

The Geography of Ag Trade: United States vs. Brazil



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2025 Midwest Agriculture Conference, Federal Reserve Bank of Chicago

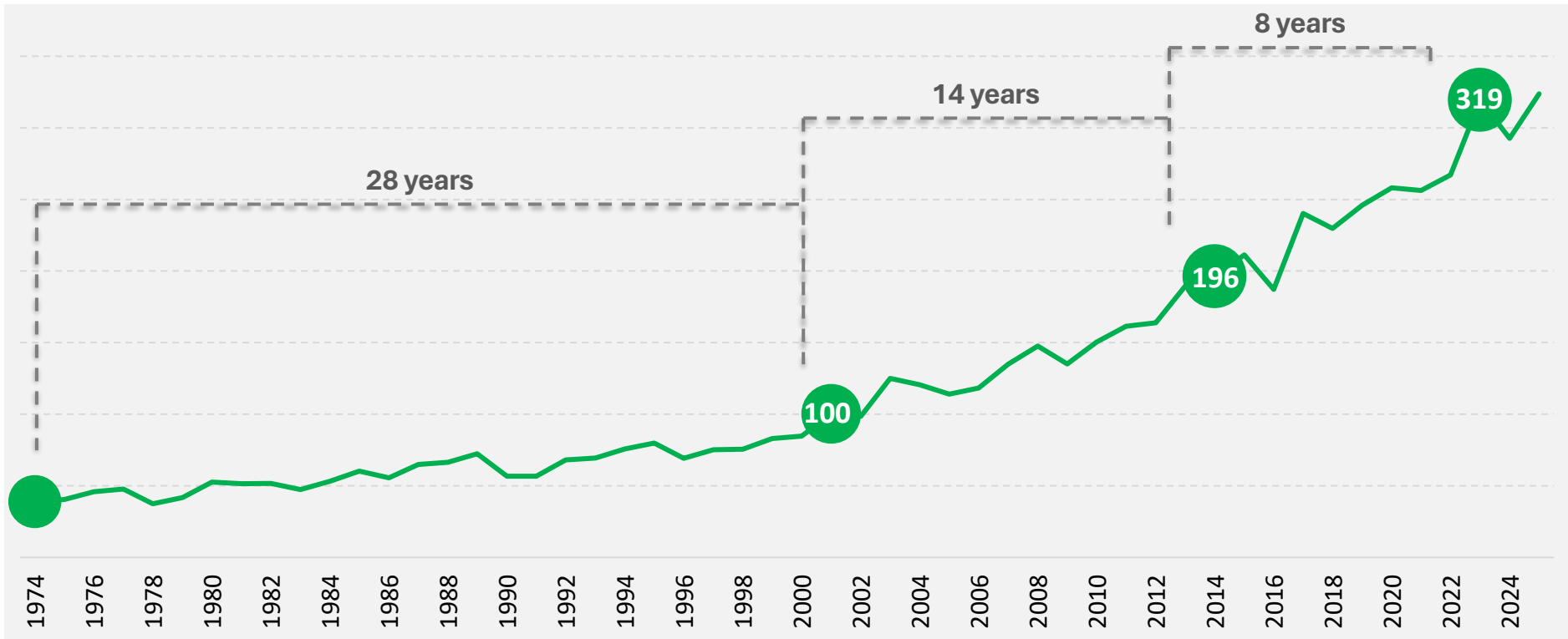
Outline

- ✓ **Brazil and U.S. Agriculture**
- ✓ **Soybean Production and Global Trade**
- ✓ **Corn Production and Global Trade**
- ✓ **Potential for Future Crop Expansion**
- ✓ **Challenges to Continue Growing**
- ✓ **Questions & Answers**



How long did it take for grain production to grow by 100 million tons in Brazil?

Total Grain Production
(million tons)



Source: Elaborated by the Rio Grande do Sul Agriculture Federation (Farsul) based on the IBGE database

Global Dependence on Brazilian Imports



Soybean: 58%



Chicken: 36%



Coffee: 31%



Beef: 28%



Soybean Meal: 27%



Corn: 26%



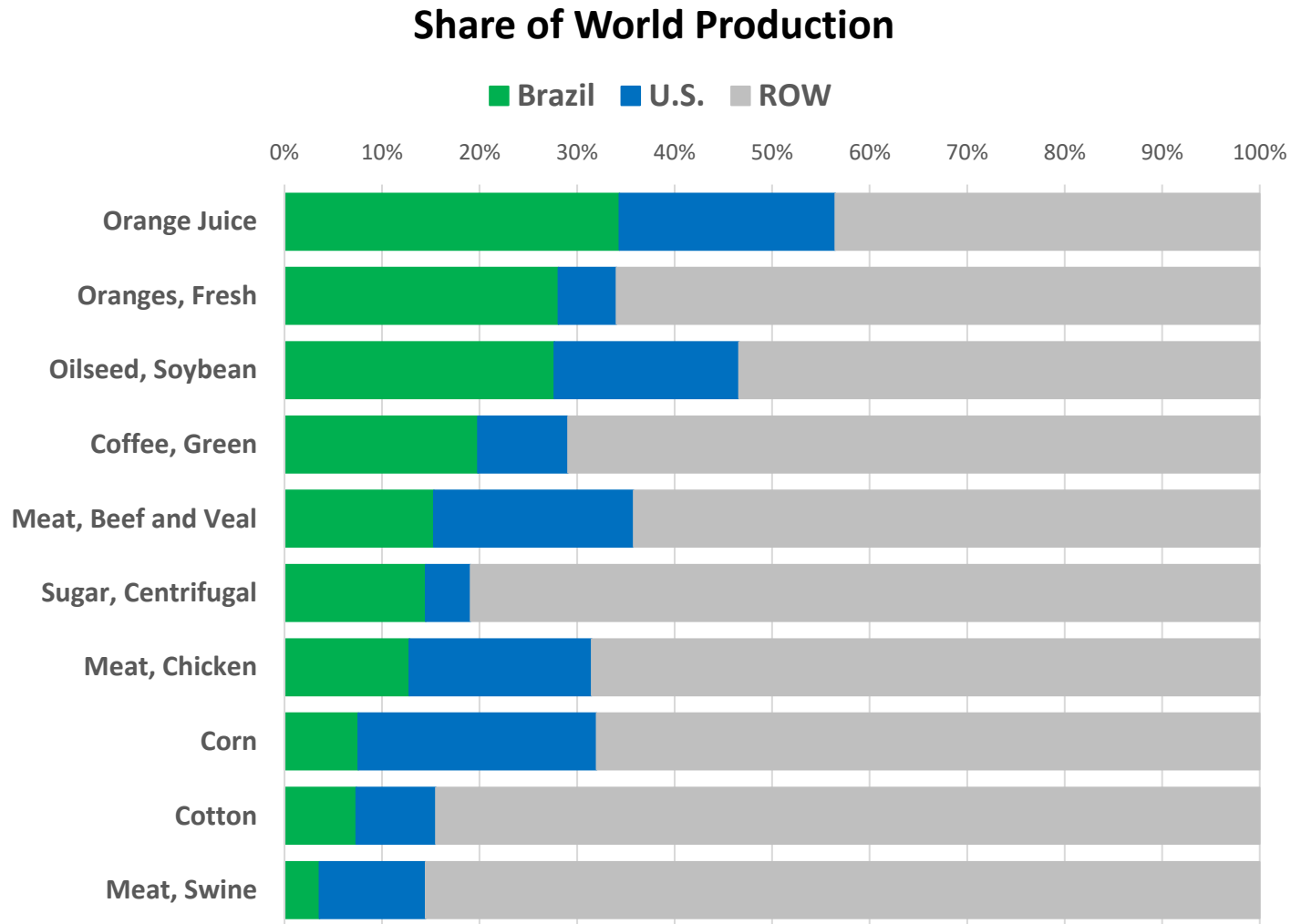
Pork: 14%



Soybean Oil: 12%

Source: USDA, 2024

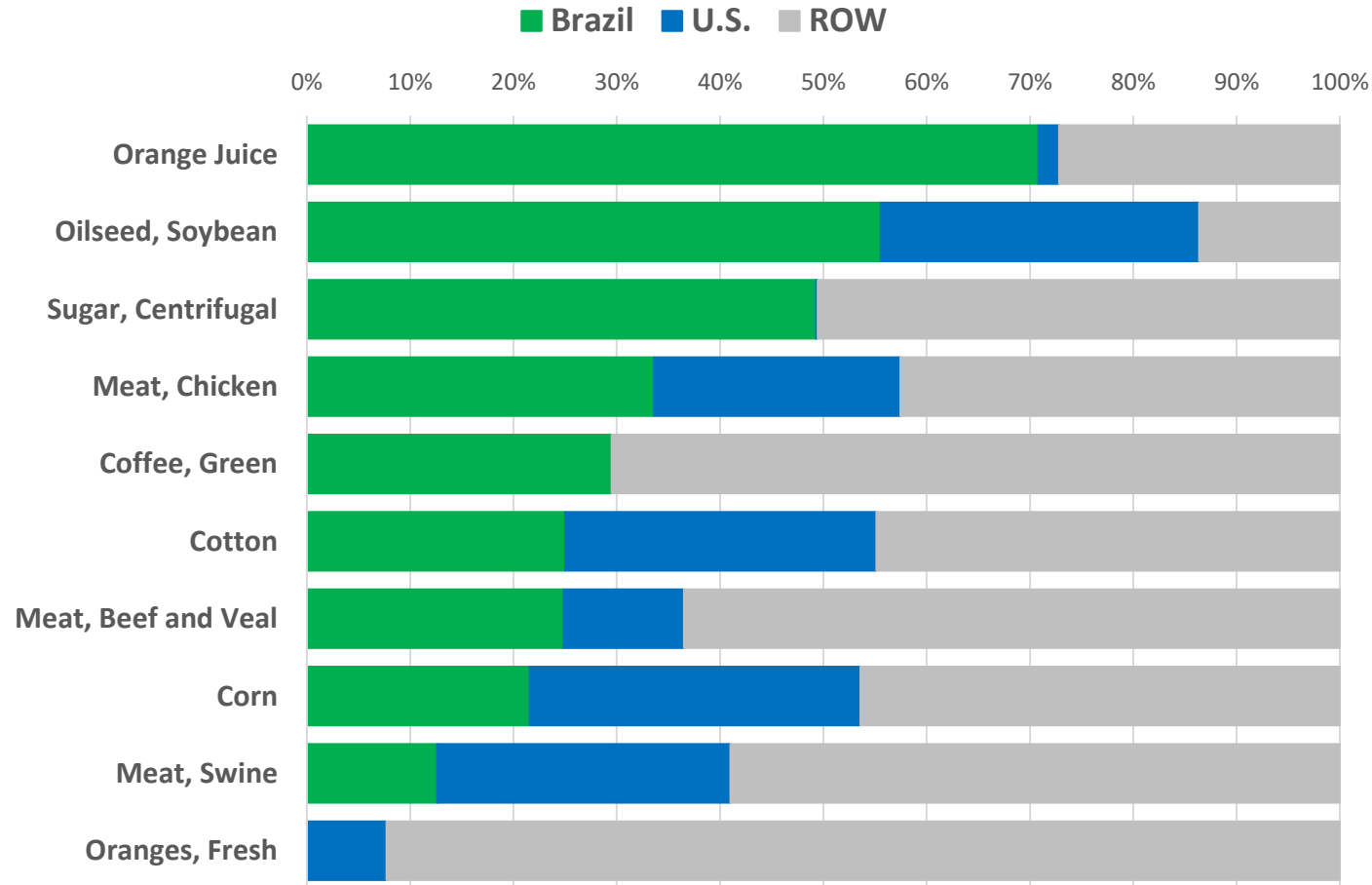
Brazil and U.S. vs. World Production



Source:
PSD Online, USDA

Brazil and U.S. vs. World Exports

Share of World Exports (2021 to 2025)



Source:
PSD Online, USDA

Brazil and U.S. in Global Rankings

2021 to 2025 Aggregate Production

	Brazil	United States
Commodity	Production	Production
Orange Juice	1	2
Oranges, Fresh	1	6
Oilseed, Soybean	1	3
Coffee, Green	1	4
Meat, Beef and Veal	2	1
Sugar, Centrifugal	2	6
Meat, Chicken	3	1
Corn	3	2
Cotton	4	3
Meat, Swine	4	3

2021 to 2025 Aggregate Exports

	Brazil	United States
Commodity	Exports	Exports
Orange Juice	1	5
Oilseed, Soybean	1	2
Sugar, Centrifugal	1	39
Meat, Chicken	1	2
Coffee, Green	1	38
Cotton	2	1
Meat, Beef and Veal	1	4
Corn	2	1
Meat, Swine	3	2
Oranges, Fresh	21	4

