



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

## **Factors Driving Global Soybean Trade in Brazil and Argentina: Implications for U.S. Soybean Exports**

**Constanza Valdes and Andrew Muhammad**

*Selected presentation for the International Agricultural Trade Research Consortium's (IATRC's) 2020 Annual Meeting: Economic Implications of COVID-19, December 14-15, 2020, Virtual platform.*

*Copyright 2020 by Constanza Valdes and Andrew Muhammad. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.*



United States Department of Agriculture

# Factors Driving Global Soybean Trade in Brazil and Argentina: Implications for U.S. Soybean Exports

Constanza Valdes (USDA Economic Research Service) and Andrew Muhammad (University of Tennessee)

IATRC Annual Meeting  
December 15, 2020

The Findings and Conclusions in This Preliminary Presentation Have Not Been Formally Disseminated by the U.S. Department of Agriculture and Should Not Be Construed to Represent Any Agency Determination or Policy. This research was supported by the intramural research program of the U.S. Department of Agriculture, Economic Research Service.



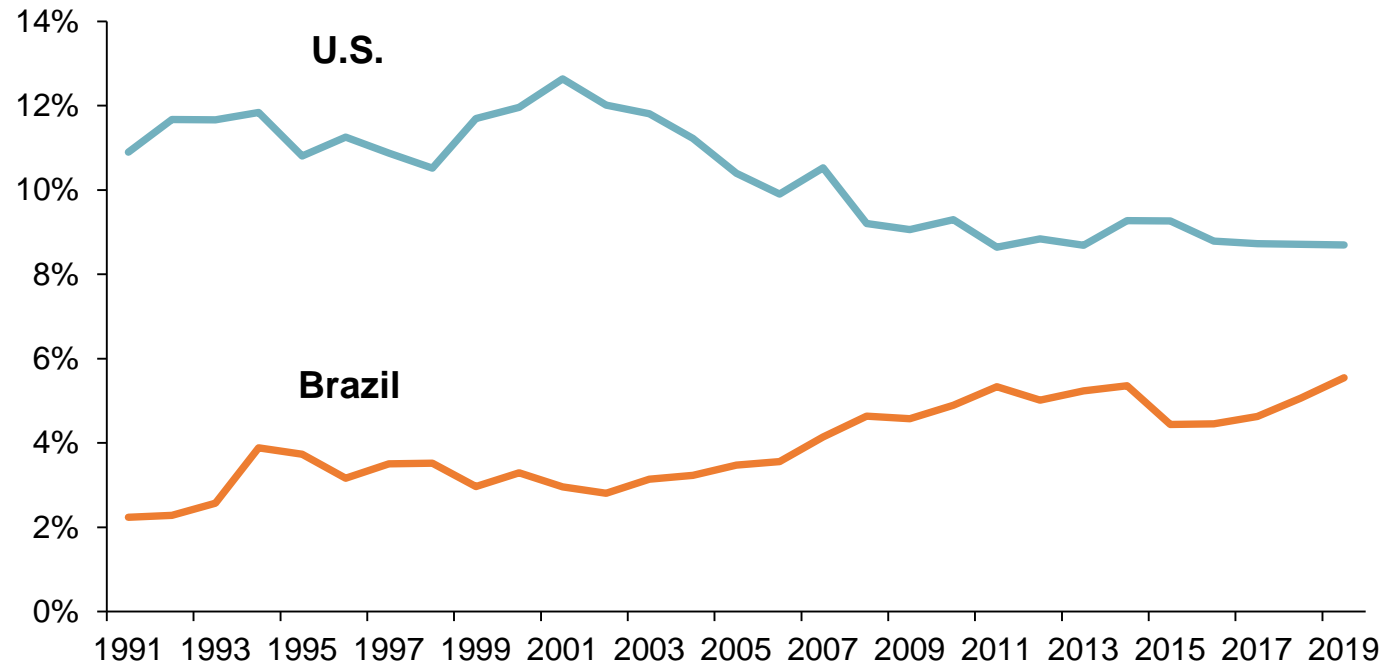
# Objectives

- Examine factors leading to the increase competition for global soybean exports in Brazil and Argentina.
- Focus specifically on the role of export tax reform, exchange-rate depreciation, and economic growth
- Evaluate how incentives affect agricultural production in Brazil, especially land conversions: Pasture  $\Rightarrow$  temporary cropland
- Presentation Outline:
  - Growth in Brazil's production and exports
  - Government support, cost competitiveness, investment in infrastructure
  - Impacts of China's rising demand for soybeans
  - Impact of accelerated depreciation of the *Real* on agriculture



# Narrowing the global production gap between the U.S. and Brazil

Value shares of global gross production (percent)

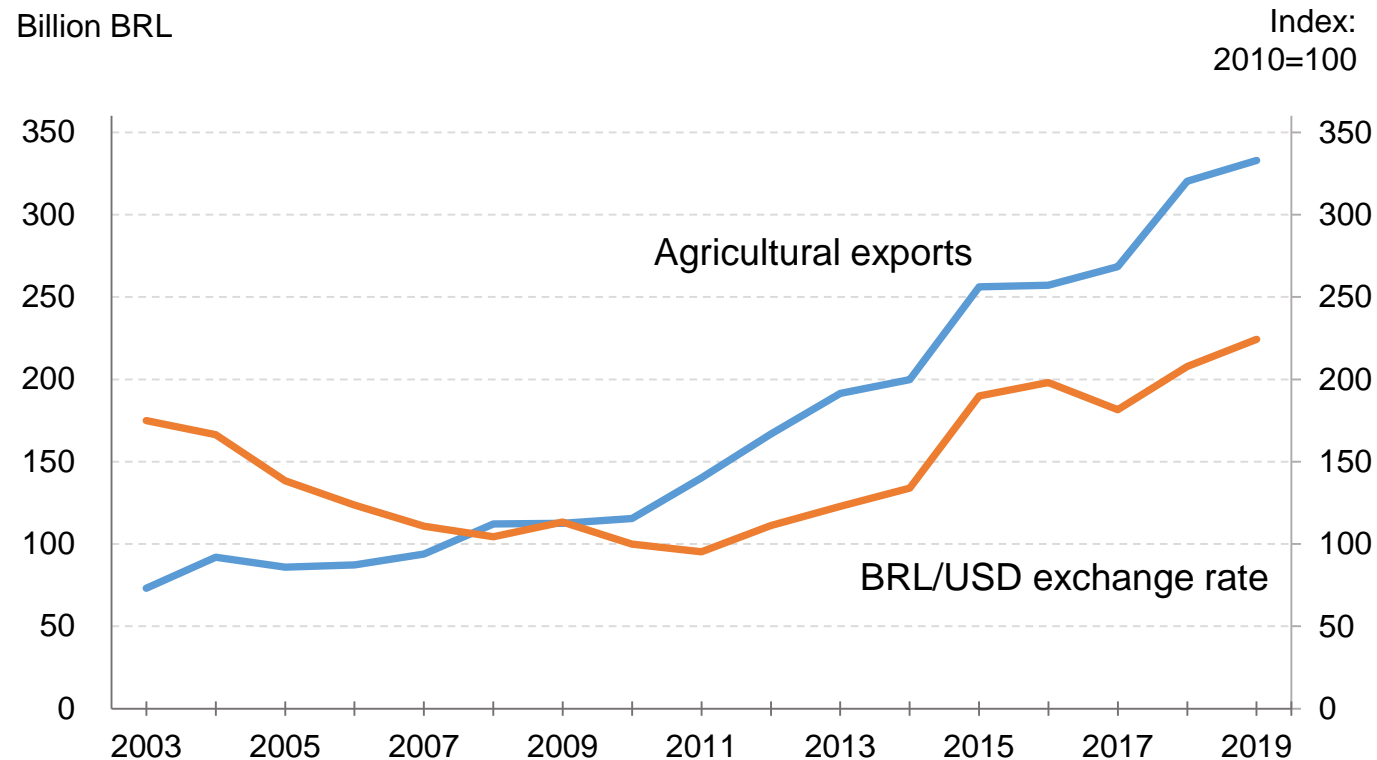


- Brazil's agricultural value added grew at an average annual rate of 3.8 percent in 1991-2019.
- Agricultural output doubled and livestock production tripled between 1991-2019.
- Agricultural productivity increased 2.6 percent annually in the same period.

Source: USDA, Economic Research Service using data from FAOSTAT Agricultural Database, 2020.



