

Agriculture Innovation Agenda in Brazil



MINISTRY OF
AGRICULTURE, LIVESTOCK
AND FOOD SUPPLY



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Open Innovation Coordinator



Brazilian Agriculture

A revolution in 30 years

Brazilian Agriculture

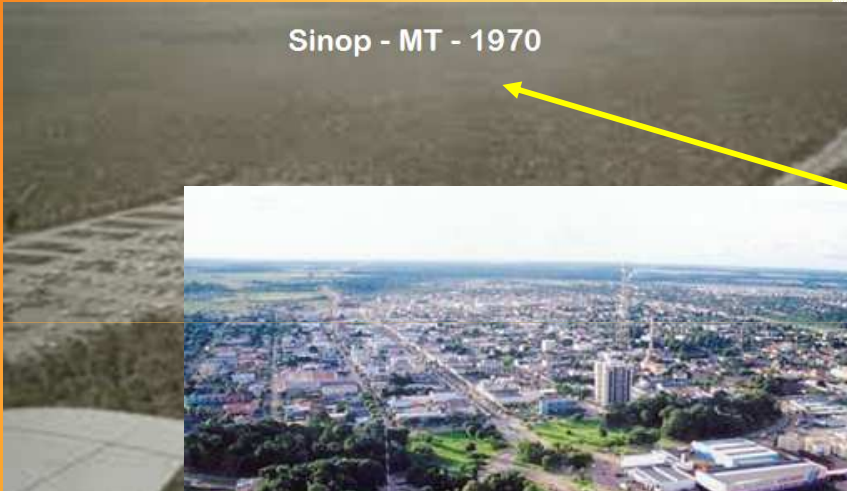
A revolution in 30 years



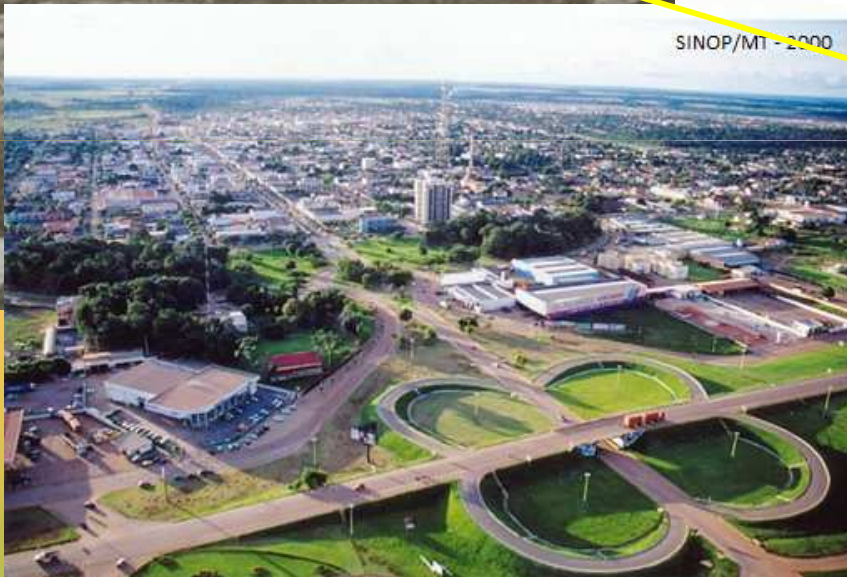
Brazilian Agriculture

A revolution in 30 years

Sinop - MT - 1970

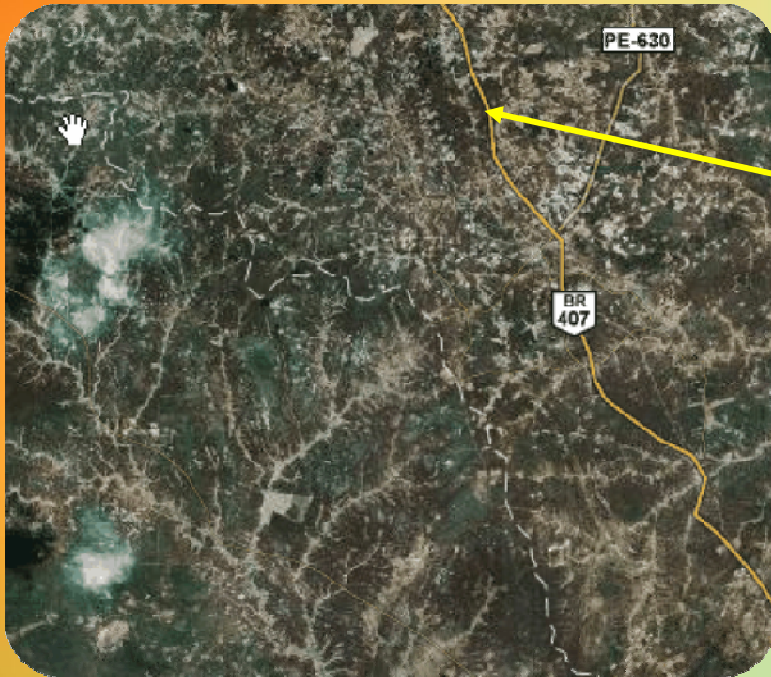


