

# USDA's 94th Annual Agricultural Outlook Forum



## Brazil's Soy Infrastructure: Improvements and Perspectives

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February 22, 2018

# This is how soy started...



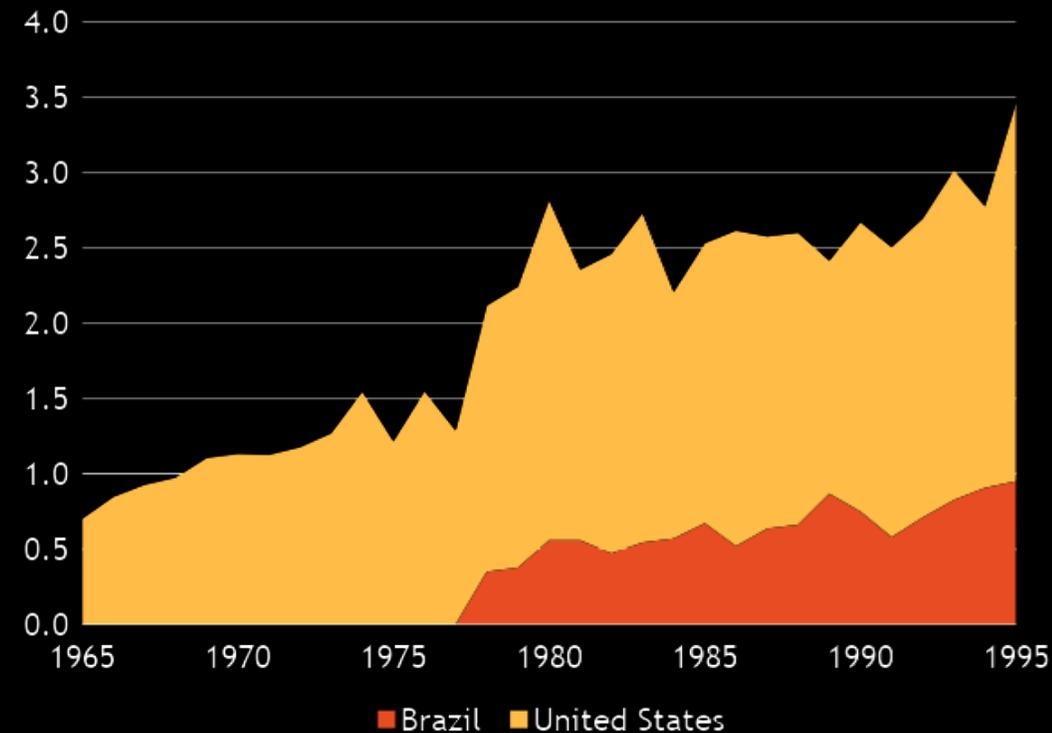
Credit image: Embrapa, Portifólio de Tecnologias Embrapa Soja 1975-2005, Documentos 262.



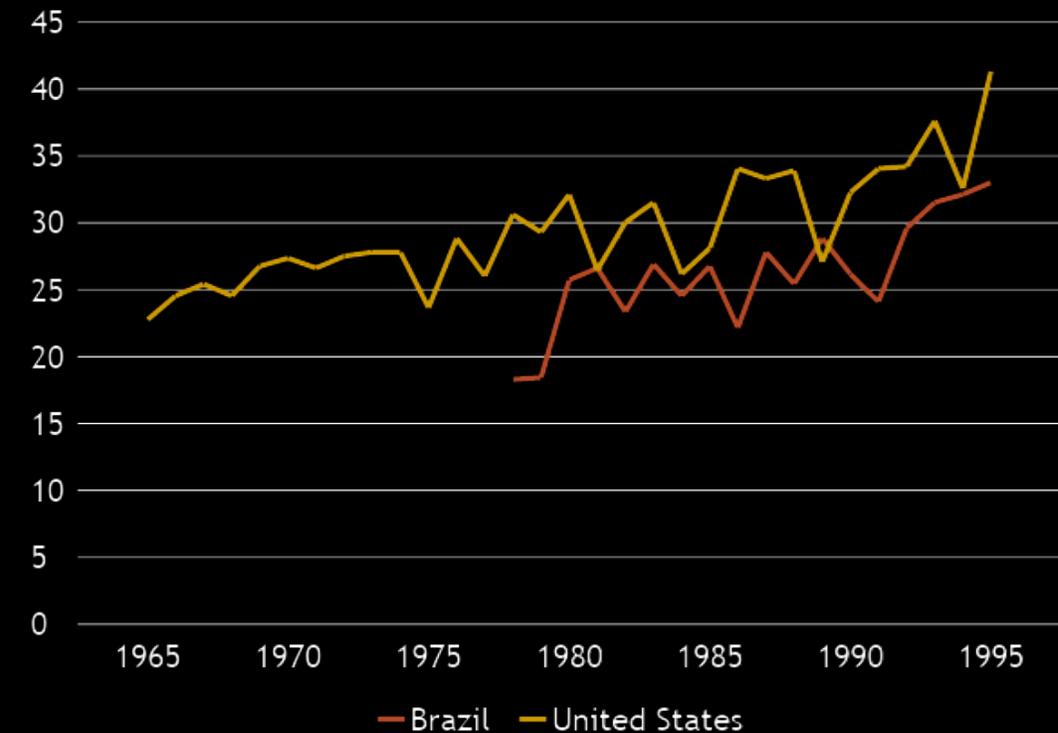
Credit image: Amaggi.

