

# Brazil and the United States



**I**

**ILLINOIS**

Agricultural &  
Consumer Economics

COLLEGE OF AGRICULTURAL, CONSUMER  
& ENVIRONMENTAL SCIENCES

**Joana Colussi**

**farmdocDAILY**

**Gary Schnitkey**

# Topics

1. Brazil Overview
2. Soybean Production
3. Corn Production
4. Production Growth Forecast
5. Survey in the US and Brazil
6. Questions



# Overview



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# Agricultural Powerhouse

- Brazil is the 2<sup>nd</sup> largest agricultural exporter in the world.
- It is the largest exporter of coffee, orange juice, sugar, soybeans, beef, and chicken.



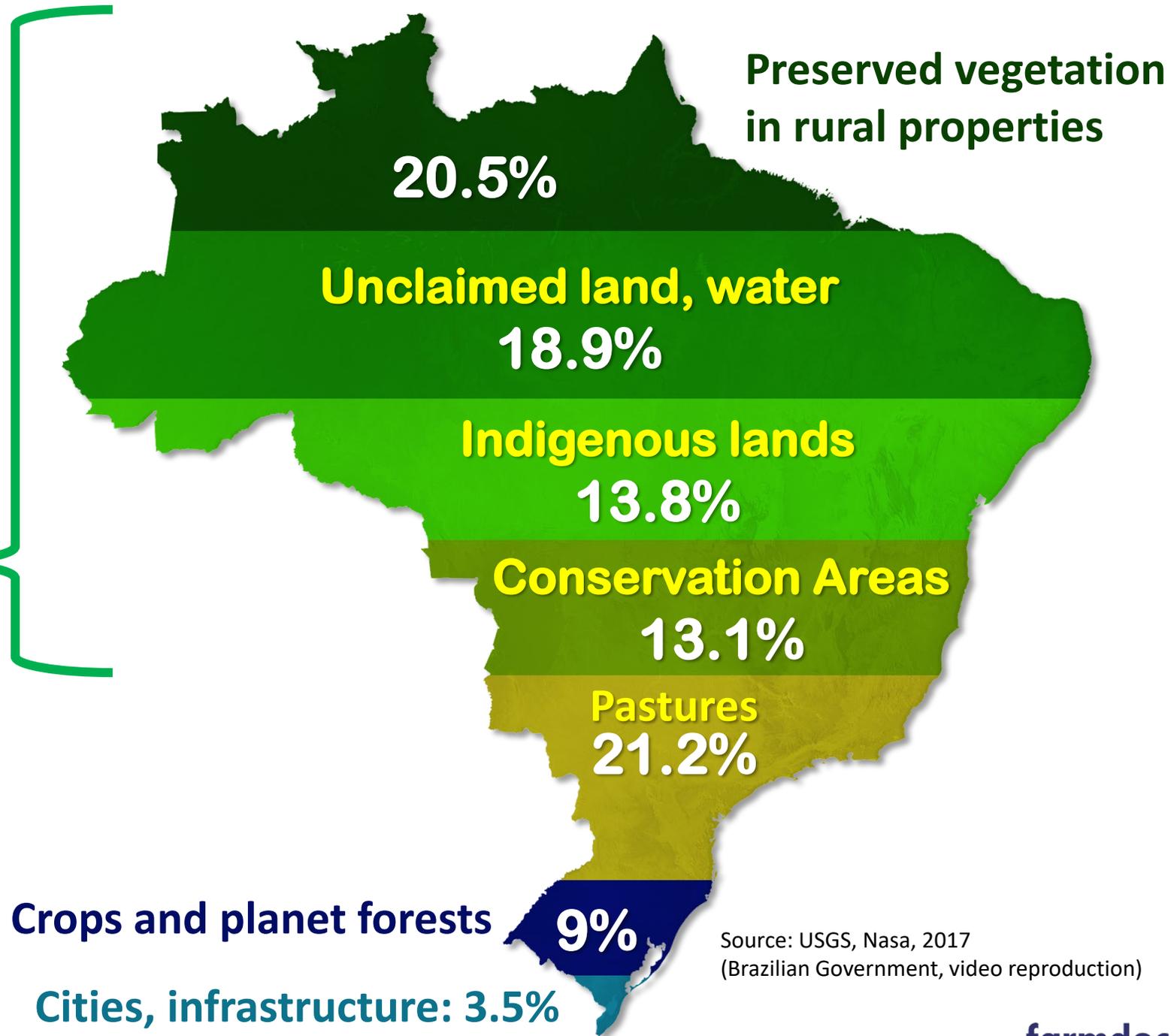
# Land Availability

Brazil has the largest agricultural area **capable of expansion** of any country and already is among the largest producer of products



# Land use and occupation

**66%**  
of it's  
Native Vegetation



Source: USGS, Nasa, 2017  
(Brazilian Government, video reproduction)

# 868 MILLION ACRES

**Total rural area in Brazil.**

*(About the equivalent  
of two Alaskas)*

**Only 7.5%**

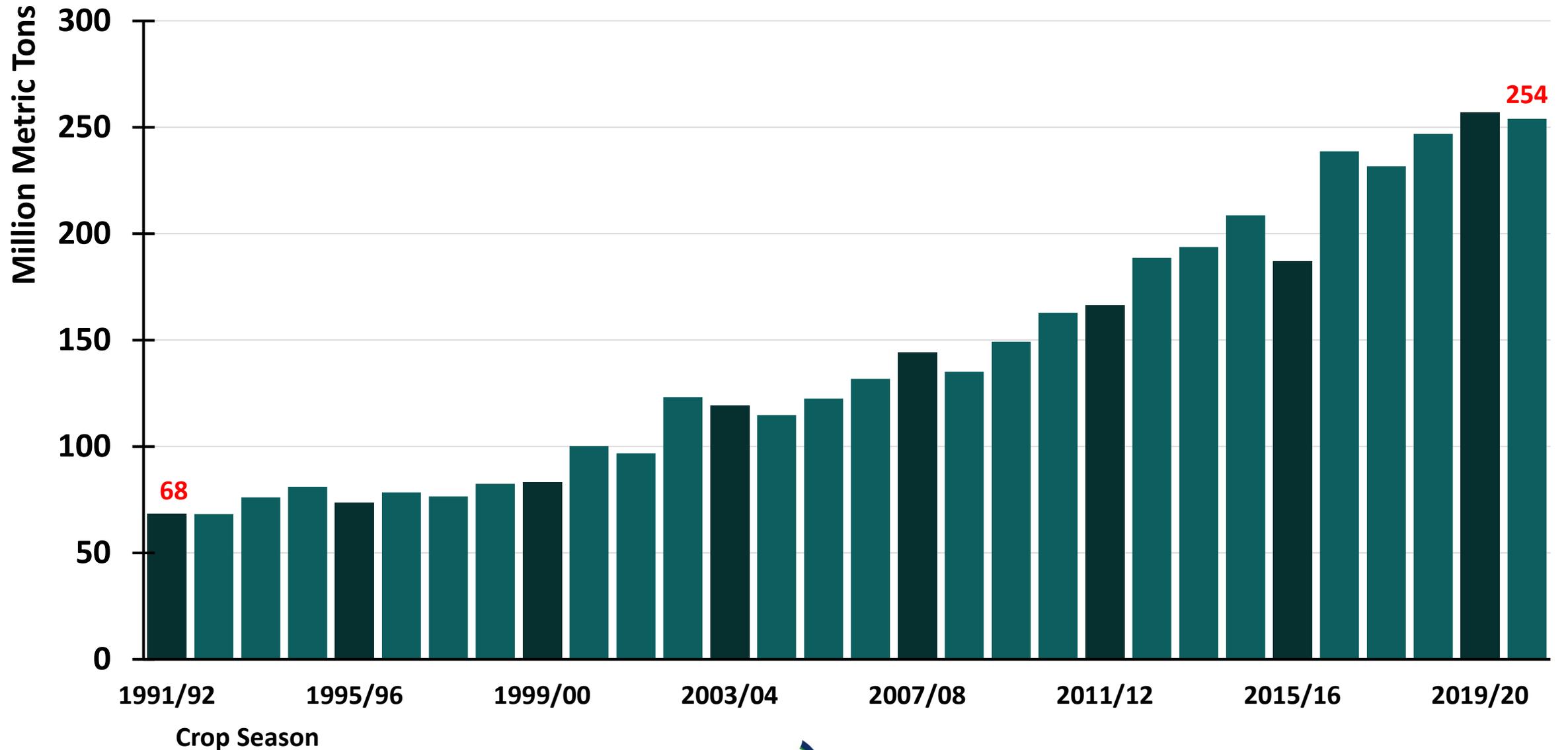
are currently  
in crop production.



Brazil is about  
**six times** larger  
than Alaska.



# Grain Production in Brazil



# Brazilian Expansion in Agriculture

Will plant of up to 3 crops in on the same area in the same year, the grain production expanded by **344% in 30 years.**