SINOP/MT - 2000

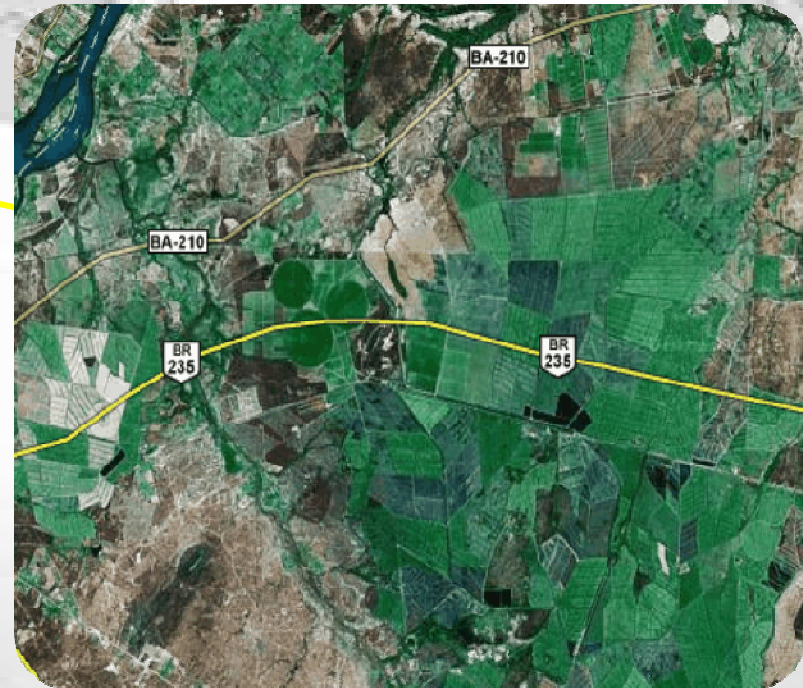


Brazilian Agriculture

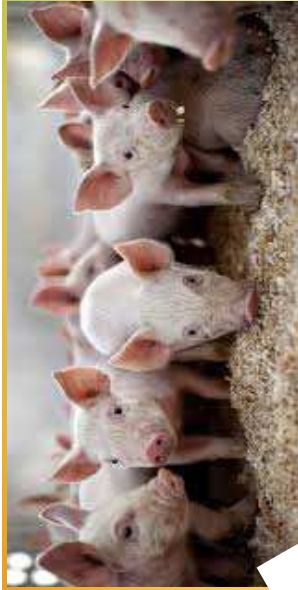
A revolution in 30 years



The brazilian Semi-arid was like that.



Today it is like this!

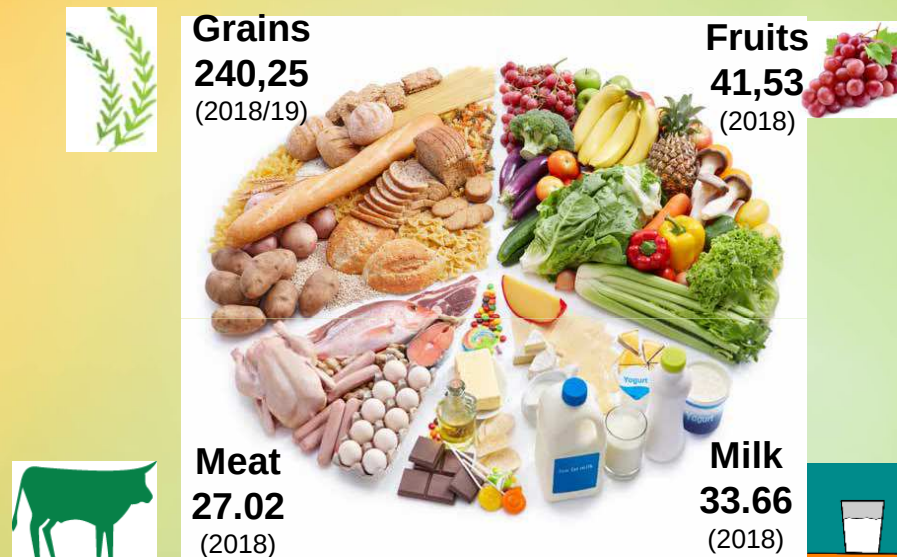


From importer to
exporter!



Brazilian Agriculture

Production (*Million Tons per Year*)



Brazilian agriculture is based on over 300 species and exports 350 types of products, which reach 180 markets worldwide.