# A weaker *Real* contributed to record growth in Brazil's agricultural exports



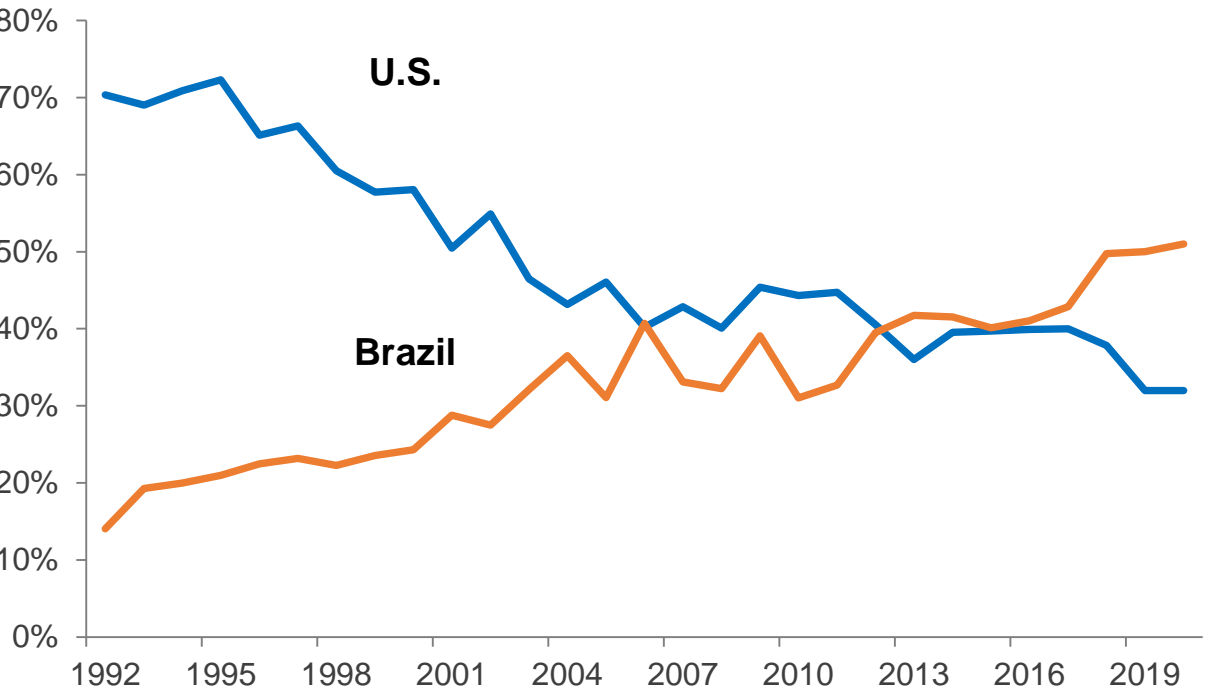
- Between 2003 and 2019, Brazilian agricultural exports grew from 73 billion *Real* (US\$24 billion) to 333 billion *Real* (US\$85 billion) in nominal terms.
- Local currency-denominated prices increased net returns for Brazilian farmers, despite weaker dollar-denominated prices in global markets.

Source: Trade Data Monitor, 2020 and Banco Central do Brasil, 2019.



# Brazil's rapid increase in global soybean market share

Volume shares of total global soybean trade (percent)



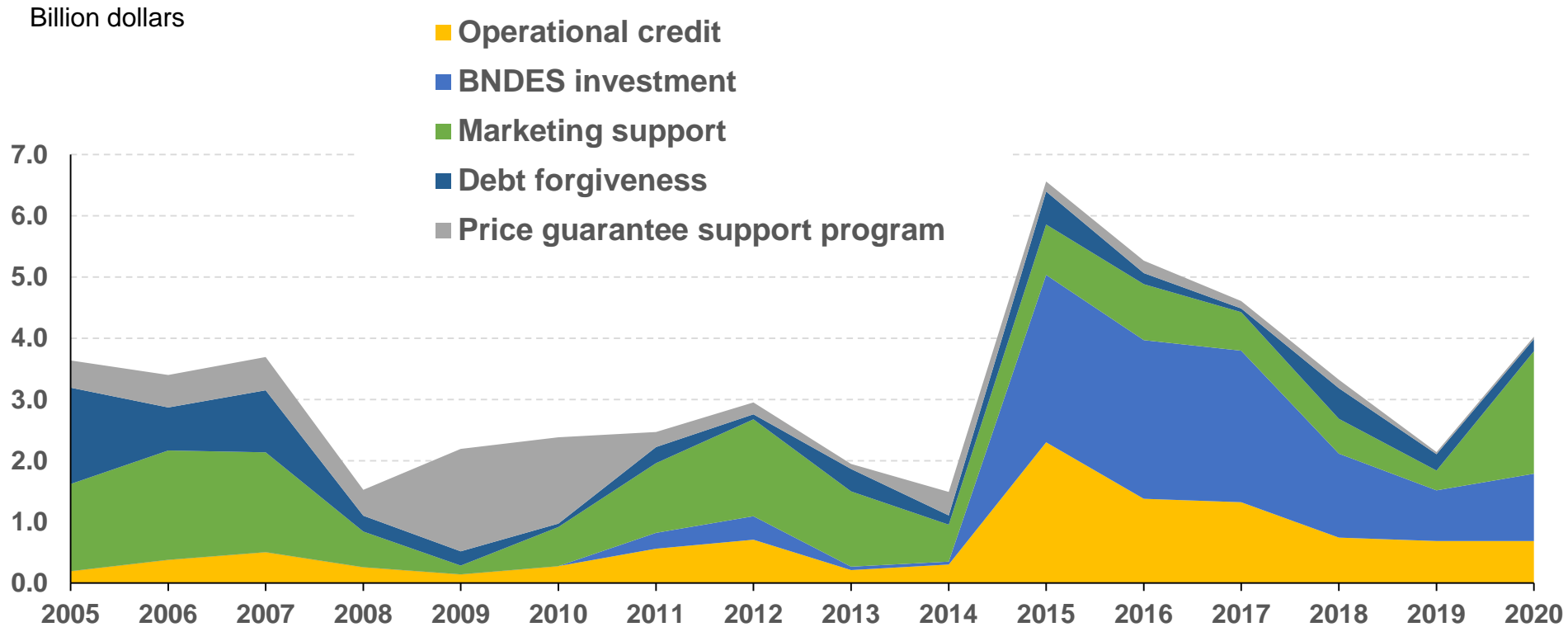
Source: USDA, Economic Research Service using data from USDA/OCE, Baseline, 2019. LAFIS, 2020.

	Soybean Industries in Brazil		
	Name	Origin of capital	Net sales in 2019 US\$ million
1	Cargill	U.S.A.	14,697
2	Bunge	Netherlands	13,586
3	ADM	U.S.A.	8,754
4	LDC Brasil	France	7,144
5	Amaggi	Brazil	5,588
6	Coamo	Brazil	4,538
7	Cofco	China	2,717
8	Caramaru	Brazil	1,580
9	Cocamar	Brazil	1,440
10	Bianchini	Brazil	1,393





# Rising government transfers to agriculture during periods of low international prices and economic recession



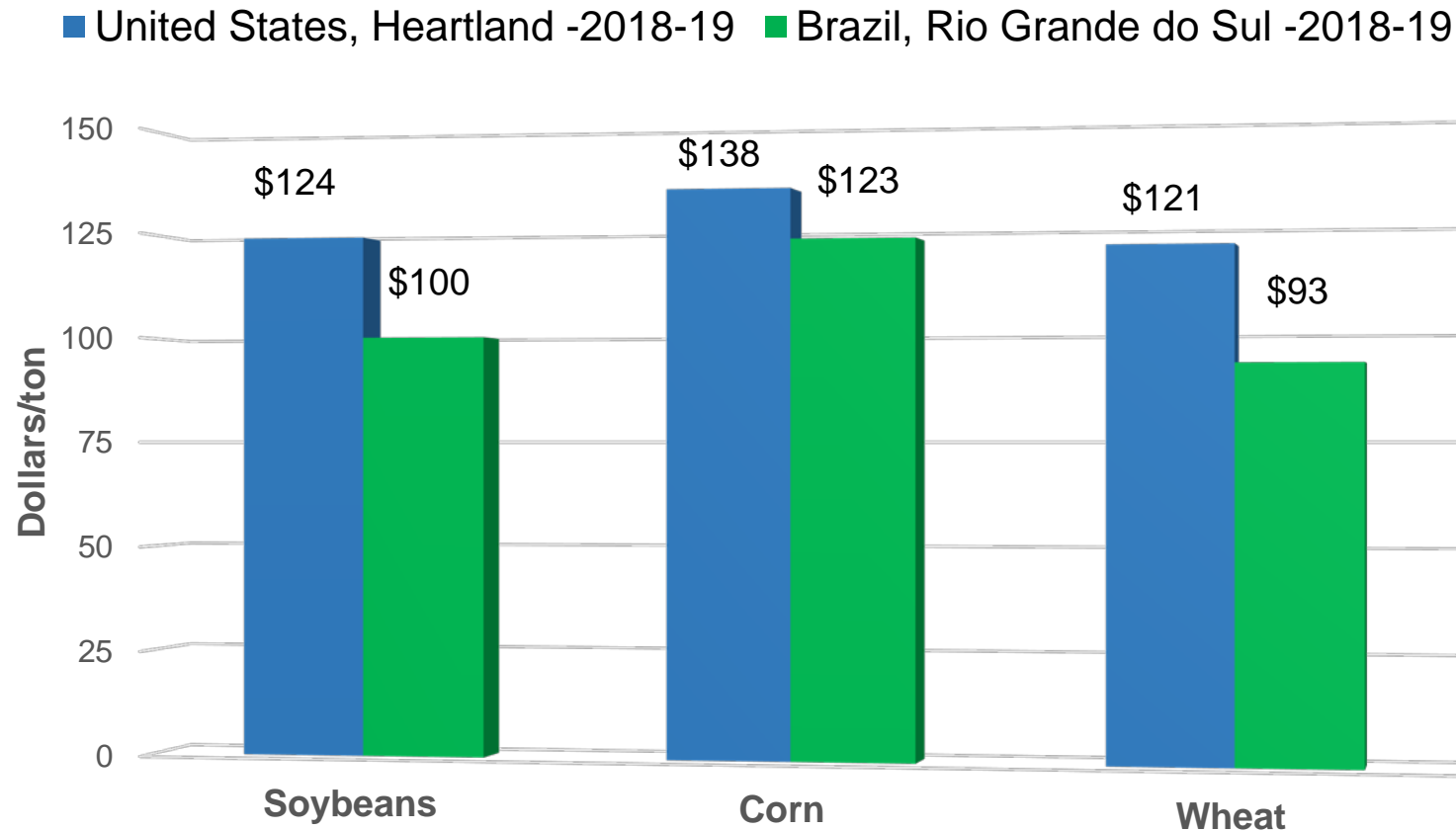
<sup>1</sup>BNDES, Brazilian National Development Bank.

