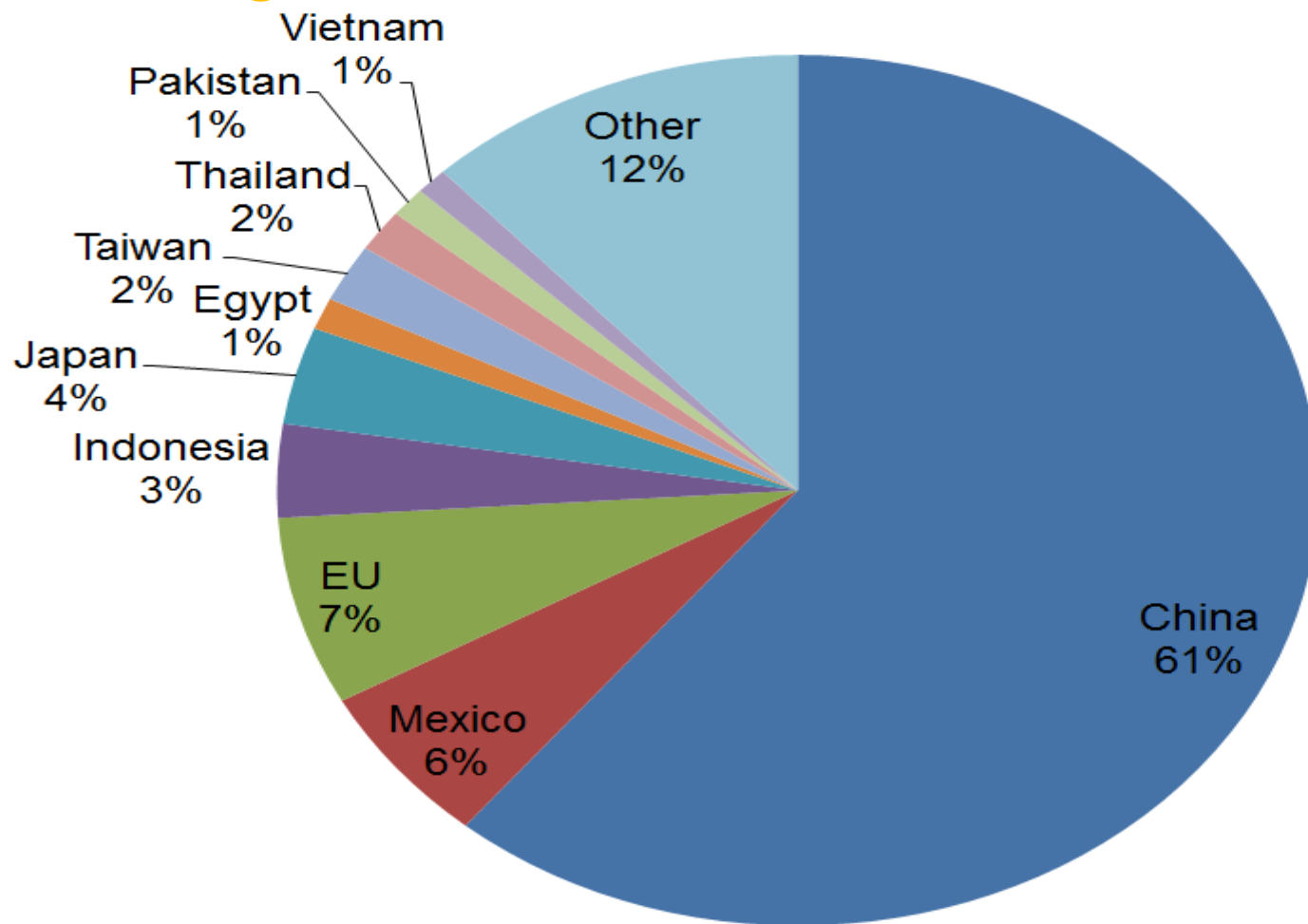
Soybean Export Sales



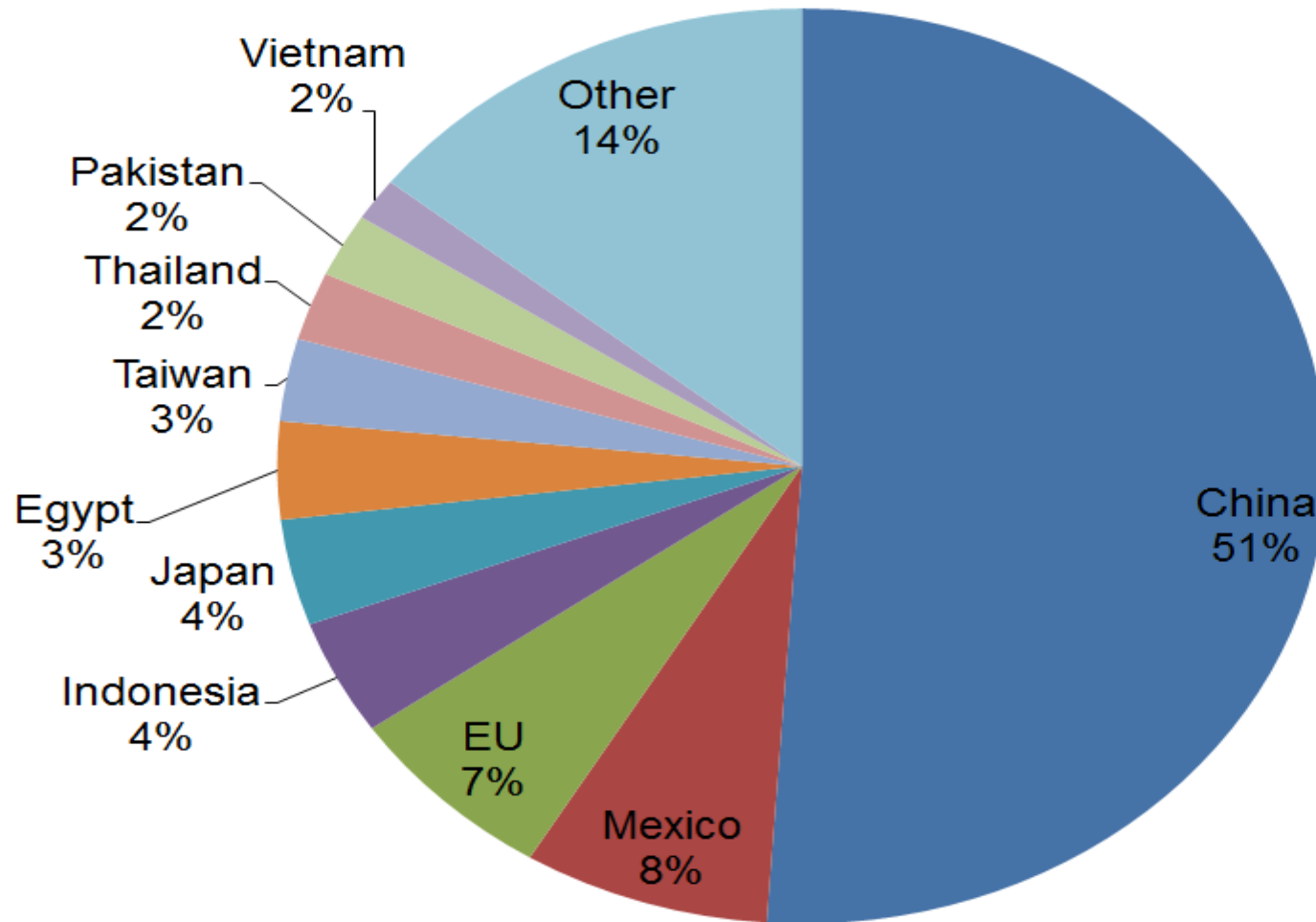
Soybean Export Shifts