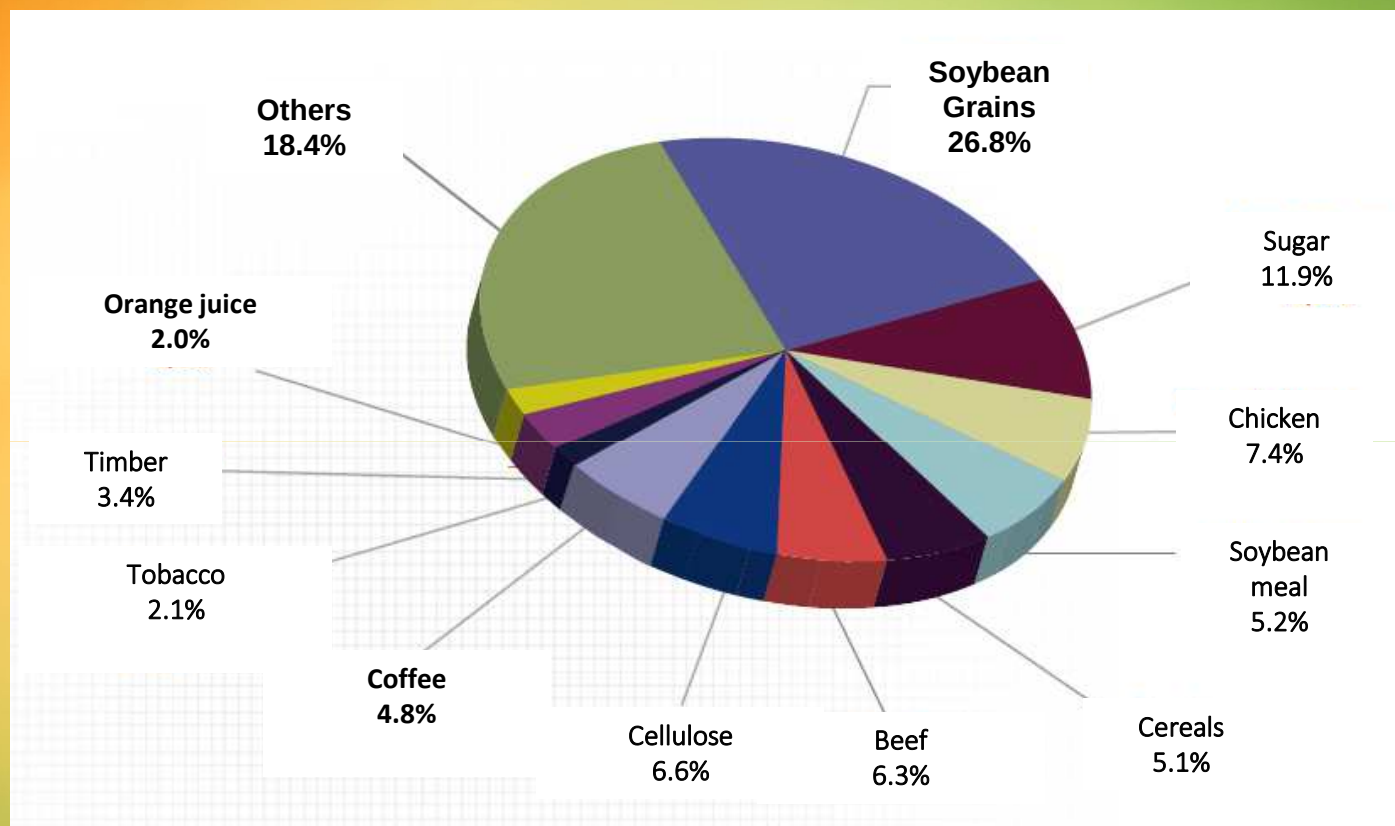
Source: IBGE, Conab
Reference source: Embrapa/Sire (Jul, 2019)