Source: Brazil Ministry of Finance, National Treasury budget expenditures 2010-2020.





# Brazil has lower farm production costs than the United States

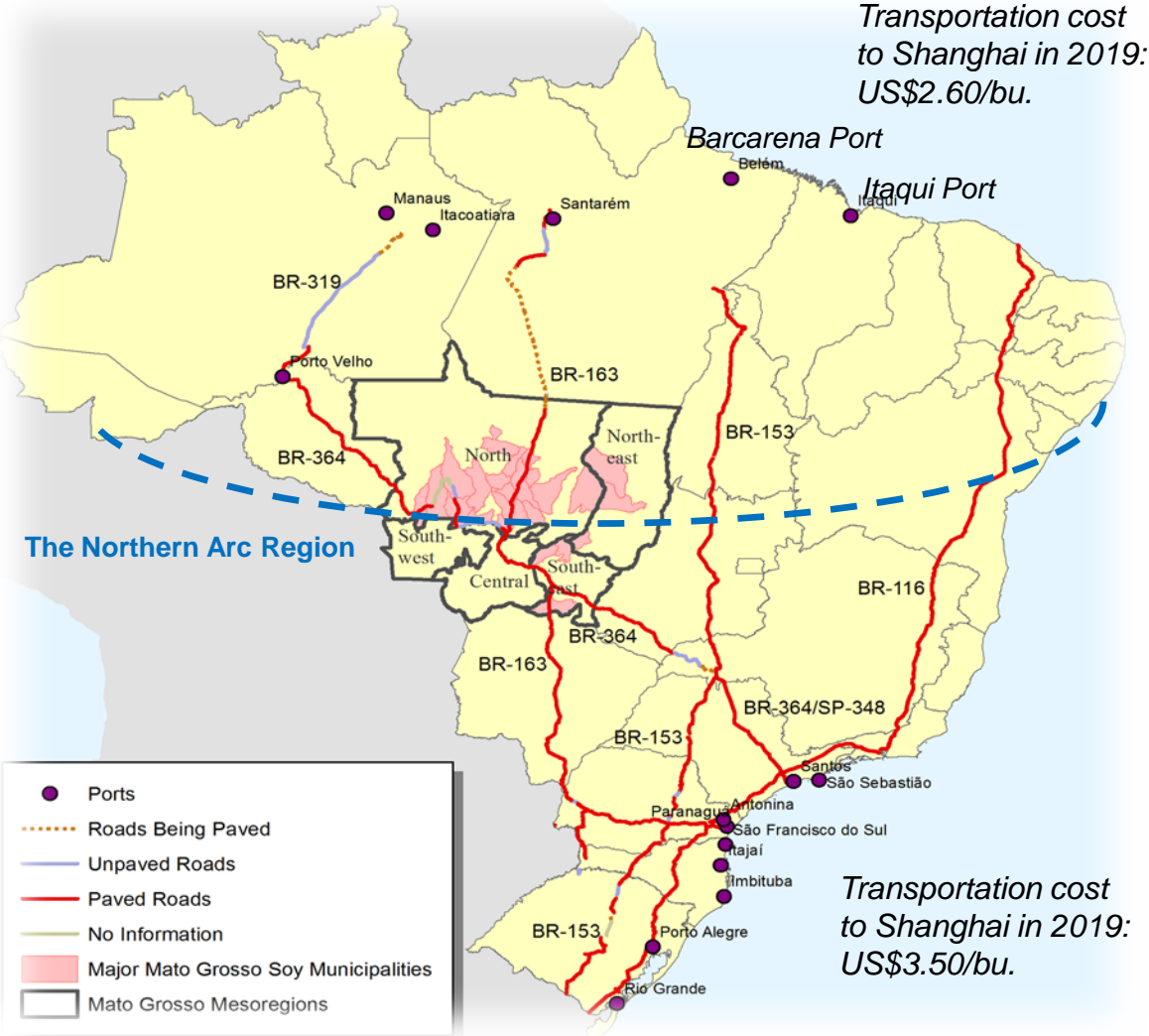


- Brazil's land and labor costs per ton are low; its fertilizer and chemical costs are high.

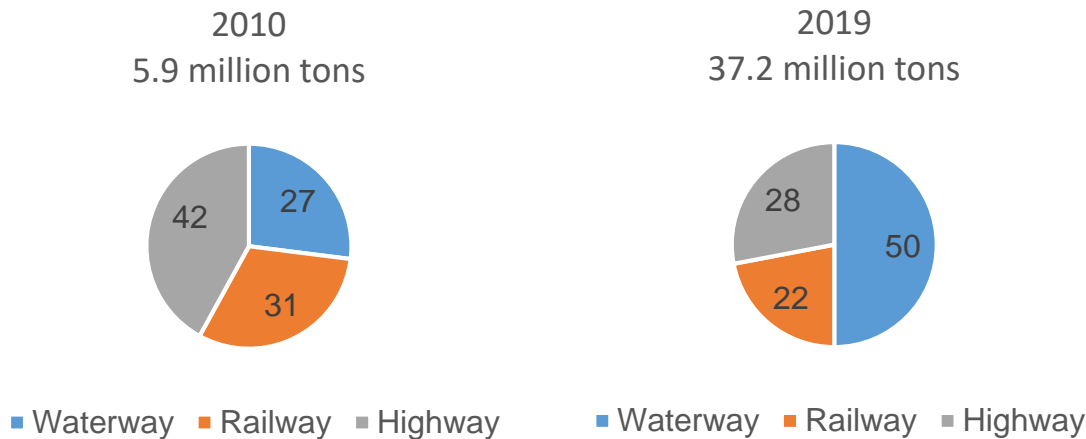
Source: CONAB, ERS Cost of Production database, 2020.



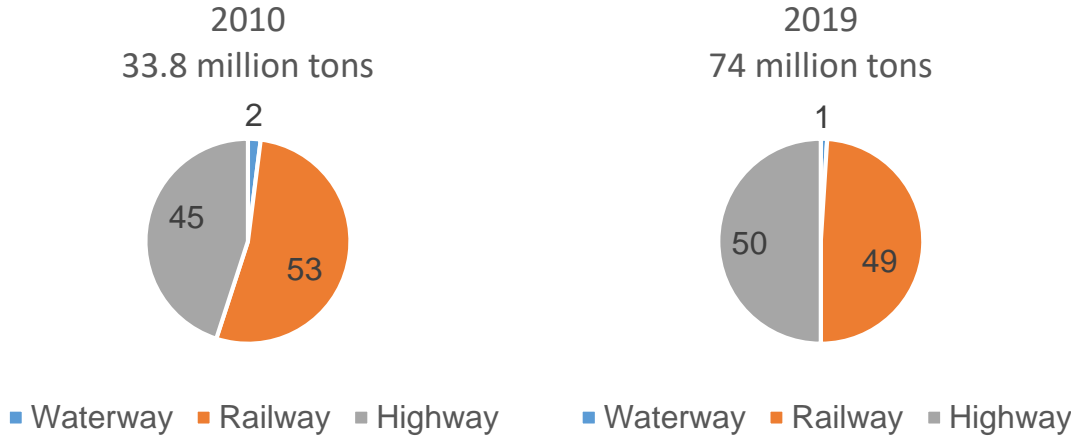
# Access to new ports reduces the cost of shipping soybeans and corn to China



