



2021 Planetary Health
Annual Meeting and Festival

**FOOD CHAIN AND
PLANETARY HEALTH CHALLENGES**

www.planetaryhealthannualmeeting.org

**GREEN
RIO**
Satellite event



USP
Universidade
de São Paulo

Strategic Vision for Innovation in Agriculture

Department to Innovation for Agriculture
Secretary for Innovation, Rural and Irrigation Development
Ministry of Agriculture, Livestock and Food Supply

Future Scenarios for Agriculture

Agriculture

Food

Society

- Current world population: **7 billion** people.
- In 2050: **9 billion** inhabitants.
- In 2050: agricultural production **will need to grow globally by 70%, and almost 100% in developing countries.**
- Population growth, extended life expectancy and purchasing power = **need more water, energy, food and fiber.**
- Climate change: limiting production and productivity.



The future
of food and
agriculture
Trends
and challenges



Agriculture Innovation – Agri-biodigital Agenda

Strategic
Axes

Sustainability

Bioeconomy

Digital

Open
Innovation

Food Tech

Strategic
Guidelines

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

Advanced
Biology
Bio-inputs
Bioenergy
Natural
Resources
Genetic
Resources
Diversification

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

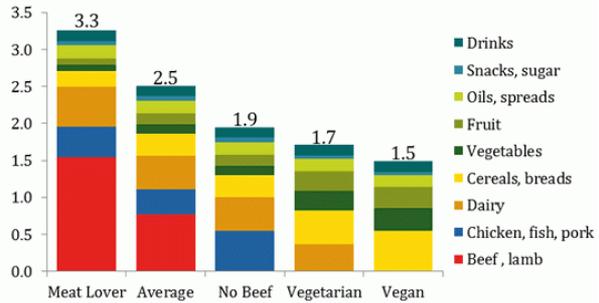
AgTechs
Hubs
Innovation
Ecosystems
Social Innovation
Alliances
Value
Aggregation
Entrepreneurship
Short Chains

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

Sustainability



Foodprints by Diet Type: t CO₂e/person



Note: All estimates based on average food production emissions for the US. Footprints include emissions from supply chain losses, consumer waste and consumption. Each of the four example diets is based on 2,600 kcal of food consumed per day, which in the US equates to around 3,900 kcal of supplied food.

Sources: ERS/USDA, various LCA and EIO-LCA data



McDonald's USA and Canada Commit to Cage-Free Eggs



13 MILLION

Number of cage-free eggs we currently source per year in the U.S.



10 Years

Timeline to fully transition to cage-free eggs.



SCIENCE
BASED
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION



SHORT-TERM OUTLOOK

FOR EU AGRICULTURAL MARKETS
IN 2020

SPRING 2020

Edition N° 26

Agriculture
and Rural
Development



Open Innovation



Partnership to connect agritechs with investors, with the aim of allowing them to have access to funds to accelerate business.



IDEAS FOR MILK

Ideas for Milk
Dairy agribusiness startup challenge. It is led by Embrapa in partnership with the companies Agripoint, Kick Venture, Cranio and Carrusca Innovation.



Inoveaqua

Program that gathers different initiatives to foster innovation for the development of Brazilian aquaculture.

INOVA PORK

InovaPork

A challenge to foster innovation in the pork chain and attract ideas that can become businesses of impact for the production sector.