# In the 1970's, soy began to grow, but its potential remained unexploited...

## Production (billion bushels)

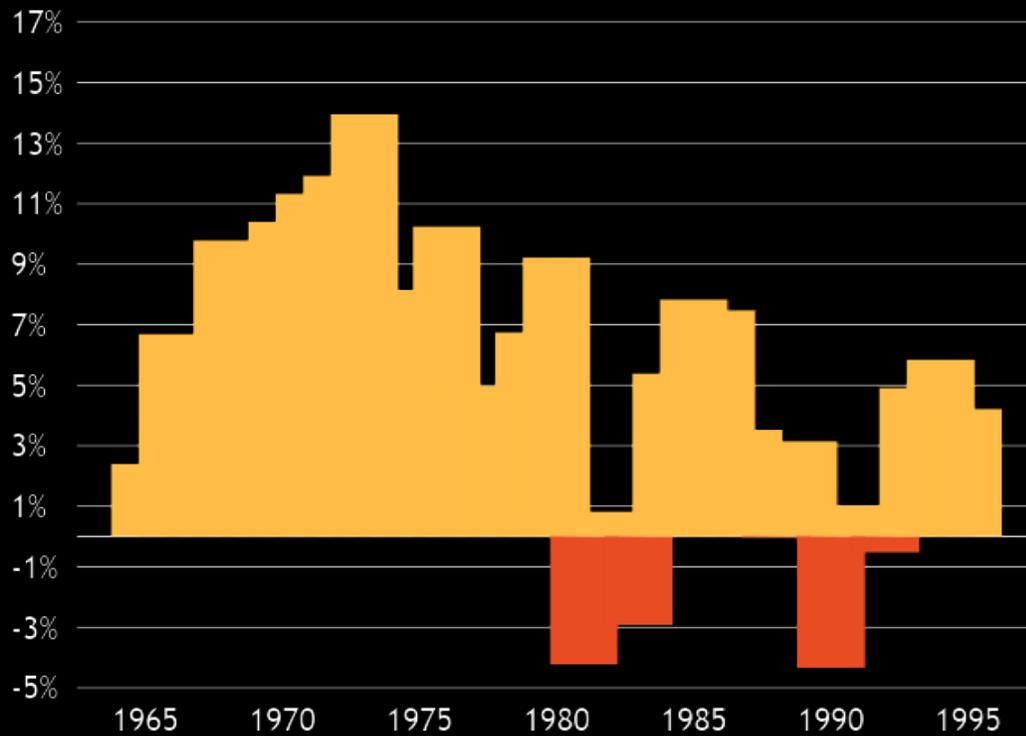


## Yield (bushels/acre)

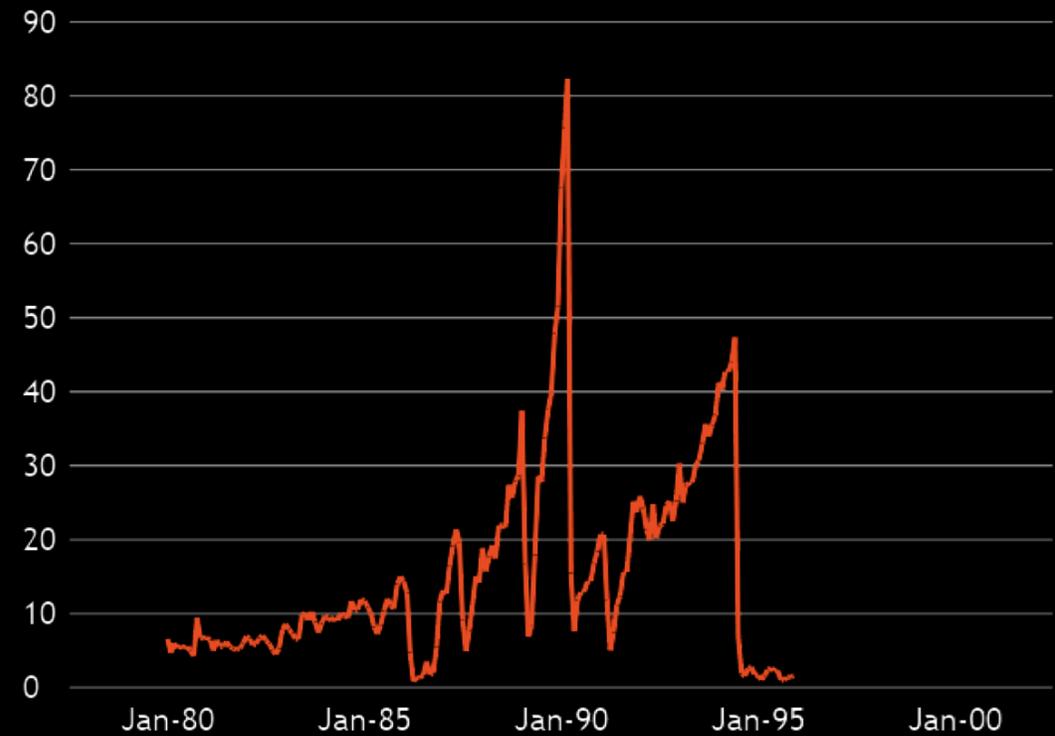


# ...the economy faced difficulties...

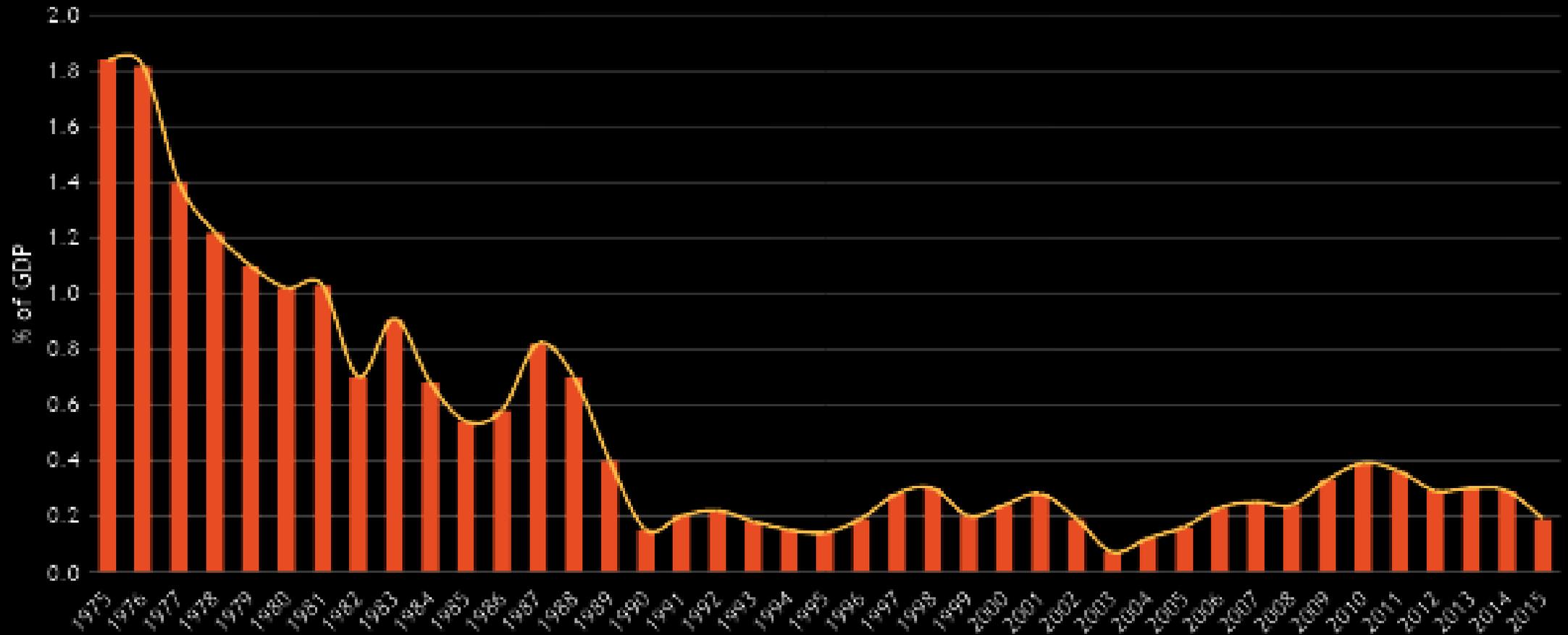
## GDP growth (% y/y)



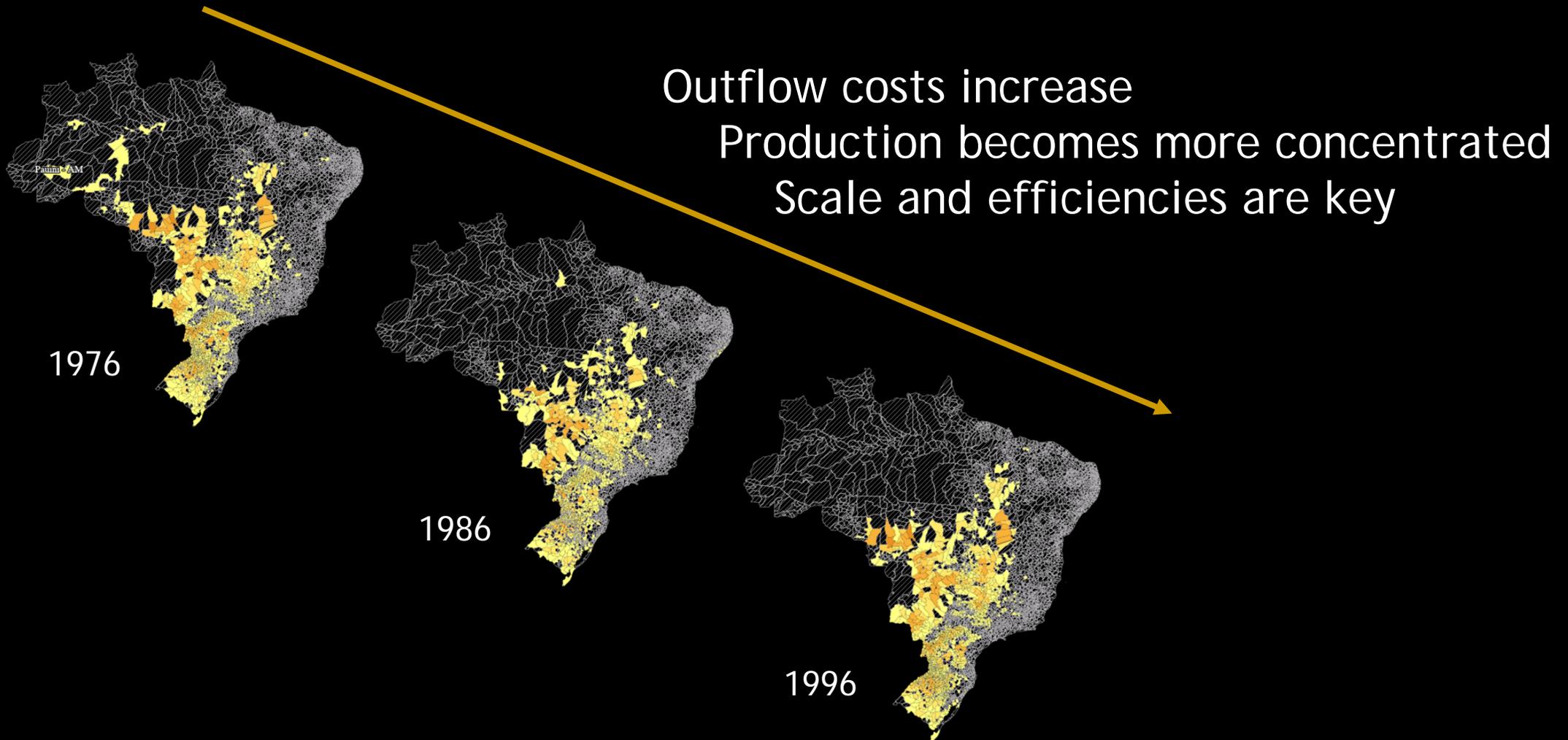
## Inflation rate (%)