Northern Arc ports



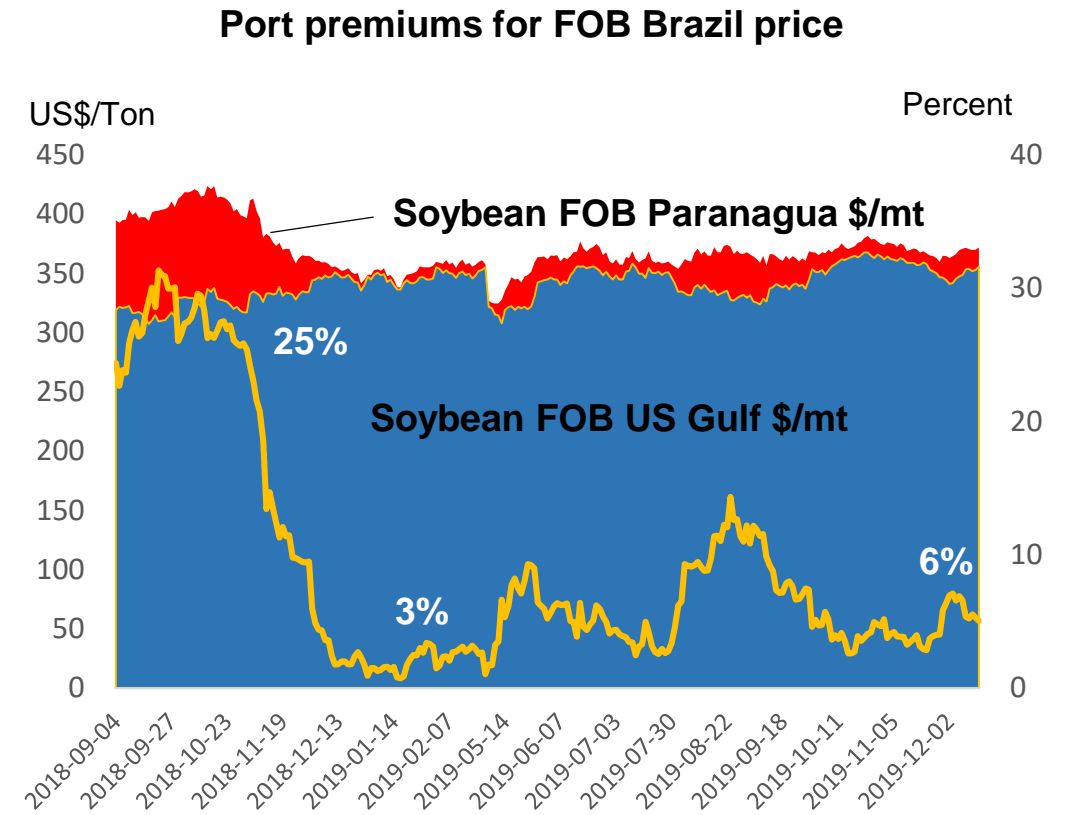
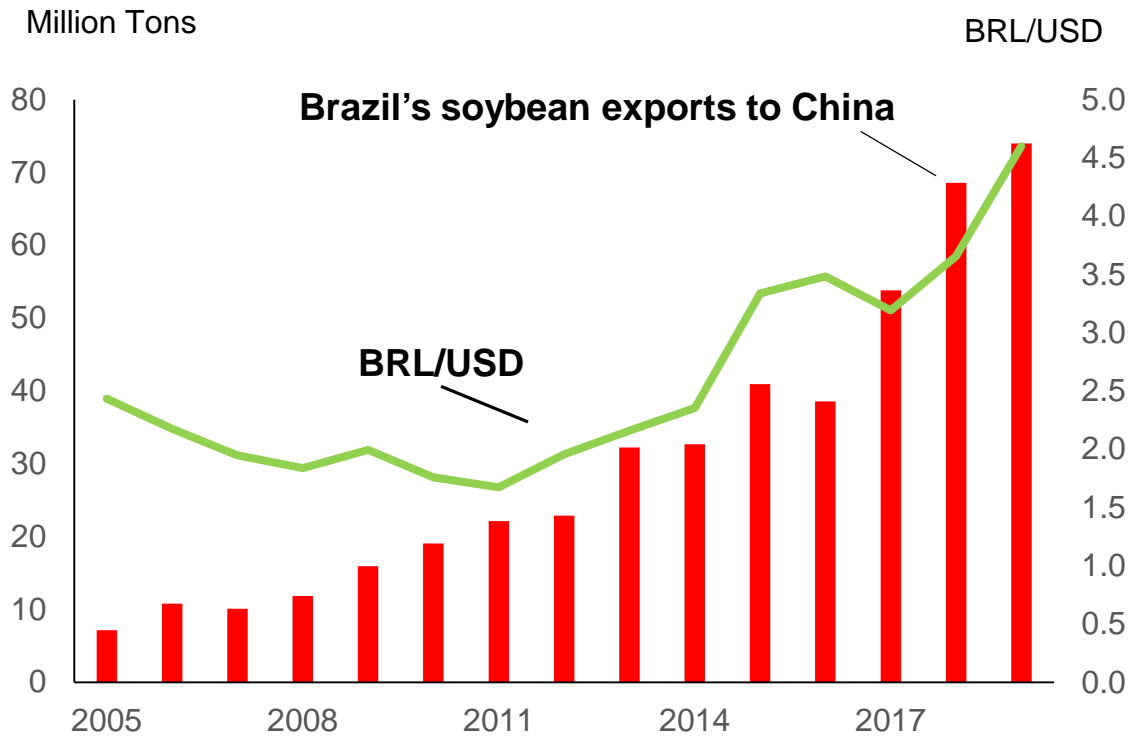
Southern ports



Note: Brazilian Mesoregions denotes 5 distinct regional municipalities.  
Source: SECEX and Ministry of Transportation.



# China's increasing demand for soybeans played a key role

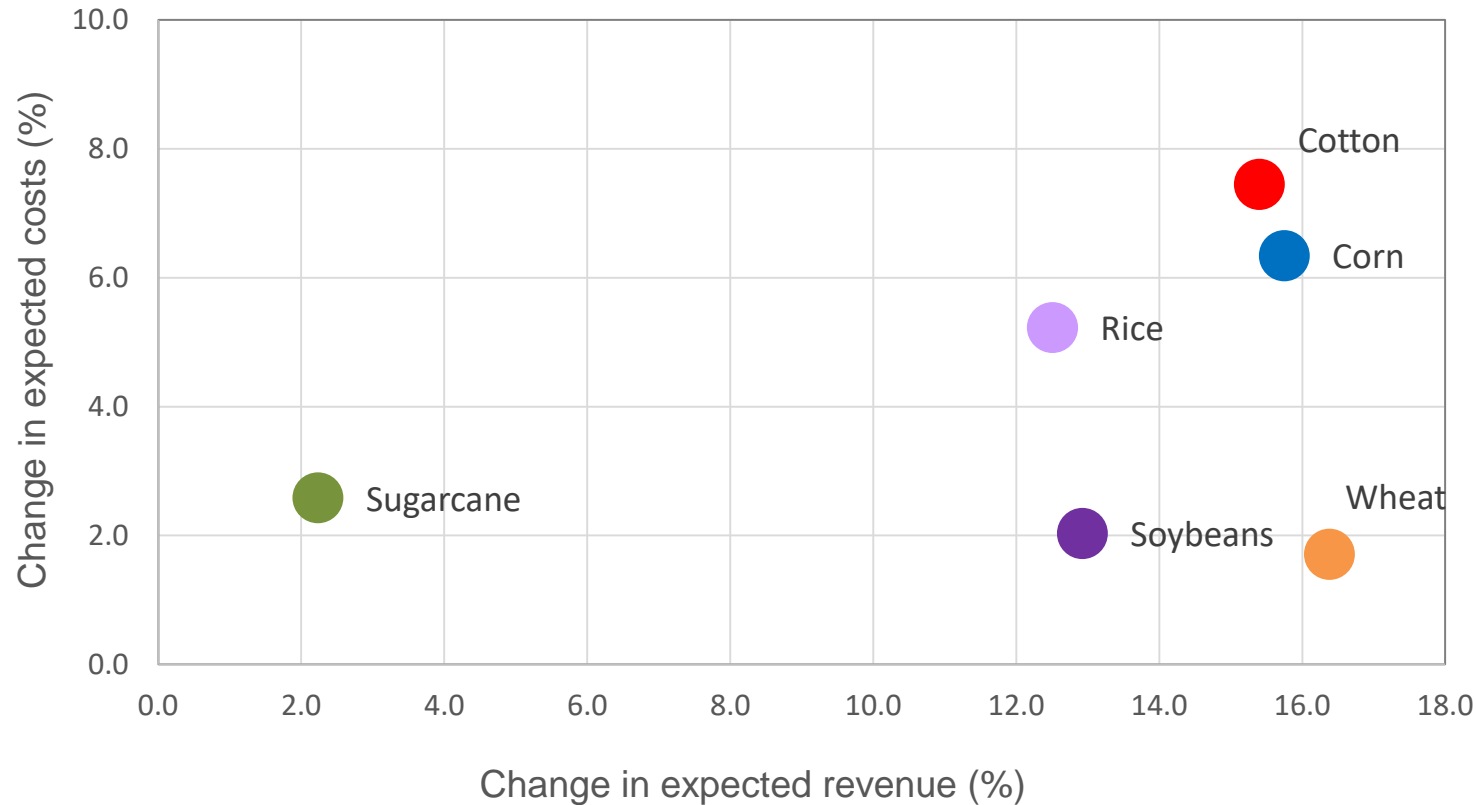


Note: BRL=Brazilian *real*, USD=U.S. dollar.

Source: USDA, Economic Research Service using data from Trade Data Monitor, 2020 and Banco Central do Brasil, 2020.