Some Initiatives



ABC+

**PLAN FOR
ADAPTATION AND
LOW CARBON
EMISSION IN
AGRICULTURE**

Strategic vision for
a new cycle



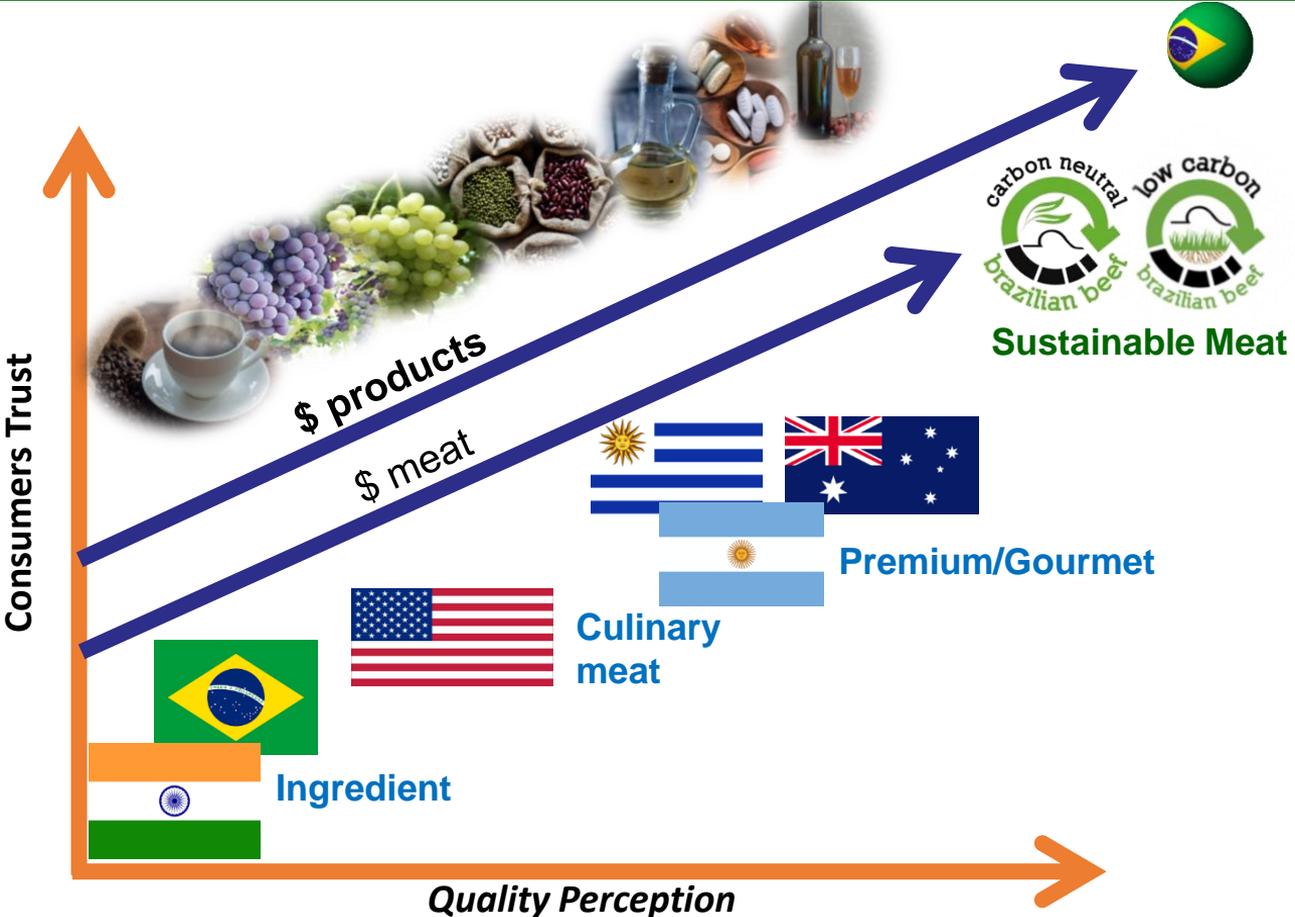
The ABC Plan



The Plan for the Consolidation of a Low Carbon Economy in Agriculture, or the ABC Plan, has already contributed **to the mitigation between 100.21 and 154.38 million Mg CO₂ eq. in the period from 2010 to 2018**, indicating that the targets for reducing GHG emissions are already being met.

Now, we want to go further with the ABC+.

Value adding in the agri-food value chain



The Bio-inputs Program

The National Program for Biobased Agricultural Inputs: Bio-Inputs Program





Bio-Inputs Program

For the purpose of this Program, biobased agricultural input, or bio-input, is considered:



Any product, process or technology originated from plant, animal or microbial, acting positively on crops, livestock, aquaculture and forestry systems.

***Not just for production, but also for use in storage and processing systems.**



Why to launch a National Program for Biobased Agricultural Inputs: Bio-Inputs Program?

Bio-Inputs Program



Brazil is an important player in agriculture



Brazil has 20% of the biodiversity of the planet and a huge number of collections of microorganisms already collected.