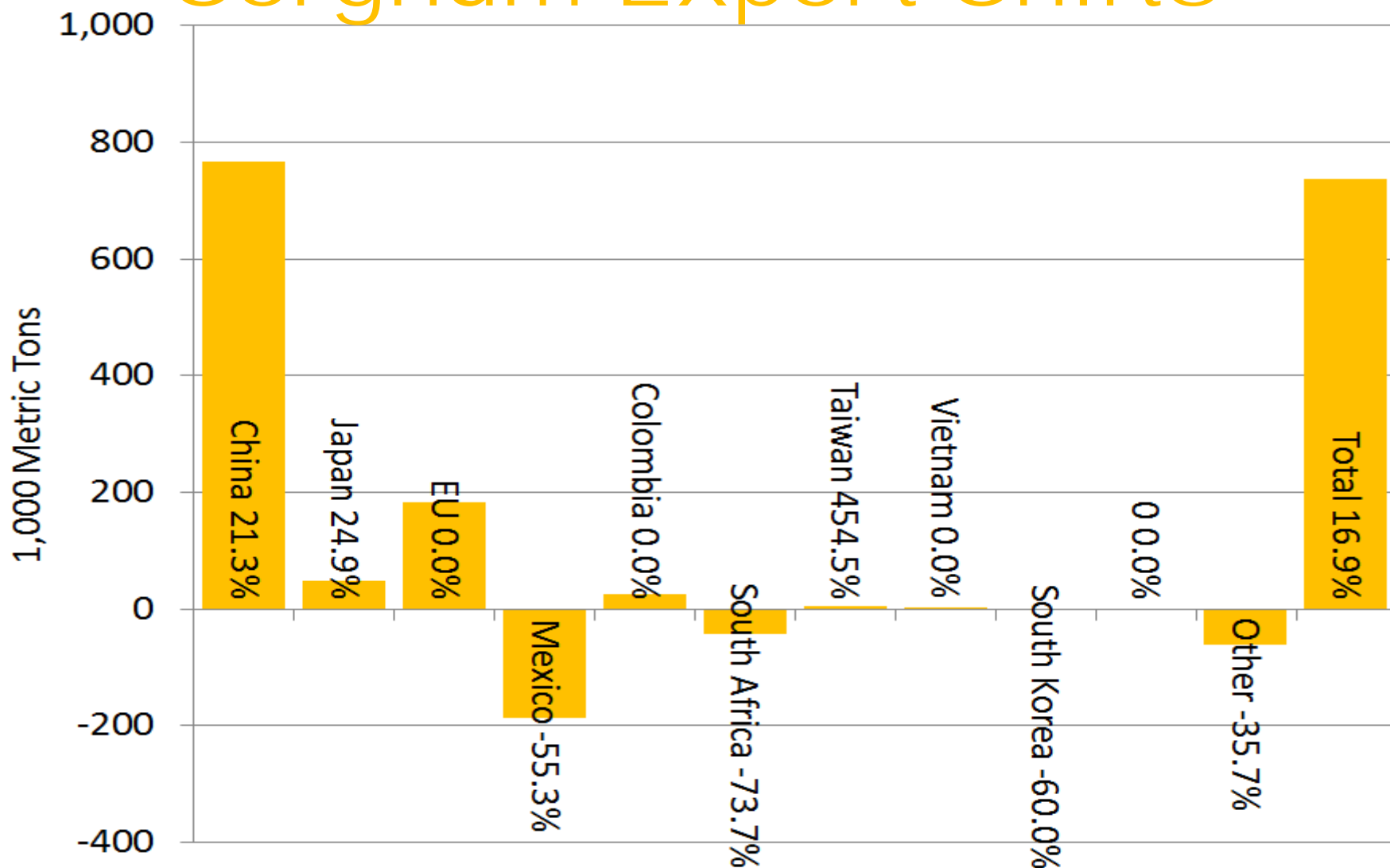
Soybean Trade Last Year



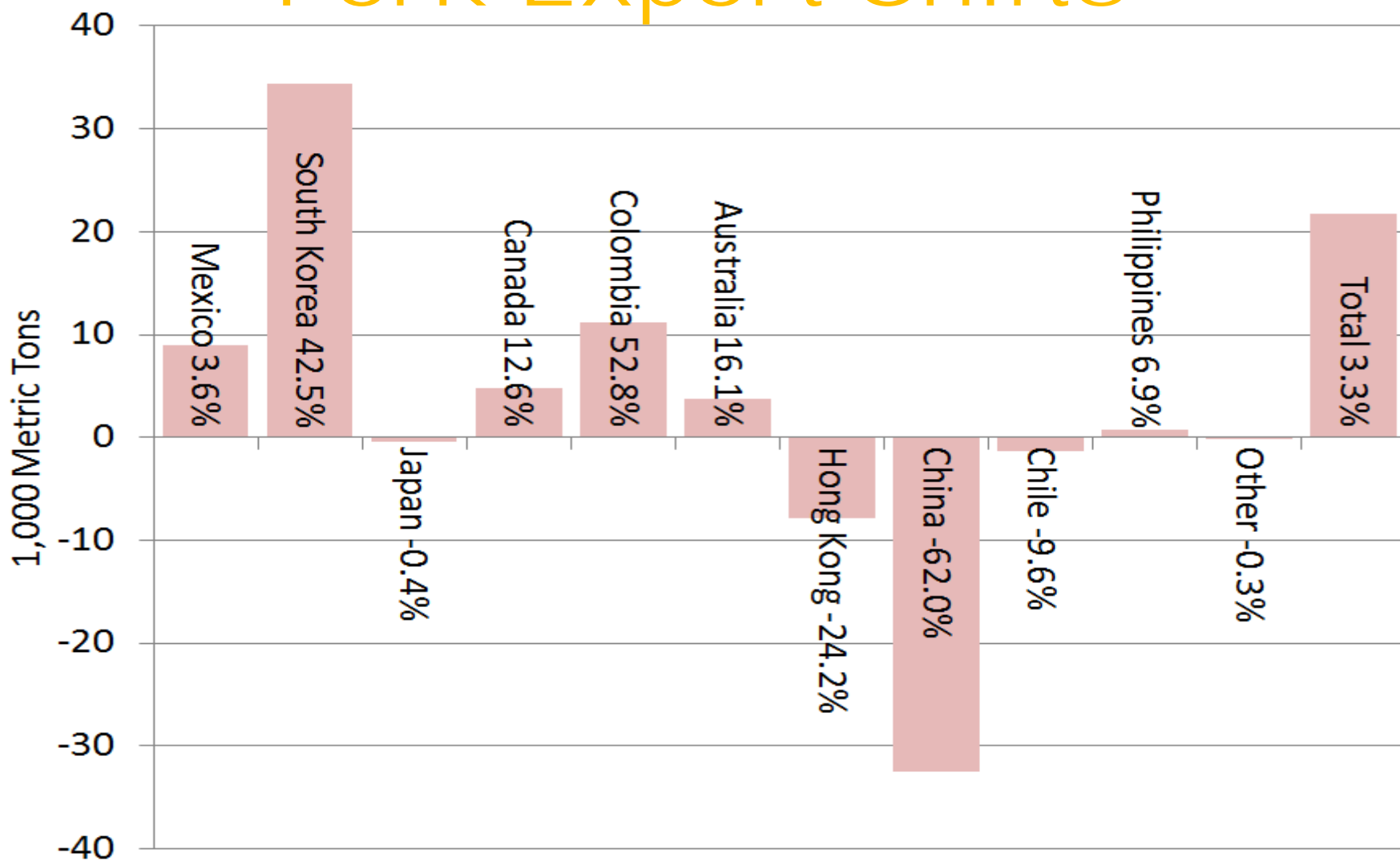
Soybean Trade This Year