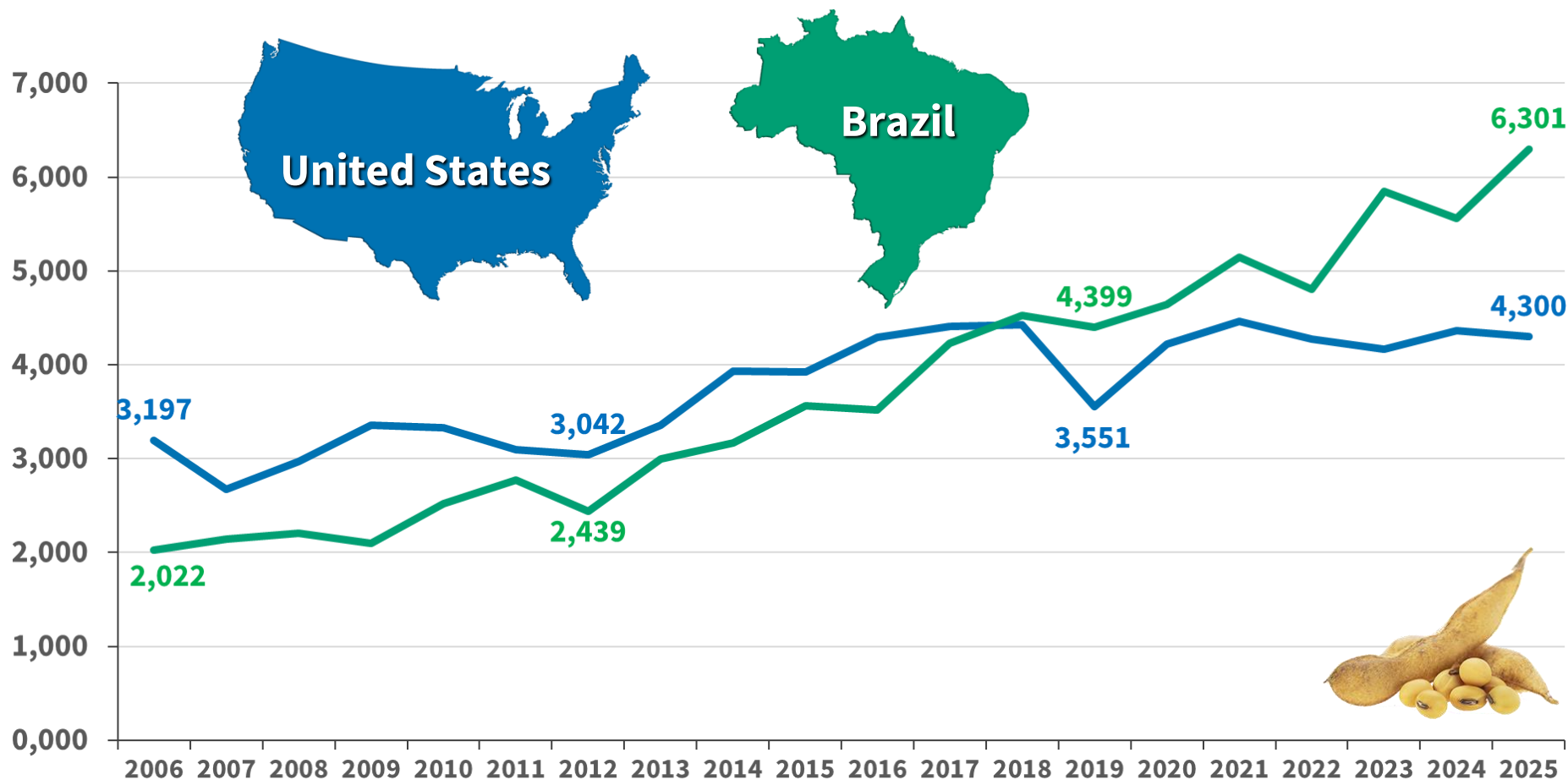
Source: PSD Online, USDA



Soybean Production and Trade

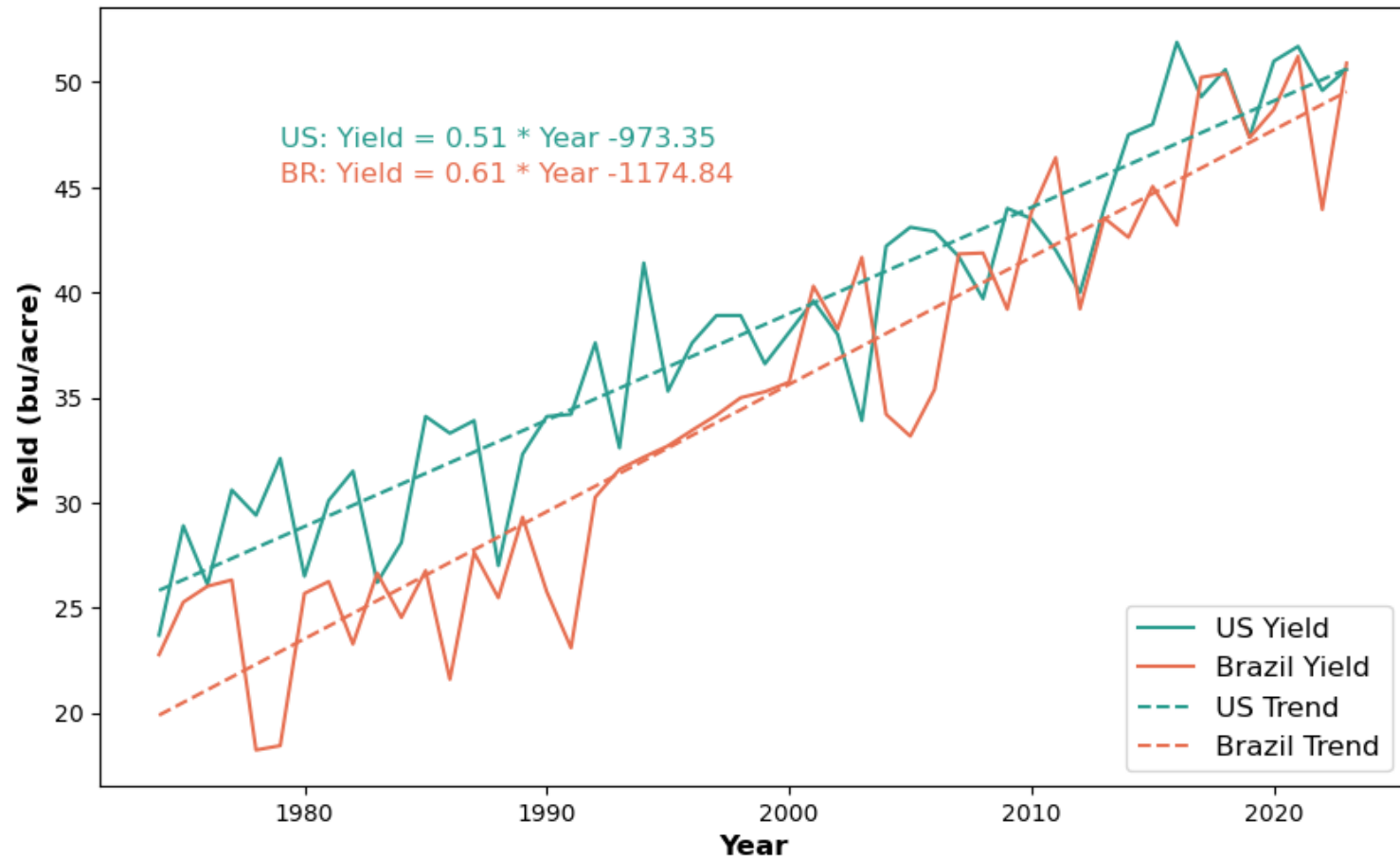
Soybean Production in the U.S. and Brazil

In Million Bushels



Sources: USDA and Conab

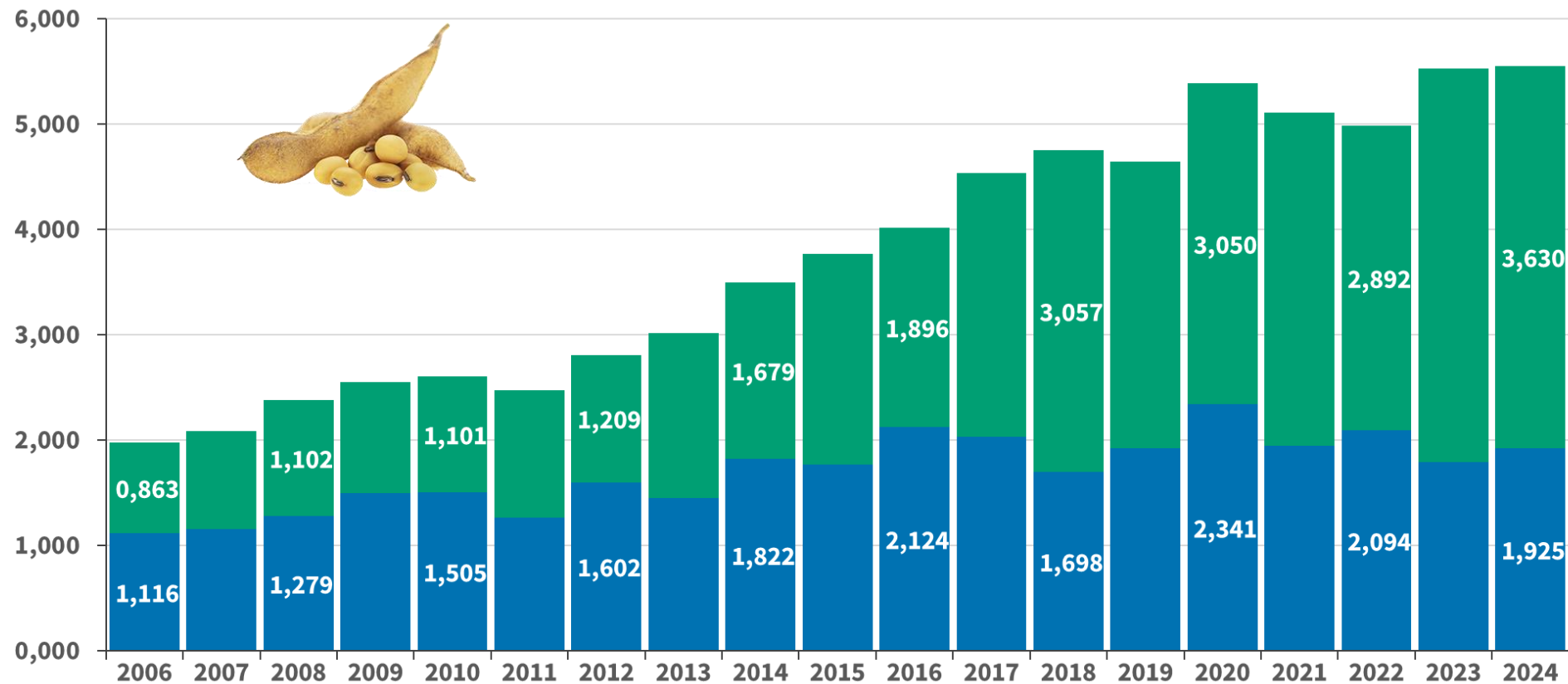
National Average Soybean Yield for the U.S. and Brazil, *Linear Trend, 1974-2023*



Sources: USDA NASS and Brazilian Institute of Geography and Statistics (IBGE)

Soybean Exports by the U.S. and Brazil

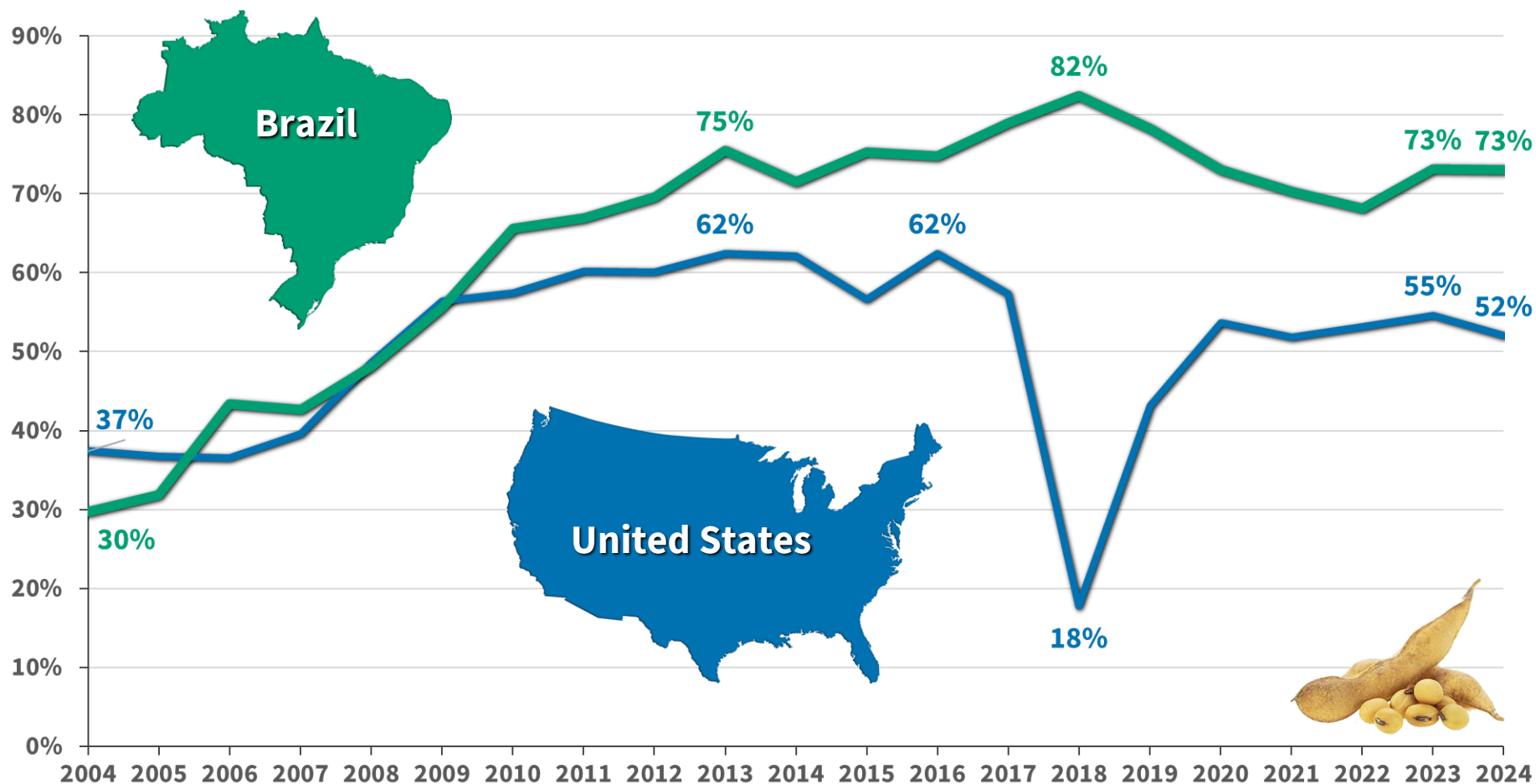
In Million Bushels



Note: Exports by calendar year since the countries have different marketing years