There is a lack of knowledge for this new área (growers, technicians)



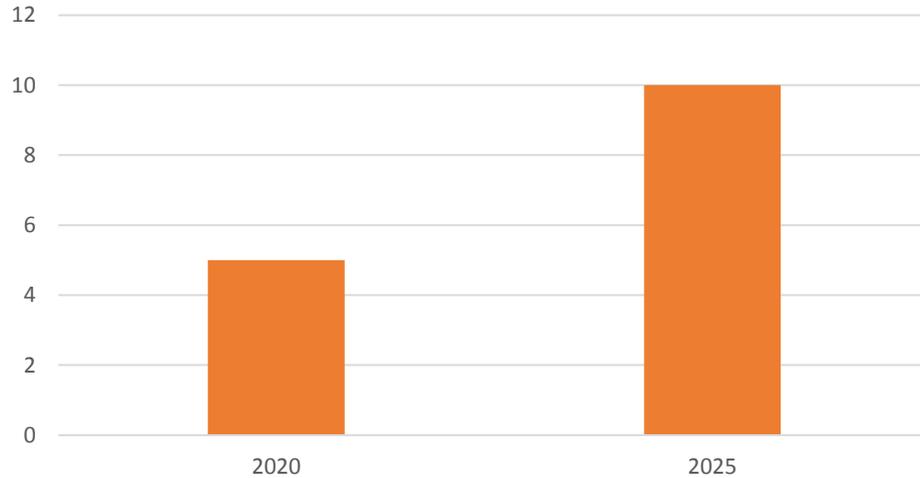
The Biological Control and Bioestimulants Market is growing fast.





Global Market – Biological Control

Global Market for Biocontrol (Bilhões - USD)



Source: Dunham Trimmer

Global growth rate of 15%

10% of CP Market in 2025

MARKET EVOLUTION – TOTAL CROP PROTECTION vs. BIOLOGICAL PRODUCTS

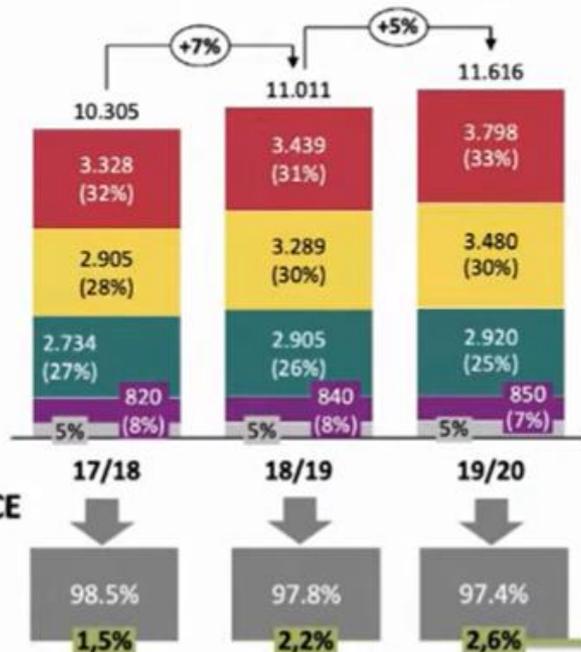


TOTAL CPP

Indications in %. Basis in Turnover (USD mi).

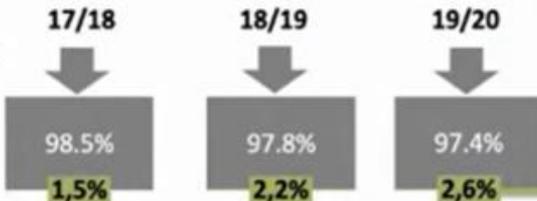
TOTAL CPP MARKET

- Fungicides
- Insecticides
- Herbicides
- Seed Treatments
- Others



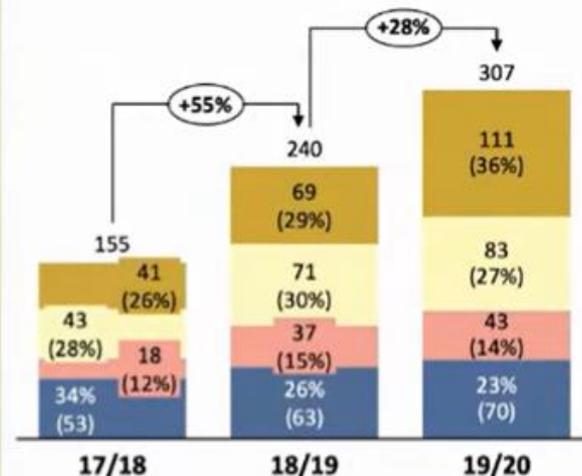
BIOLOGICAL IMPORTANCE

- Other Segments
- Biological Products



BIOLOGICAL PRODUCTS

- Bionematicides
- Inoculants
- Bioinsecticides
- Biofungicides





Bio-Inputs Program

Overall Goal:

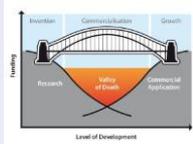
Expand and strengthen the use of bio-inputs to promote the sustainable development of the Brazilian agriculture.