Brazilian Agriculture



Grains: harvested area, production and yield

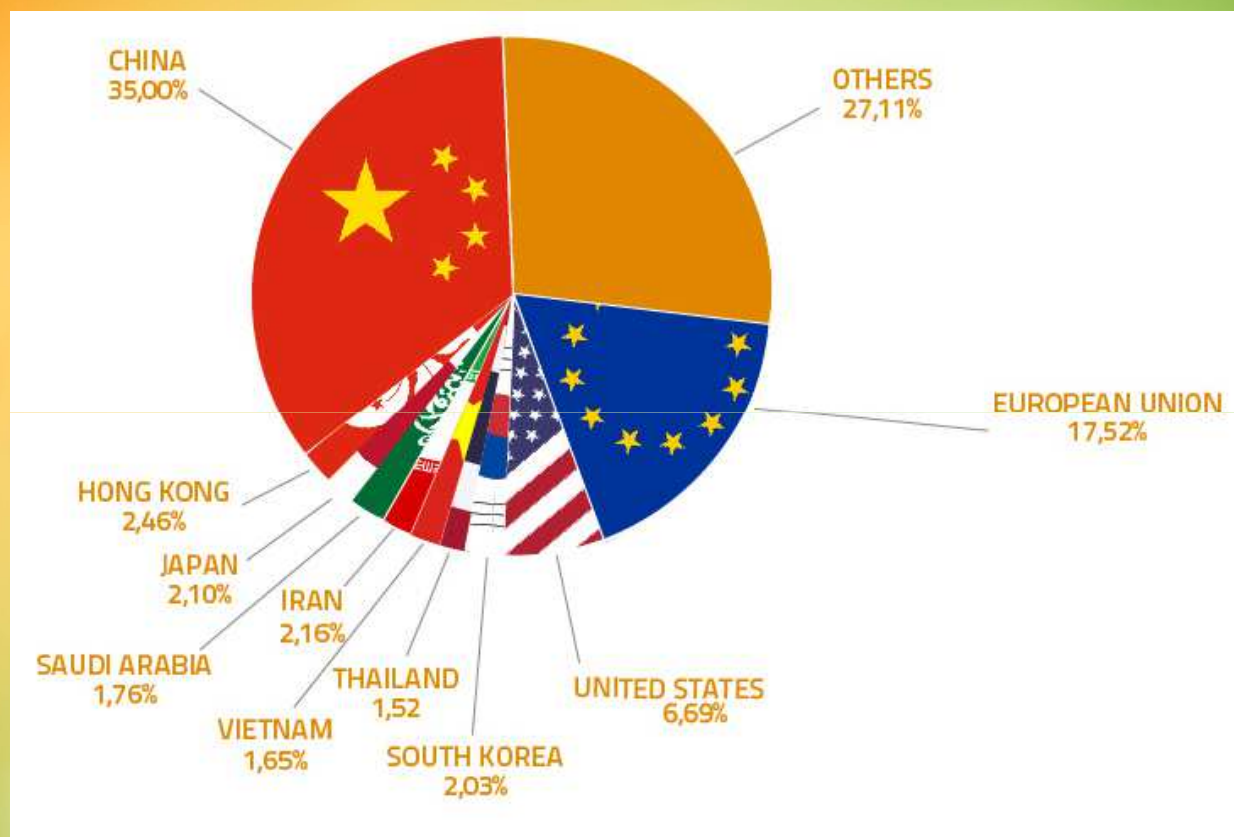
Brazilian Agriculture



Export: Main Products (2018)

Source: Mapa/AgroStat Brazil, Secex/MDIC - Reference source: CGOE/DPI/SRI/Mapa (Dec. 2018)

Brazilian Agriculture



Export: Main Destinations (2018)

Source: Mapa/AgroStat Brazil, Secex/MDIC - Reference: CGOE/DPI/SRI/Mapa (March 2019)



Brazilian Agriculture

76,8% of the total rural properties are owned by Small Family Farmers

Gross Production Value: **23%**

Product	Total Production	Family Farming Participation %
Soybean (1.000 tons)	103.156	9,3%
Green beans (1.000 tons)	2.215	23,1%
Corn (1.000 tons - grain)	88.100	12,5%
Cassava (1.000 tons)	6.559	69,6%
Coffee (1.000 tons - grain)	2.357	37,8%
Banana (1.000 tons)	4.026	48,5%
Milk (millions liters)	30.156	64,2%
Lettuce (1.000 tons)	672	64,4%

F.Farming participation in some selected products in Brazil

Source: IBGE, 2017/18

A Science based Agriculture



A Science based Agriculture



Sustainable
Systems



Biotech
Nanotech



Technological
Inputs



Agricultural
Practices



Digital
Innovation



Metodologies

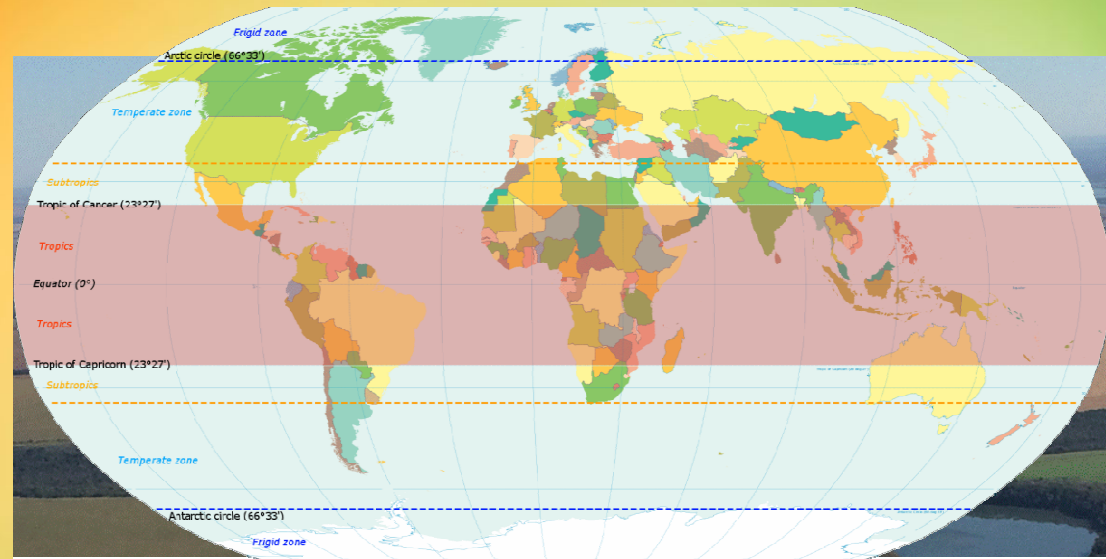


Agricultural
Processes



Genetics (Animal/
Plant Breeding)