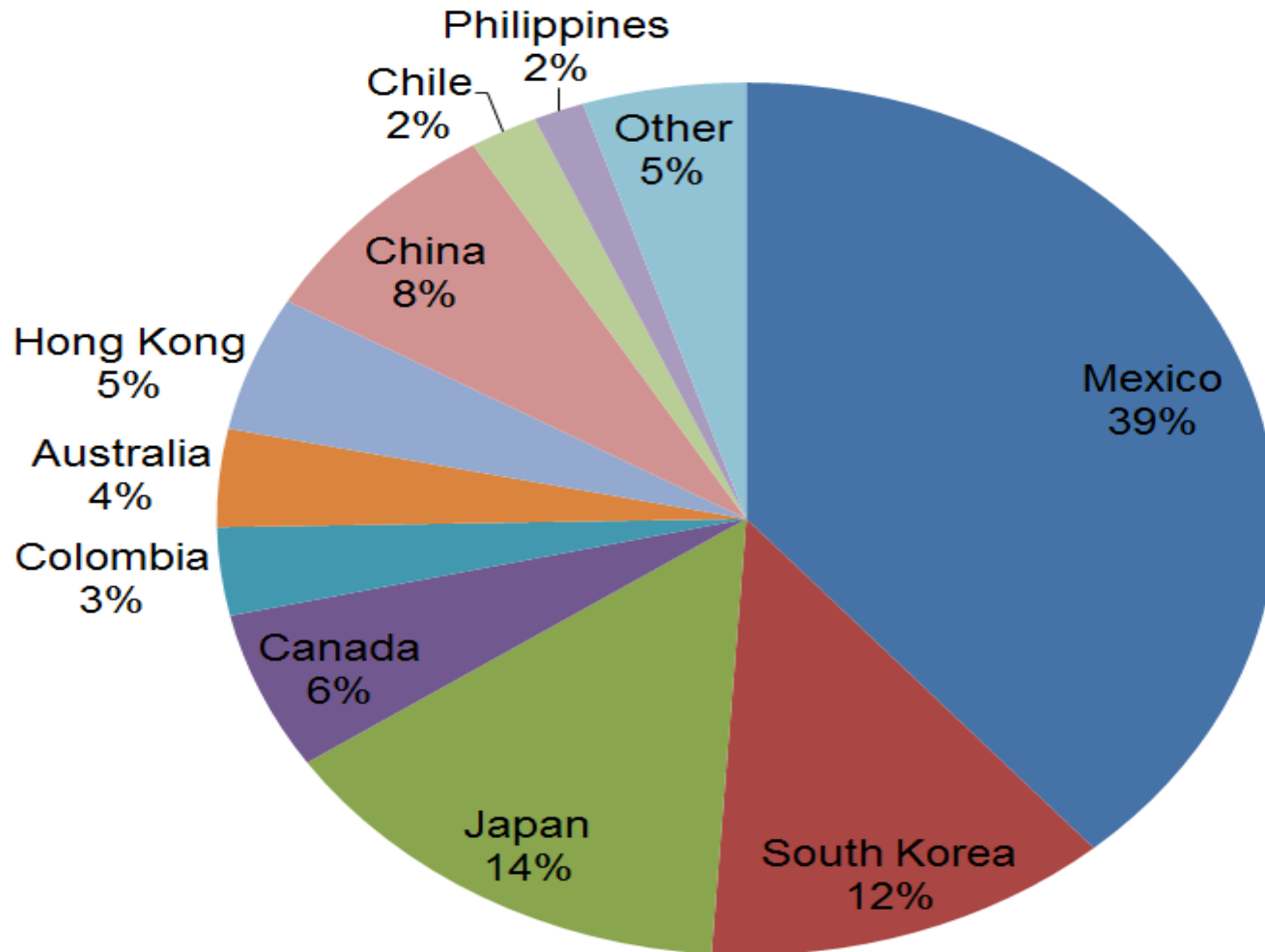
Sorghum Export Shifts



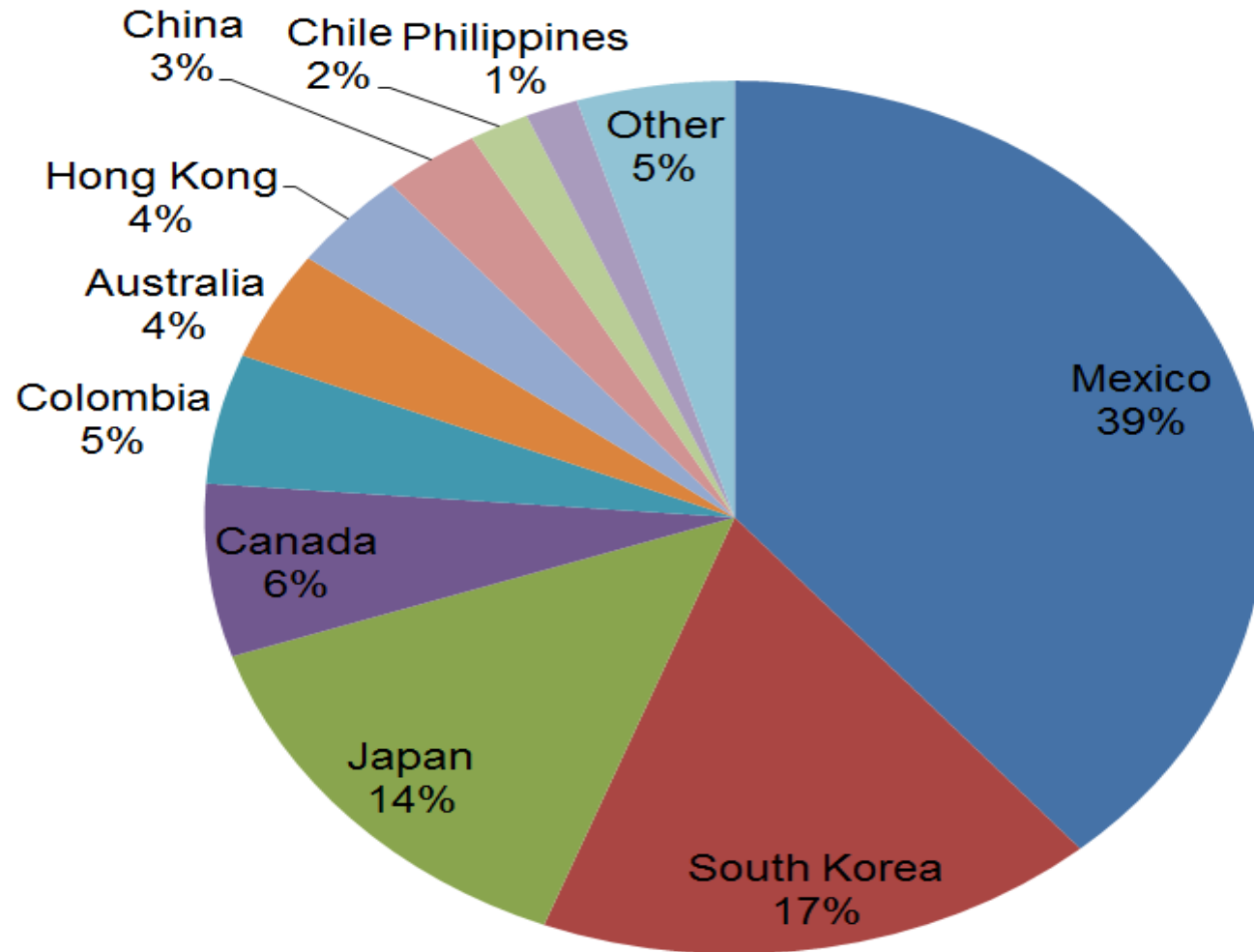
Pork Export Shifts