Source: USDA and Secex/Brazil

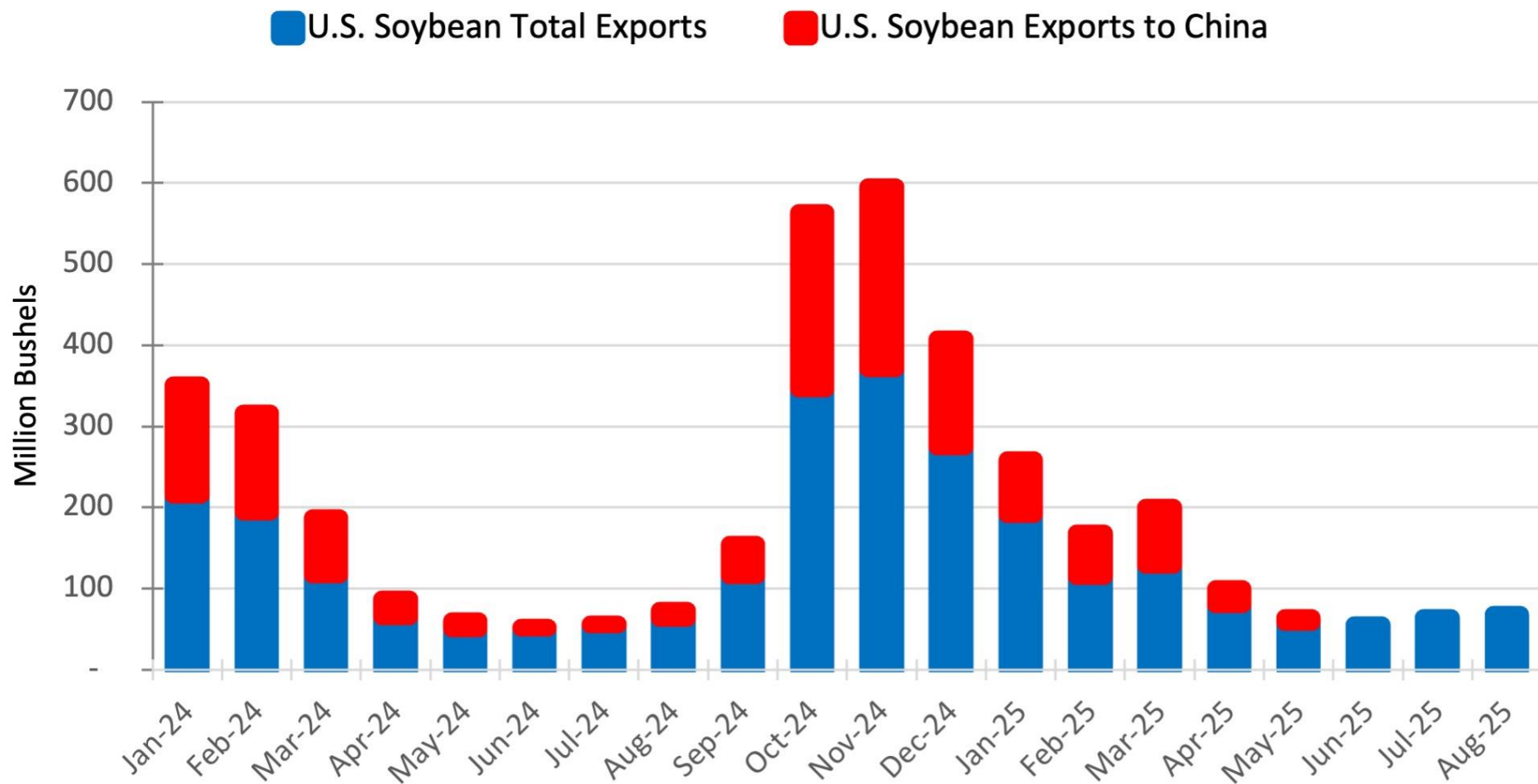
China's Share of U.S. and Brazil Exports



Note: Exports by calendar year since the countries have different marketing years

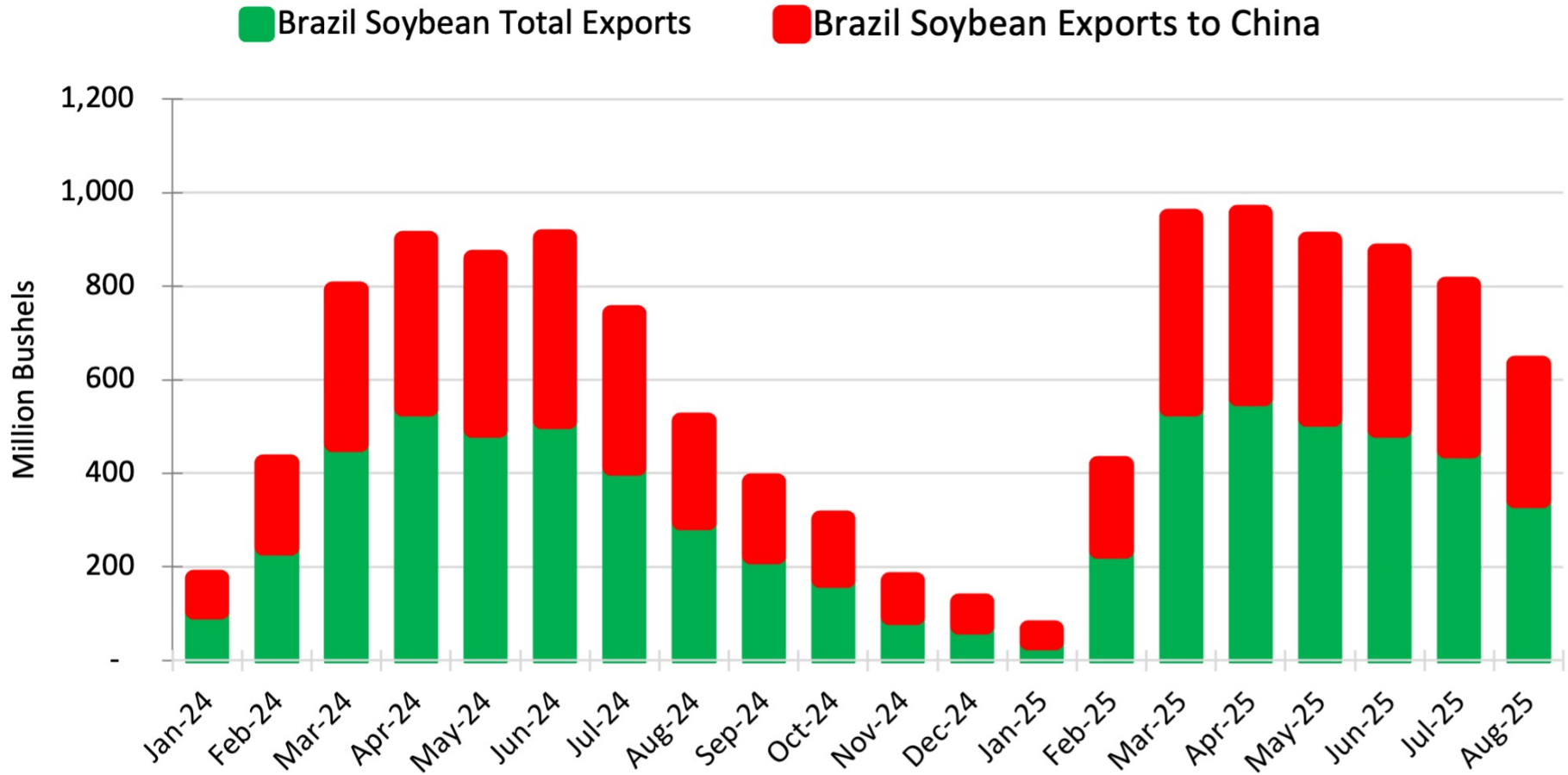
Source: USDA and Secex/Brazil

Monthly U.S. Soybean Exports vs. Exports to China



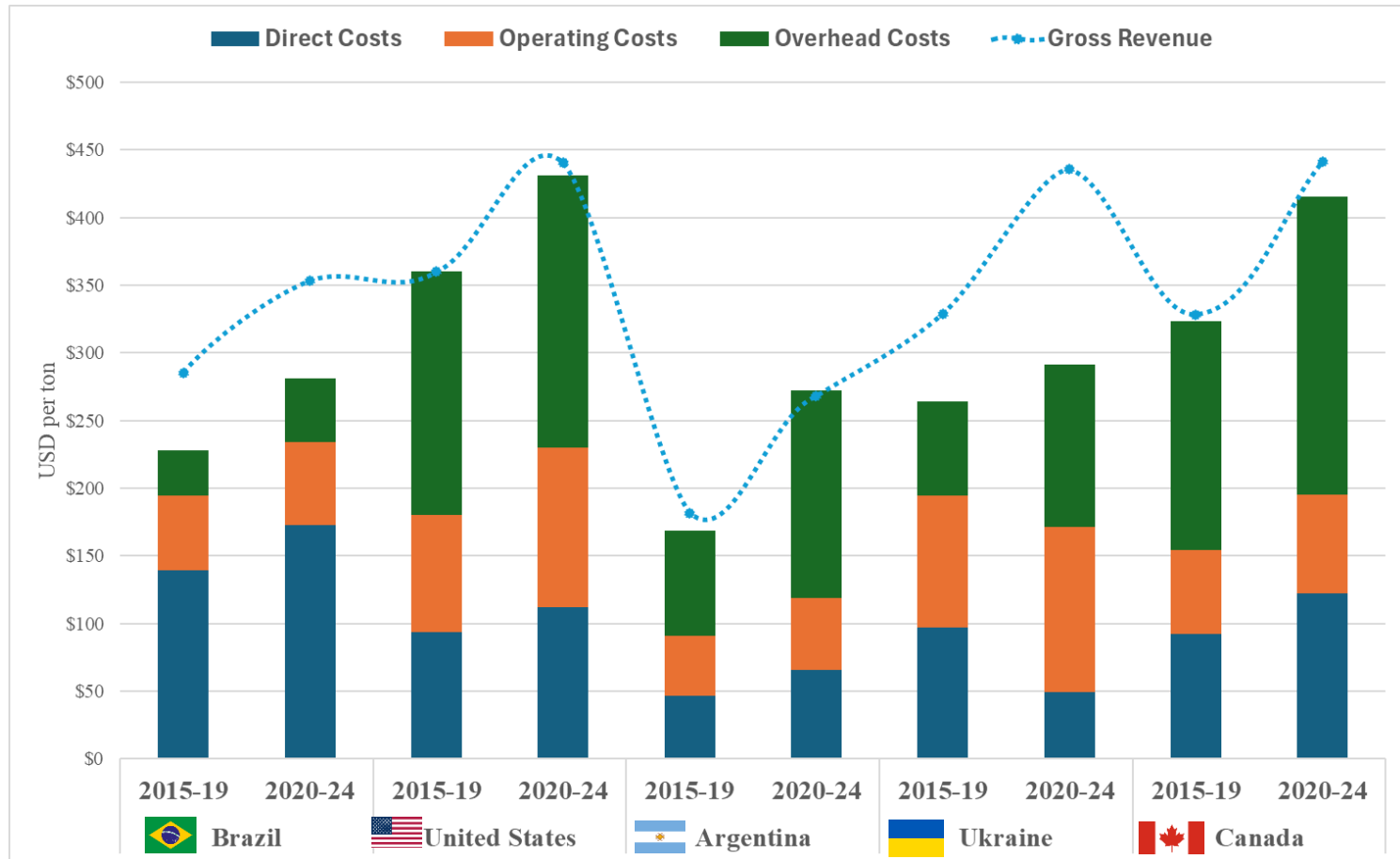
Source: Foreign Agricultural Service (FAS), USDA

Monthly Brazil Soybean Exports vs. Exports to China



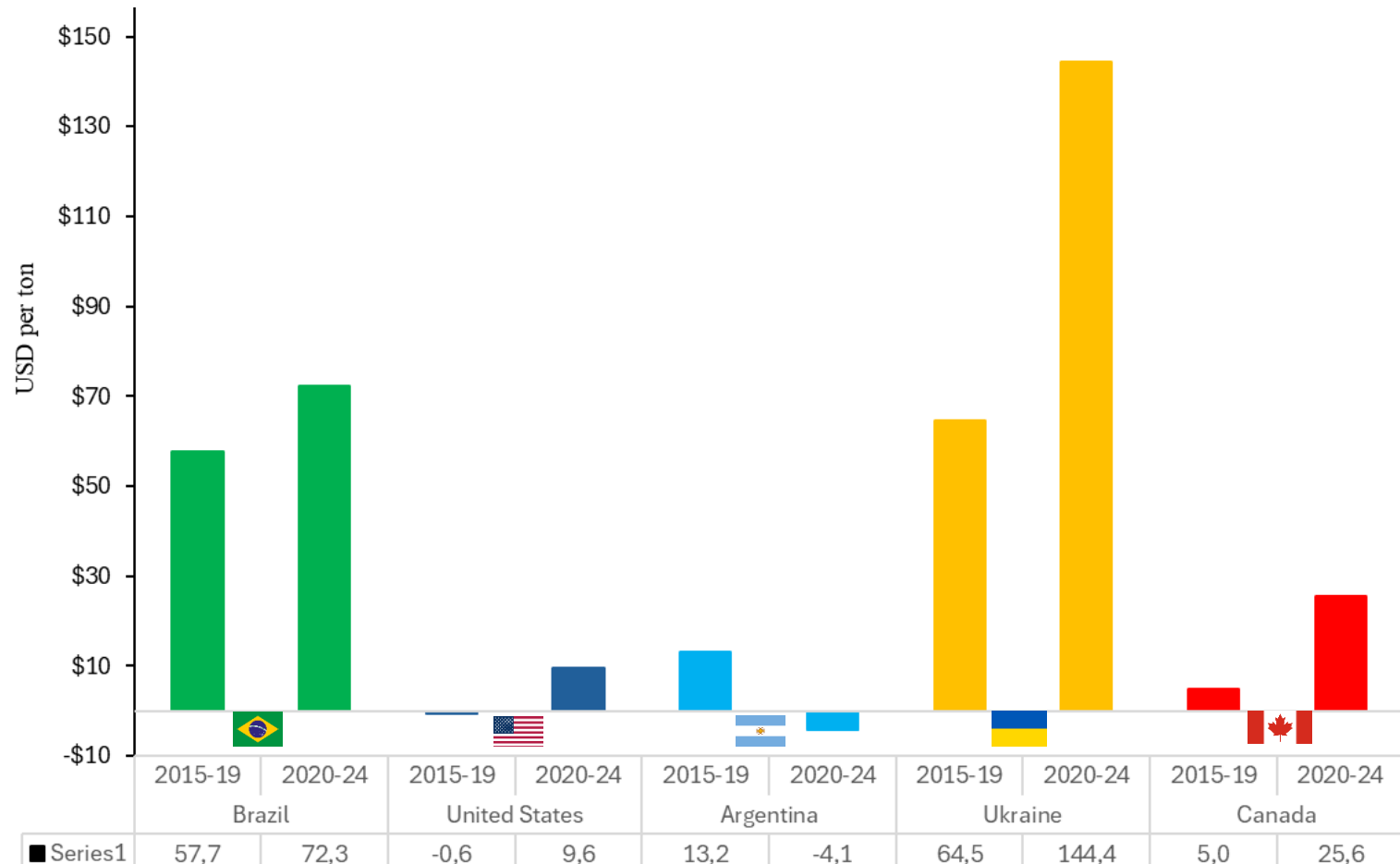
Source: Brazilian Foreign Trade Secretariat (Secex/Brazil)