Brazilian Agriculture



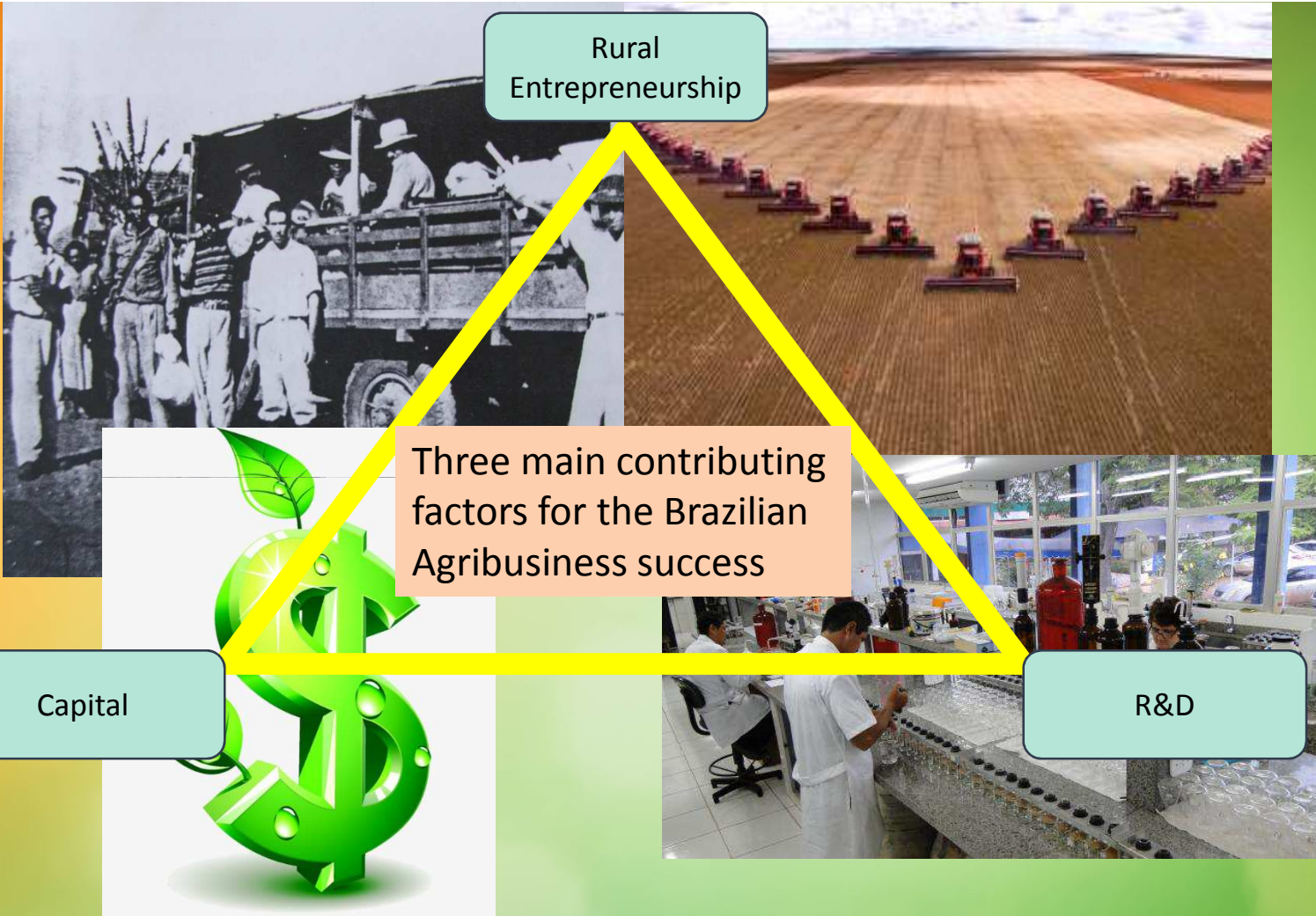
World Leader in tropical
Agriculture

Rural
Entrepreneurship

Three main contributing
factors for the Brazilian
Agribusiness success

Capital

R&D



World Agriculture Future Scenarios

Agriculture

Food

Humanity

- World population is estimated to have reached **7.7 billion** people.
- In 2050, with a population of 9.7 billion, the world will need almost 70% more food.
- World population and the increases in life expectancy and purchasing power will impact demand on water, energy, food and fibers.
- Climate change may limit production.



Evolving Agriculture...

Green Revolution



FIRST WAVE

Monoculture
Monodiscipline
Commodities
Chemical Process

1960-1990

Integrated Systems



SECOND WAVE

Ag. Intensification
Multidisciplinary
Efficiency
Sistemic Research

1990-2020

Bio-based Agriculture



THIRD WAVE

Complex Systems
Transdisciplinary
Multifunction
Biological Inputs
Complex Research

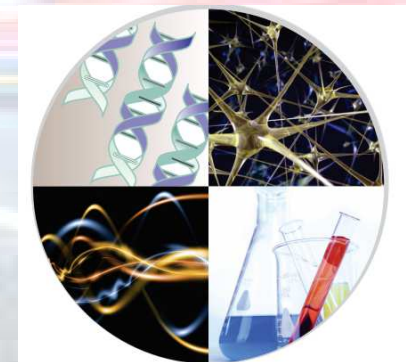
2020-2030

Tempo e Complexidade

Exponential Changes!