# An accelerated devaluation scenario results in higher expected returns



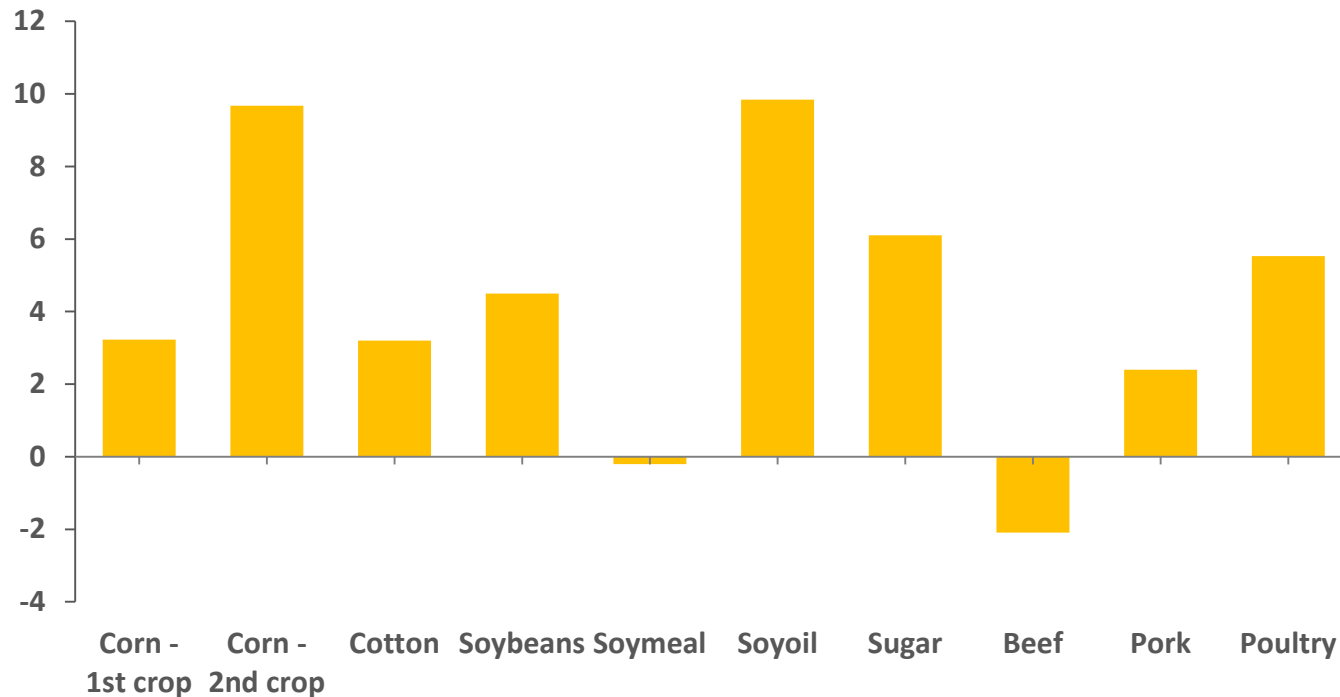
- Higher expected returns drive land use towards agricultural activities.
- A more rapid devaluation of the *Real* results in higher net returns to Brazilian growers of all crops.
- Additional 11.1 million hectares planted to soybeans and 7.3 million hectares planted to corn.

Source: USDA, Economic Research Service research results.



# Accelerated depreciation of *Real* leads to higher Brazilian exports

Percent differences from reference scenario



- Depreciation of *Real* results in greater world supplies of many commodities, with lower prices in global markets and increased competition for U.S. exports.
- Brazil's exports of each major commodity average 5.6 percent higher, with international prices 2.7 percent lower.

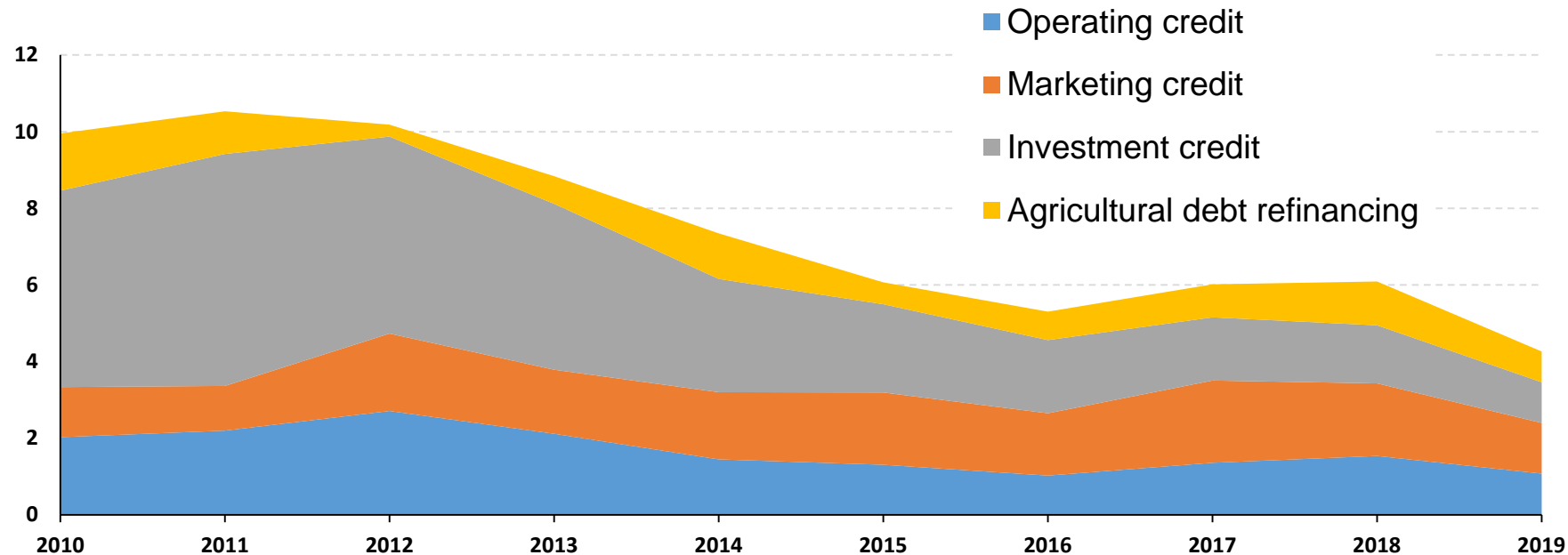
Source: USDA, Economic Research Service research results.





# Argentina's government payments by program have been significantly curtailed

Million 2018 dollars<sup>1</sup>

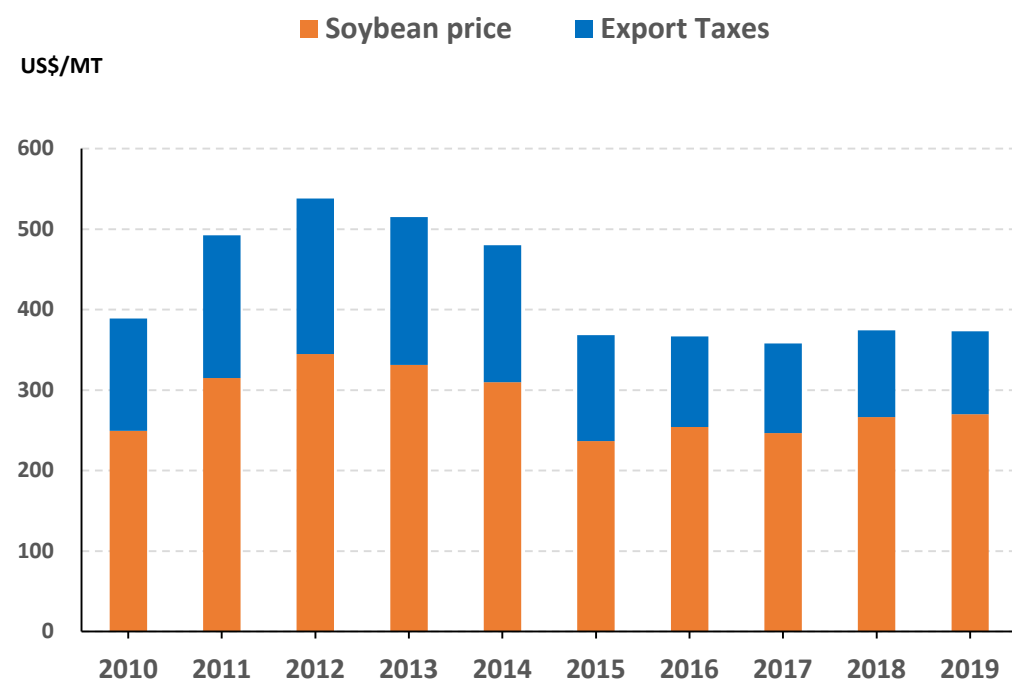


<sup>1</sup>Deflated with the gross domestic product (GDP) chain-type price index.

Source: Argentina Ministry of Finance, National Treasury budget expenditures 2010-2018.



# Argentina's policy reform has sharply reduced soybean export taxes, 2010-19



Source: SAGPyA. Free alongside ship (f.a.s.) Rosario terminal price and export taxes.