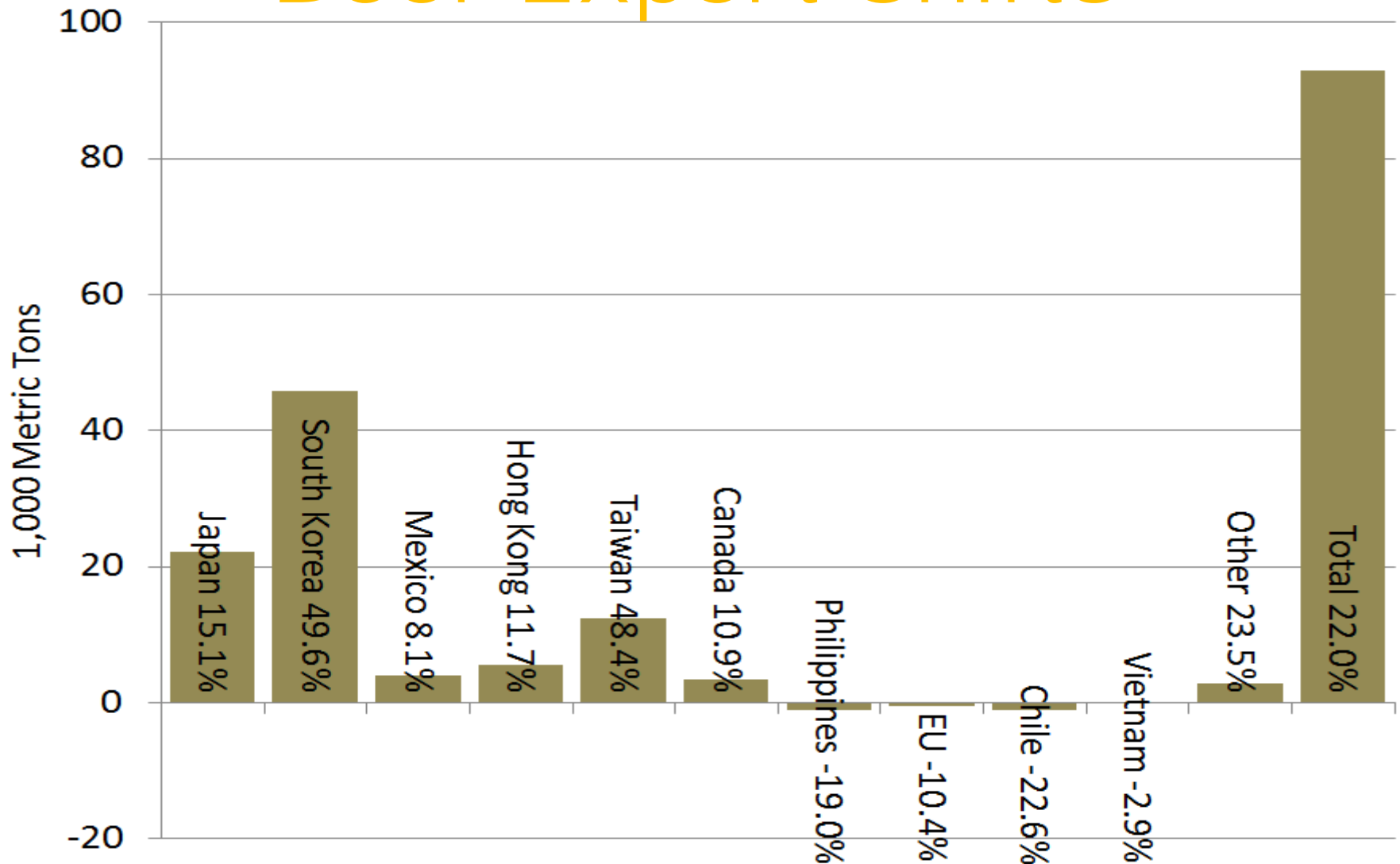
Pork Trade Last Year



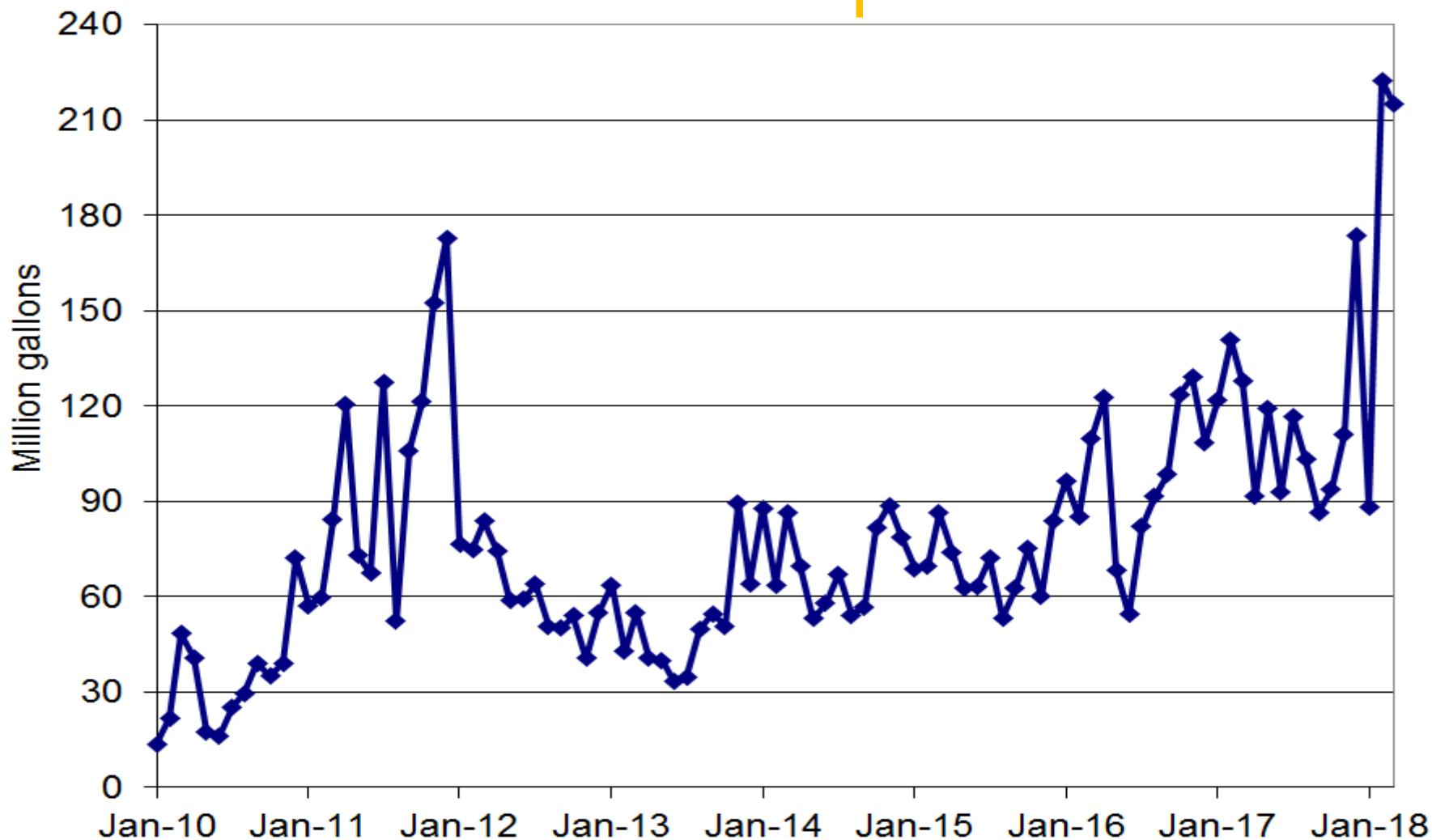
Pork Trade This Year



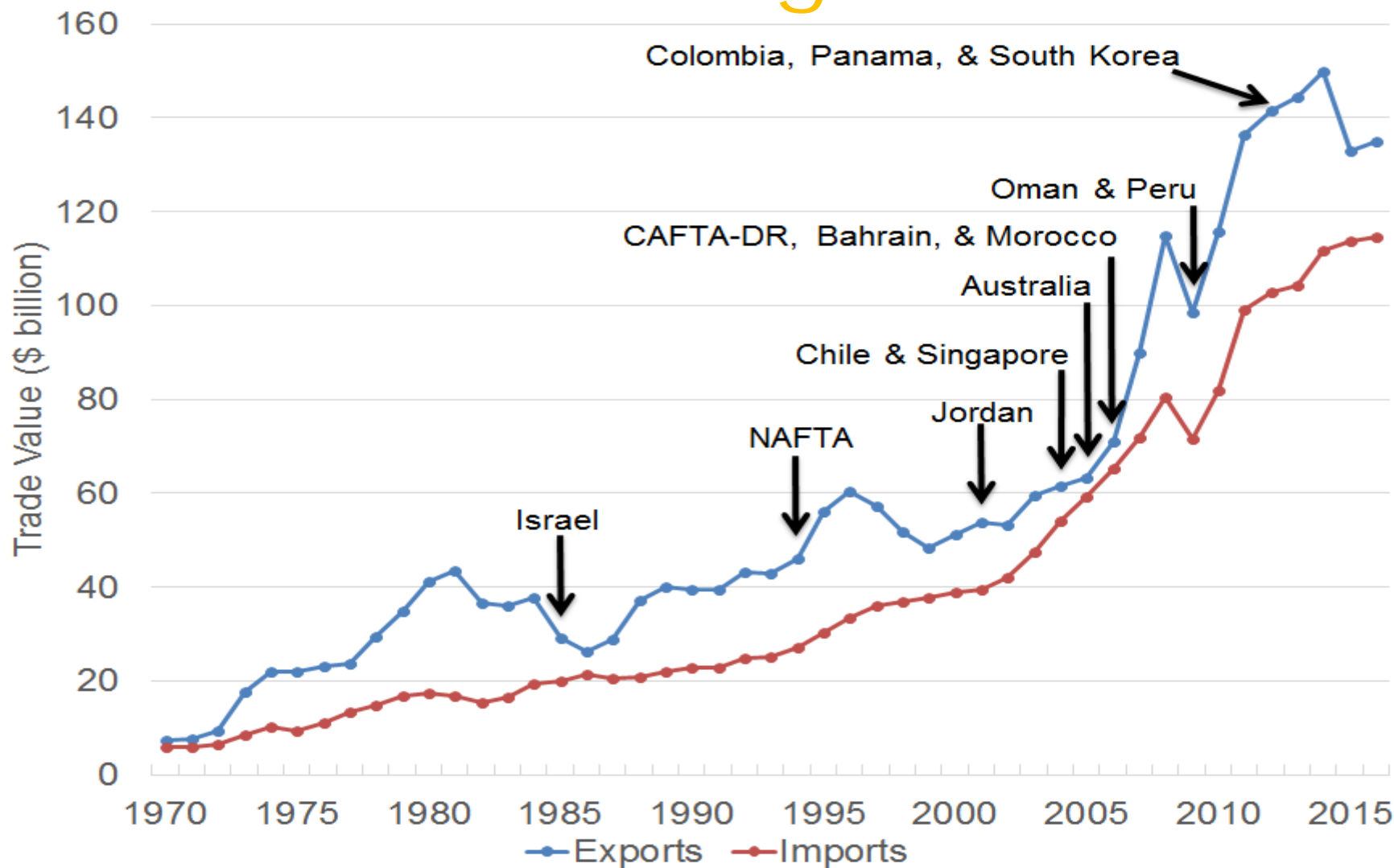
