Brazilian Sustainable Agriculture Strategies

Secretary for Innovation, Sustainable Development and Irrigation
Ministry of Agriculture, Livestock and Food Supply
The Brazilian Sustainable Agriculture Strategy has been built in layers by a set of policies complementing and strengthening each other.
ABC Plan is a public policy designed for promoting the adoption of sustainable agricultural technologies with high potential for mitigating GHG emissions and curbing global warming, in response to the Brazil’s commitments to Paris Agreement.
### ABC PLAN – 2010 to 2020

**Voluntary Goals (até 2020)**

- **Technologies adopted in** 35.5 million ha
- **Mitigation from 133 to 163 million Mg CO\(_2\) eq**

<table>
<thead>
<tr>
<th>Technology</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovery of Degraded Pastures</td>
<td>15 million ha</td>
</tr>
<tr>
<td>ILPF</td>
<td>4 million ha</td>
</tr>
<tr>
<td>No-till farming System</td>
<td>8 million ha</td>
</tr>
<tr>
<td>Planted Forests</td>
<td>3 million ha</td>
</tr>
<tr>
<td>Biological Nitrogen Fixation</td>
<td>5.5 million ha</td>
</tr>
<tr>
<td>Waste Treatment Animals</td>
<td>4 million m³</td>
</tr>
</tbody>
</table>

**Adoption in** 52 million ha

- Mitigation ≈ 170 milhões Mg CO\(_2\) eq.
- Reach ≈ 115% da meta
Since 2010 – Robust climatic agricultural plan

1st phase
2010 – 2020

- Lessons Learned
- New World Context
- New International Commitments

2nd phase
2020 – 2030
The ABC+ aims at fostering the adaptation of Brazilian agriculture to climate change and the mitigation of greenhouse gas emissions, increasing the efficiency and resilience of agricultural production systems, through integrated landscape management.
| Goals                                           | ▪ Adoption in extra 72.68 milion ha                  |
|                                                 | ▪ 208.40 millions m³ tratados                        |
|                                                 | ▪ 5 milhões adicionais de animais                    |
| Goals (mitigation)                              | ▪ 1.042,41 billion ton. CO₂ eq.                     |
| Goals (adaptation)                              | ▪ increased resilience                              |
|                                                 | ▪ Conservation of natural resources                  |
|                                                 | ▪ Increase in biodiversity                          |

Until 2030
ABC Plan
ABC+
Green Carbon Program
Green Carbon Program

Goals

- Foster decarbonization of production chains;
- Design guidelines for certification;
- Create a typology of chains on three axes: mitigation, sequestration and capture;
- Establish the foundation for voluntary and regulated markets;
- Generate healthy, reliable, transparent and fungible credits.
ABC Plan
ABC+
Green Carbon
Bio-Inputs
Bio-inputs Brazilian Program

Bioeconomy working for a sustainable agriculture
Goal

Expand and strengthen the use of bio-inputs towards sustainable development
Policy Strategy

- Regulatory Framework
- Investment in ST&I
- Credit and Promotion
- Knowledge and Training
- Implementation of Biofactories
- State Programs
Outcomes
Registered Bio-Inputs

567 produtos

Bioacaricida 7.41%
Bioinsecticida 40.92%
Biofungicida 11.64%
Bionematicida 8.11%
Biobactericida 0.88%
Feromônio 6.88%
Regulador de crescimento 11.99%

Quantidade de produtos registrados

Fonte: https://indicadores.agricultura.gov.br/agrofil/index.htm
2. Principais Achados

Market share - Brazil Bio-inputs x Chemicals

**Bi R$ - Farm Gate Price**

<table>
<thead>
<tr>
<th>Year</th>
<th>Bio-inputs</th>
<th>Chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>18/19</td>
<td>40.49 98%</td>
<td>45.41 97%</td>
</tr>
<tr>
<td>19/20</td>
<td>52.09 96%</td>
<td>4% (2.27)</td>
</tr>
</tbody>
</table>

Key factors for market growth

- Farmers have been increasing their confidence in the effectiveness and efficiency of the bio-input technologies with substantial reduction in cost production;
- Due to the challenge of large-scale agricultural production under tropical conditions, Brazil has been heavily investing in various plant protection technologies, including the use of bio-inputs; and
- Growth in consumer market with higher demand for low-residue and organic products.