Average Gross Revenue and Costs for Soybeans, Pre-Covid and Post-Covid



Source: Elaborated by the authors based on the Agri Benchmark Network database

Economic Profits for Soybean Production, Pre-Covid (2015-19) vs. Post-Covid (2020-24)



Source: Elaborated by the authors based on the Agri Benchmark Network database



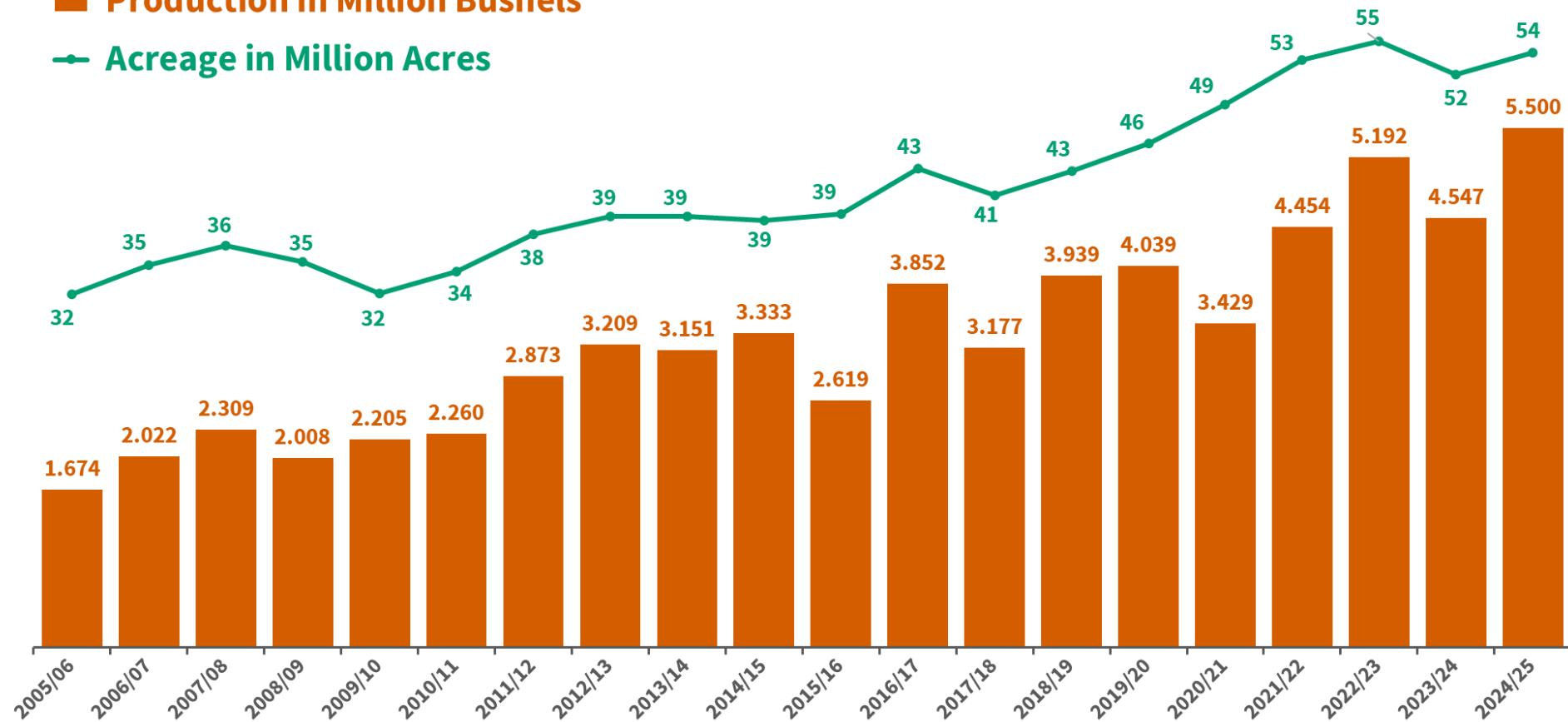
Corn Production and Trade

Corn Acreage and Production In Brazil Over Two Decades



■ Production in Million Bushels

— Acreage in Million Acres



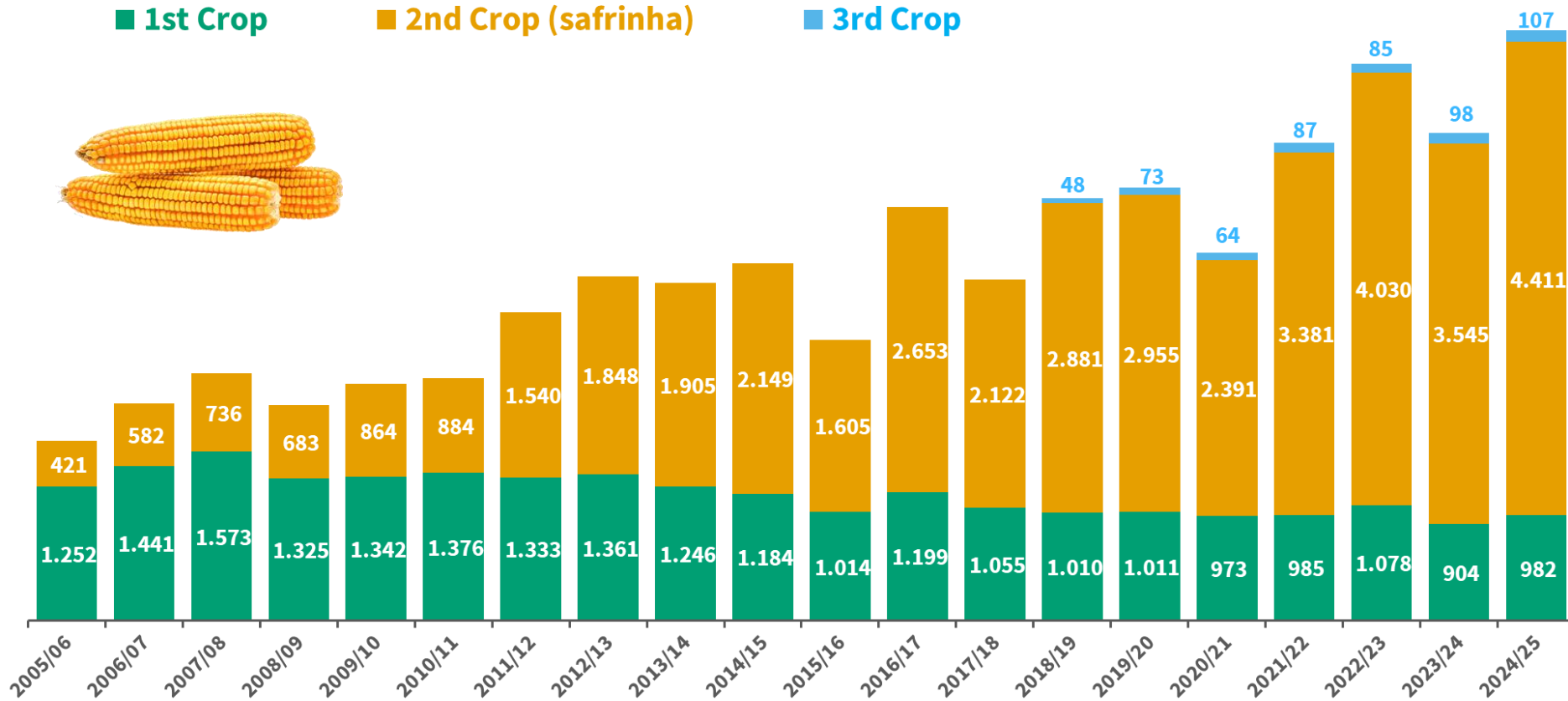
Source: National Supply Company (Conab), Brazil

Total Corn Production in Brazil in Three Crops per Year (in million bushels)

■ 1st Crop

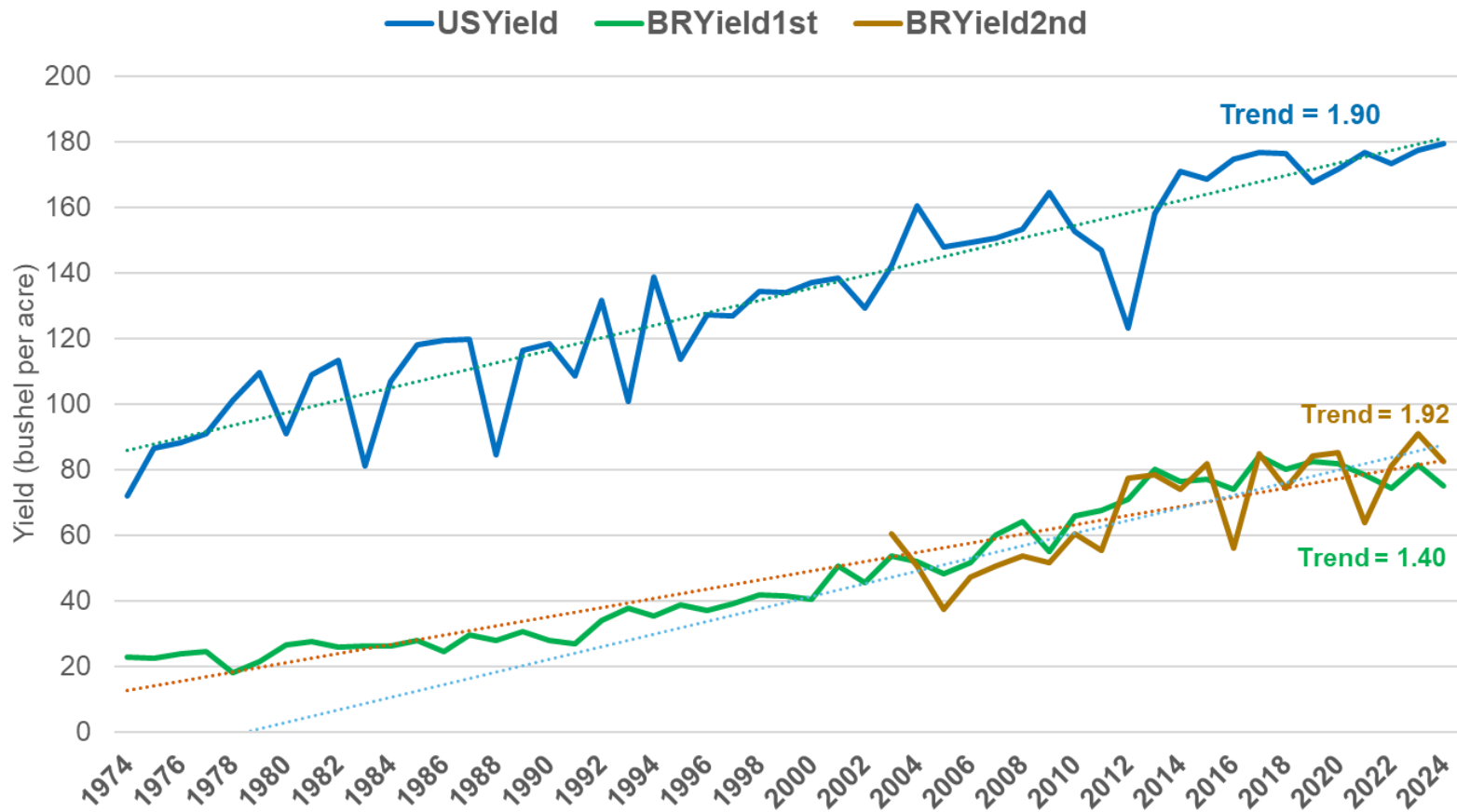
■ 2nd Crop (safrinha)

■ 3rd Crop



Source: National Supply Company (Conab), Brazil

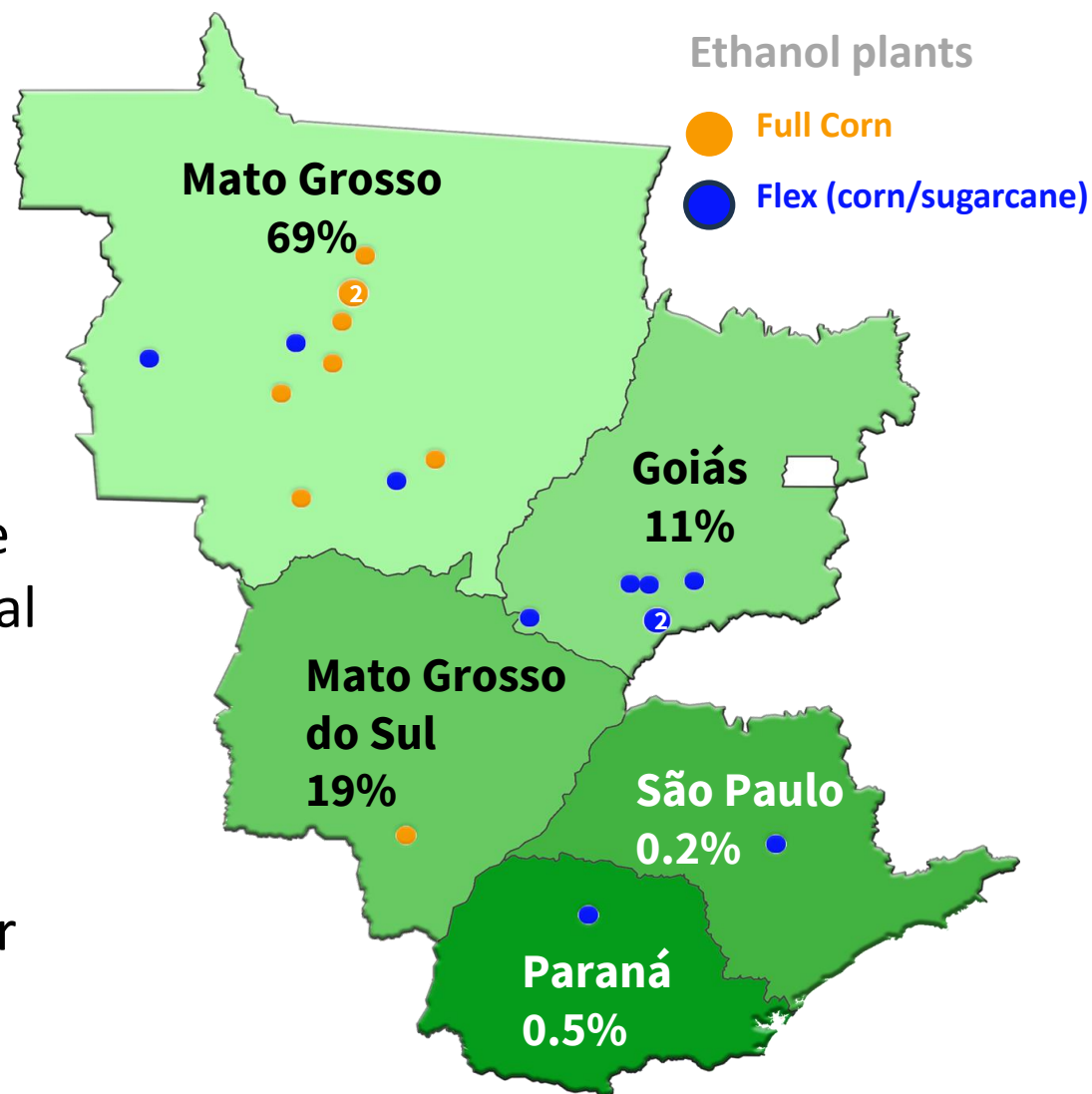
National Average Corn Yield for the U.S. and Brazil, *Linear Trend, 1974-2024*