$$B^2 = \text{Bits} \times \text{Biology}$$

Unprecedented potential for
innovation in Agriculture



Strategic Horizon

Impact

Sustainability



Food Safety



Food Security

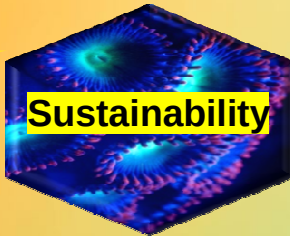


Society



Strategy

Sustainability



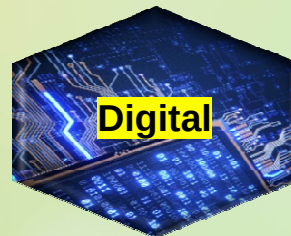
Climate
Carbon
Water
Soil

Bioeconomy



Advanced Biology
Bio-processes
Bionergy
Natural Resources
Sociobiodiversity

Digital



IA, IoT,
Blockchain, Big
Data, trace
Precision Ag.
Conectivity
Digital Twins...

Open
Innovation



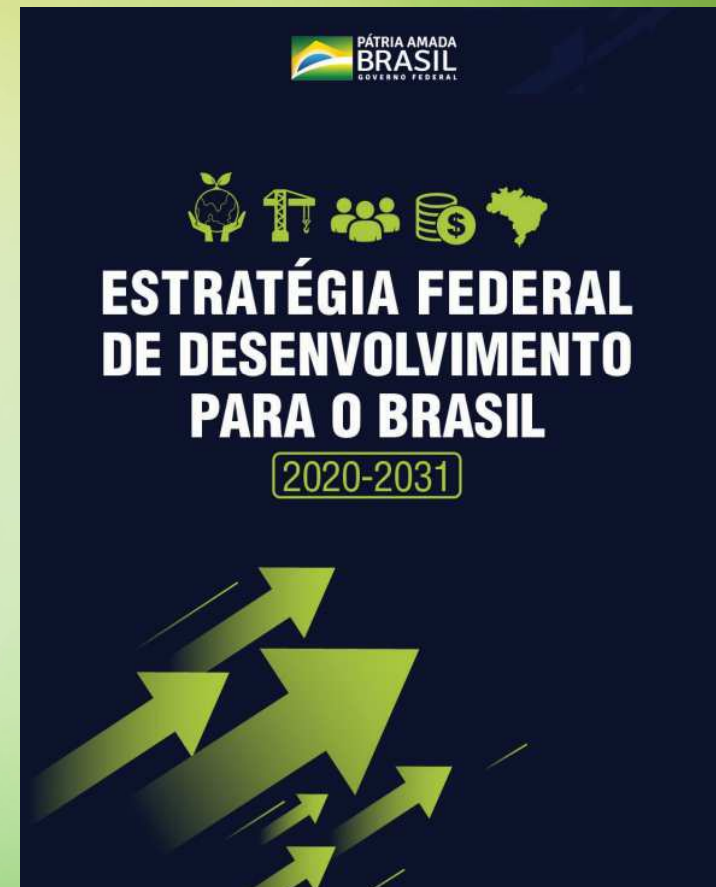
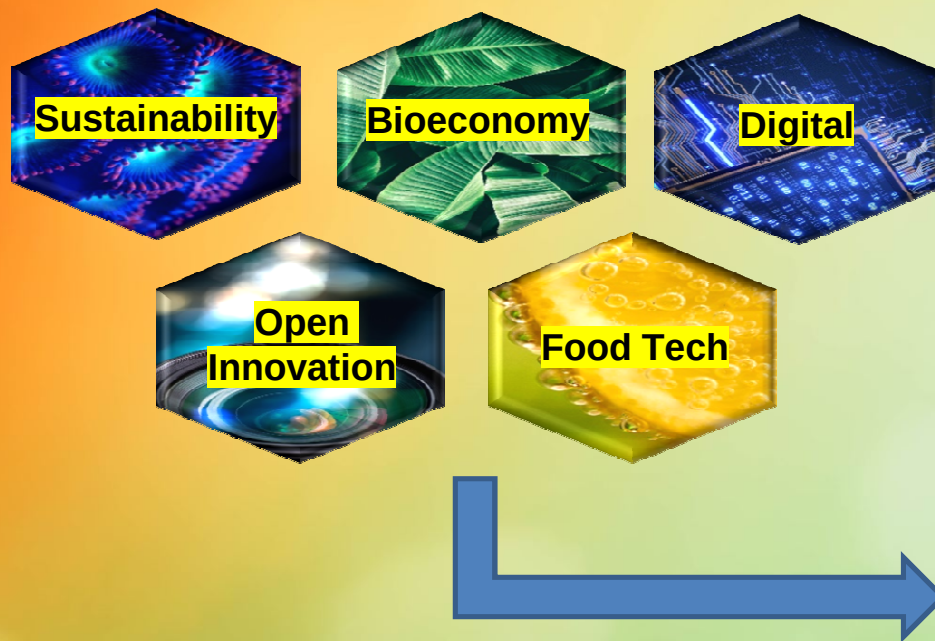
Ag Techs
Hubs, Tech. Parks,
Eco-systems
Social Innovation
Entrepreneurships