*Crops considered: Soybean, Sugarcane, Corn, Cotton, Eucalyptus, HF (apple, grape, potato and tomato).

*Fonte: Blink Projetos Estratégicos*
ABC Plan
ABC+
Green Carbon
Bio-Inputs
Water Conservation Program for Agriculture
The Water Conservation Program for Agriculture aims at the sustainable economic development in rural areas through the adoption of soil and water conservation, measures and practices, with the efficient management of the natural resources.
Unit of intervention: Farm

Unit of monitoring: Micro-basin

PROGRAM ACTION PLAN

Adoption Monitoring

Technological Reference Units

Training

Technical Assistance
ABC Plan
ABC+
Green Carbon
Bio-Inputs
Water Conservation for Agriculture
Soil Survey Program
The main purpose of the Brazilian Soil Survey Program is to survey the soils of the Brazilian territory on a scale of 1:100,000 providing for the policy makers with high standard information.
Actions in progress

Soil Mapping, updating information and surveying soils in Brazil;

Development of the Soil Information System in Brazil – PronaSolos Platform; and

Implementation of postgraduate courses in Geoprocessing, Surveying and Soil Interpretation (PronaSolos University).
ABC Plan
ABC+
Green Carbon
Bio-Inputs
Water Conservation for Agriculture
Soil Survey Program
Innovation Strategy
Agriculture Innovation Agenda

### Strategic Axes

**Sustainability**
- Climate
- Time
- New Concepts for Brands and Process
- Carbon
- Water
- Soil
- Branding

**Bioeconomy**
- Advanced Biology
- Bio-inputs
- Bioenergy
- Natural Resources
- Genetic Resources
- Diversification

**Digital**
- Virtual Learning
- Blockchain
- Connectivity
- Devices
- Bots, IA
- Precision Ag
- Digital Twins
- HoloTech

**Open Innovation**
- AgTechs Hubs
- Innovation Ecosystems
- Social Innovation Alliances
- Value Aggregation Entrepreneurship
- Short Chains

**Food Tech**
- Ingredients
- Process
- Plant-Based
- Cell-Based
- Precision Fermentation
- Vertical Farm
- Specialization
- Packaging
- Cooling/Freezing

### Strategic Guidelines
- **Virtual Learning**
- **Blockchain**
- **Connectivity**
- **Devices**
- **Bots, IA**
- **Precision Ag**
- **Digital Twins**
- **HoloTech**
Digital Agriculture

- Internet gap in rural areas
- Increase access to innovation and income

Rural Communities Connected

Agro 4.0 Chamber

5G for agribusiness

4G, antennas, satellites, fiber...
1,574 Agtechs

62% SOUTHEAST
25% SOUTH
6% MIDWEST
5% NORTH EAST
2% NORTH
62% SOUTHEAST
25% SOUTH
6% MIDWEST
2% NORTH
More than 50 Agro Innovation Hubs
Agro Hub Brasil
Portal de informações sobre o Ecosistema de Inovação do Agro brasileiro
Alternative Protein National Program
Goals

Research
Entrepreneurship
Adding value and sustainability
Best Practices
Communication
Data base
Training
BRF faz aporte de US$ 2,5 milhões na Aleph Farms para produzir carne cultivada

A Aleph Farms pretende produzir carne cultivada a partir de células bovinas não geneticamente modificadas.

Fazenda Futuro: "carne de plantas" brasileira expande-se para Dubai

Foodtech brasileira usa plantas para criar alimentos que imitam sabor e textura da carne animal. Fábrica foi ampliada para atender pedidos internacionais.

BS anuncia aquisição e investimento de US$ 200 mil em carne de laboratório

Impanhia anunciou em uma nota relevante a aquisição da BioTech Foods, feita a partir da subsidiária JBS Global Luxembourg.

JBS anunciou, nesta quarta-feira, a aquisição da BioTech Foods, empresa panhola especializada em proteína cultivada — ou seja, carne feita em laboratório, a partir de células animais.
Food Tech Innovation Agenda

Convergence of ICTs (IOT, AI, Big data, etc) with new physical, chemical and biological processes to transform the agri-food industry

Some Food Tech trends:
- Alternative proteins (plant based; synthetic, insects)
- Upcycling: carbon and water footprint
- Vertical Farming;
- Traceability and blockchain;
- Apps to support consumer decision making;
- Precision Fermentation;
- Foodloss and waste along the chain.