The average yields grew **155%** and the planted area increased **58%.**



# Soybean Production



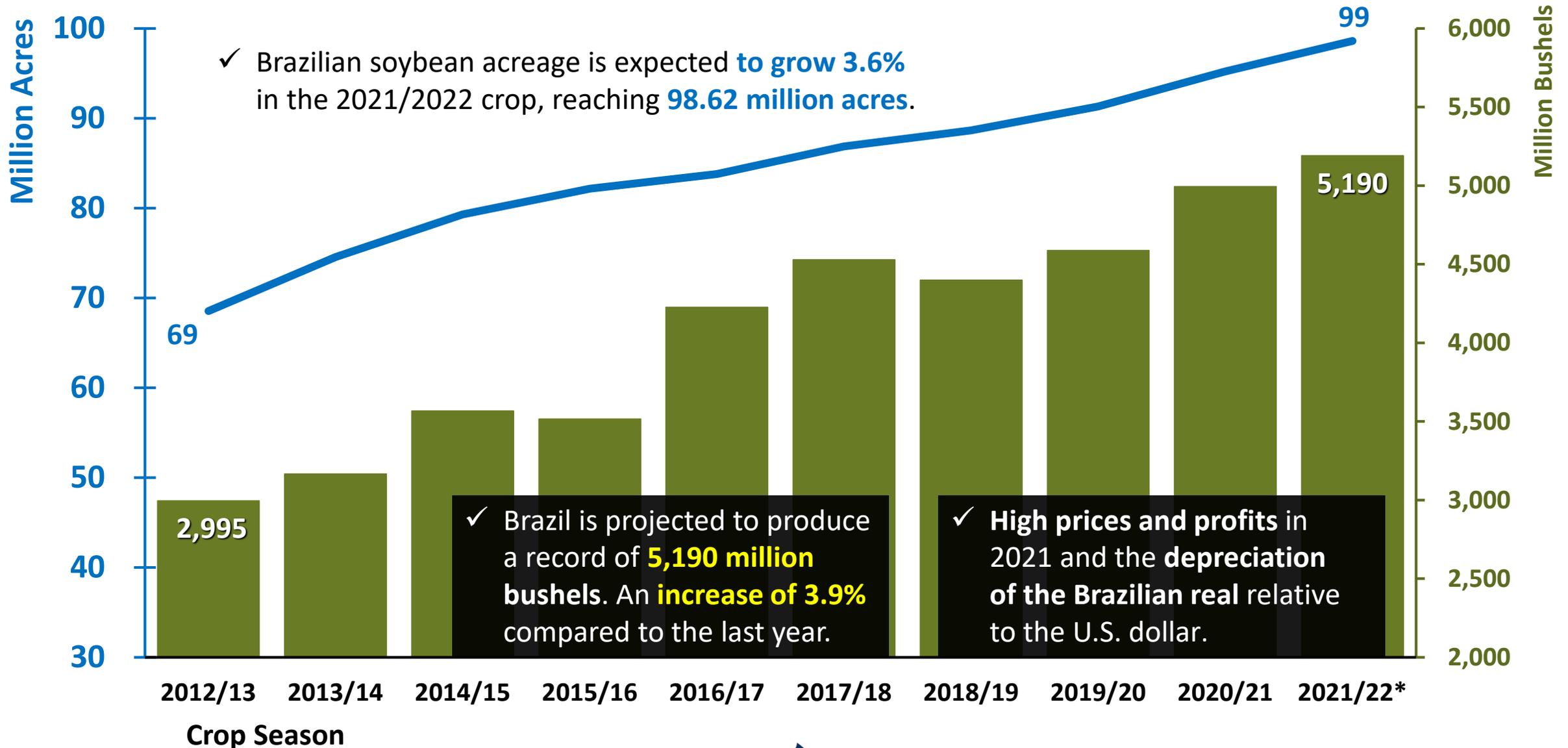
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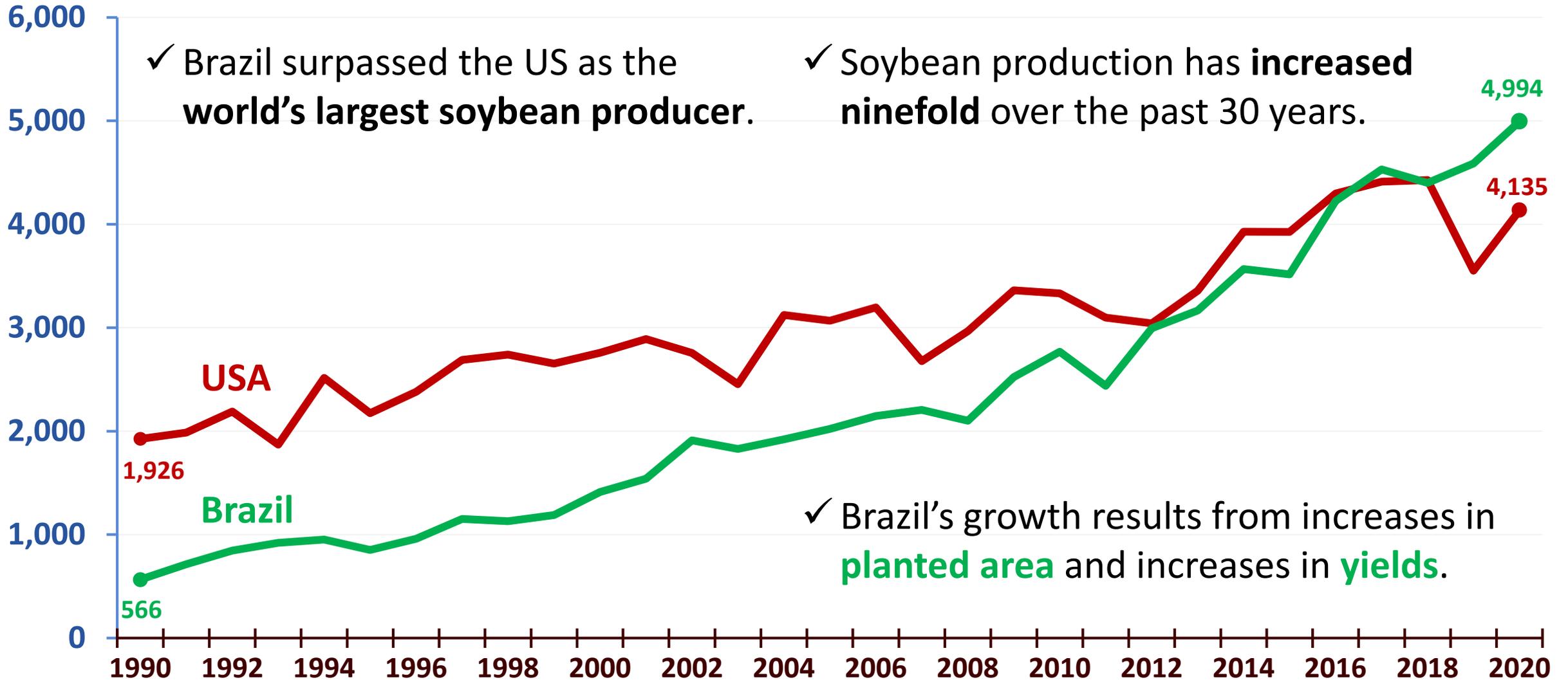
# Soybean Acreage and Production



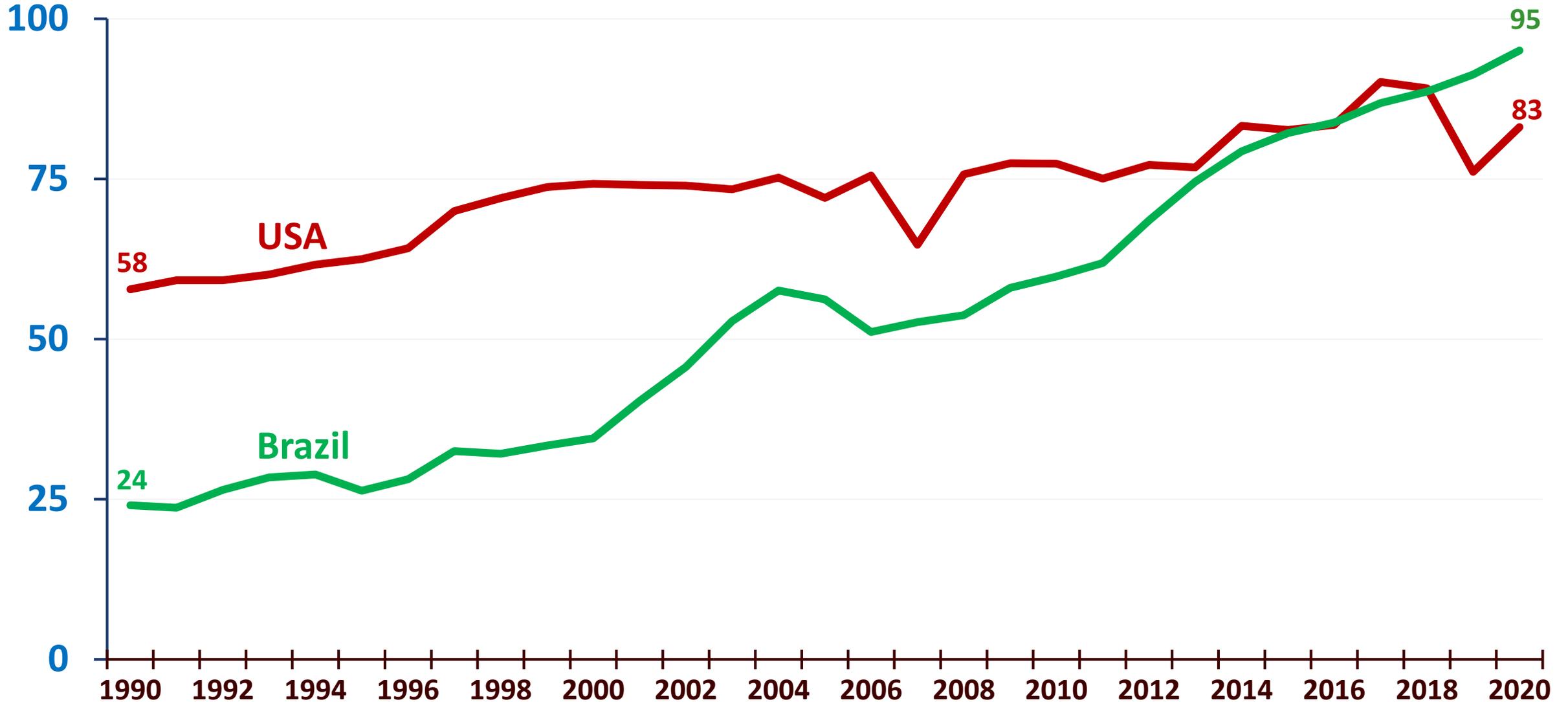
# Soybean market in Brazil

- ✓ **Three factors impact price:** international prices, port premium, and the exchange rate
- ✓ These factors are expected to remain high in 2022 driven by the low percentage of **world stock/consumption ratio** and increase of **domestic consumption**.
- ✓ Brazil is expected to increase both **exports** (Chinese demand) and **crush** (biodiesel and meat industry).