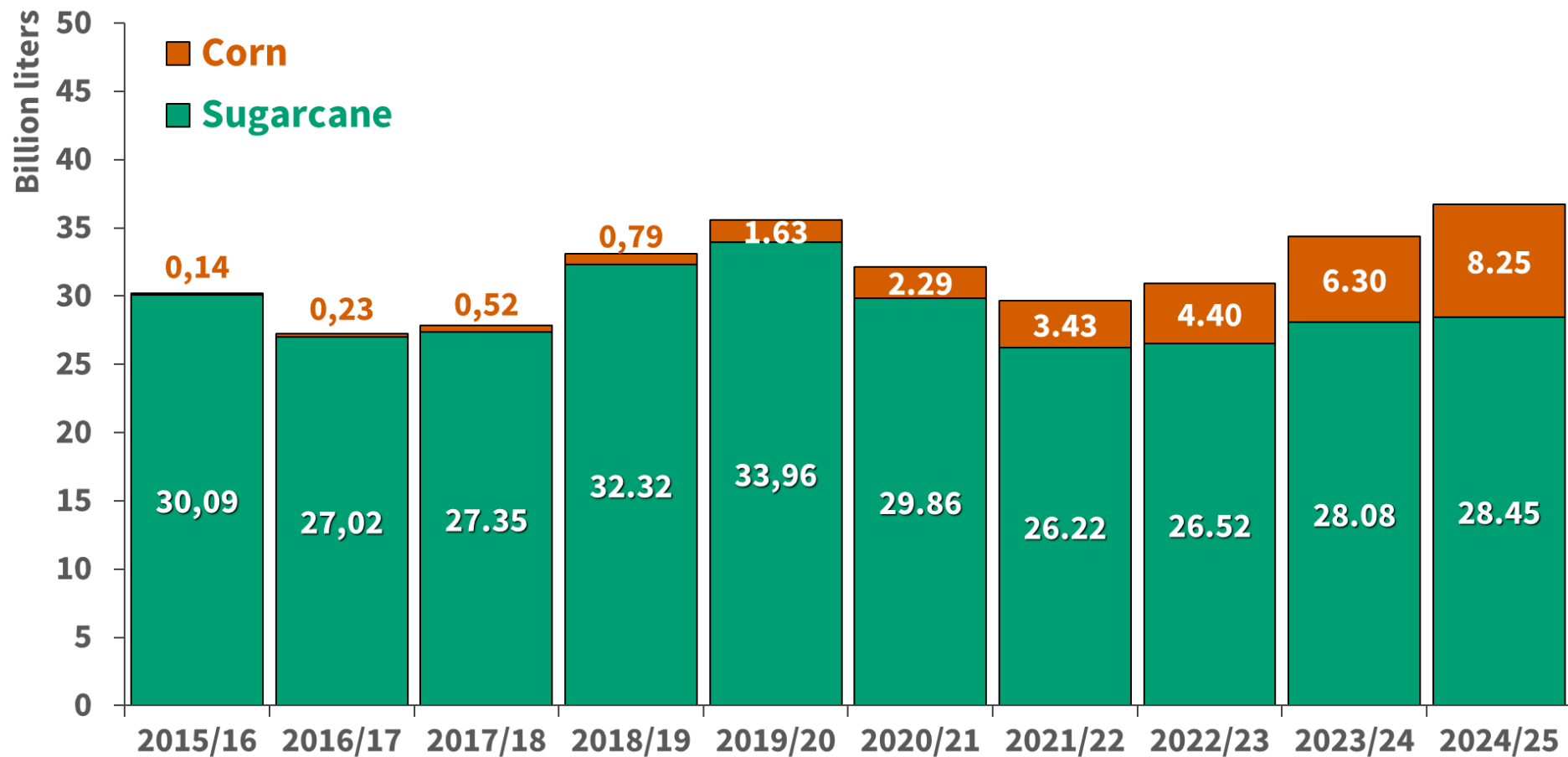
Sources: USDA NASS and Brazilian Institute of Geography and Statistics (IBGE)

Safrinha Fuels Brazil's Ethanol Boom

- Corn ethanol plants have begun appearing in the Center-West region.
- There are 24 ethanol plants in Brazil utilizing corn as the feedstock, with an additional 16 under construction.
- New ethanol mills are capable of processing either corn or sugarcane.

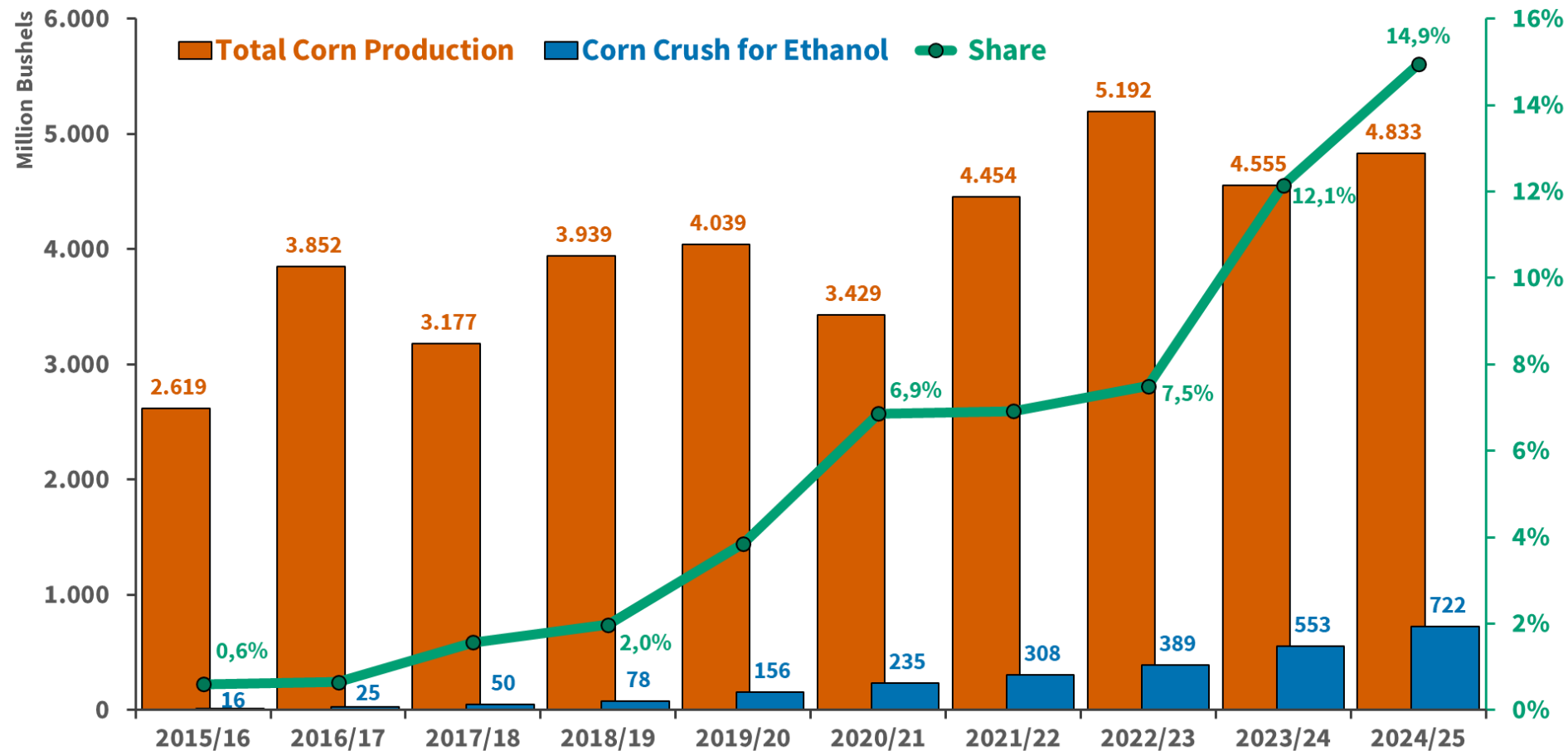


Ethanol from Corn is Growing in Brazil



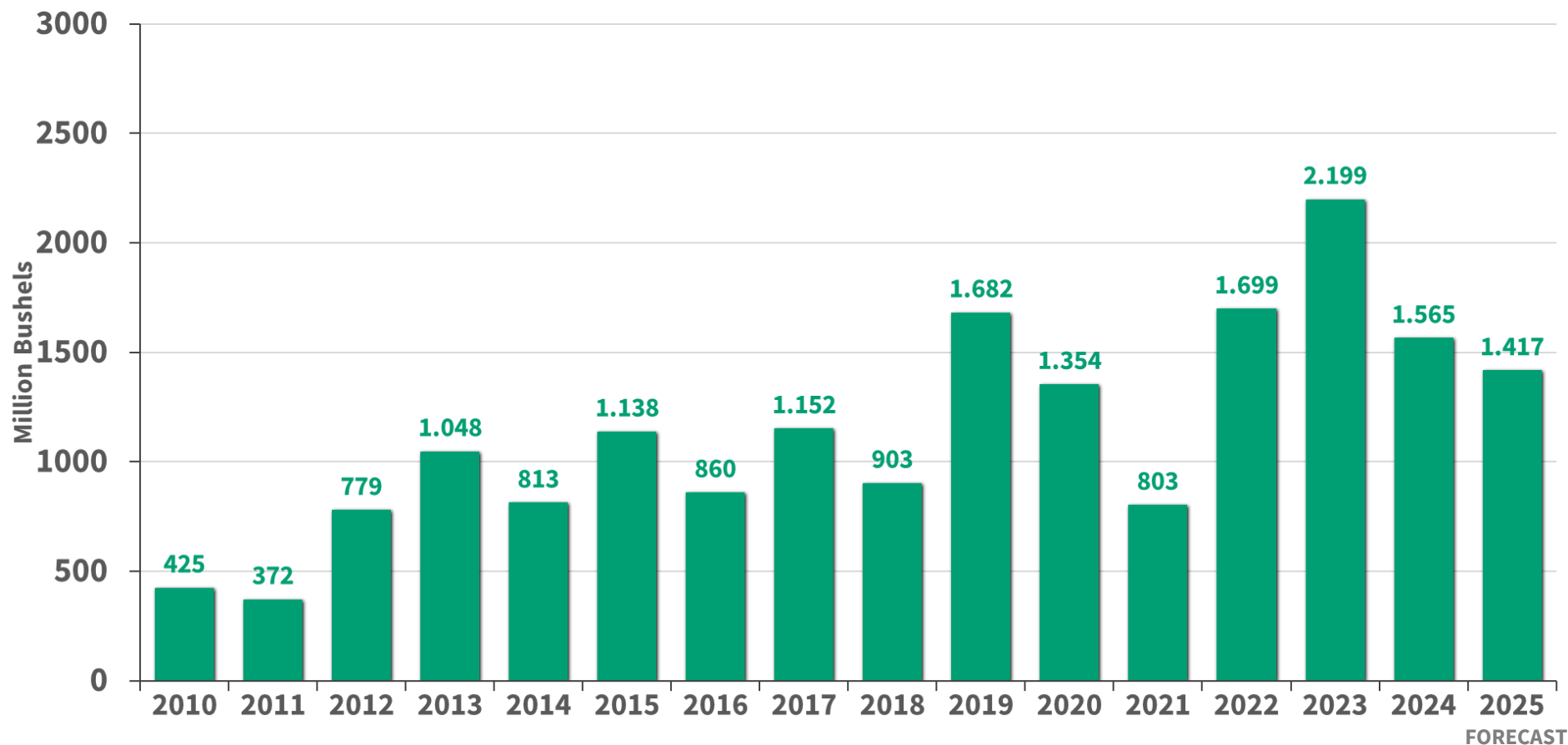
Sources: National Supply Company (Conab) and Mato Grosso Institute for Agricultural Economics (IMEA)