# ...and State investments in transportation infrastructure plummeted

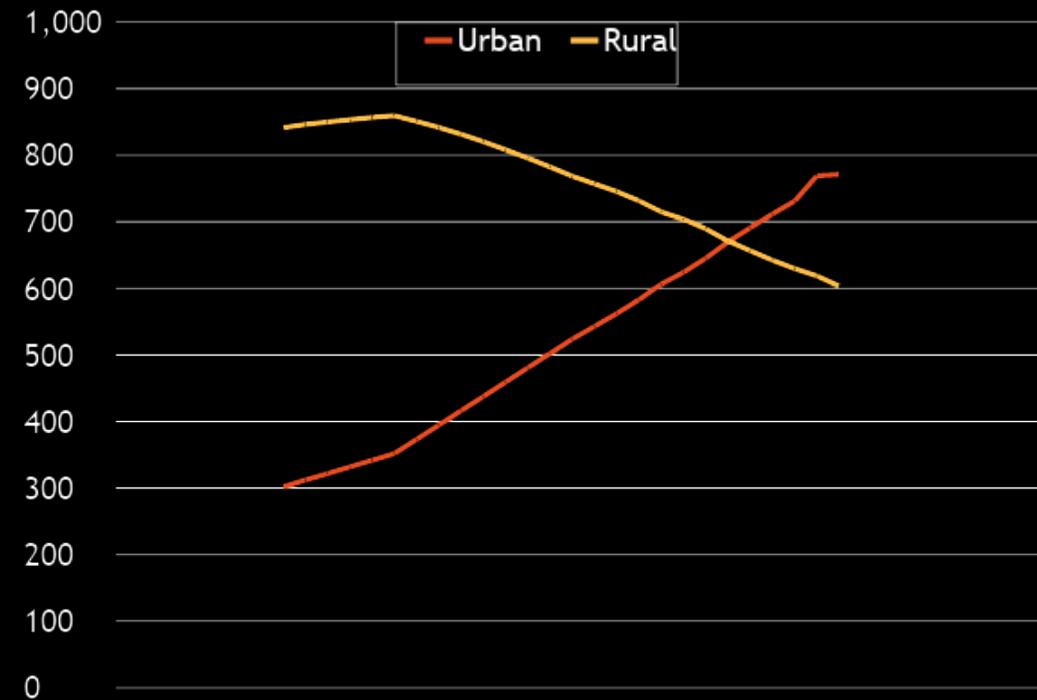


# The crop increased, but the number of producer municipalities fell

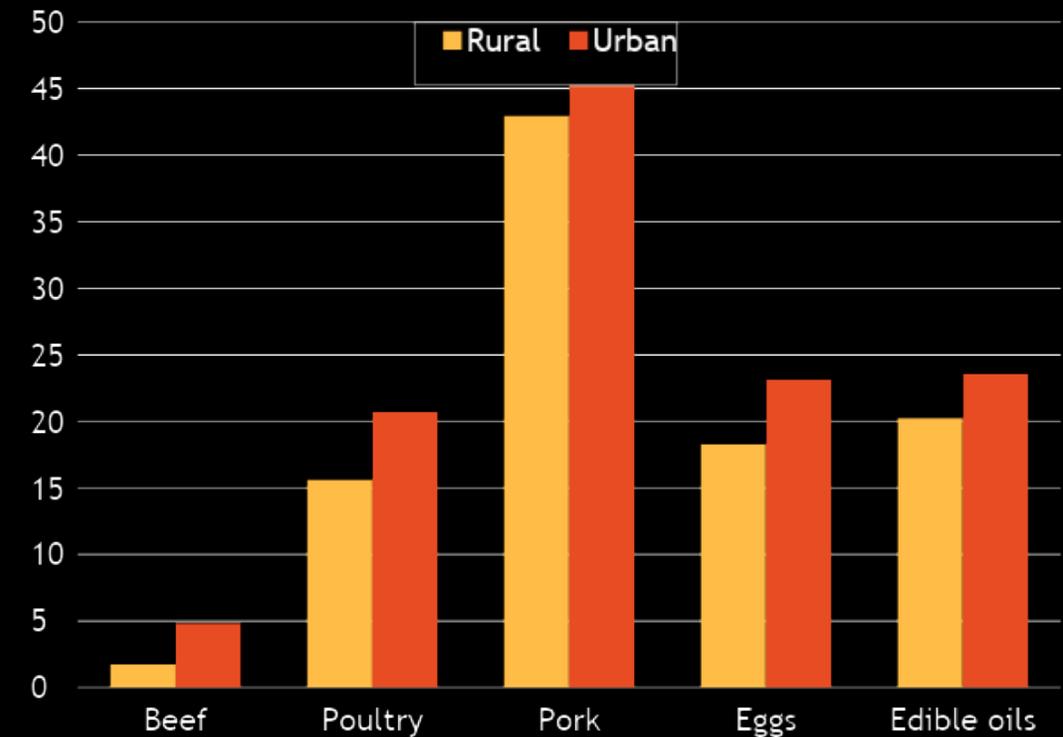


# Then, a new soy consumer turns up

China: urban and rural population (in million)



China: consumption per capita (pounds/year)



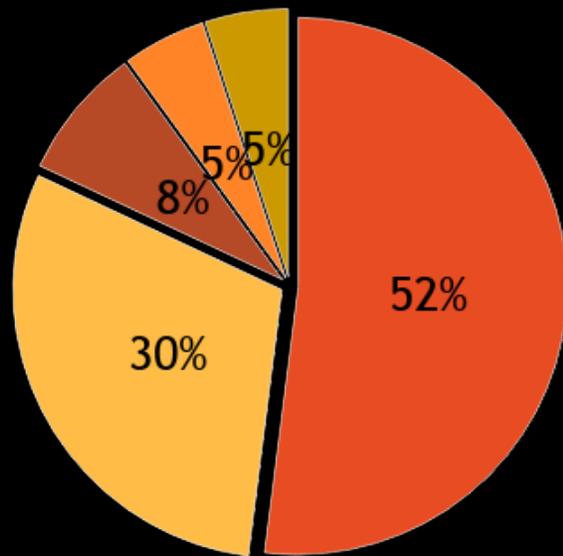
# And Brazil becomes a big soy producer and exporter



# Brazil Cargo Transportation Matrix

## General transportation

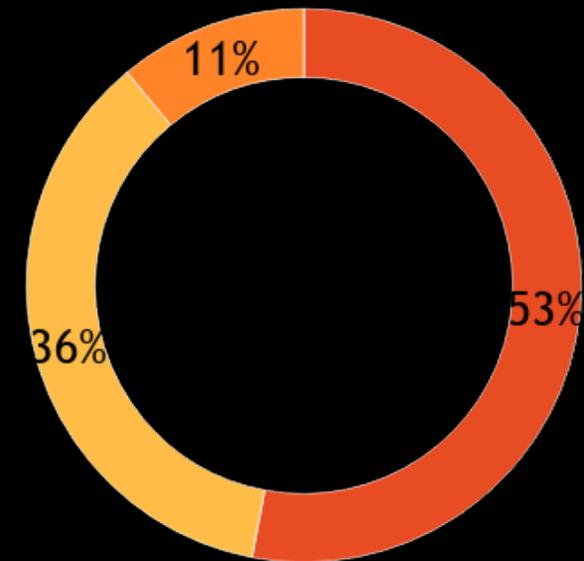
■ Roads 
 ■ Rails 
 ■ Cabotage 
 ■ Barges 
 ■ Pipelines



Source: Brazil, Ministry of Transportation - PNLT (2011).