Export taxes	2007	2012	2016	2018	2019	2020*
	Percent					
Soybeans	35	35	30	26	28	33
Soybean meal	32	32	27	23	28	33
Soybean oil	32	32	27	23	28	33
Corn	25	20	0	0	10	12
Wheat	28	23	0	0	10	12

\* March to September; December 2020: soybeans (32 percent); soybean meal and soybean oil (30 percent).





## Summary -

- Macro reforms and extended periods of currency depreciation;
- Rapid agricultural expansion in the Brazilian savanna;
- Extensive production systems and adoption of new technologies/cultivating practices;
- Support to agriculture (subsidized credit, price and marketing support, debt forgiveness);
- Role of multinationals;
- Investments in infrastructure for the marketing of agricultural products;
- Currency depreciation encouraged farmers to bring more land into production and increase double cropping;
- Faster depreciation of *Real* during the next decade could lead to even faster growth in Brazilian exports than projected by USDA.



## **Andrew Muhammad, Ph.D.**

Professor and Blasingame Chair of Excellence

Department of Agricultural & Resource Economics

(865) 974-3904

[amuhammad@utk.edu](mailto:amuhammad@utk.edu) | [arec.tennessee.edu](http://arec.tennessee.edu)

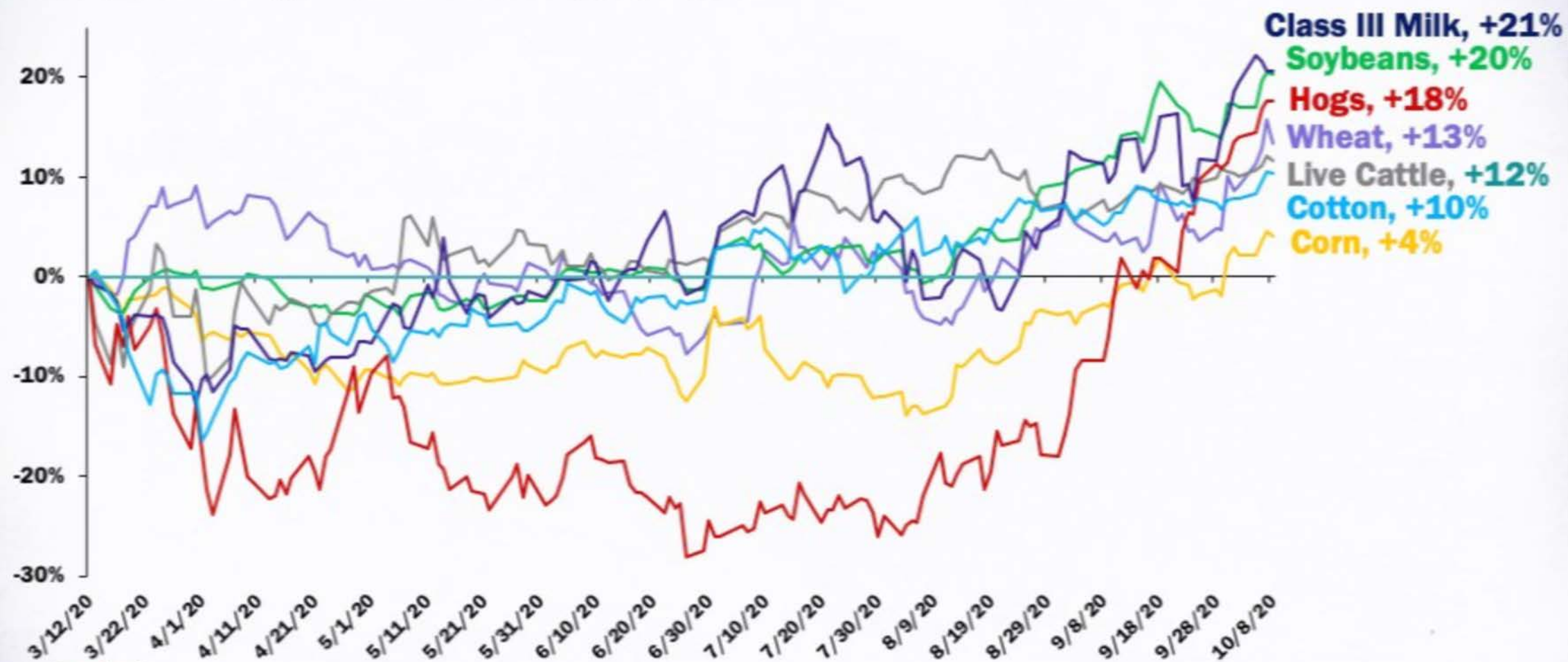


# Outline

- Futures prices for agricultural commodities
- U.S. – China soybean trade
- U.S. Agricultural exports to China