Brazil's Ethanol Plants Are Consuming Record Volumes of Corn



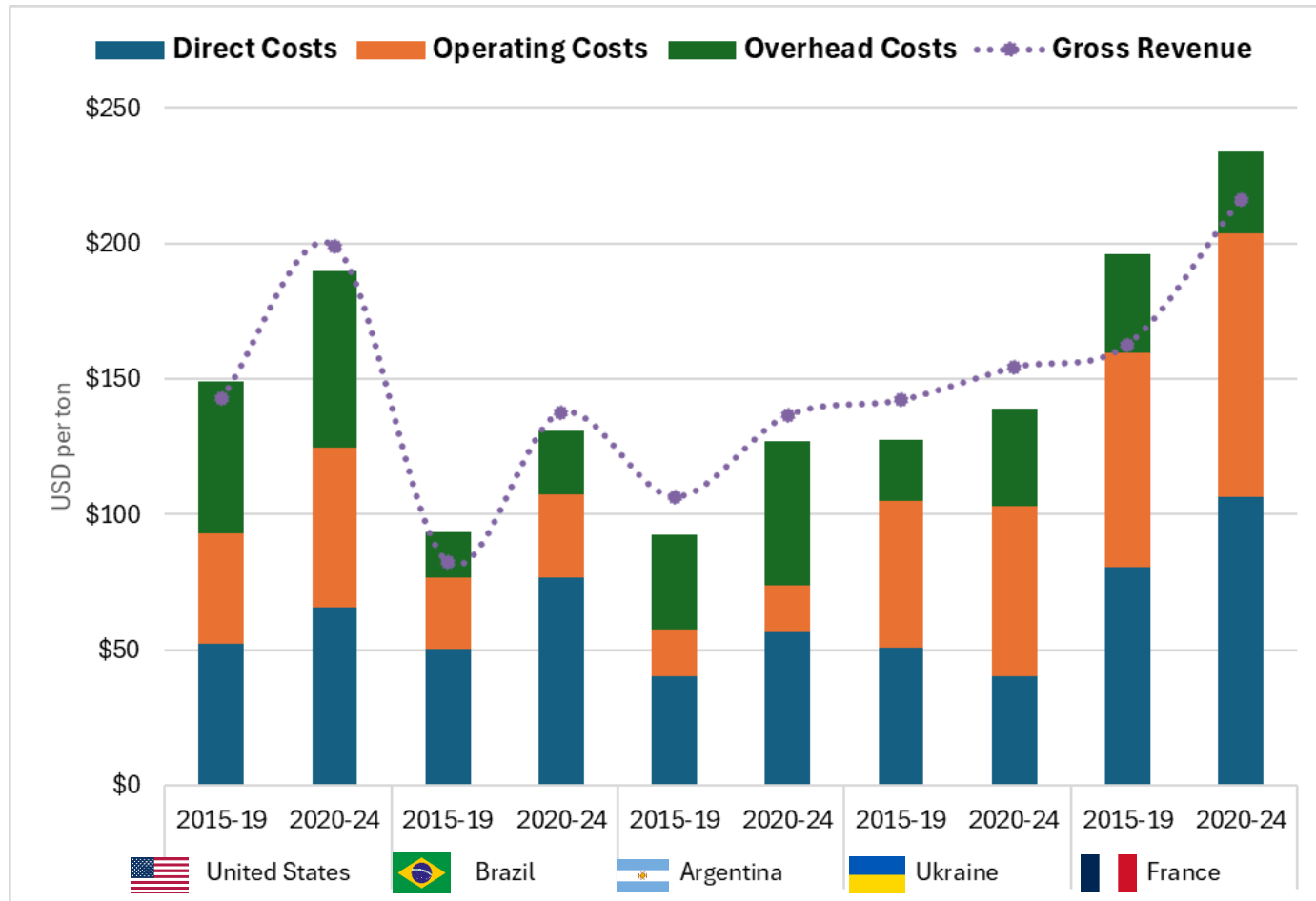
Sources: National Supply Company (Conab) and Mato Grosso Institute for Agricultural Economics (IMEA)

Total Brazilian Corn Exports by Calendar Year (Jan-Dez)



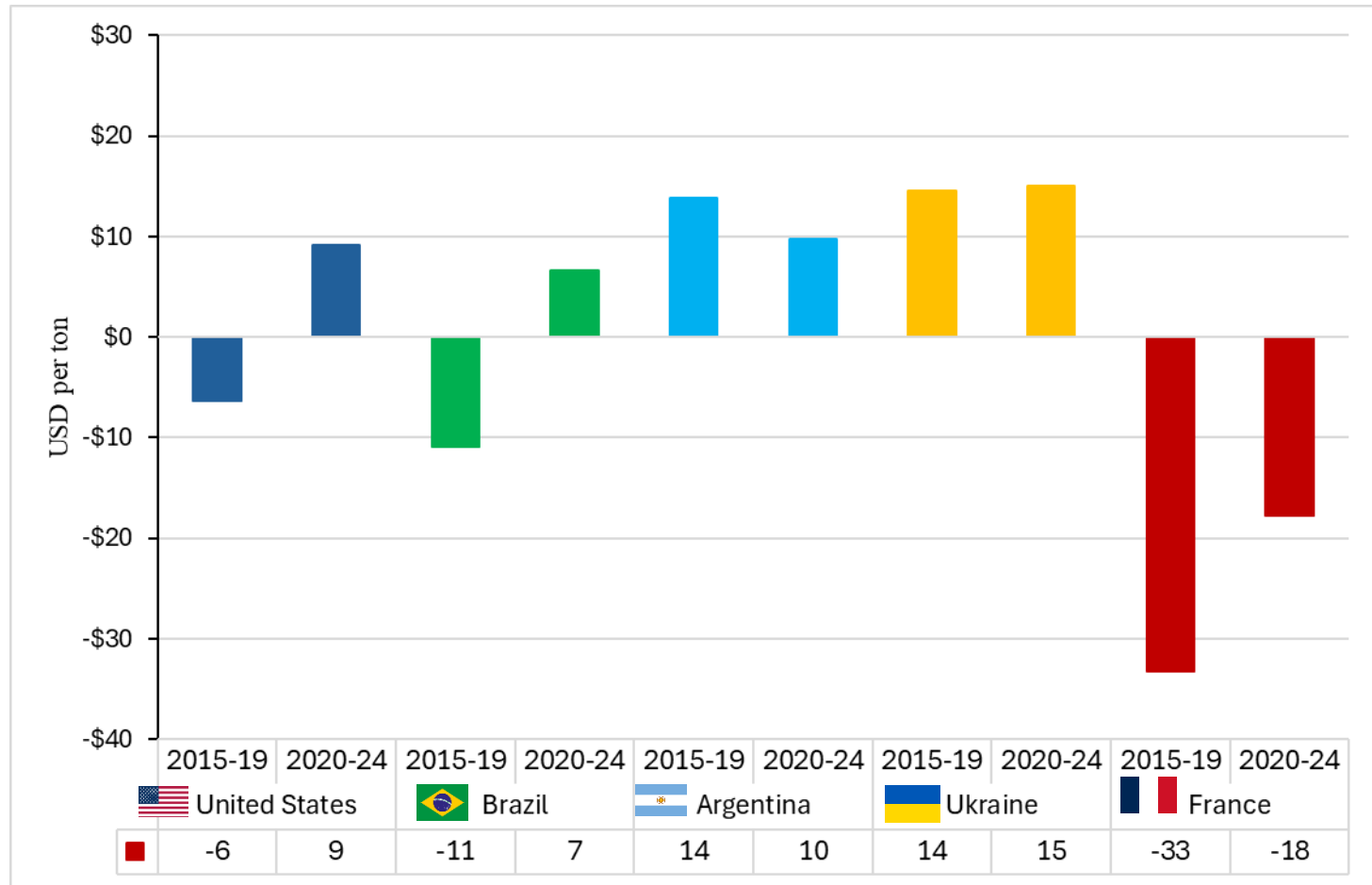
Sources: Brazil Secex and Rabobank (forecast 2025)

Average Gross Revenue and Costs for Corn, Pre-Covid (2015-19) and Post-Covid (2020-24)



Source: Elaborated by the authors based on the Agri Benchmark Network database

Economic Profits for Corn Production, Pre-Covid (2015-19) vs. Post-Covid (2020-24)



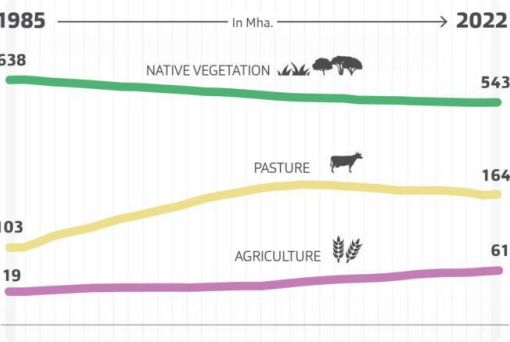
Source: Elaborated by the authors based on the Agri Benchmark Network database



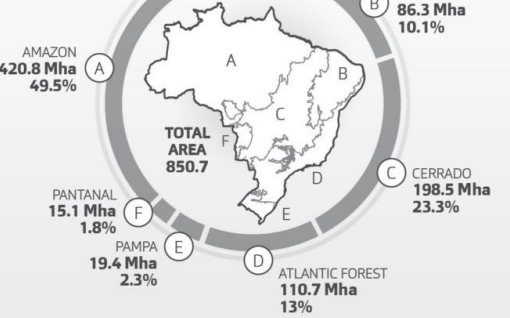
Potential for Crop Expansion

Brazil

Land use and land cover annual evolution (1985-2022)



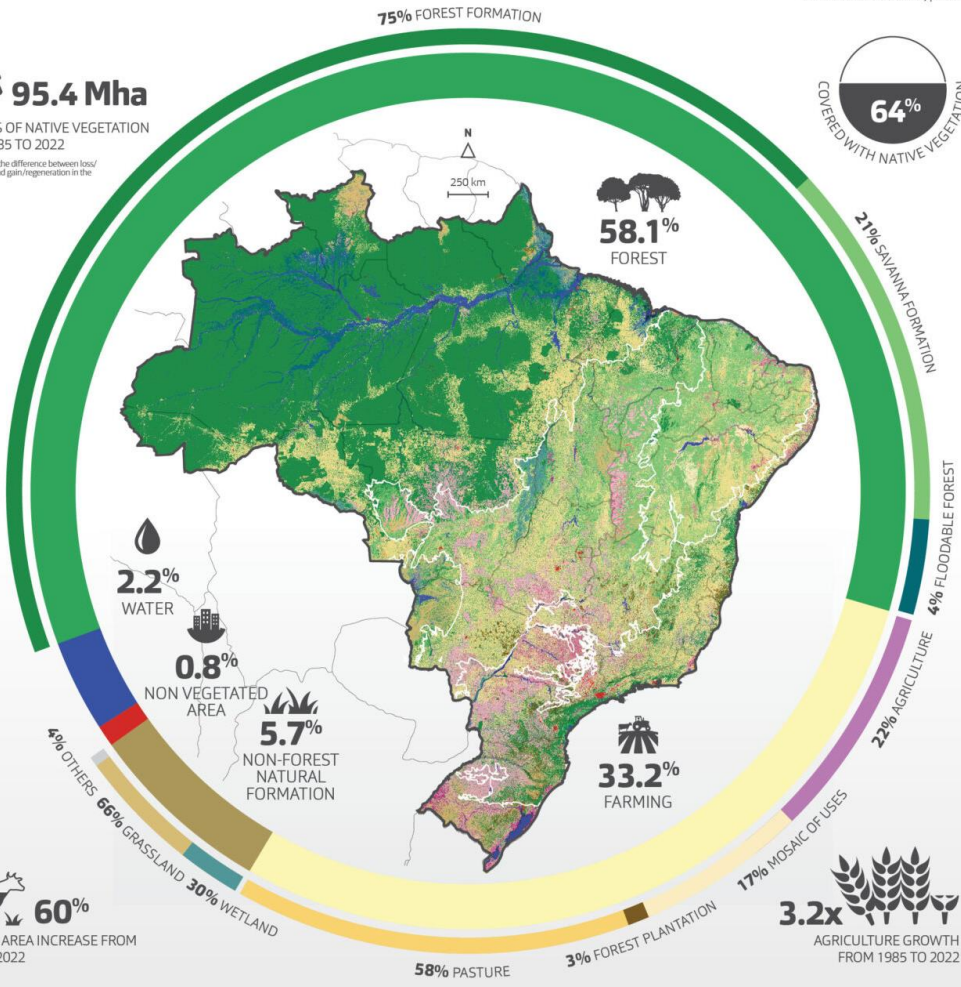
BIOMES



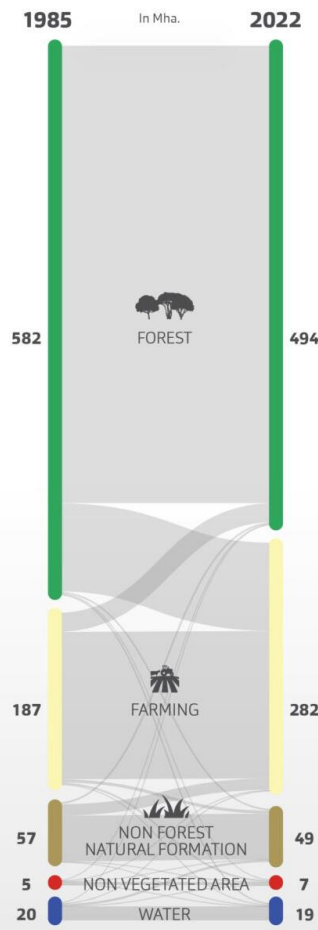
95.4 Mha
NET LOSS OF NATIVE VEGETATION FROM 1985 TO 2022

Net loss shows the difference between loss/deforestation and gain/regeneration in the

60%
PASTURE AREA INCREASE FROM 1985 TO 2022



64%
COVERED WITH NATIVE VEGETATION



Land Use and Occupation in Brazil

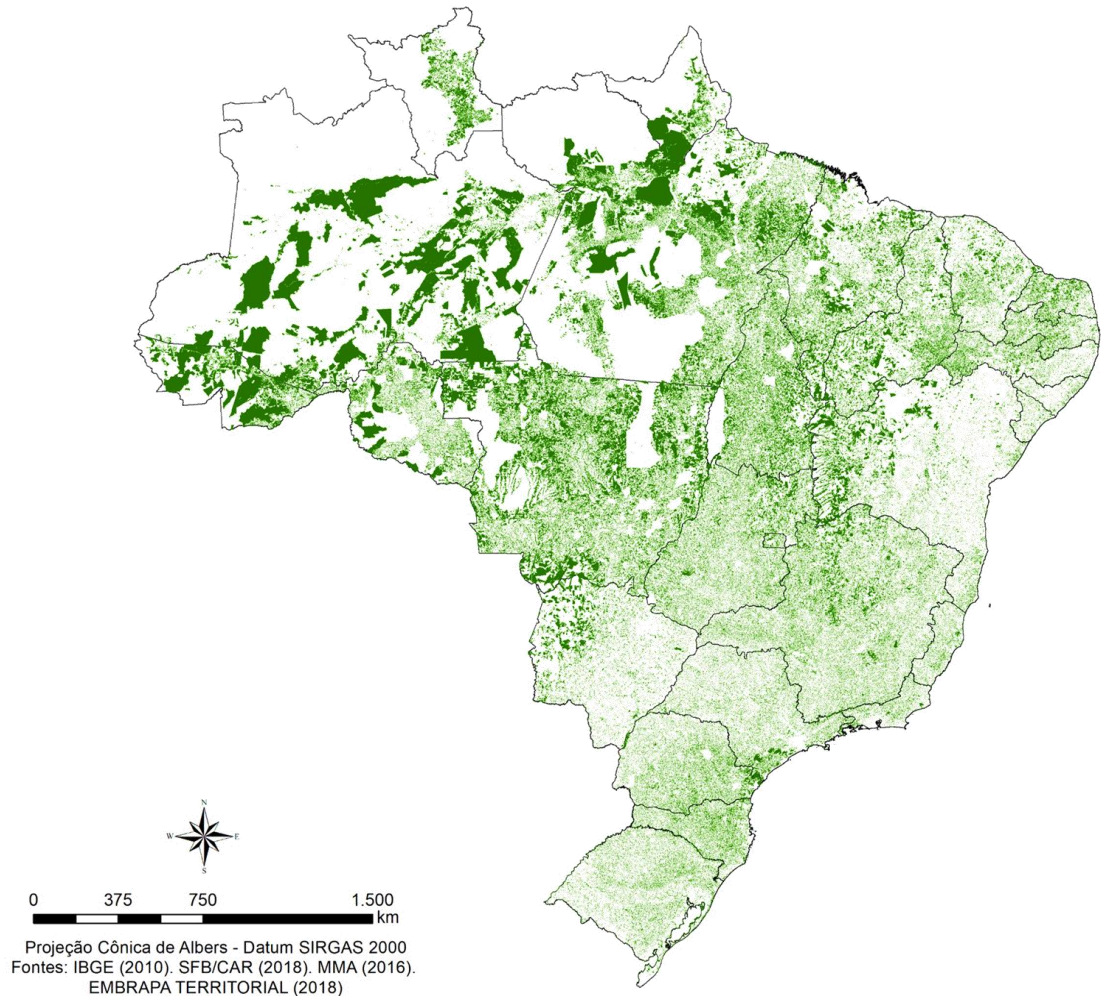
Preserved Vegetation on Rural Properties (25% of the land)

Private Land in Legal
Reserve (Forest Code)

20% to 80% of the area,
depending on the biome

No monetary
compensation

An area equal
to the size of
10 European countries!