Food Tech



New Ingredients
Plant-Based
Cell-Based
Precision Fermentation
Vertical Farming
Traceability

Federal Development Strategy for Brazil – 2020–2030



Open Innovation and Agriculture 4.0

Imagens: Embrapa; Dreamstime; FinancialExpress



Open Calls – Exemple of some AGTECHS INITIATIVES

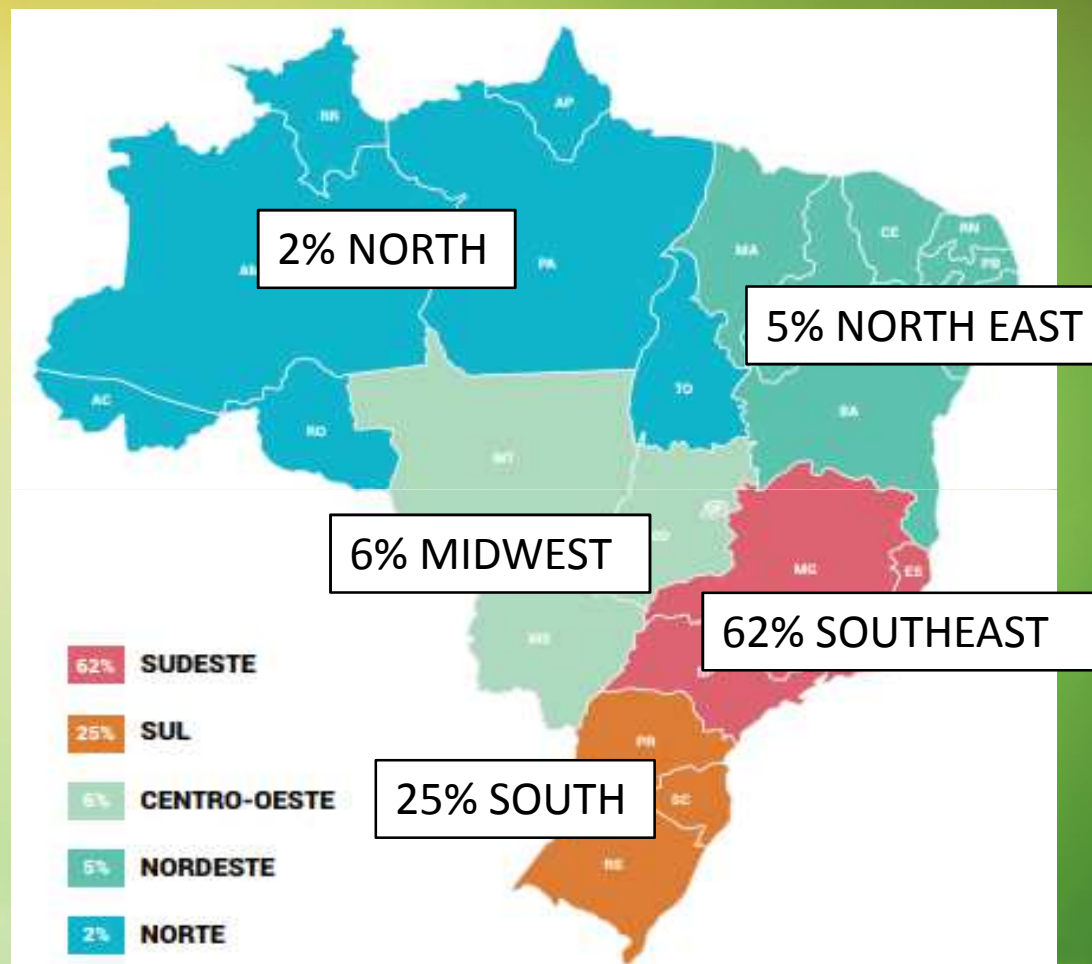


agro40.abdi.com.br



OPEN
INNOVATION SOJA





**1.574
Agtechs**

HORUS
- AERONAVES -

agrosmart
cultivo inteligente

AGRIBELA
SOLUÇÕES TECNOLÓGICAS

AGRONOW

ManejeBem

vm acofren
Tecnologias Químicas

AGROROBOTICA

SHIMEJITO

e-clare
Valorizando o seu café

SINTECSYS
Detecção de Incêndios Florestais

GIRA
Gestão Integrada de Recebíveis do Agronegócio

Before the Farm

199

12,6%

Inside the Farm

657