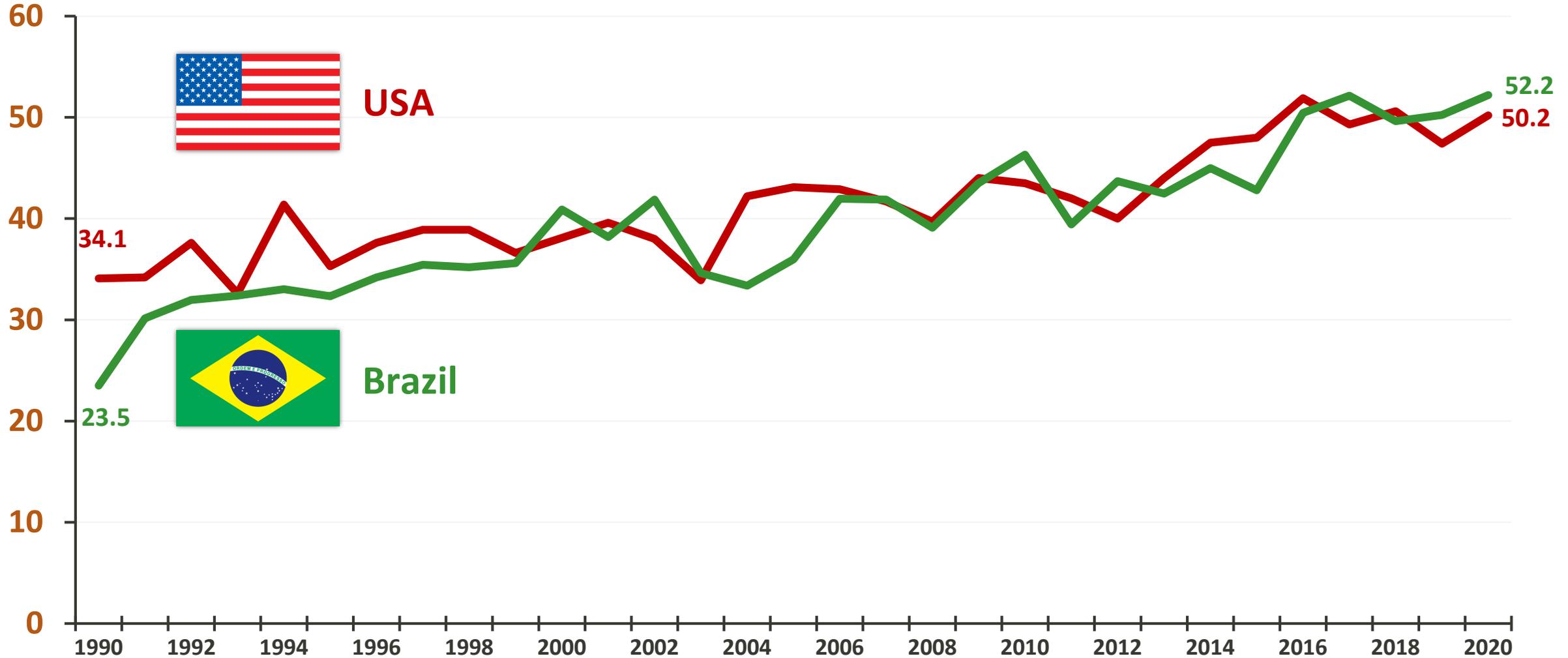
# Soybean Production in Million Bushels



# Soybean Acres Planted in Million Acres



# Soybean Yields in Bushels per Acre



# Migration of Soybean Planted Area

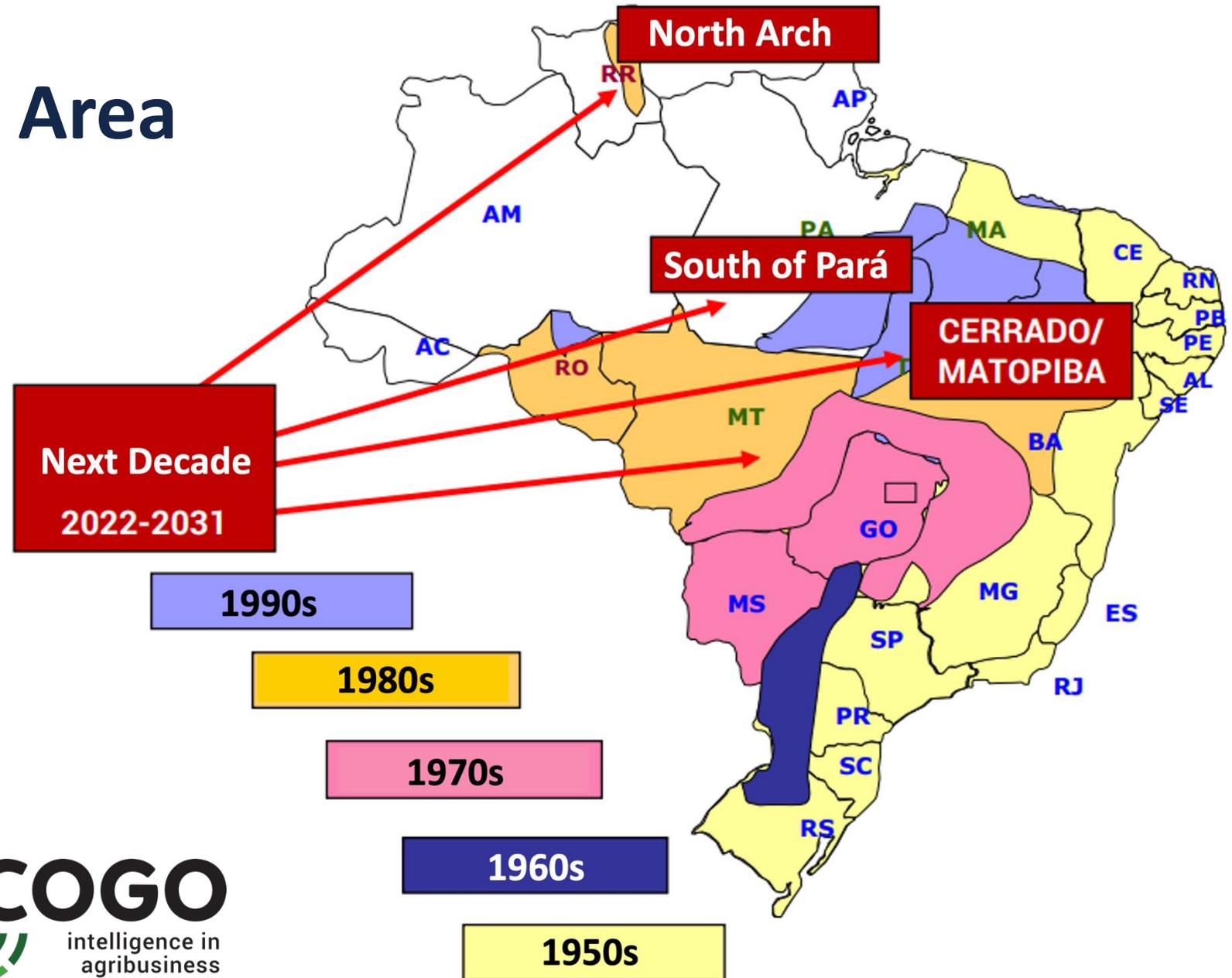
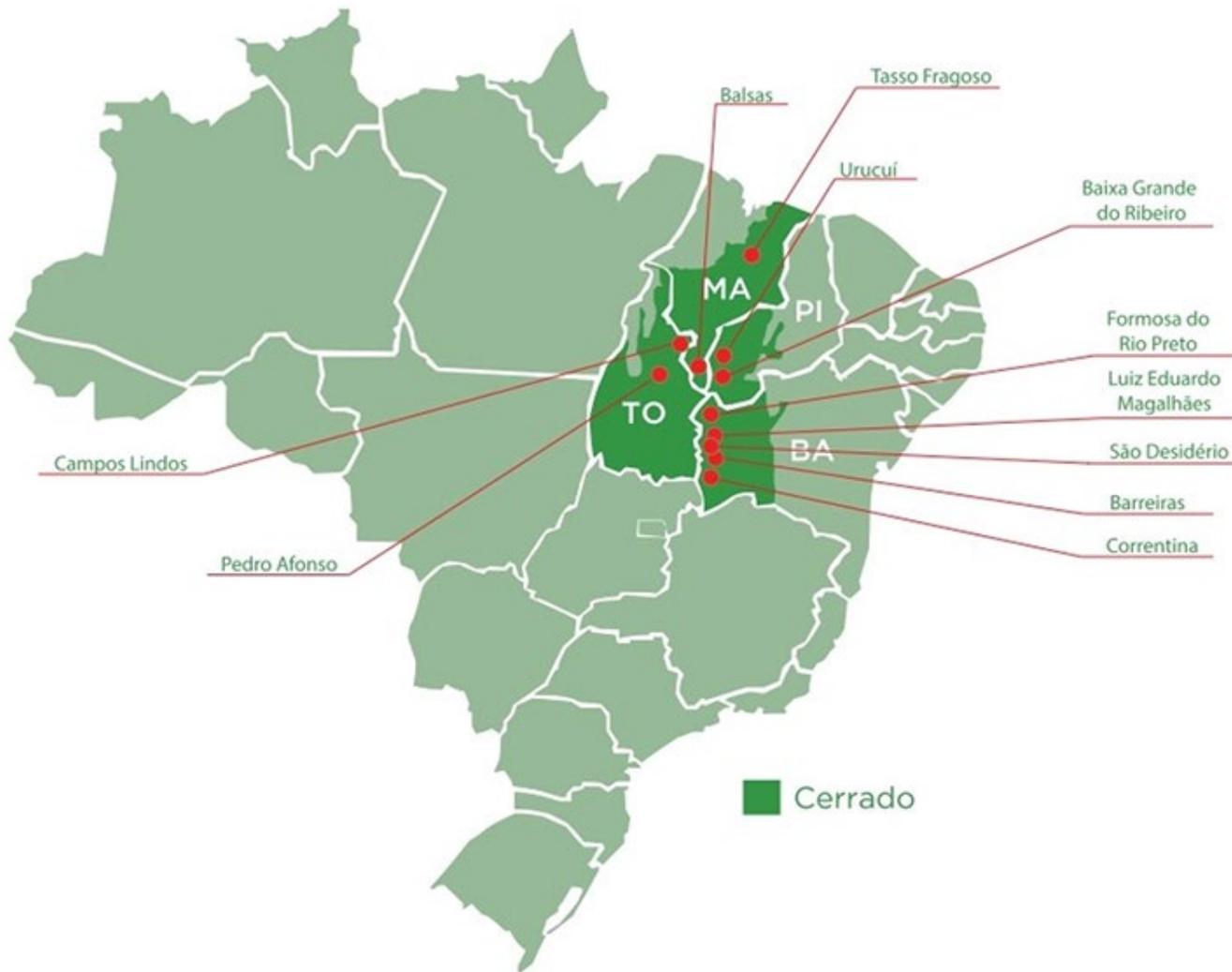


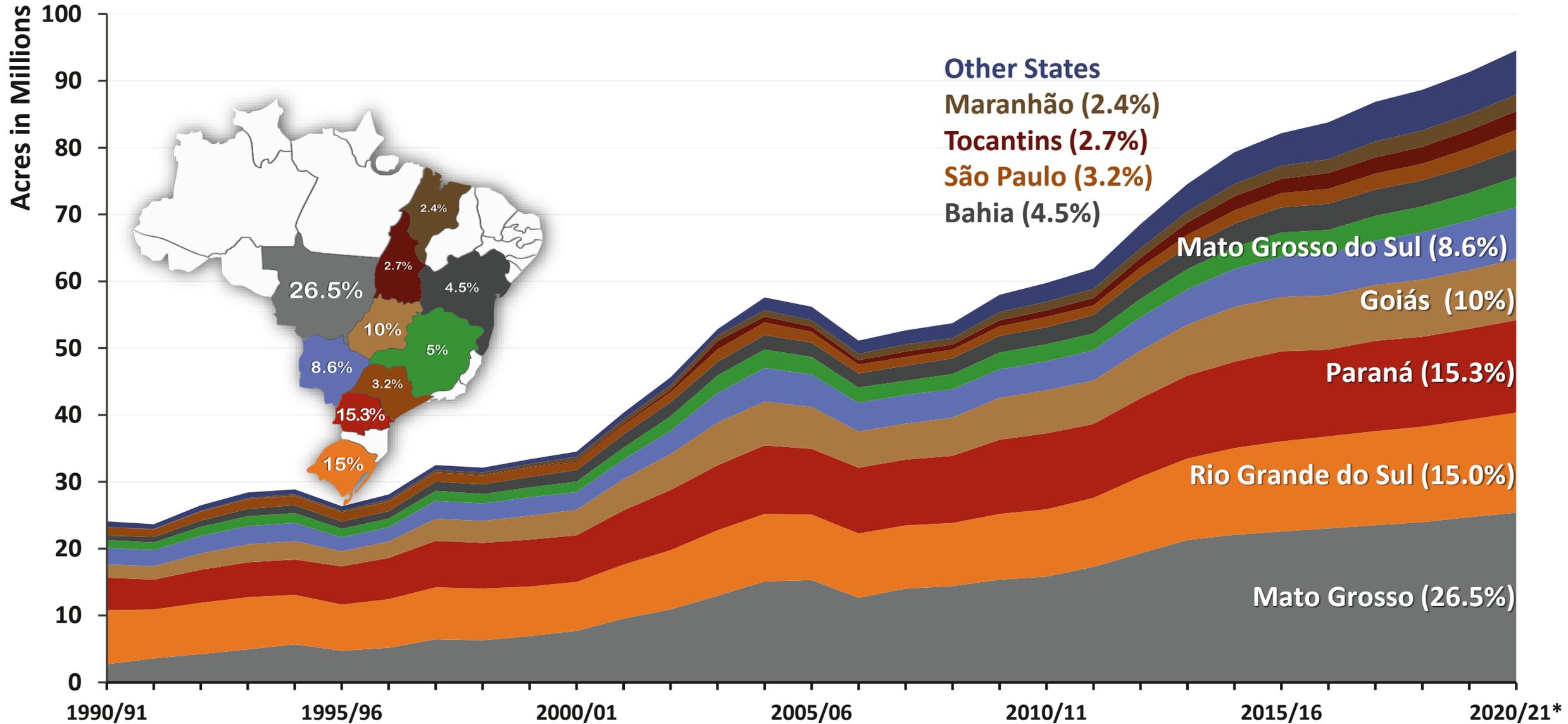
Figure 2. Location of the Matopiba Region



Source: MAPA (2020)

- ✓ The Matopiba is called of the **last agricultural frontier**
- ✓ Composed of Brazilian state of **Tocantins** and parts of the states of **Maranhão, Piauí and Bahia**.
- ✓ In 2020/2021, the soybean production in this region reached **12% of the total harvest** in the country.
- ✓ The expansion of soybeans to Matopiba occurred mainly due to the **low cost of land**, compared to the Midwest and the South of Brazil.