Source: EMBRAPA – Available in <https://www.embrapa.br/car/sintese>

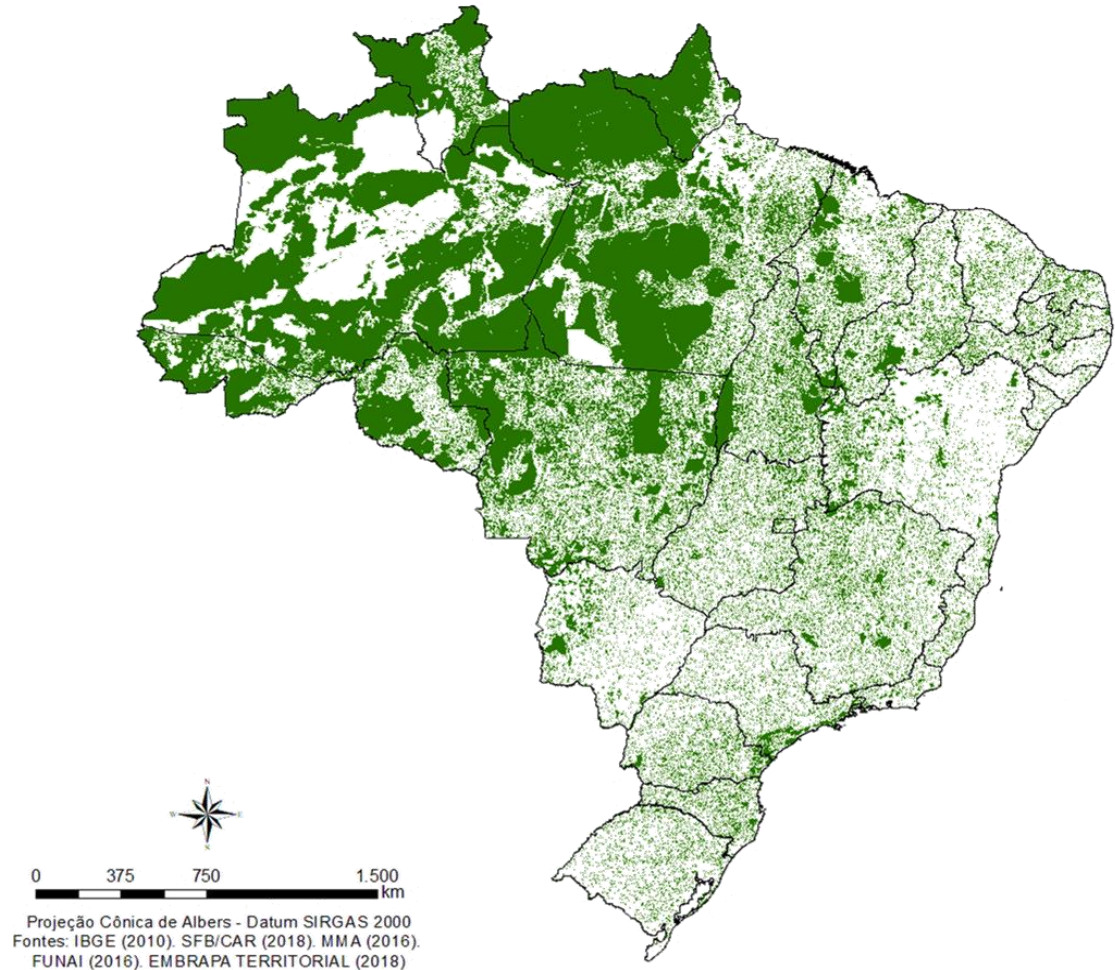
Protected Native Areas in Brazil

**Preserved Vegetation
on Rural Properties
(26% of the land)**

+

**Conservation Areas
and Indigenous Lands
(24% of the land)**

An area equal
to the size of
28 European countries!



Source: EMBRAPA – Available in <https://www.embrapa.br/car/sintese>

Protected Native Areas in Brazil

**Preserved Vegetation
on Rural Properties
(25% of the land)**

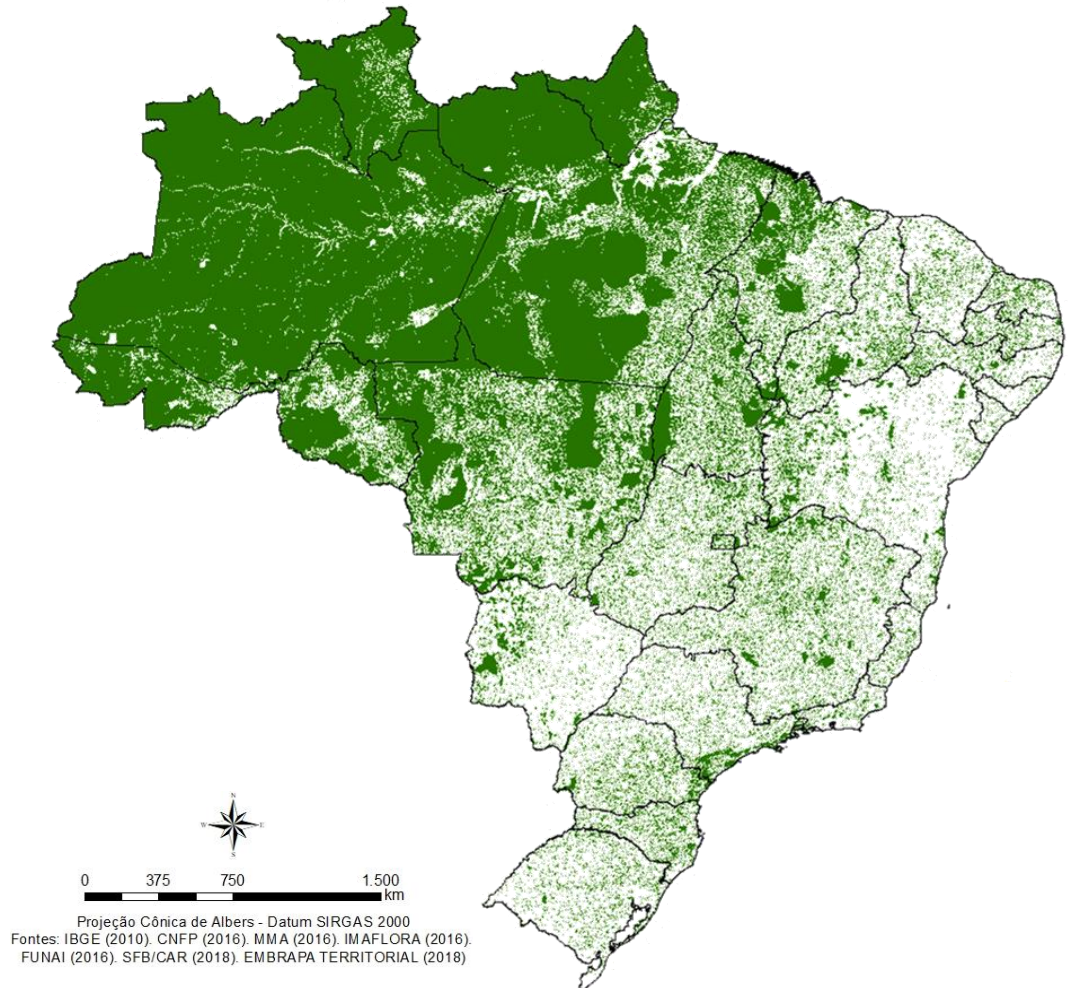
+

**Conservation Areas and
Indigenous Lands
(24% of the land)**

+

**Military Areas and
Unregistered Areas
(16% of the land)**

An area equal
to the size of
43 European countries!



Source: EMBRAPA – Available in <https://www.embrapa.br/car/sintese>

The Real Expansion Potential

How many acres of degraded pastureland could Brazil convert into crop production – without deforestation?