41,7%

After the Farm

718

45,6%

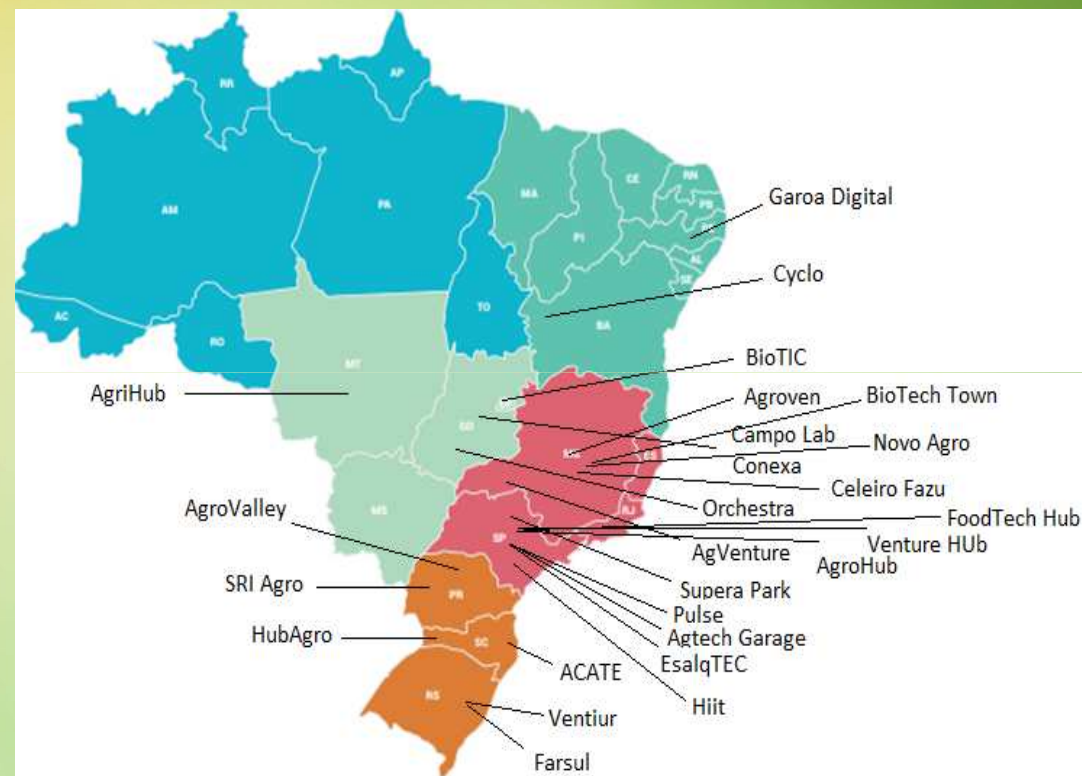
STARTUP MAIN CONCENTRATION AREAS:

- Farm Management system
- Solutions and data integration platform
- Precision Agriculture (Drones, Remote sensing)
- Food Tech: Innovative foods/new food trends
- Marketplaces
- Storage, Infrastructure and Logistics
- Fertilizers, inoculants and plant nutrition
- Credit, barter, insurance, carbon credits

← Some Exemples of Agtechs

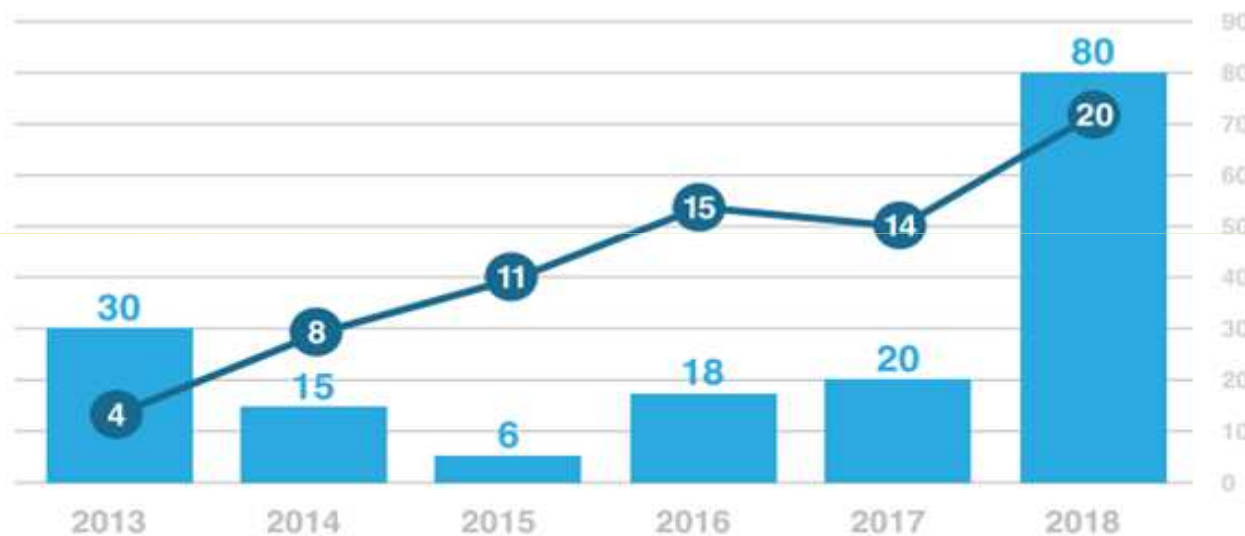


More than 20 Agro Innovation Hubs



Open Innovation - Agtechs

Agtechs investments in Brazil



Total investments (US\$ millions)



Deals

Private
Investments



Innovation for Brazilian Agriculture

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