## Soybean transportation

■ Roads 
 ■ Rails 
 ■ Water

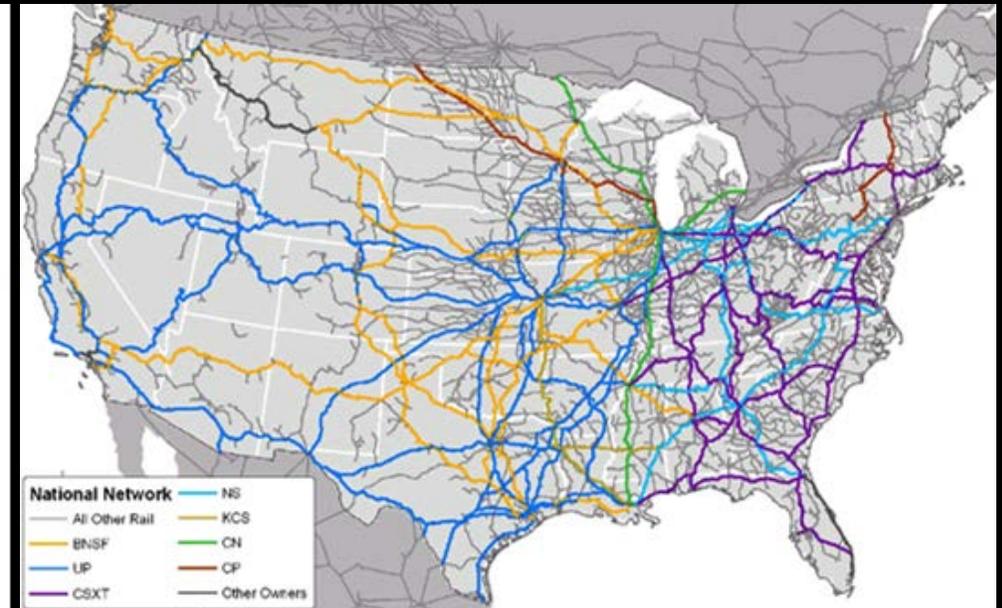
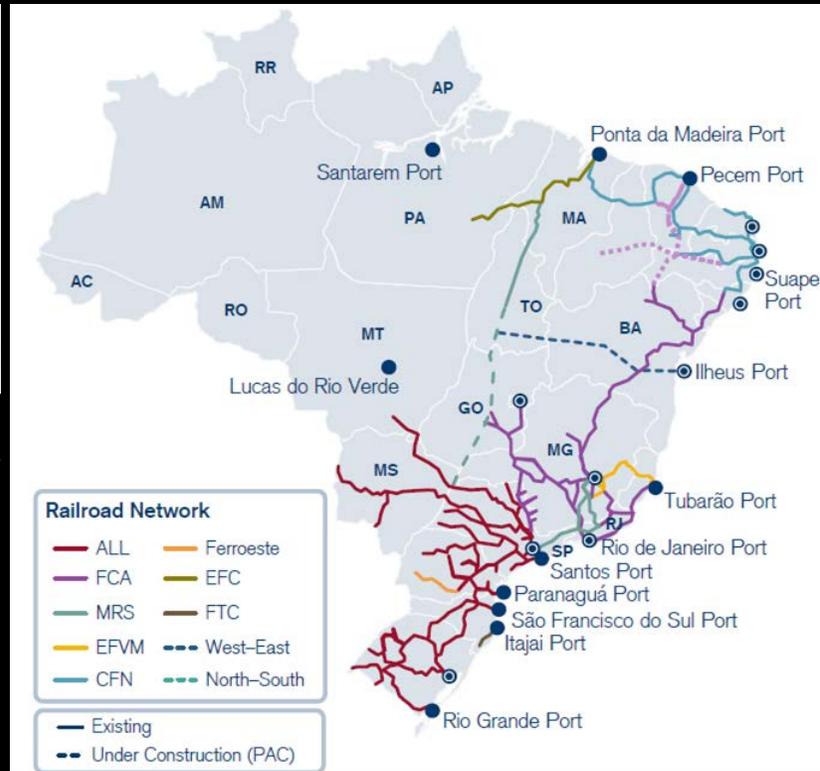
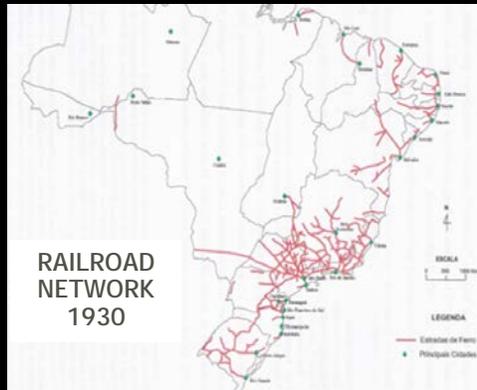


Source: Anec (2011).

# Railroad Network - Brazil vs USA

Brazil  18,000 miles

USA  140,000 miles



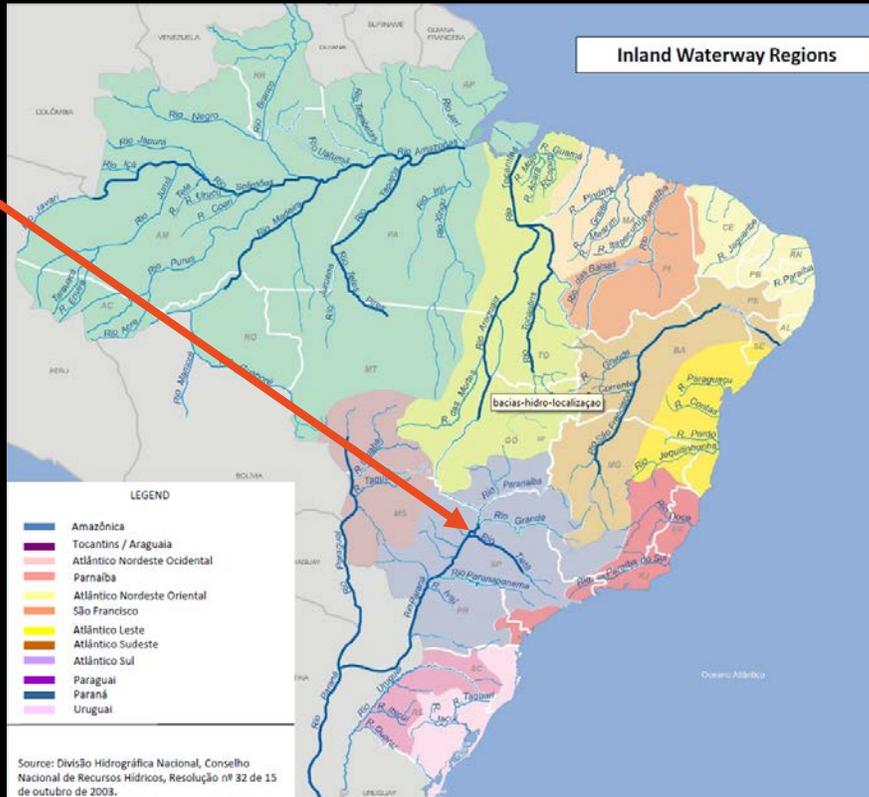
Railroad network has changed little since 1930