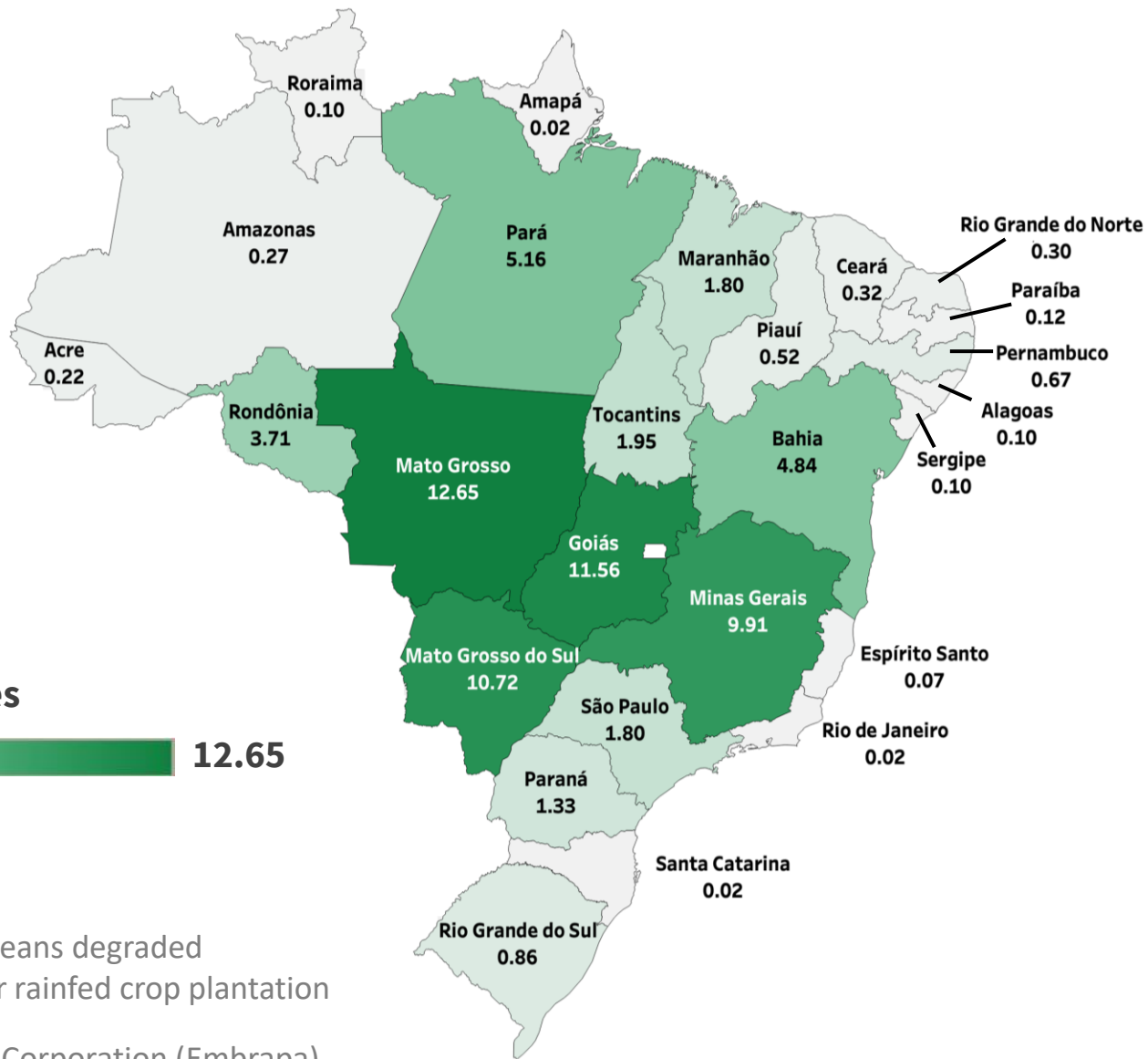


+70 million acres

**35% increase
compared to the
current crop season**

Source: Embrapa, 2024

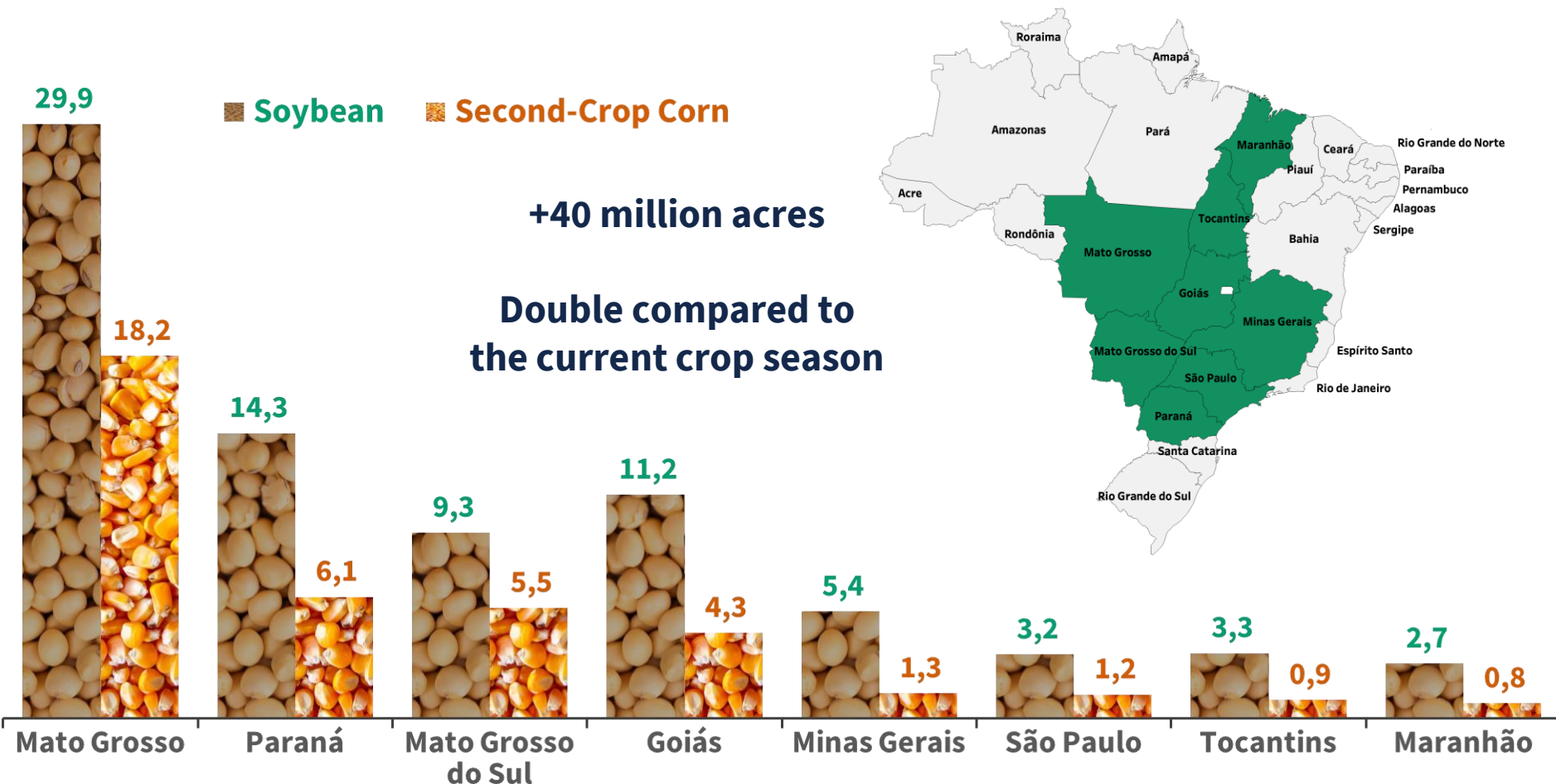
+70 million acres



Note: Crop expansion potential area means degraded pasturelands with a high potential for rainfed crop plantation

Source: Brazilian Agricultural Research Corporation (Embrapa)

Comparison of Soybean and Second-Crop Corn Planted Area (2022/23 season, in million acres)



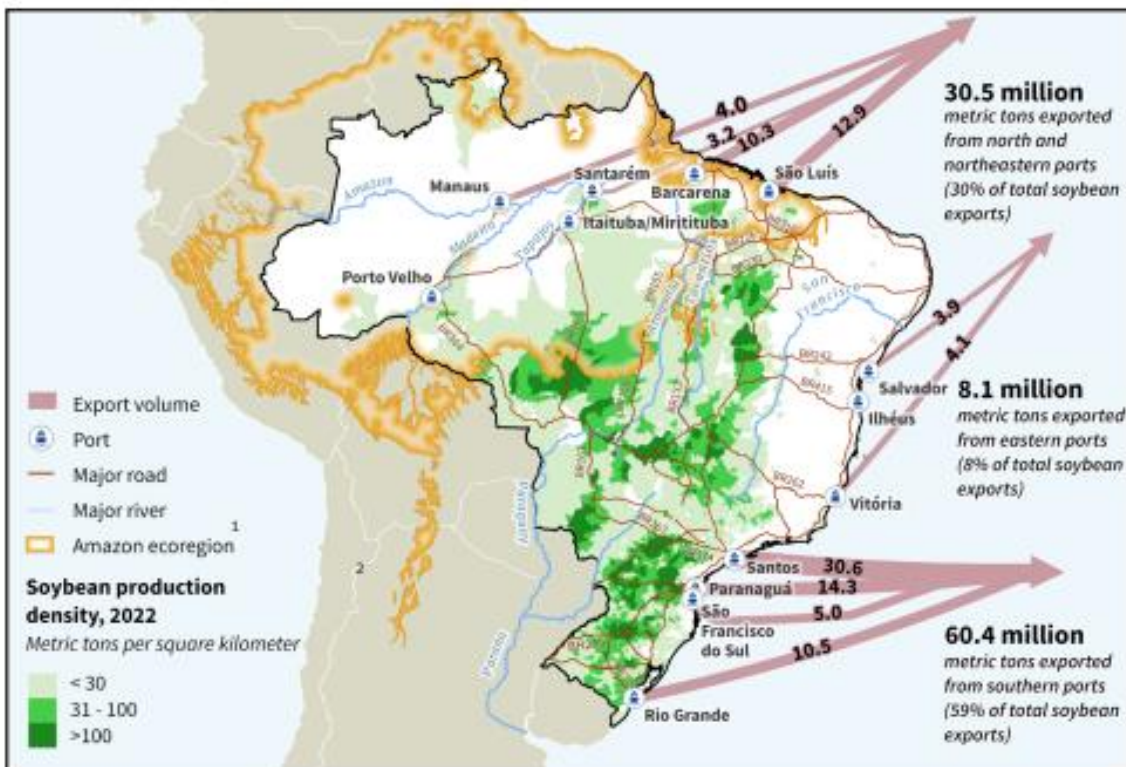
Source: National Supply Company (Conab), Brazil



Challenges to Continue Growing

Logistic Flow of Brazil's Grain Exports

Brazil soybean exports: 2023



U.S.–Brazil soybean modal shares

Mode	Brazil (2023)	United States (2022)
Total		
Truck	69	51
Rail	22	25
Barge	9	24
Exports		
Truck	54	14
Rail	33	38
Barge	12	48
Domestic		
Truck	97	84
Rail	0	14
Barge	3	2

1 World Wildlife Fund.

2 Brazilian Institute of Geography and Statistics—Produção Agrícola Municipal.

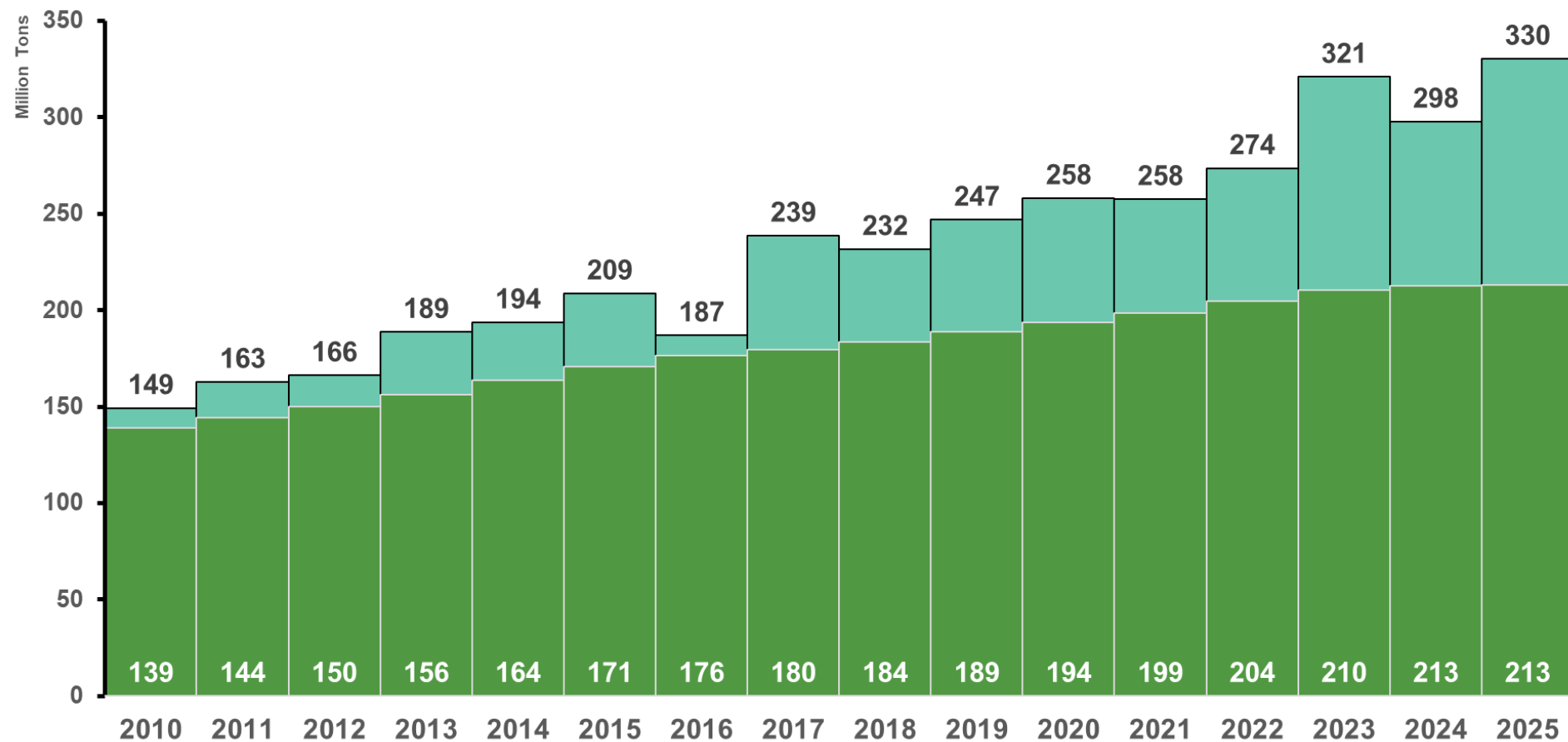
Note: A hyphen in an otherwise empty cell denotes that the data are not available. The table totals for 2013, 2014, and 2023 differ from the map totals, because the table totals include an “other ports” category (not included in the map).

Source: Comex Stat, Ministério da Indústria, Comércio Exterior e Serviços (MDIC) and USDA, Foreign Agricultural Service.

“Soybean Highway” – BR-163 – Mato Grosso, Brazil – May 2023

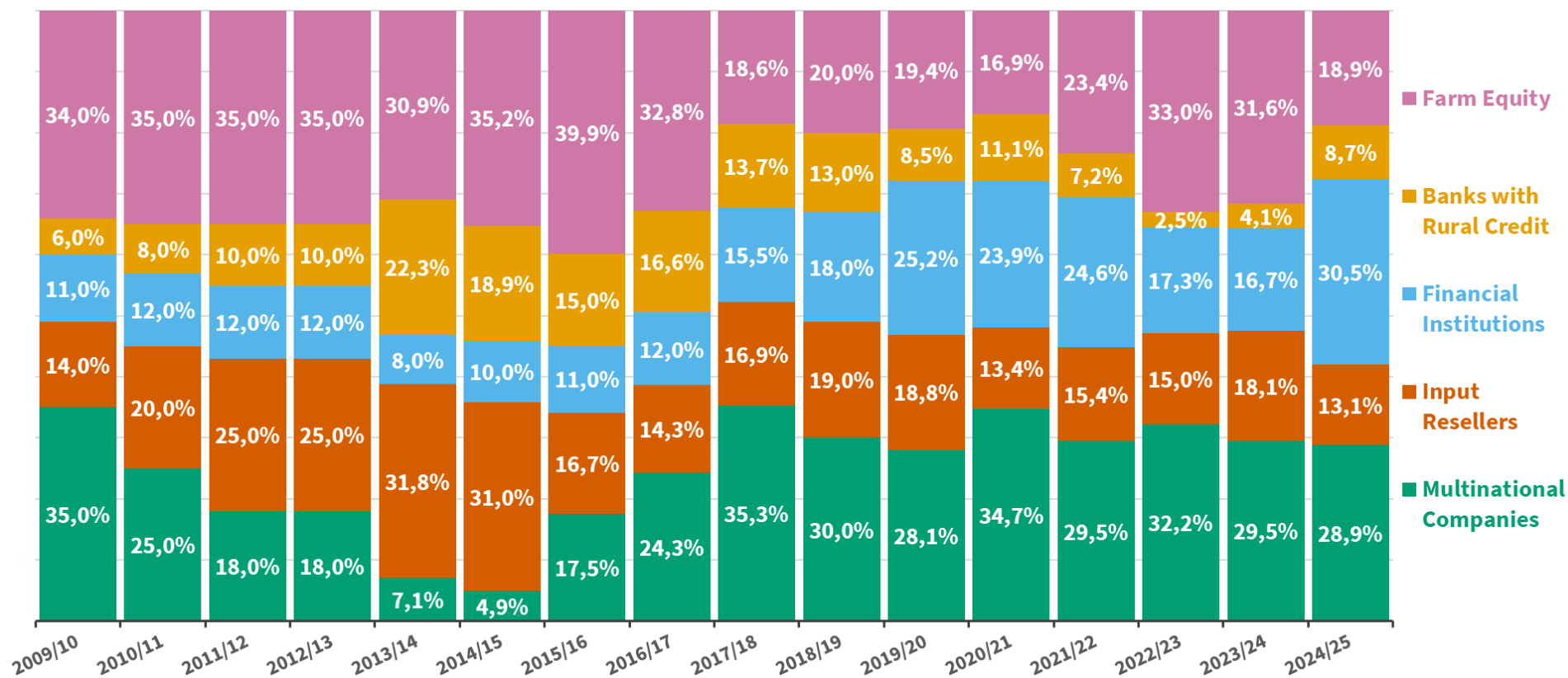


Storage deficit of ~120 million tons in 2025*



Source: National Supply Company (Conab), Brazil; *2025 projected production

Share of Operational Costs by Funding Source in Mato Grosso, Brazil



Source: Mato Grosso Institute of Agricultural Economics (IMEA)

Thank You!

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 Joana Colussi

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Questions, Comments

www.ag.purdue.edu/commercialag