# Figure 4: Acres of Soybeans Planted for Top 10 States



\*Forecasted number in March

# Corn Production



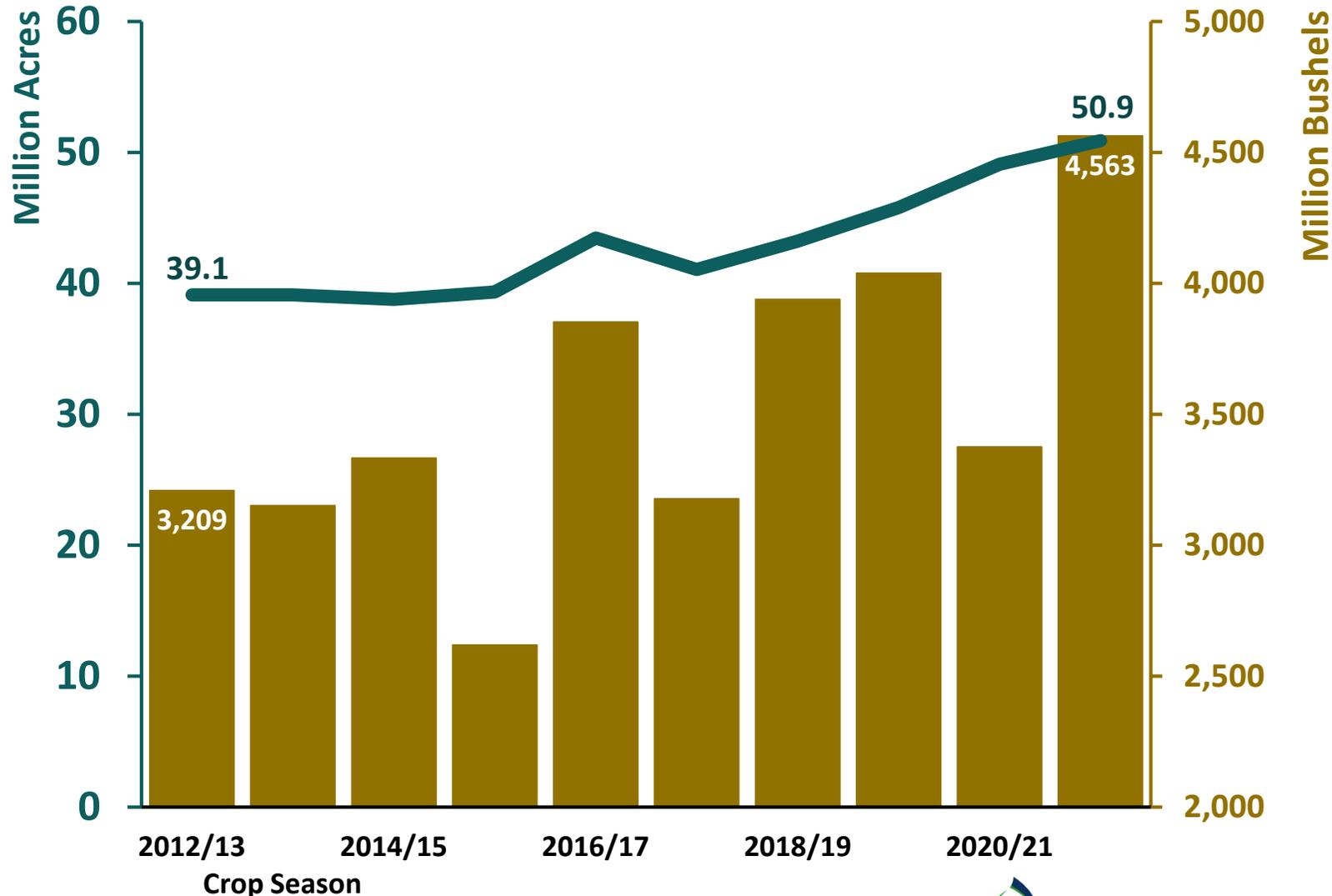
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# Corn Acreage and Production



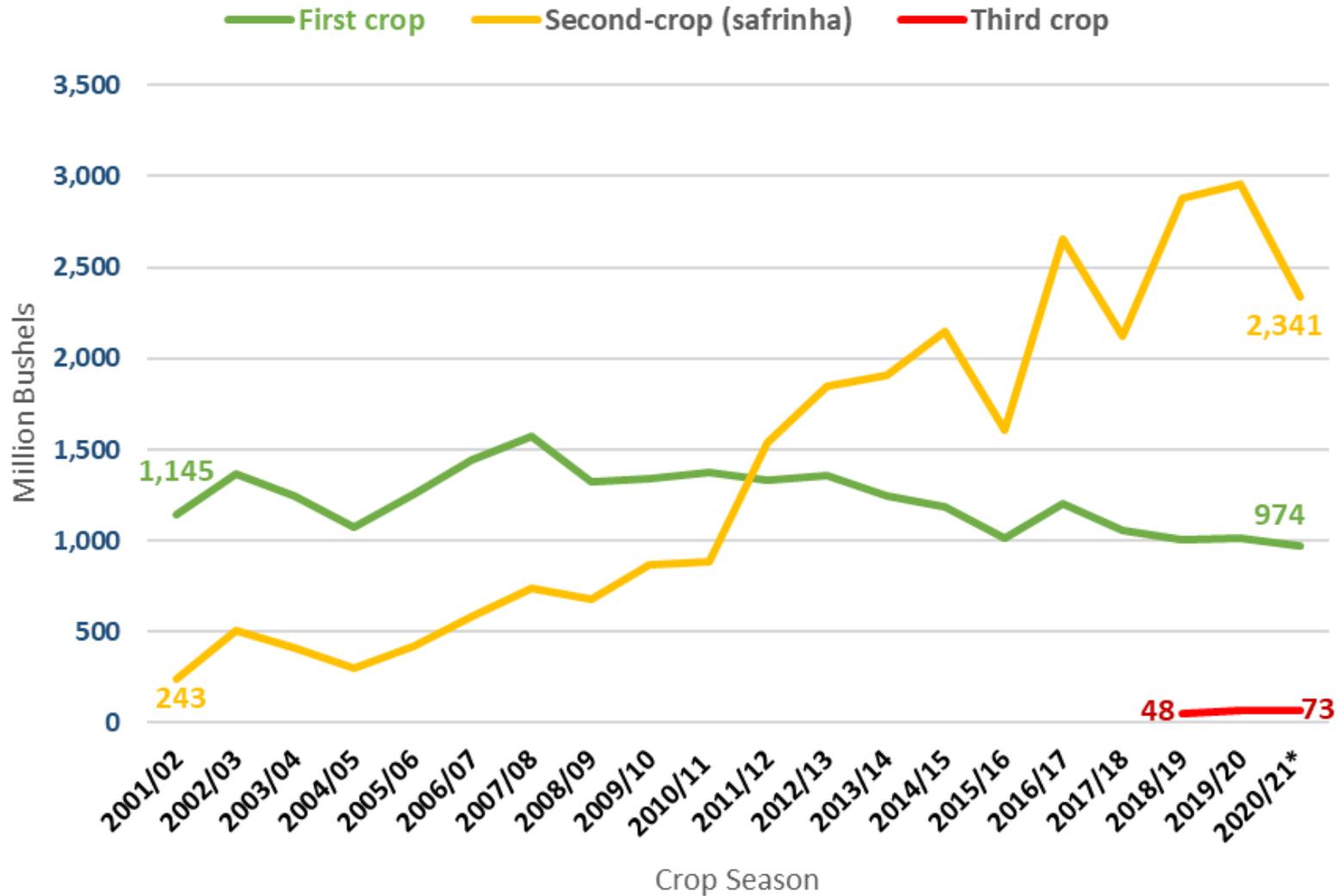
- ✓ The 2021-2022 corn crop in Brazil is expected to increase by 3%, reaching **50.9 million acres**.
- ✓ **High prices and lower corn supplies** in Brazil this year because of weather problems are the main factors.
- ✓ Drought reduced safrinha production **by 20%**.
- ✓ As a result, corn production is expected to increase **33.8%** in the next harvest, producing a record **4,563 million bushels**.

Source:  Conab

# Corn market in Brazil

- ✓ The motivation comes from this year's **attractive prices**.
- ✓ The cash price has risen more than **100% in 12 months**.
- ✓ Domestic grain demand is expected to remain high in 2022 because of the need for **animal feed and for ethanol**.
- ✓ Brazil needs corn to supply **chicken and pork industry** that exported products to Asia and the Middle East.