# Nearby or New-Crop Agricultural Futures Prices Since COVID-19

Cumulative Percent Change in Futures Price mid-March to Present



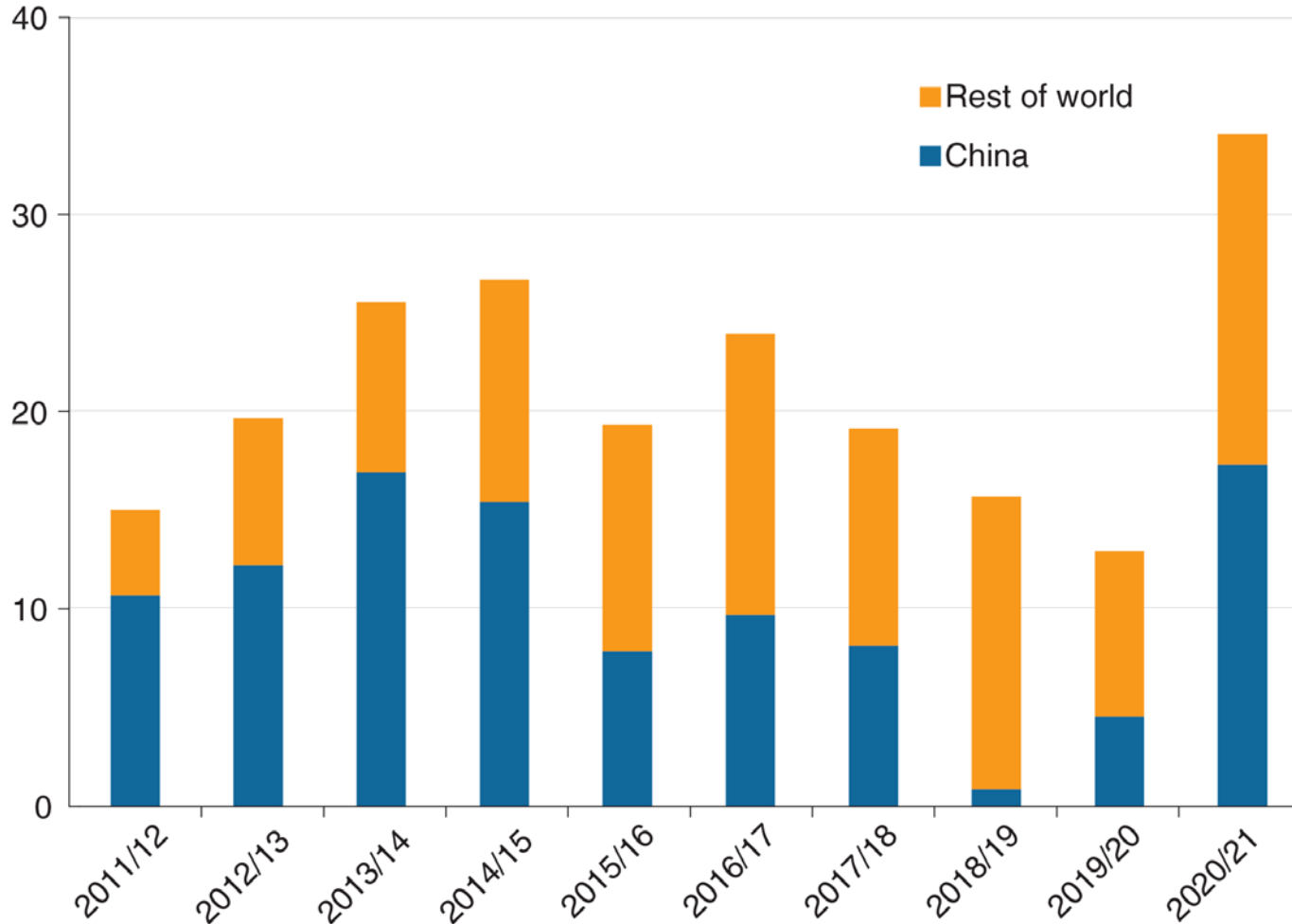
AMERICAN FARM BUREAU FEDERATION\*

Source: Barchart, Farm Bureau Compilations

## U.S. soybean outstanding export sales, 2011/12-2020/21



Million metric tons



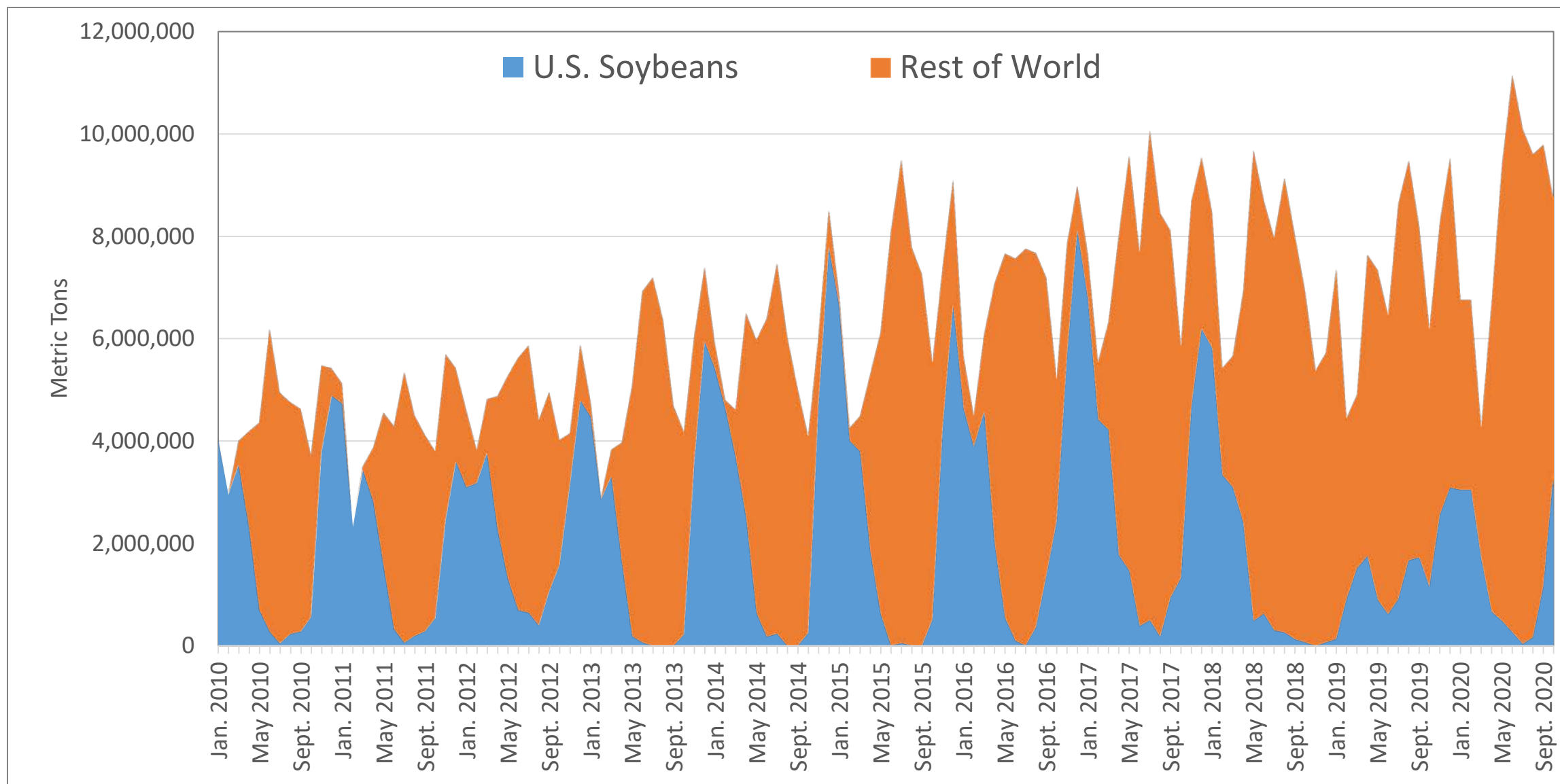
Note: Data is presented by marketing year (September-August).

Source: USDA, Economic Research Service and USDA, Foreign Agricultural Service.

U.S. export sales of soybeans set a fast start in 2020/21 with revived demand in China.

- Total outstanding export sales—totaled 34.2 million metric tons (1,257 million bushels), as of October 8, 2020.
- Likely the result of strengthening livestock feed demand in China and depleted supplies in (e.g.) Brazil.
- Major contributor to price rally.

# China's Soybean Imports (monthly): Jan. 2010 – Oct. 2020



Source: Trade Data Monitor, Inc.

Table 1. U.S. Agricultural Exports to China (2017 and 2018) and Phase One Targets for 2020

HS Code	Product	2017 (\$ mill.)	2017 (%)	2019 (\$ mill.)	2020 Projection (\$ mill.)*	Change (%)**
	Agriculture (all products) <sup>†</sup>	\$20,840	100.0	\$14,453	\$33,340	130.7
1201	Soybeans	12,225	58.7	7,989	19,558	144.8
5201	Cotton (not carded or combed)	973	4.7	707	1,557	120.2
4101	Raw hides (bovine or equine)	877	4.2	400	1,403	250.8
1007	Grain Sorghum	840	4	191	1,344	603.6
0303	Frozen fish (whole), excluding fillets	822	3.9	590	1,315	122.9
1214	Hay, alfalfa, other/similar forage products	389	1.9	339	622	83.6
1001	Wheat	353	1.7	56	565	908.5
0206	Edible Offal (all), fresh, chilled, or frozen	251	1.2	243	402	65.2
0404	Whey and products	246	1.2	115	394	242.2
0203	Pork, fresh, chilled, or frozen	237	1.1	853	379	-55.6
0306	Crustaceans	231	1.1	111	370	232.9
0802	Nuts, fresh or dried, shelled or peeled	219	1.1	585	350	-40.1
N/A	All Other Products	3,177	15.2	2,274	5,083	123.5

<sup>†</sup>Agriculture is as defined in the Phase One Agreement.

\*Projections are based on 2017 percentages of total agricultural trade.

\*\*Percent changes are trade deal projections compared to 2019 trade.

Note: The table includes the top 12 categories based on 2017 exports to China. Smaller categories are not listed. The categories in the table accounted for 85% of total exports to China.

Source: Foreign Agricultural Service, Global Agricultural Trade System (GATS) and Author's calculations.

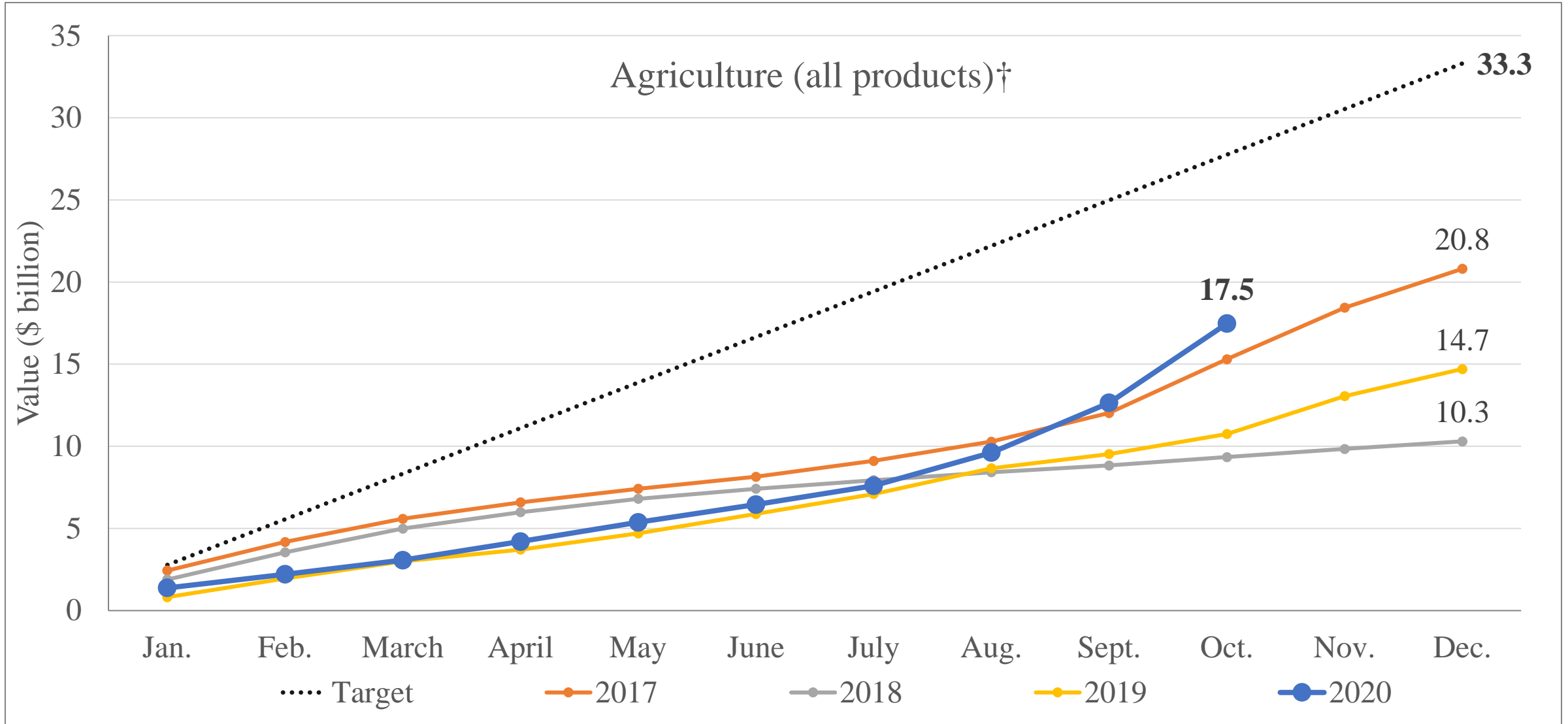


Product	2019	2020	%Δ
	Jan. – Oct.	Jan. – Oct.	
	Value (\$ million)		
Agriculture (all products) <sup>†</sup>	10,746.2	17,473.3	62.6%
Soybeans	5,498.7	7,828.3	42.4%
Pork and Products	851.6	1,907.3	124.0%
Cotton	594.0	1,349.3	127.1%
Coarse Grains (minus corn)	117.2	761.3	549.6%
Corn	55.5	680.3	1,126.1%
Poultry Meat and Products	7.9	599.5	7,452.9%
Fish Products	739.3	579.4	-21.6%
Dairy Products	304.4	445.6	46.4%
Wheat	25.3	402.0	1,487.1%
Tree Nuts	400.6	360.9	-9.9%
Hay	232.6	343.6	47.8%
Hides and Skins	342.9	316.0	-7.9%
Beef and Products	62.0	177.7	186.7%
Other Feeds and Fodders	151.5	163.6	8.0%
Planting Seeds	106.7	102.0	-4.4%
<sup>†</sup> Agriculture is as defined in the Phase One Agreement. All other product categories are based on FAS BICO aggregates.			