# Waterway Network - Brazil vs USA

Brazil  8,700 miles

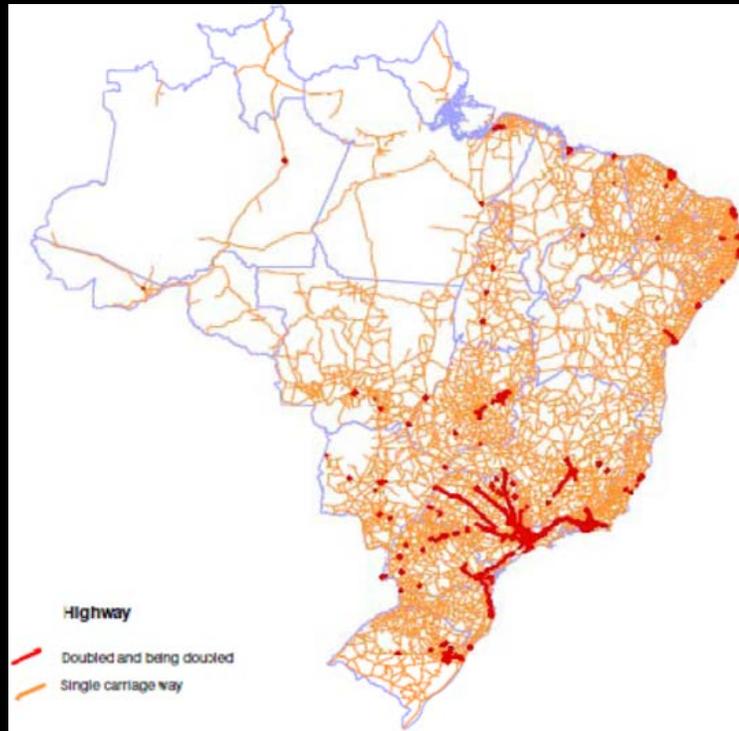
USA  25,500 miles

Only the Tietê-Paraná waterway is fully operational



# Highway Network - Brazil vs USA

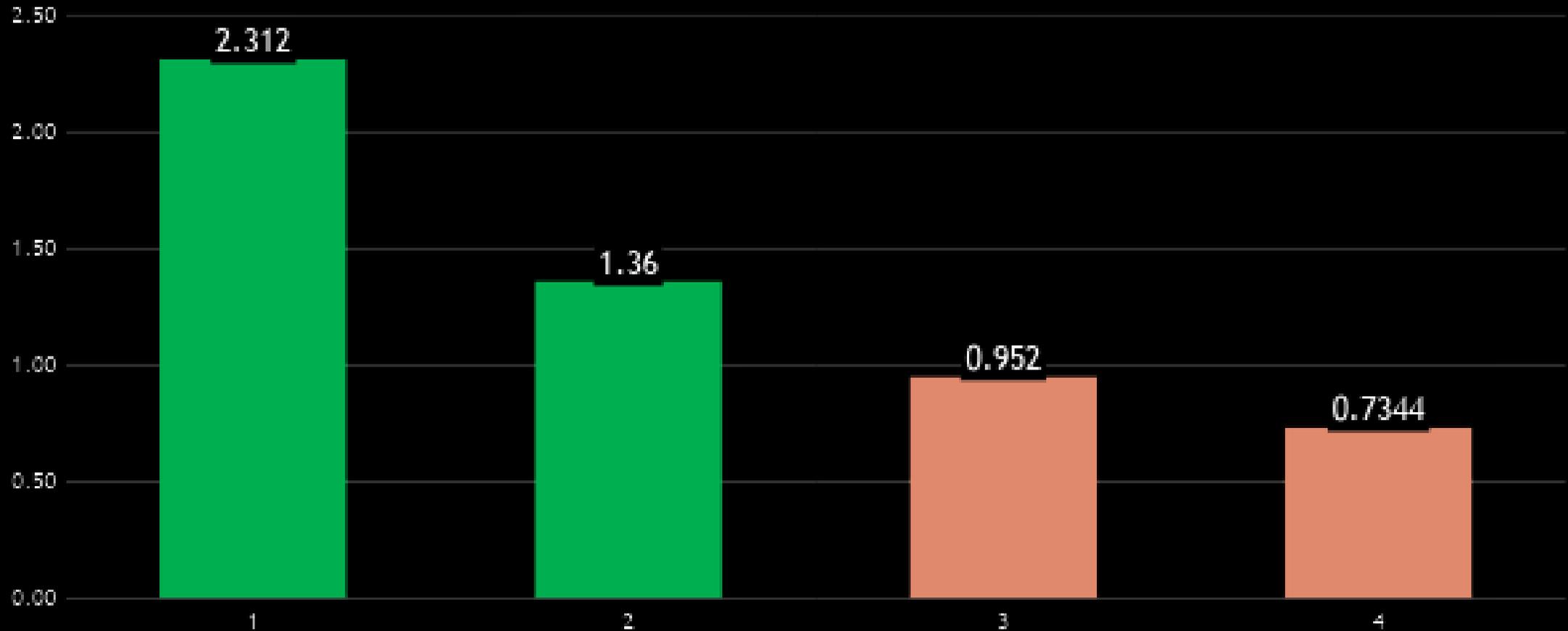
Brazil  132,000 miles (14% paved)  
 980,000 miles



USA  2,720,000 miles (69% paved)  
 3,935,000 miles



# Soy Transportation Costs (US\$/bushel)



# Queues on access routes to the ports of Santos and Paranaguá

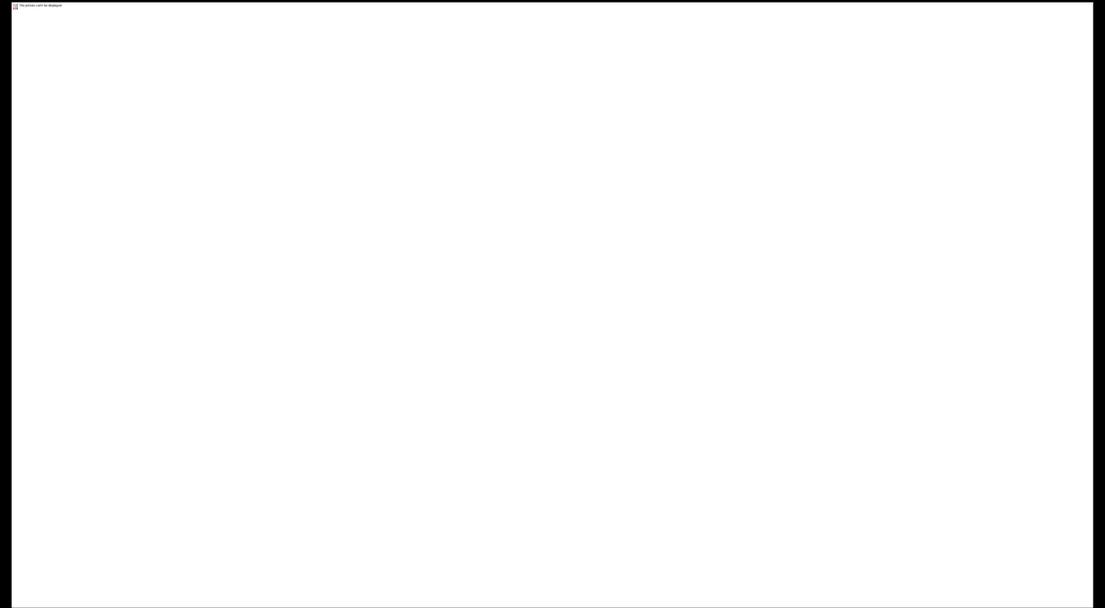


Credit image: [Caminhões e Carretas](#) (accessed on Feb 3, 2018).

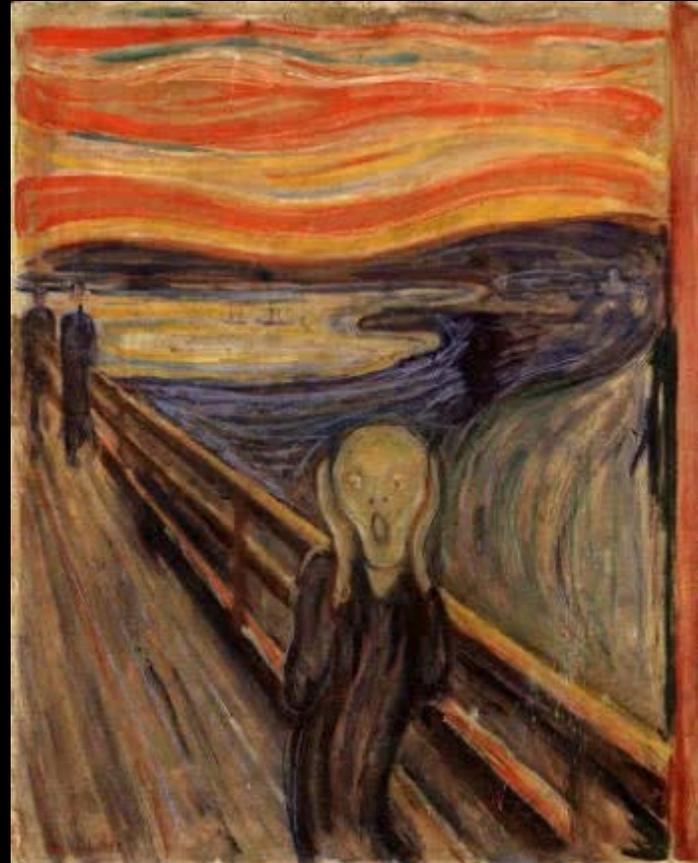


Credit image: [Gazeta do Povo](#) (accessed on Feb 3, 2018).