# Extraordinary Increase of the Safrinha

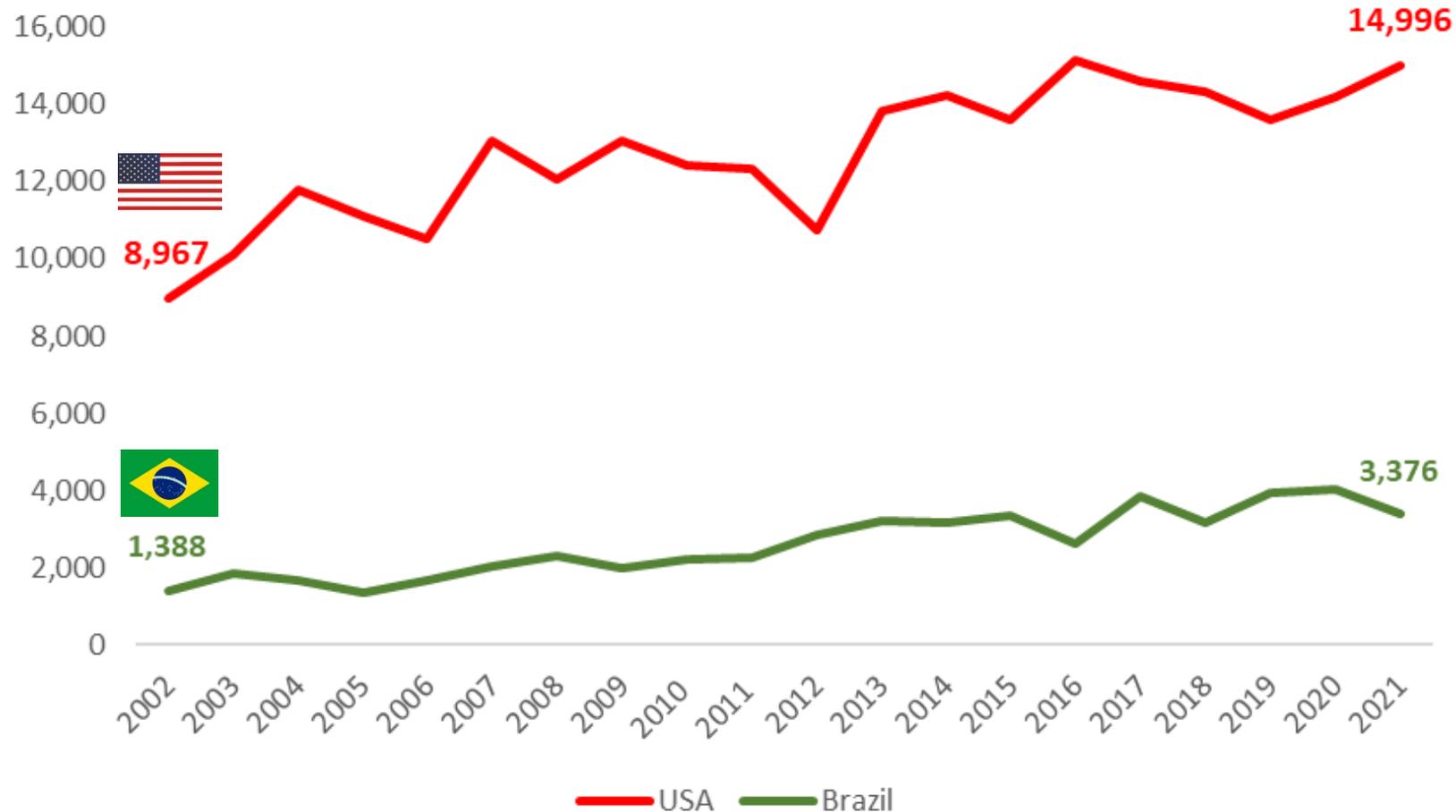


- ✓ Over the past 20 years, second-crop corn (safrinha) production has risen **thirteenfold**.
- ✓ The safrinha crop accounts for **71.7% of total corn planted area**, followed by first crop (26.7%) and third crop (1.6%).
- ✓ In recent years, a **third crop corn** season started to emerge in the north and northeast.

Source:  Conab

# Corn production in Brazil and the US

Corn Production in Million Bushels



✓ The corn production in Brazil increased **143% in 20 years.**

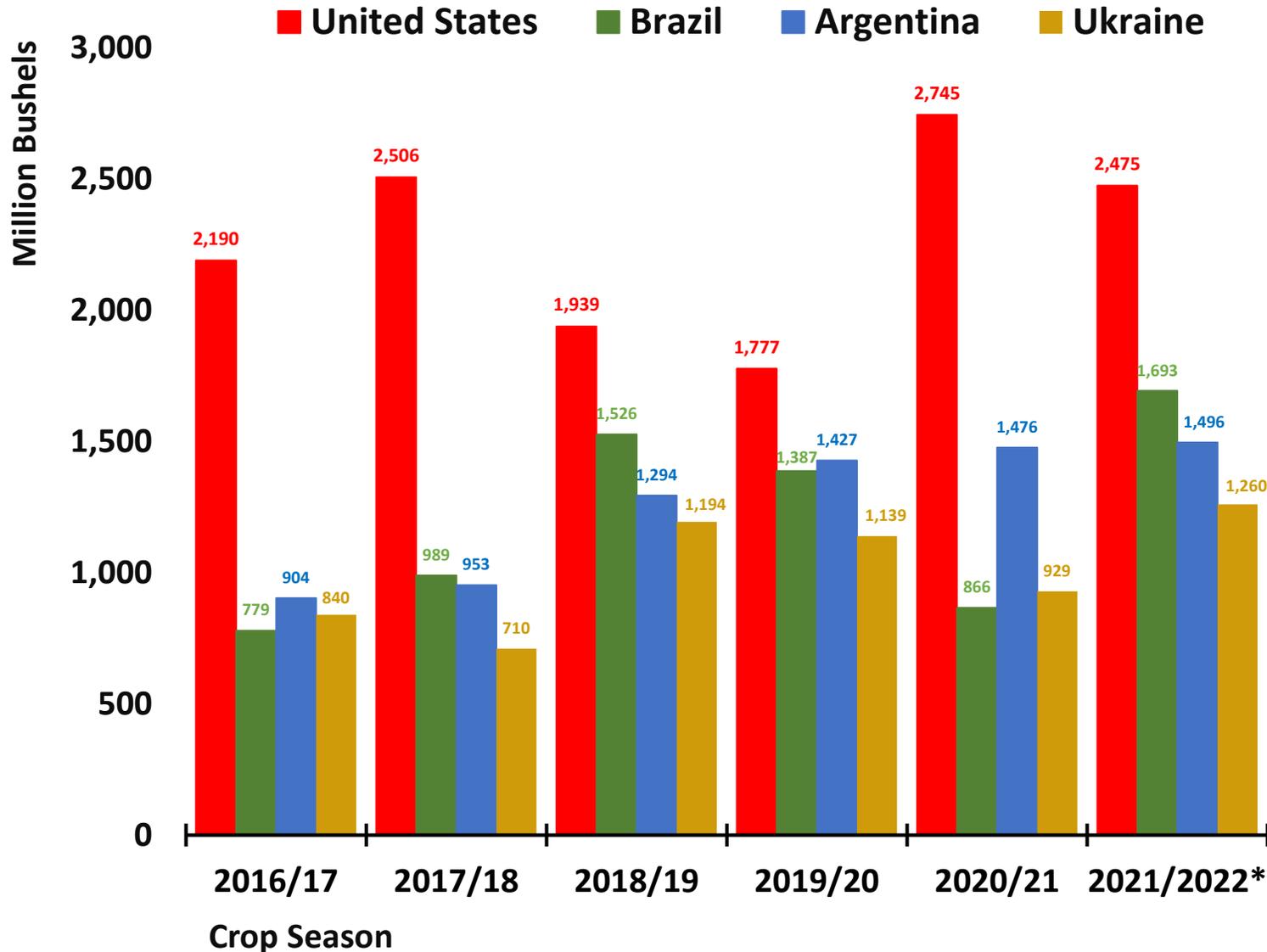
✓ In the USA, the corn production grew **67% in two decades.**

Source: USDA and Conab

# Growth factors

- Land availability,
- Favorable climate with a long growing season that enables multiple harvests per year,
- Technological advances in soil management and improvements in hybrid corn varieties, and
- Rising global demand and higher international prices.

# World Corn Trade



- ✓ Brazil has emerged as the largest U.S. competitor in the **global corn market**.
- ✓ Brazil's share of world corn trade increased from **7.5%** percent in 2010/11 to **22%** percent in 2020/21.
- ✓ Brazil is expected to be the **world's second largest corn exporter** over the next 10 years (USDA projection).

# Could U.S. corn exports be affected in the longer term by the emergence of Brazil as a major corn producer?

Yes

No

I do not know

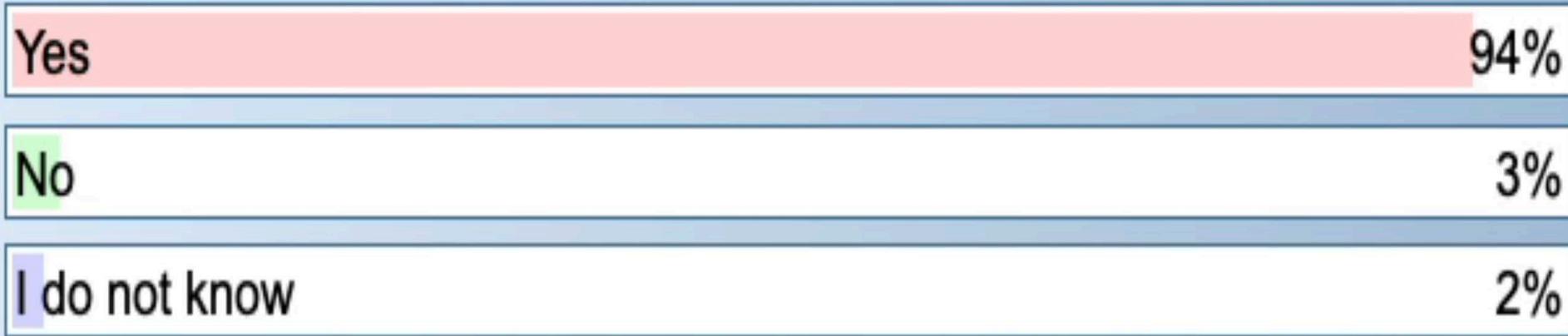
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# Could U.S. corn exports be affected in the longer term by the emergence of Brazil as a major corn producer?



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# Growth Forecast

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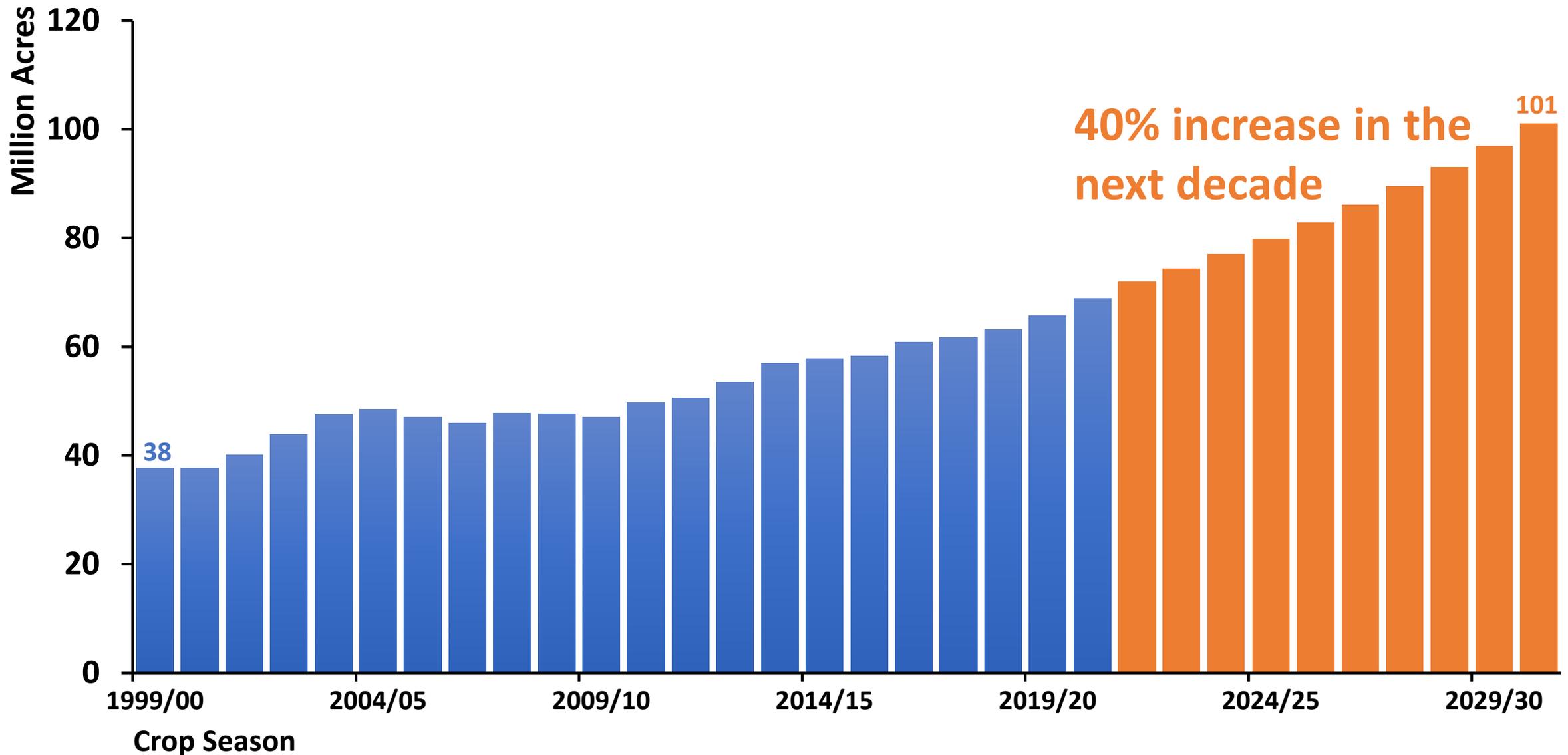