**Table 2. Year-to-Date (Jan.-Oct.) Exports to China by Top Product Category**

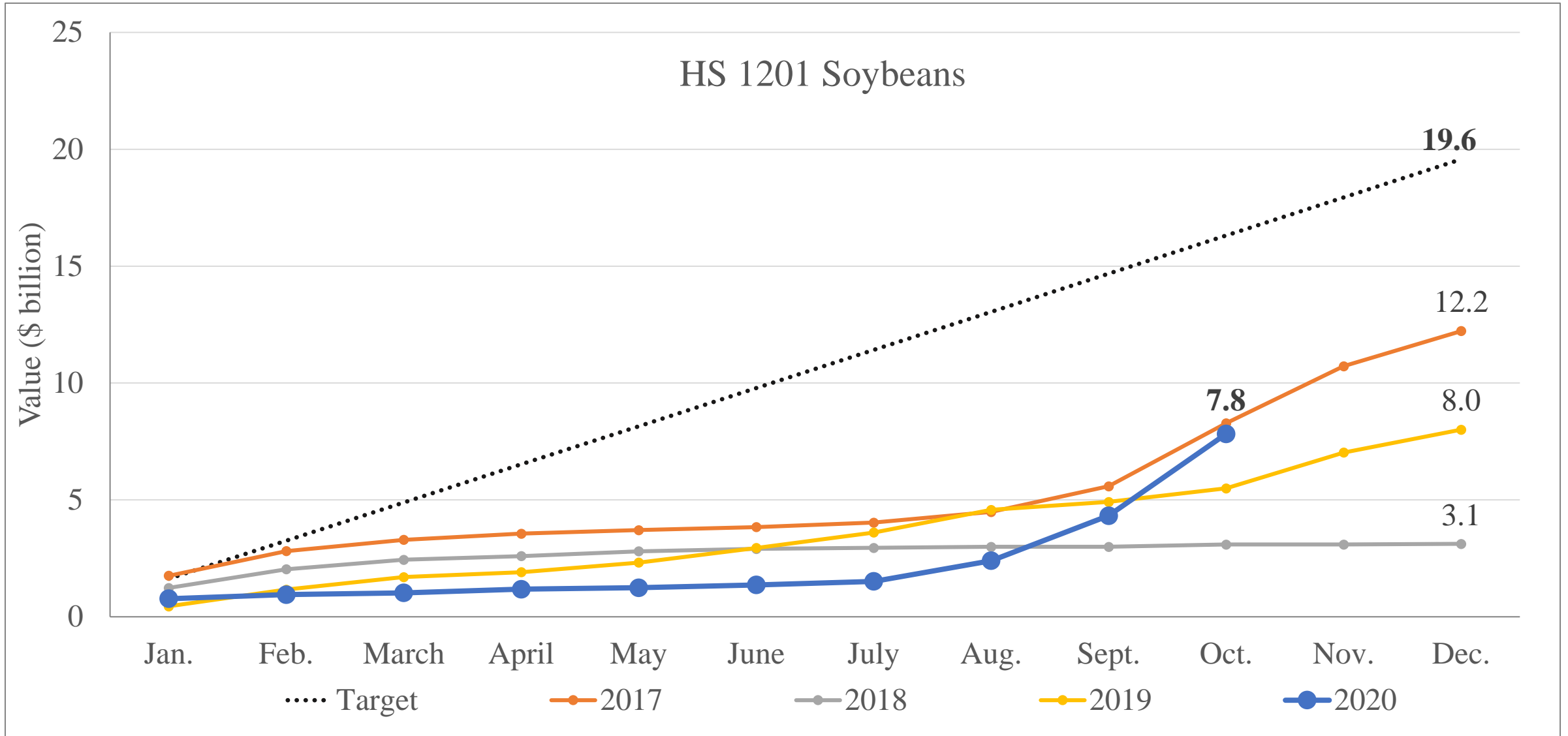
Source: Foreign Agricultural Service, Global Agricultural Trade System (GATS).

# U.S. Exports to China (monthly cumulative): 2017-2020



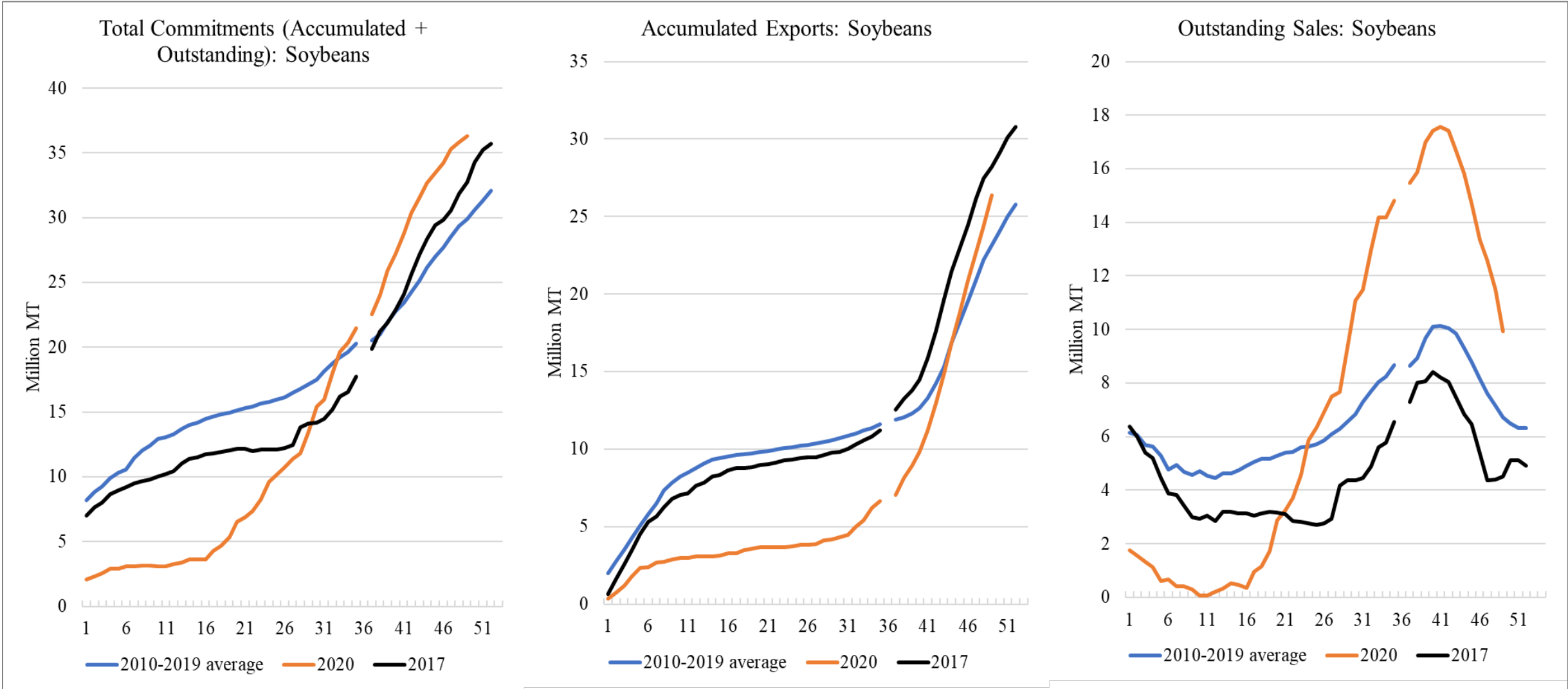
Source: Foreign Agricultural Service, Global Agricultural Trade System (GATS).

# U.S. Exports to China (monthly cumulative): 2017-2020



Source: Foreign Agricultural Service, Global Agricultural Trade System (GATS).

# Total Commitments, Accumulated Exports and Outstanding Sales for Selected Products Based on Weekly Export Data (U.S. soybean exports to China)



Source: USDA, FAS U.S. Export Sales Report