Beef Export Shifts



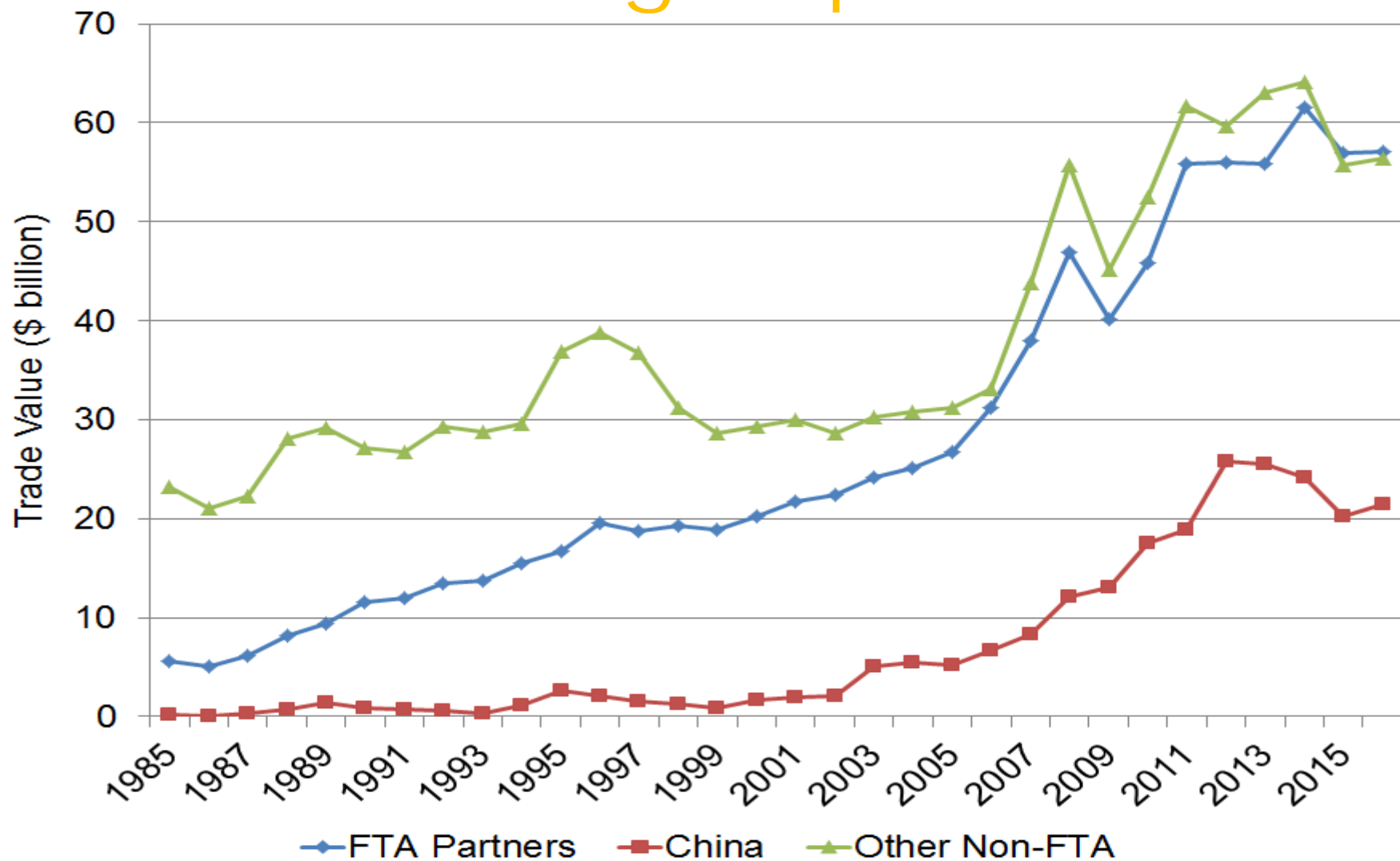
Ethanol Exports



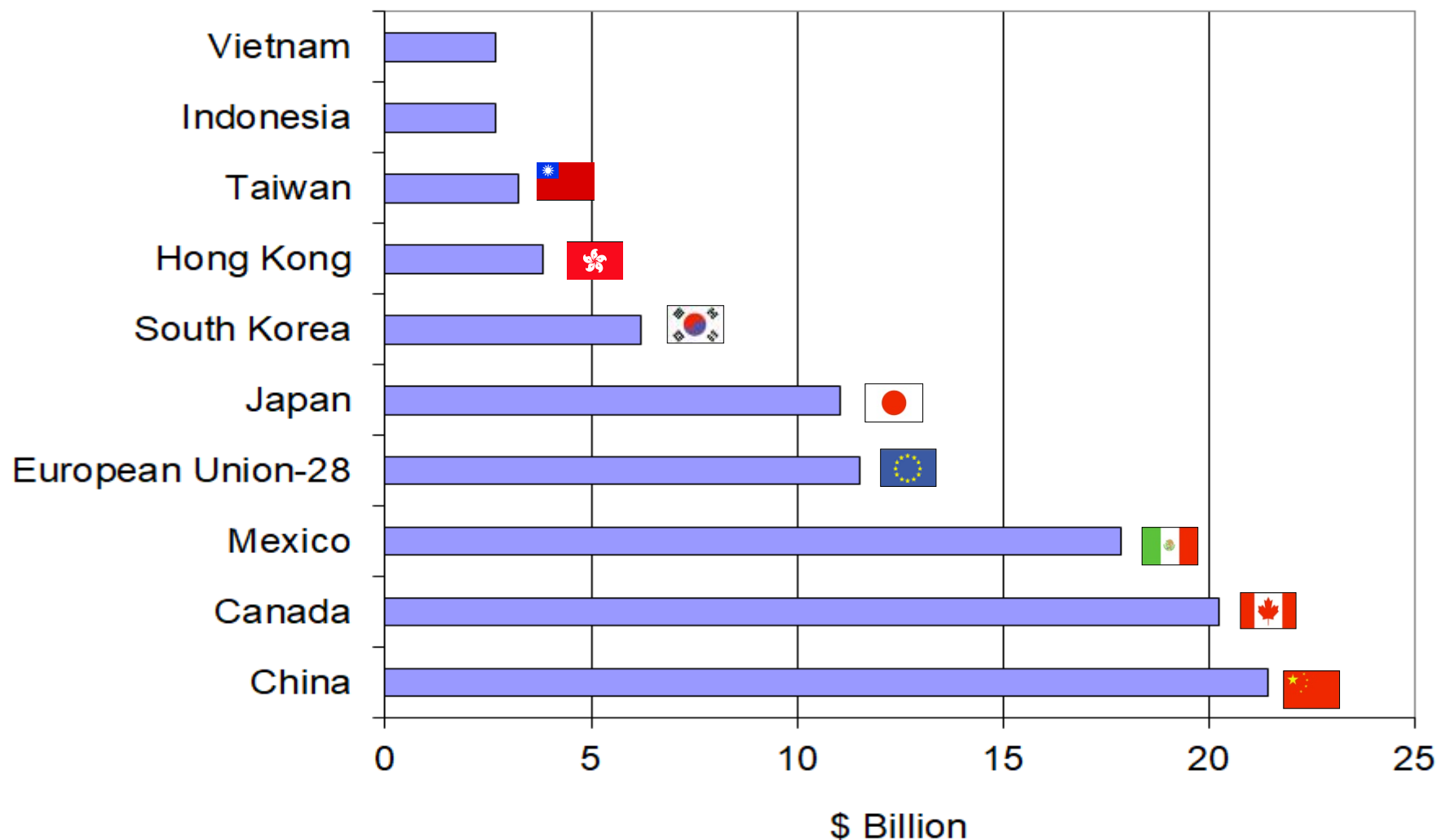