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Image: Diogo Zanatta

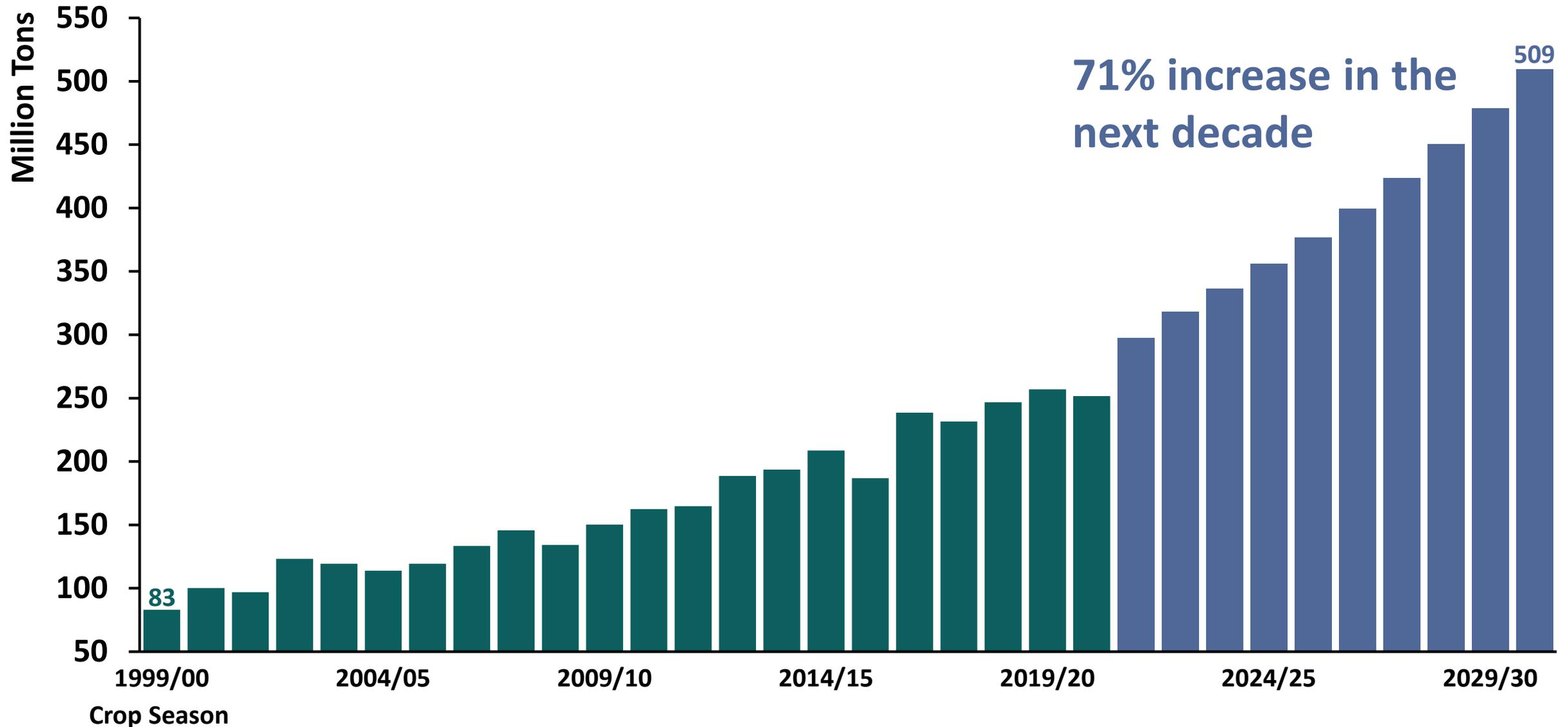
# Brazilian grain acreage projection – 2030/31



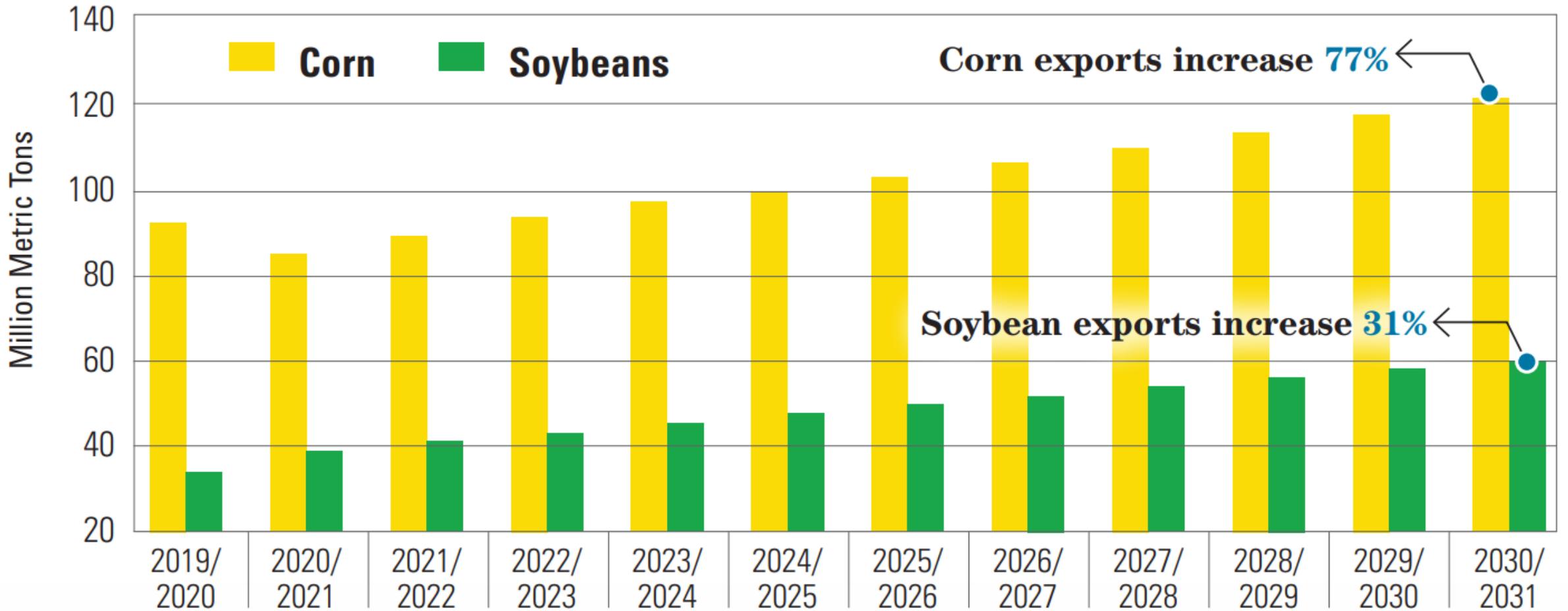
40% increase in the next decade

101

# Brazilian grain production projection – 2030/31



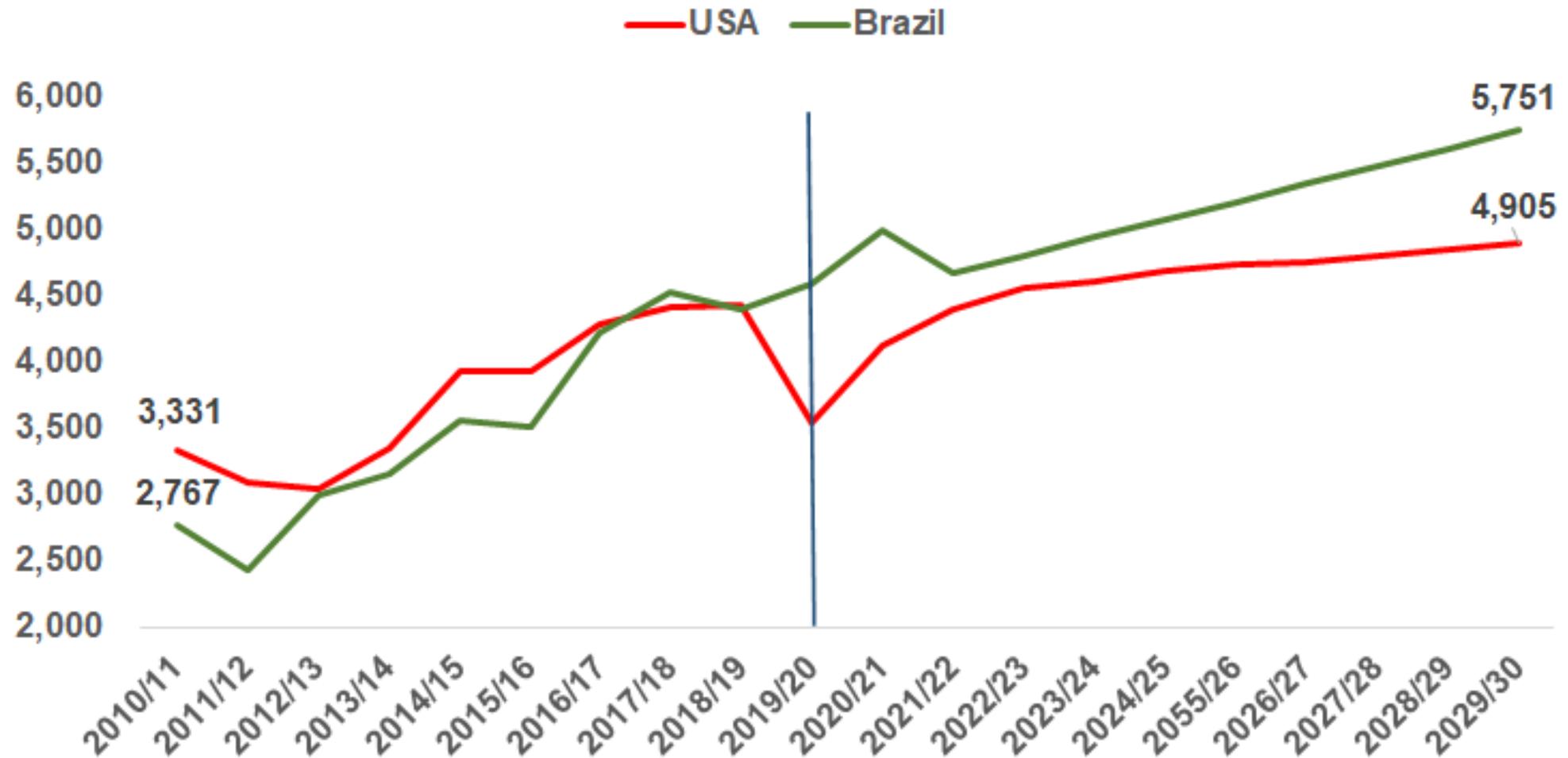
# FORECAST FOR BRAZIL EXPORTS



Source: Top Producer with USDA data

# Brazil Likely to Remain World Leader in Soybean

Figure 1. Soybean Production in Million Bushels



Source: USDA and MAPA

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# The expansion of the area planted in soybeans in Brazil over the next decade is projected to occur as:

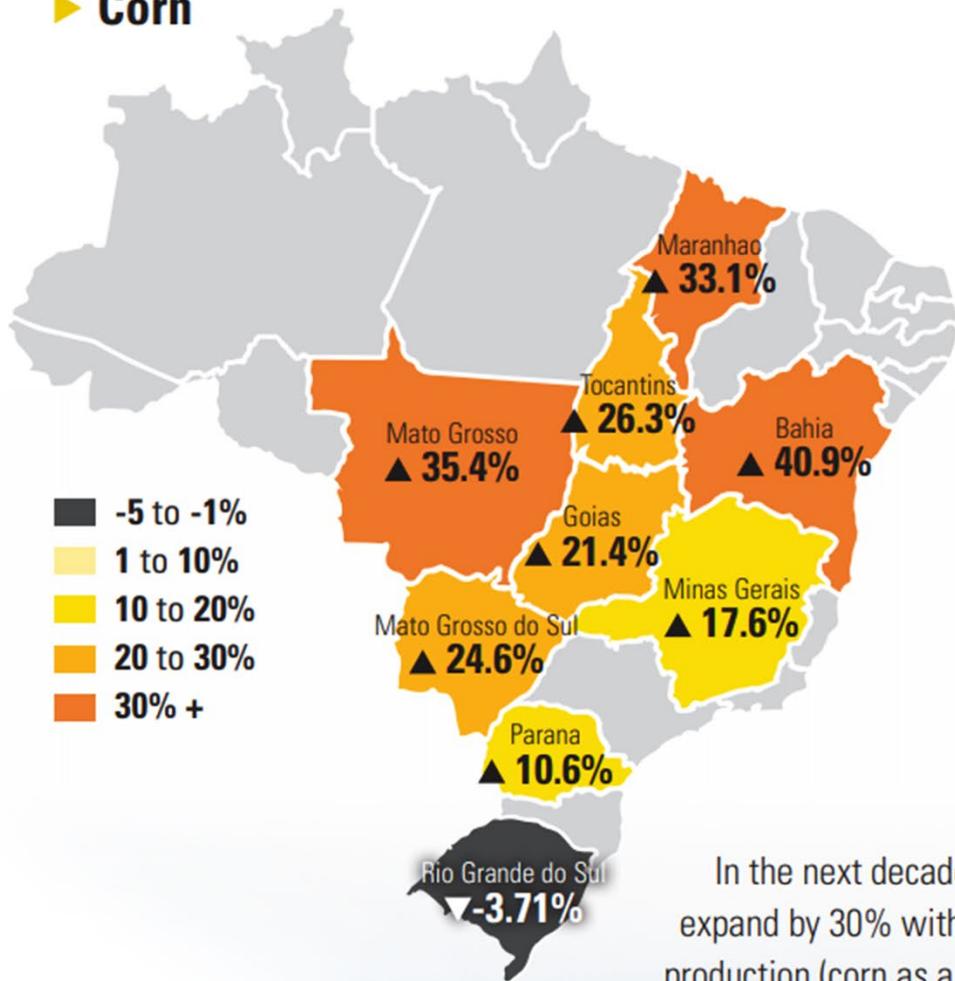


- **Underutilized pasturelands** are converted to soybeans,
- Soybeans are planted in **new agricultural frontiers**,
- Soybeans will **replace other crops** in current agricultural areas, and
- **The increased use of irrigation** will open areas for soybean production.

# PERCENT GROWTH IN PRODUCTION BY STATE

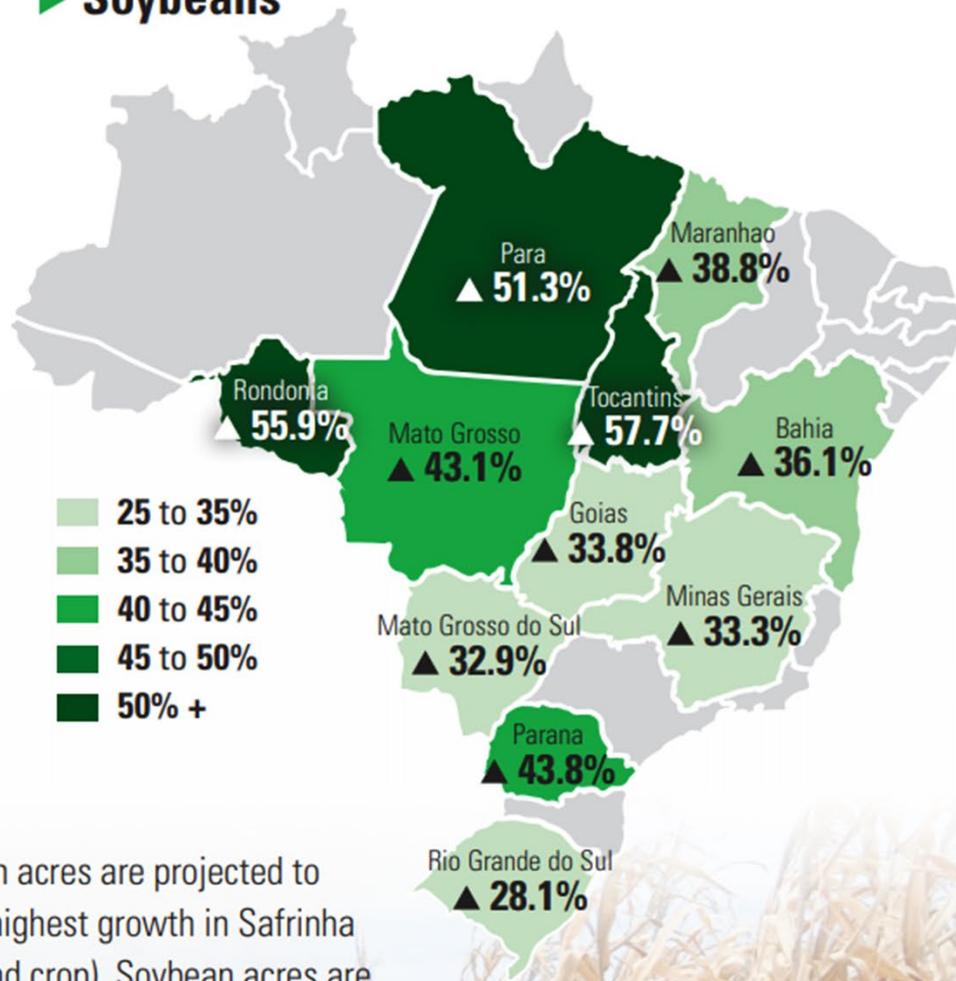
2018/2019 to 2028/2029

## ▶ Corn



- -5 to -1%
- 1 to 10%
- 10 to 20%
- 20 to 30%
- 30% +

## ▶ Soybeans



- 25 to 35%
- 35 to 40%
- 40 to 45%
- 45 to 50%
- 50% +

In the next decade, corn acres are projected to expand by 30% with the highest growth in Safrinha production (corn as a second crop). Soybean acres are projected to increase by 109% through the conversion of degraded pastureland and clearing of new land.

Source: Top Producer/USDA data

# What is the potential of the current soybean area in Brazil to incorporate corn as a second crop?

- Up to 20%
- Up to 40%
- Up to 60%
- More than 60%

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# What is the potential of the current soybean area in Brazil to incorporate corn as a second crop?



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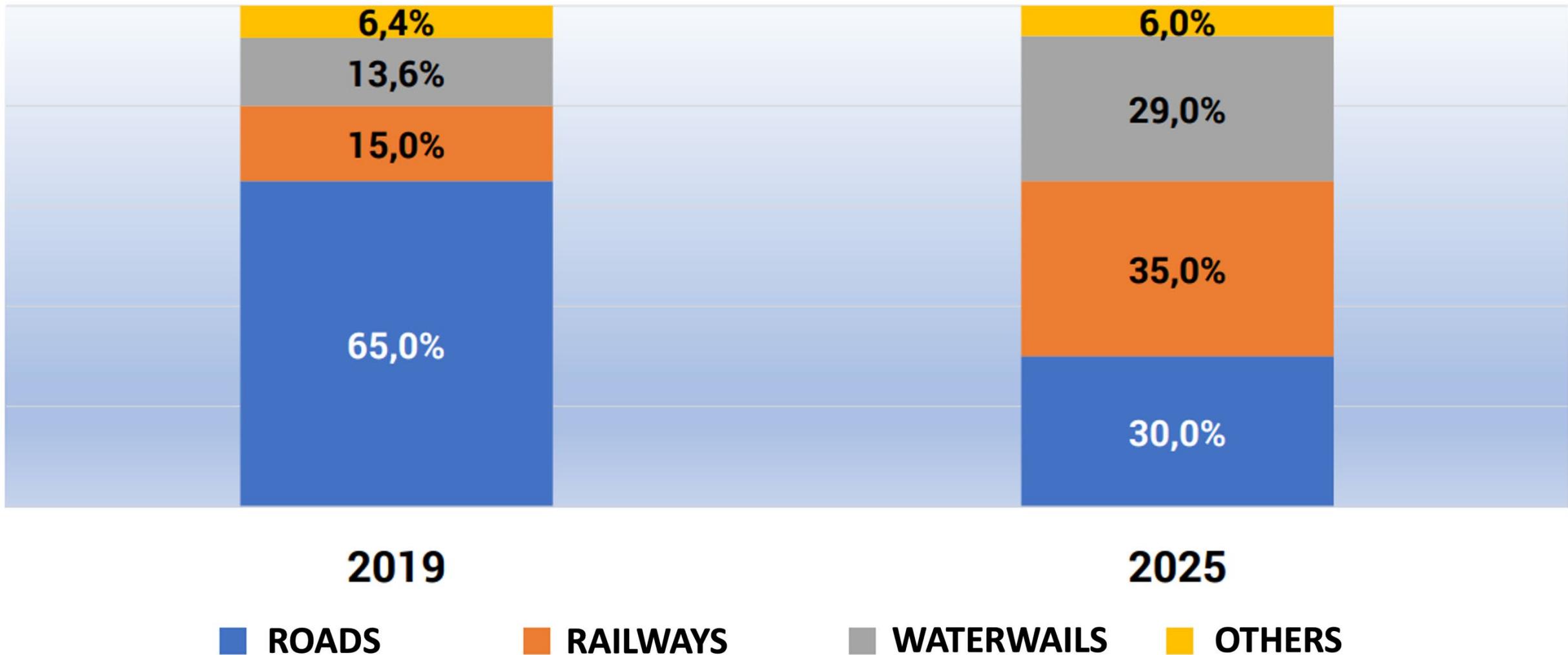