# The BR-163 road (Pará State) interrupted due to excessive rain

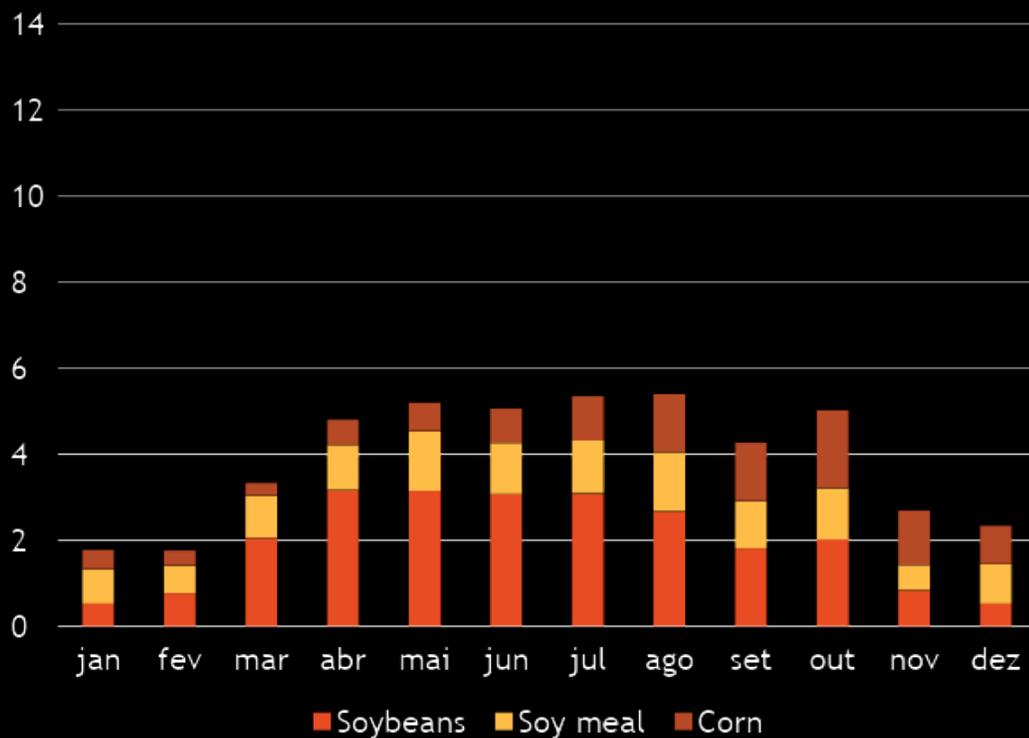


# And now?

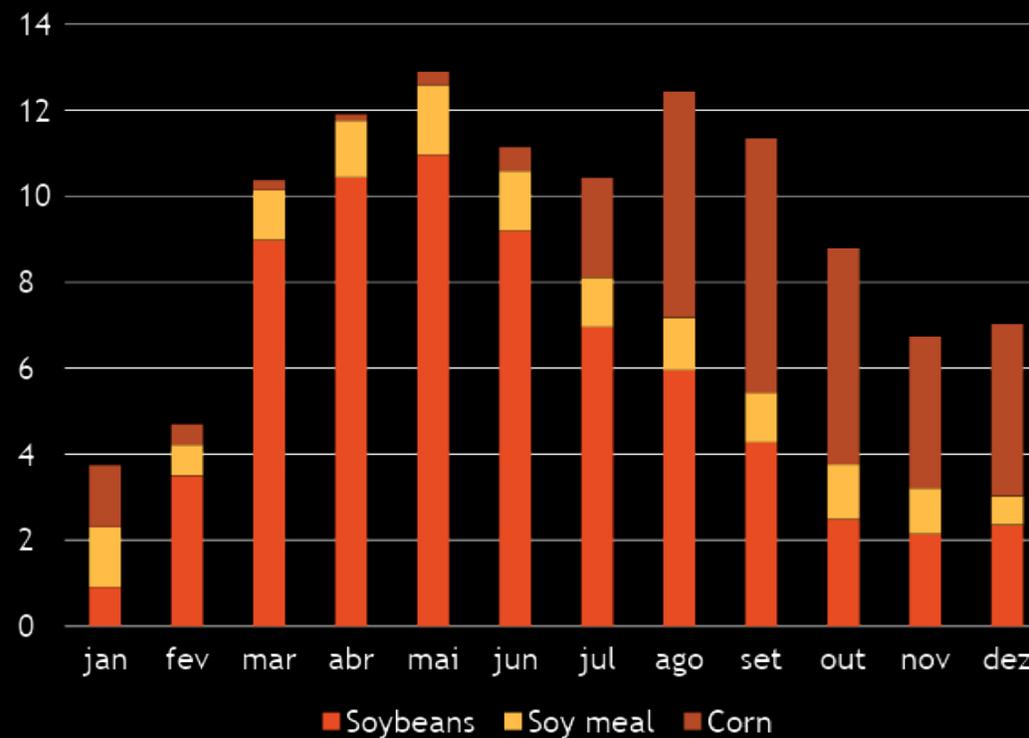


# Higher productivity: total port exports (MMT)

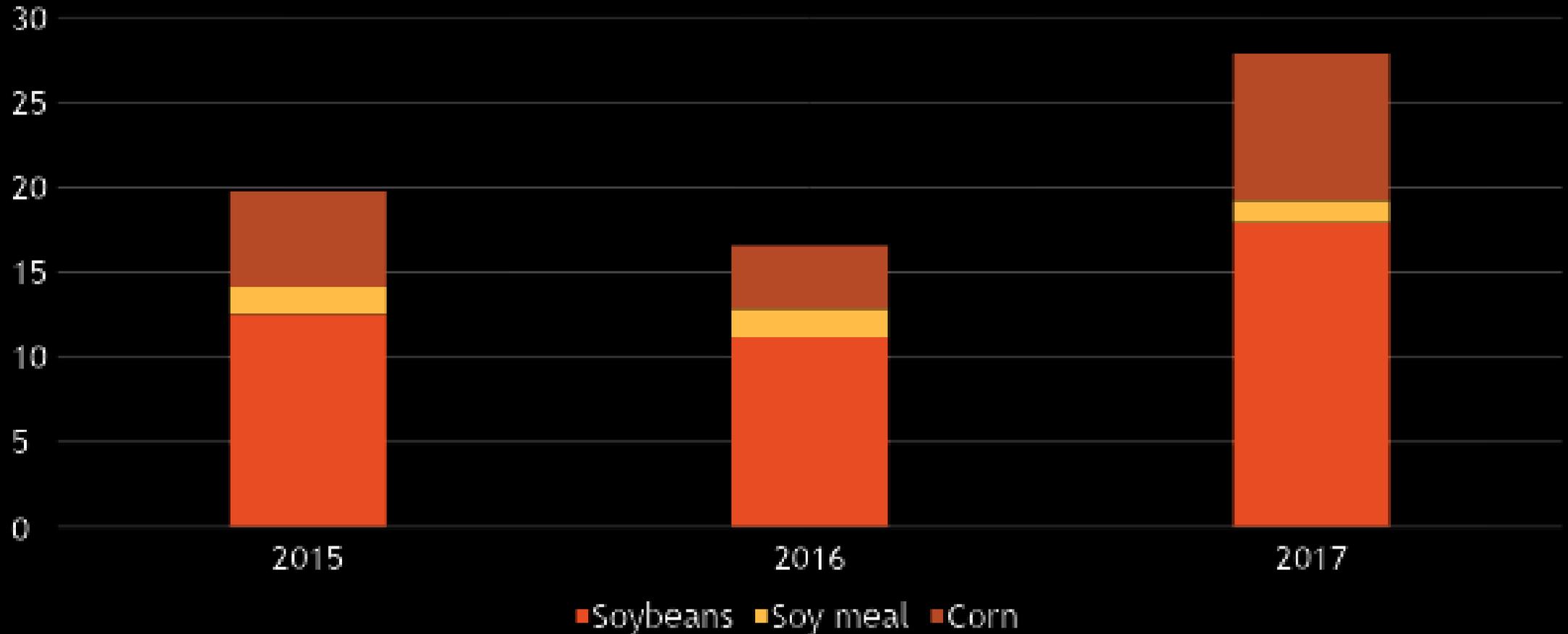
2007



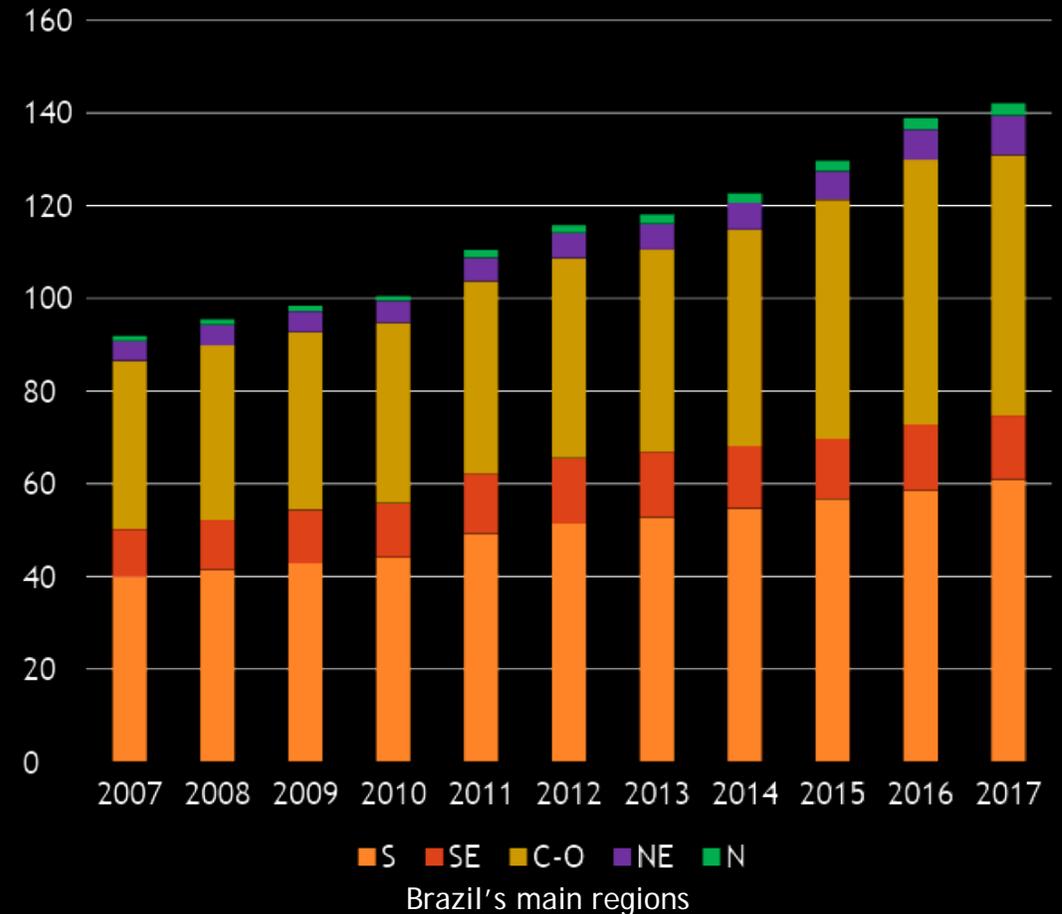
2017



# Soybeans, soy meal and corn exports through the Northern Arc (MMT)



# Warehousing