Value of Ag Trade



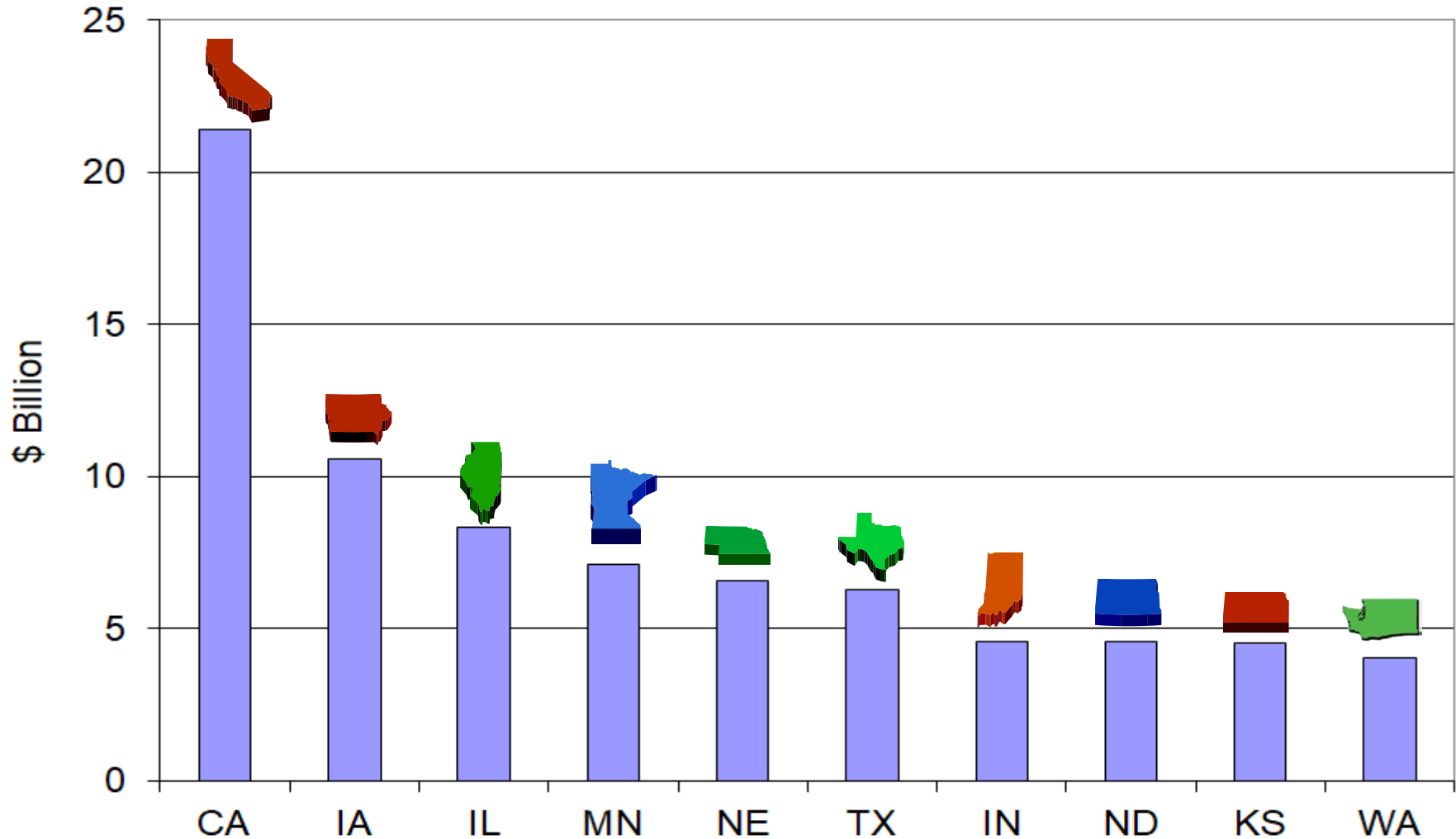
U.S. Ag Exports



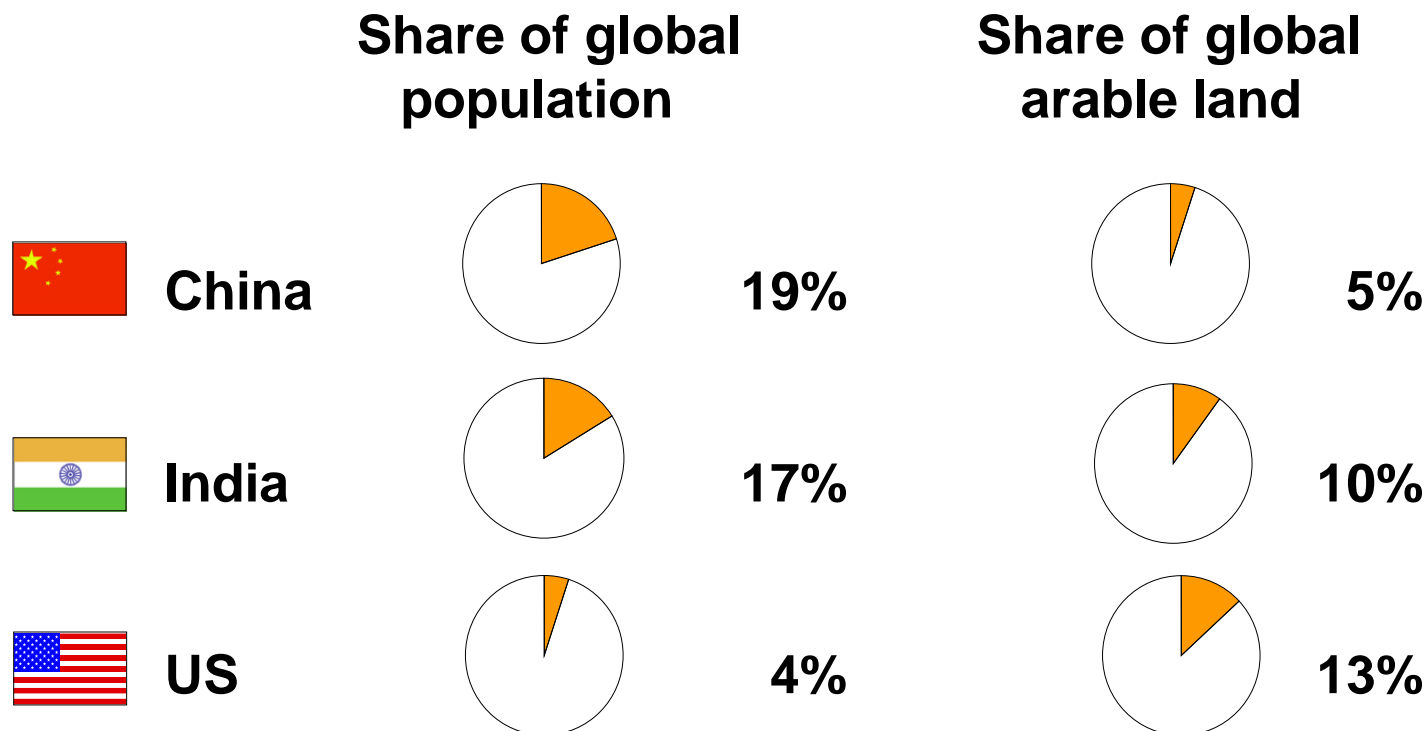
