Agriculture Innovation Agenda in Brazil

Daniel Trento
Open Innovation Coordinator

MINISTRY OF AGRICULTURE, LIVESTOCK AND FOOD SUPPLY
PÁTRIA AMADA BRASIL
Brazilian Agriculture

A revolution in 30 years
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The brazilian Semi-arid was like that.

Today it is like this!
Brazilian Agriculture

Production (Million Tons per Year)

- **Grains**: 240.25 (2018/19)
- **Fruits**: 41.53 (2018)
- **Meat**: 27.02 (2018)
- **Milk**: 33.66 (2018)

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

Source: IBGE/PAM
Brazilian Agriculture

Export: Main Products (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%

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<table>
<thead>
<tr>
<th>Product</th>
<th>Total Production</th>
<th>Family Farming Participation %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean (1.000 tons)</td>
<td>103.156</td>
<td>9.3%</td>
</tr>
<tr>
<td>Green beans (1.000 tons)</td>
<td>2.215</td>
<td>23.1%</td>
</tr>
<tr>
<td>Corn (1.000 tons - grain)</td>
<td>88.100</td>
<td>12.5%</td>
</tr>
<tr>
<td>Cassava (1.000 tons)</td>
<td>6.559</td>
<td>69.6%</td>
</tr>
<tr>
<td>Coffee (1.000 tons - grain)</td>
<td>2.357</td>
<td>37.8%</td>
</tr>
<tr>
<td>Banana (1.000 tons)</td>
<td>4.026</td>
<td>48.5%</td>
</tr>
<tr>
<td>Milk (millions liters)</td>
<td>30.156</td>
<td>64.2%</td>
</tr>
<tr>
<td>Lettuce (1.000 tons)</td>
<td>672</td>
<td>64.4%</td>
</tr>
</tbody>
</table>

F.Farming participation in some selected products in Brazil

Source: IBGE, 2017/18
A Science based Agriculture

Embrapa

State Agencies

Universities

Private Sector
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
Three main contributing factors for the Brazilian Agribusiness success

- Rural Entrepreneurship
- Capital
- R&D
• 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...

**First Wave**
- Green Revolution
- Monoculture
- Monodiscipline
- Commodities
- Chemical Process

**Second Wave**
- Integrated Systems
- Ag. Intensification
- Multidisciplinary
- Efficiency
- Sistemic Research

**Third Wave**
- Bio-based Agriculture
- Complex Systems
- Transdisciplinary
- Multifunction
- Biological Inputs
- Complex Research

*Tempo e Complexidade*

Pillon (2016), Embrapa
Exponential Changes!

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

Unprecedented potential for innovation in Agriculture

Figuras: biofuelsdigest.com / Embrapa / articlecube
Federal Development Strategy for Brazil - 2020-2030
Open Innovation and Agriculture 4.0
Open Calls – Exemple of some AGTECHS INITIATIVES
5% NORTH EAST
2% NORTH
62% SOUTHEAST
25% SOUTH
6% MIDWEST
5% NORTH
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 Examples of Agtechs
More than 20 Agro Innovation Hubs
Open Innovation - Agtechs

Agtechs investments in Brazil

Total investments (US$ millions)

Deals
Innovation for Brazilian Agriculture

Daniel Trento
Open Innovation Coordinator
Ministry of Agriculture, Livestock and Food Supply
Email: daniel.trento@agricultura.gov.br