capacity growth (MMT)



# Mandatory truck scheduling at ports



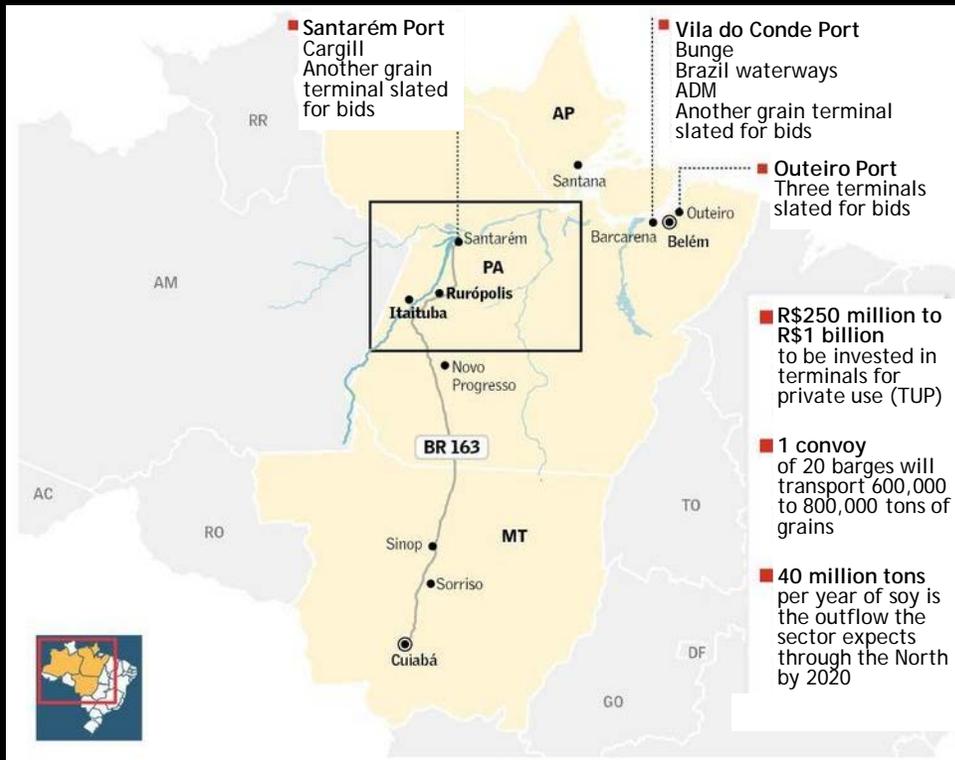
Source: SEP,  
2013.

Credit image: [Caminhões e Carretas](#) (accessed on Feb 3, 2018).

# BR-163 Highway: roadworks and traffic



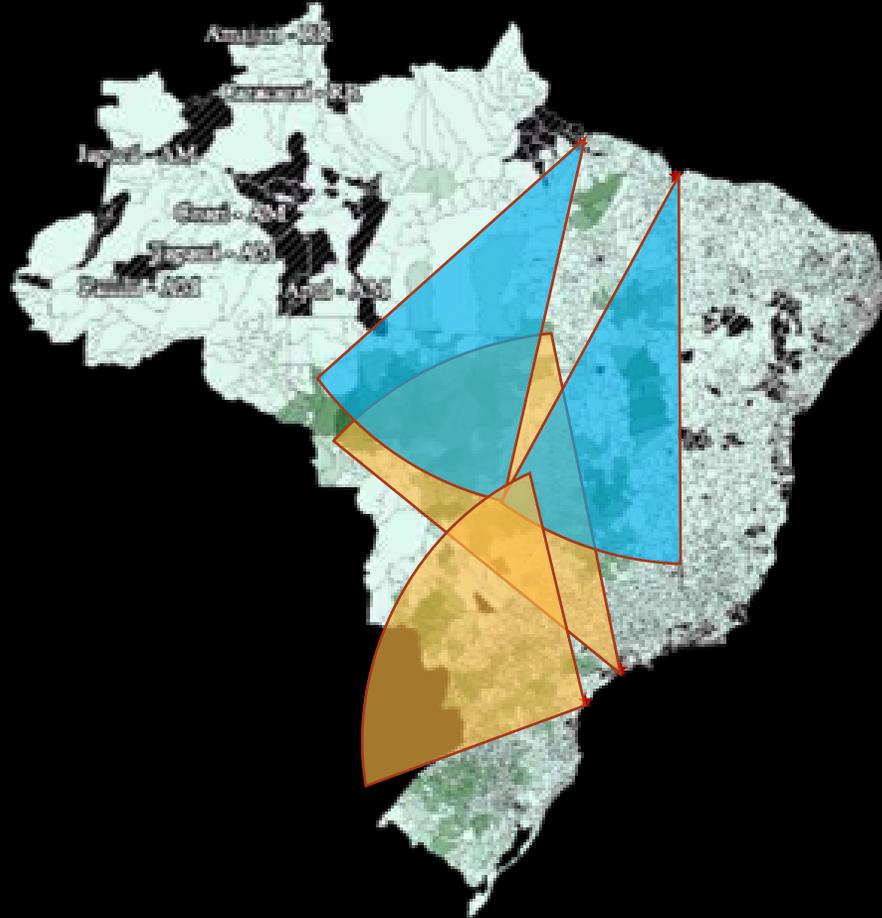
# Grain terminals in the Tapajós River corridor



Source: Valor Econômico newspaper on Feb 25, 2014.