Top ten US ag export markets, 2016



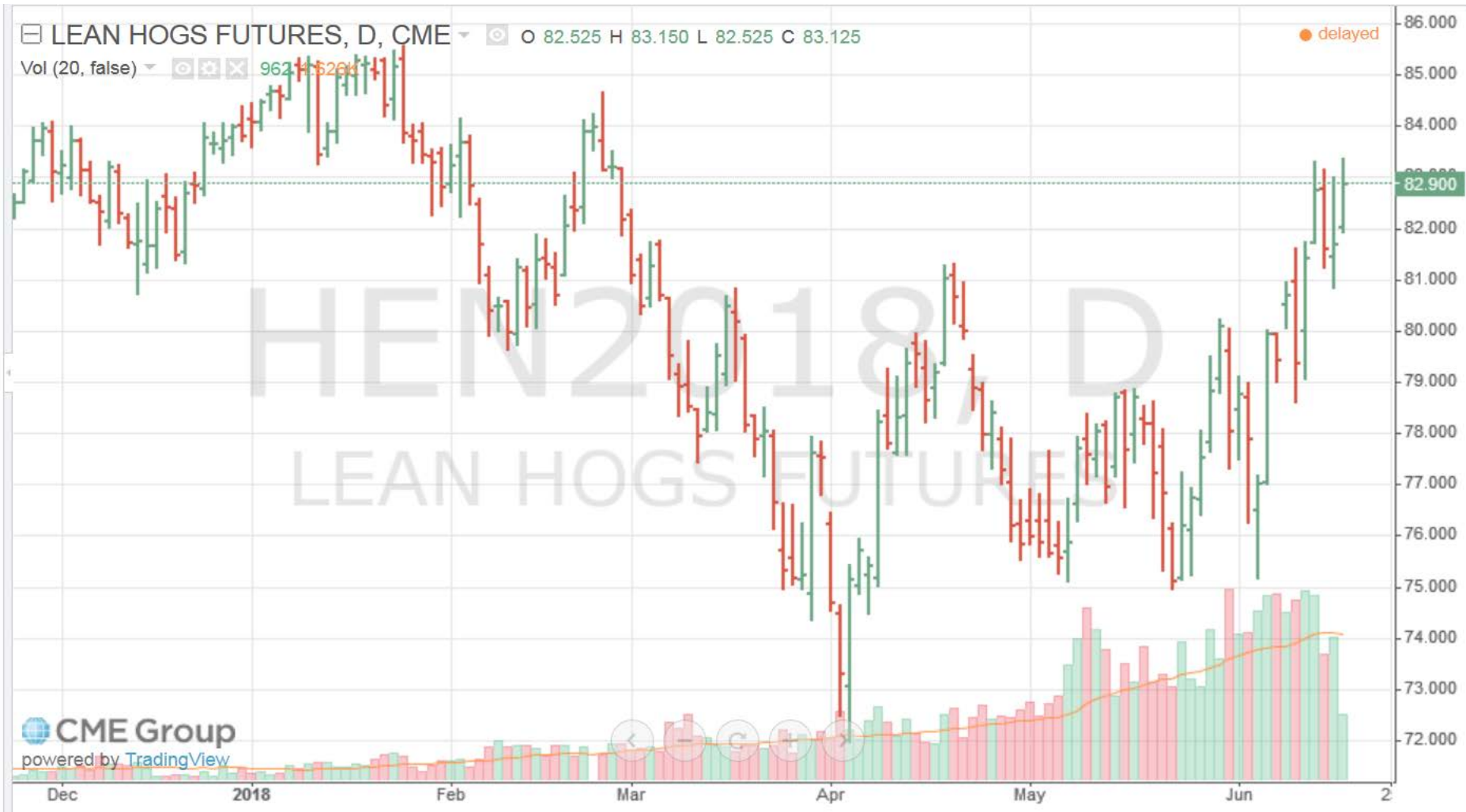
Top 10 ag exporting states, 2016



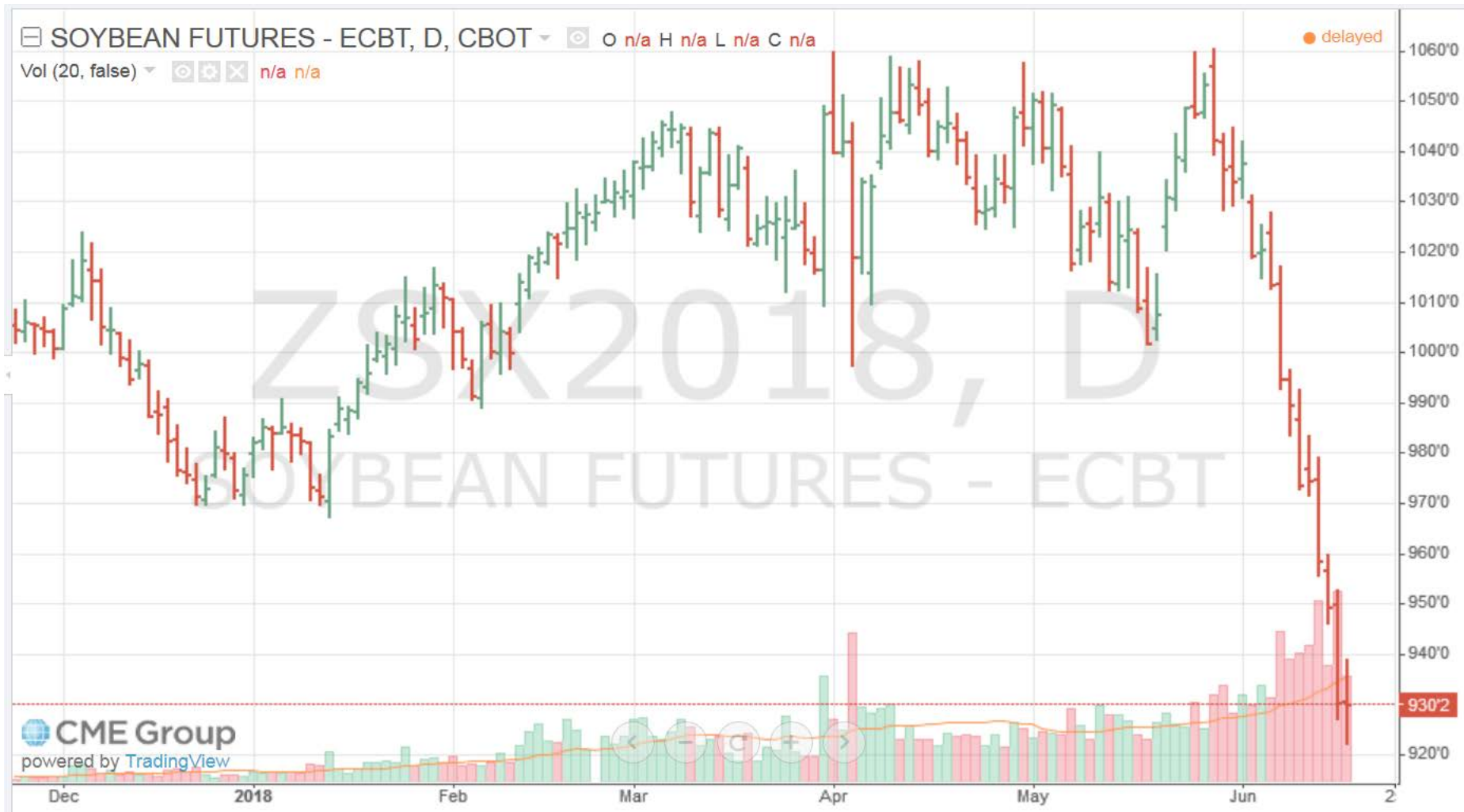
Population vs. arable land



Pork Futures



Soy Futures



Thank You!

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