# Barriers to growth

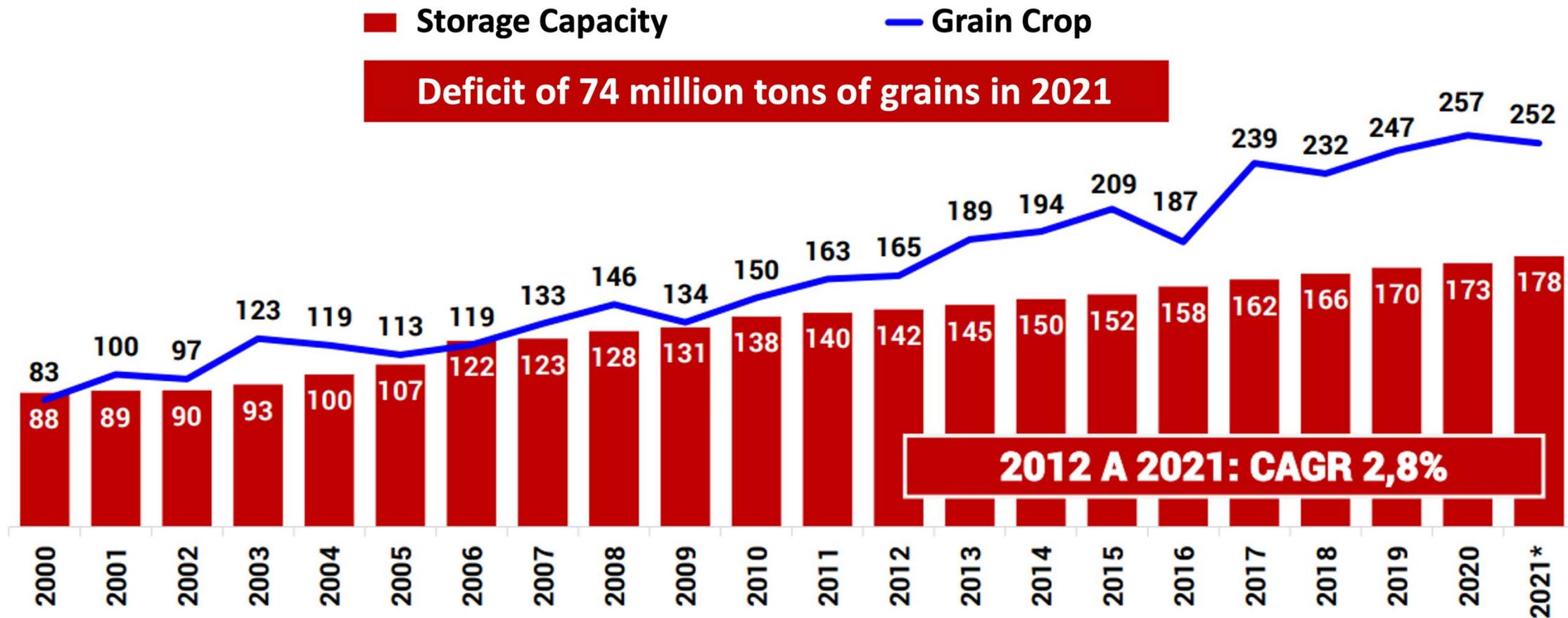
- Dependence on road transport by trucks
- On-farm storage deficit
- Low investments in irrigation



# Cargo transportation in Brazil

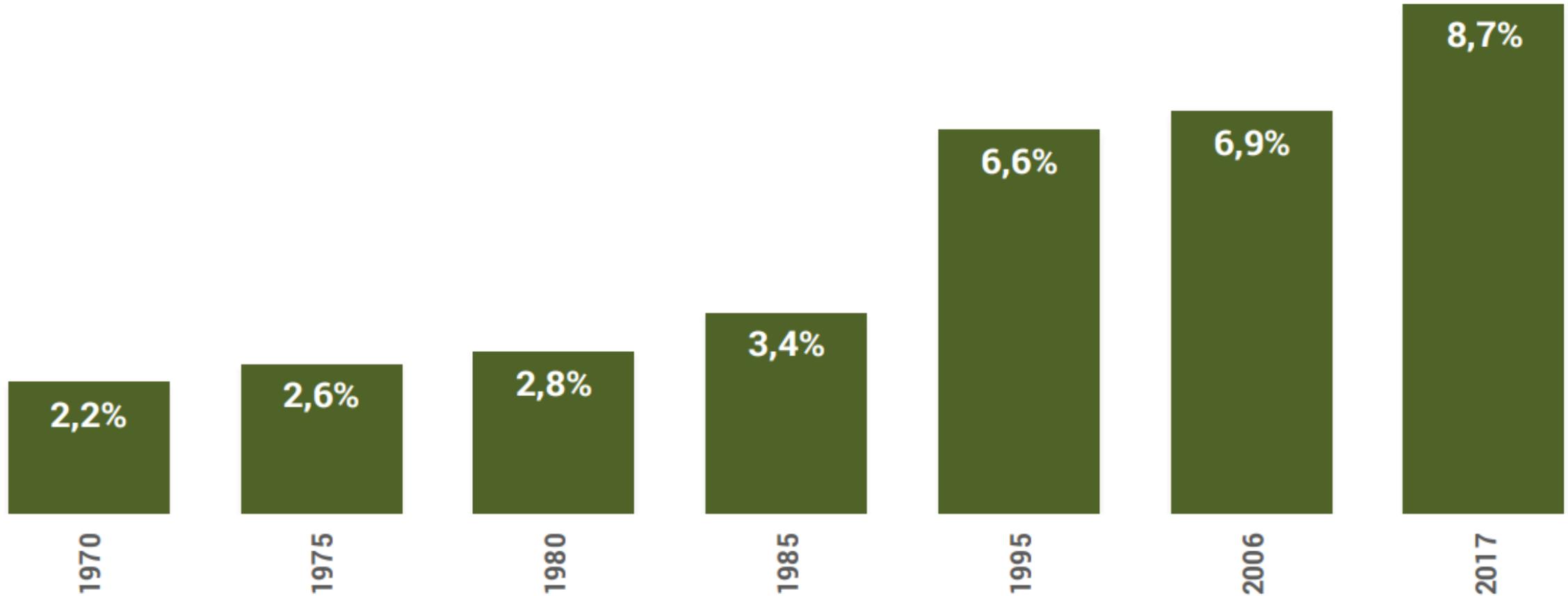


# Grain Crop x Static Storage Capacity (MMT)



\*2021: PROJEÇÕES COGO INTELIGÊNCIA EM AGRONEGÓCIO

# Irrigated Area x Total Planted Area in Brazil (%)



# HOW COMMUNICATION AFFECTS THE ADOPTION OF TECHNOLOGIES IN SOYBEAN PRODUCTION

Scan here to take  
the online survey



Realization:  UNIVERSITY OF  
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Support: **farmdoc**

# Make Your Opinion Known, A farmdoc Survey

**farmdocDAILY**  
I Agricultural, Consumer & Environmental Sciences | University of Illinois Urbana-Champaign

**How Communication Affects the Adoption of Technologies in Agriculture in the United States and Brazil**  
Joana Colussi and Gary Schnitkey  
Department of Agricultural and Consumer Economics  
University of Illinois  
Antônio Domingos Padula  
Graduate Program in Management  
Federal University of Rio Grande do Sul (Brazil)  
August 18, 2021  
farmdoc daily (11): 121

Recommended citation format: Colussi, J., G. Schnitkey, and A. D. Padula. "How Communication Affects the Adoption of Technologies in Agriculture in the United States and Brazil." *farmdoc daily* (11): 121, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, August 18, 2021.

Permalink: <https://farmdocdaily.illinois.edu/2021/08/how-communication-affects-the-adoption-of-technologies-in-agriculture-in-the-united-states-and-brazil.html>

How do farmers decide what precision and digital agricultural technologies to adopt? Moreover, how do communication channels affect their decision-making? To answer these questions we are inviting soybean farmers in Illinois, Iowa, Minnesota, Indiana, and Nebraska – the top five soybean-producing states in the United States – to take a short survey (<https://go.illinois.edu/farmdocsurvey>). We have already collected data from Brazil's top soybean-producing states. Our objective is to measure the influence of various communication channels on farmers' decisions in both countries, which are world leaders in soybean production.

The survey takes five to eight minutes to complete, and responses are confidential. Participants who provide an email address will receive the survey results. The results will increase knowledge of the most efficient communication channels for the dissemination of digital agriculture technologies. In addition, the study will support new research in agricultural communication, an area still lacking data in the United States and Brazil.

For more information and to take the survey, visit: <https://go.illinois.edu/farmdocsurvey>

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1 farmdoc daily August 18, 2021

- We already collected data in Brazil with almost **500 respondents** in the top five soybean-producing states.
- Now, we are inviting soybean farmers in **Illinois, Iowa, Minnesota, Indiana, and Nebraska** to complete a short survey.
- It takes only **five minutes** and responses are completely confidential.
- You can look for more information about the study in this article published on **Farmdoc Daily in August**.

**Scan here to take this  
5 minutes online survey**



**You can also access the online survey by visiting the link:**

**<https://go.illinois.edu/farmdocsurvey>**

# Are you planning on taking the farmdoc survey?

- Already took it
- Yes
- Yes, please email link and information
- No
- Sorry but I am not a soybean farmer

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# Upcoming Webinars

## Managing Weeds in Variable Weather: Insights from Data Mining

**11:00 to noon CT, Thursday September 30<sup>th</sup>**

**by Marty Williams and Aaron Hager**

Global climate change is creating challenges for agriculture today and will continue in the future. During the past 50 years in the US Cornbelt, average air temperatures have risen and rainfall has become more variable, including an increase in the total number of extreme rainfall events. These trends are expected to continue. Weather and weeds are two stressors that can act simultaneously to affect crop performance, yet their comprehensive study in tandem is limited. The webinar will discuss the most important relationships among weed control and weather variability on corn yield loss due to weeds.

## Is the MRTN Nitrogen Rate for Corn High Enough?

**11:00 to noon CT, Thursday October 7<sup>th</sup>**

**by Emerson Nafziger and Dan Schaefer**

The Maximum Return to Nitrogen (MRTN) is a recommended N rate based on recent N response trials, and is often lower than rates based on expected yields. We'll discuss how much risk this brings, and will introduce a way for producers to check MRTN performance in the field.

# Thank You for joining us!

## Please submit your questions

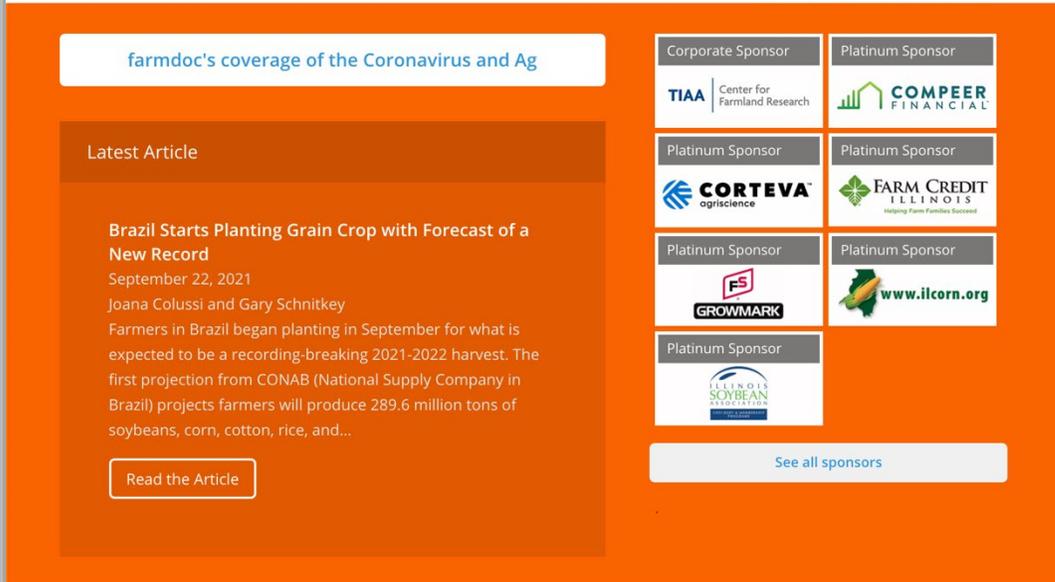


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