Credit image: ABIOVE.

# Greater competitiveness for cargo between outflow modals and routes



- Ports in the South and Southeast will continue to be important: soy, corn and other products will continue to be influenced
- Ports in the Northern Arc:
  - Will increase competition
  - Will create new opportunities
  - Will benefit the Center-West and Northeast regions

# Tocantins River waterway: demolition of Pedral will allow unrestricted navigation

Tocantins river - removal of Lourenço rocks



Credit image: [DNIT](#).

Waterway must be efficient: only 500 km by truck



Credit image: [DNIT](#).

Tucuruí hydroelectric power plant

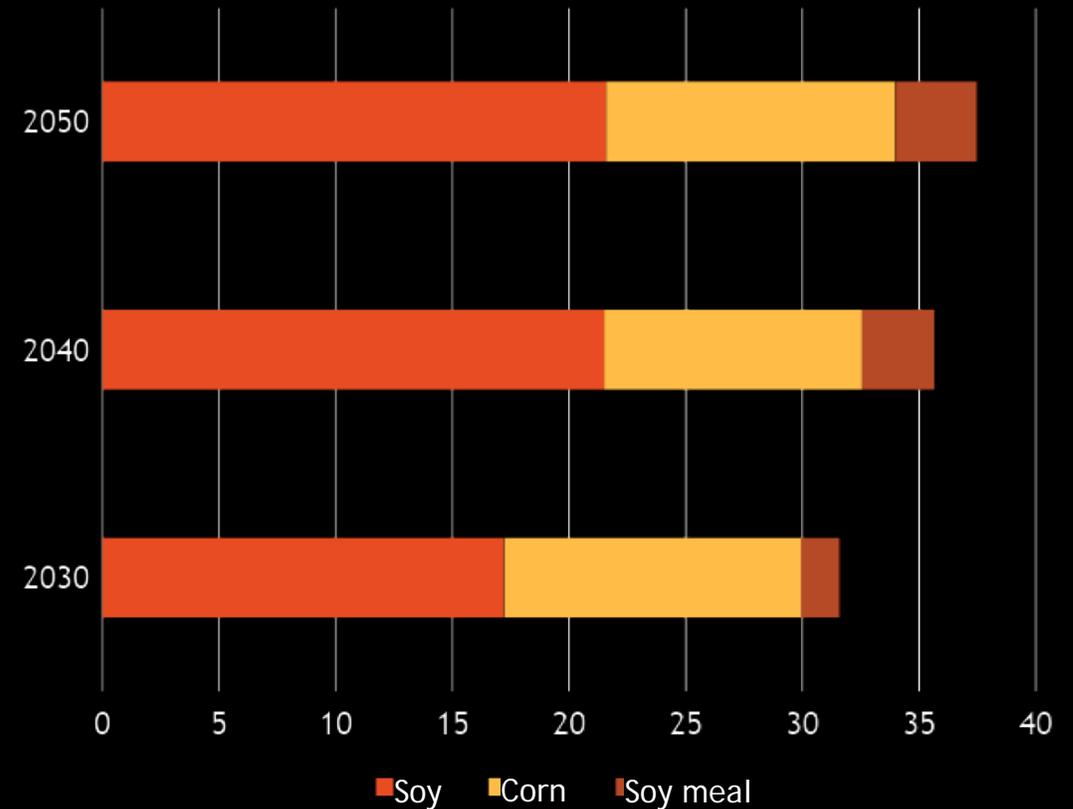


Credit image: [DNIT](#).

# EF-170: MT-PA railroad (“Ferrogrão”)



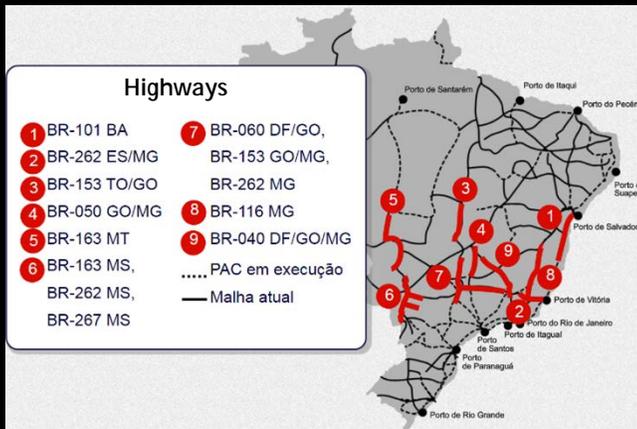
Cargo via Ferrogrão (MMT)



# Consensus on the new infrastructure that is needed...

2014

2018

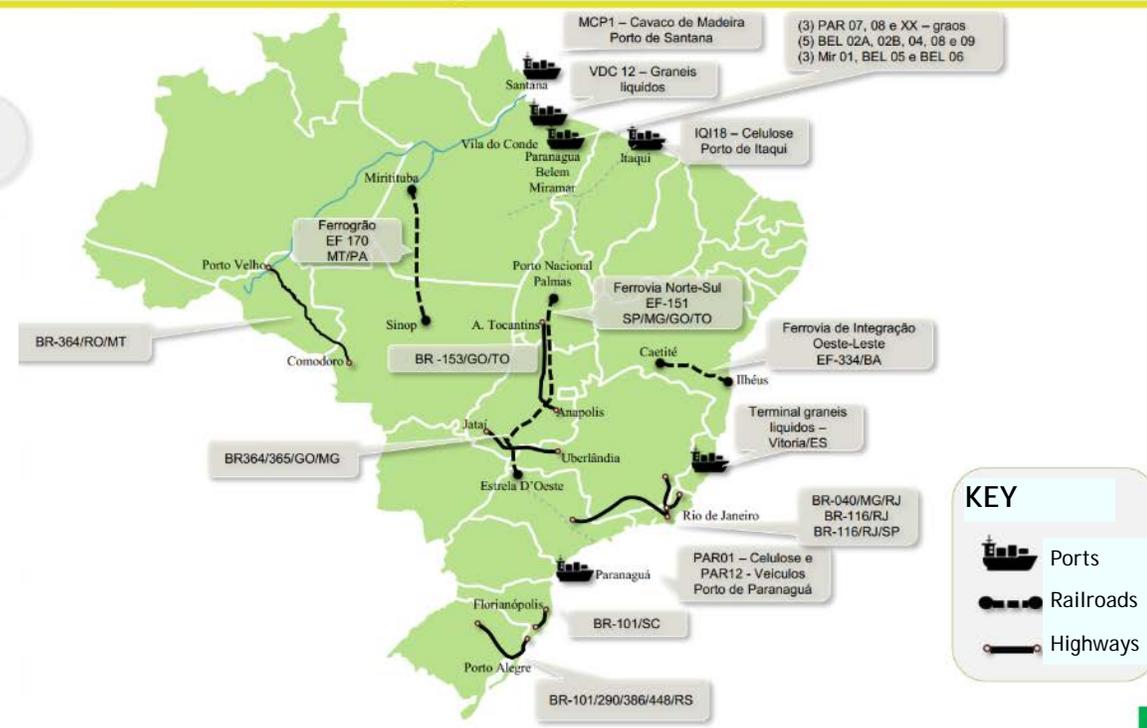


**PPI** Programa de Parcerias de Investimentos

Logistics projects promoting interconnections between important hubs and cargo outflow

Logistics

ENERGY  
MINING  
PETROLEUM & GAS  
DEFENSE  
SUPPLY & FINANCING



**KEY**

- Ports
- Railroads
- Highways

Source: PPI Secretariat

# ...and advanced discussions on investments in current concessions



- **5 railroads:** moving 457 MMT/year
- **30-year extension conditional on investments** estimated at US\$ 8 billion to expand capacity
- Access to Brazil's **main ports**

# Final Comments

- Brazil has become a **big soy producer** after mastering technology and expanding the consumer market
- The last two decades have revealed the **shortfall in infrastructure**
- **New projects are ongoing**, and the deficit should be fully resolved in 10 to 20 years
- **Full services** rendered at competitive prices will increase Brazil's productive capacity
- **Long-term offer** of products from the soy and corn complexes should increase especially in underutilized pastures

# Associated Companies