Strategic Goals

- Propose a **regulatory framework** that encourages production and use of bio-inputs;
- Encourage **science, technology and innovation**;
- **Credit and fostering instruments** for development, production and use of bio-inputs;
- **Dissemination of qualified knowledge** and information on the development, production and use of bio-inputs;
- **Training and capacity building on good practices** of production, use and application of bio-inputs;
- Encourage **implementation of bio-factories**; and
- Promote **policies, programs and plans in states and municipalities**.



Biological agent collections – Valley of Death



Open Innovation



To supply the supplier – process, technology, assets, equipments, inputs.



On farm production





Press Kit

Press releases and more

About the Program



Press Release



Sustainability



Bio-inputs APP



Biological Control



Press Contents



Testimonials



Video of Launch

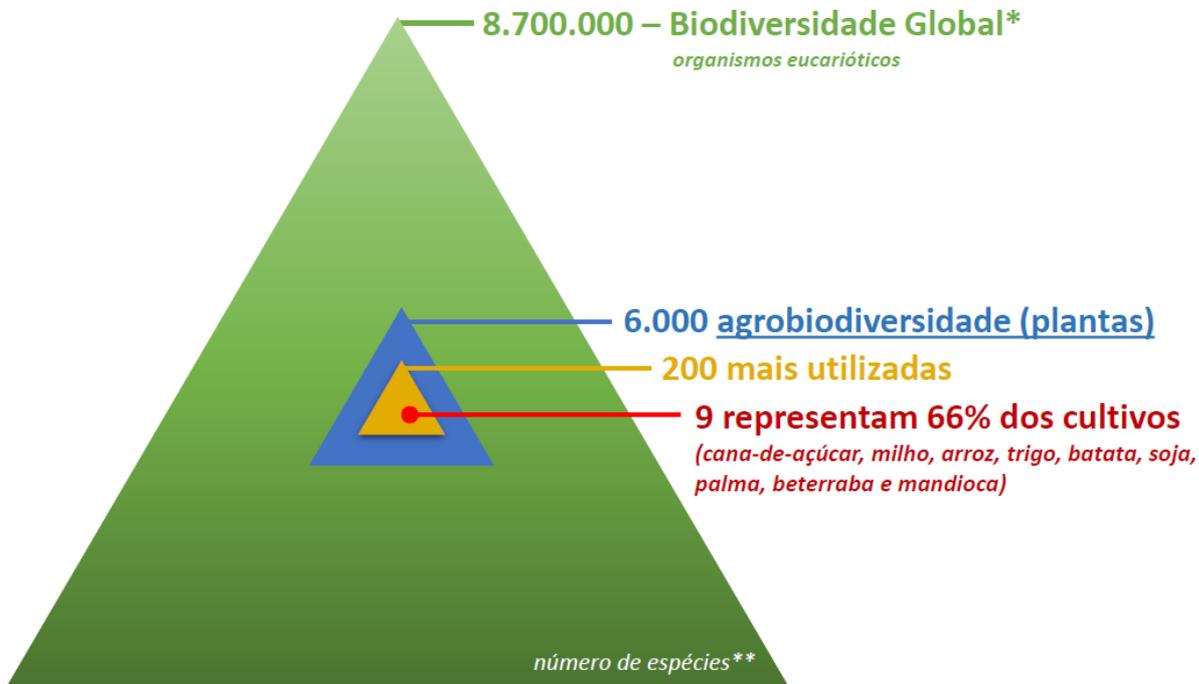


bioeconomia.diagro@agricultura.gov.br

Thank you!

Brasil: Potência Agroambiental

Riscos e Oportunidades



20% da biodiversidade do planeta (1.740.000)

Fonte:

*Nature (<https://www.nature.com/news/2011/110823/full/news.2011.498.html#:~:text=There%20are%208.7%20million%20eukaryotic,3%20million%20and%20100%20million.>)

**FAO (2019) - <http://www.fao.org/state-of-biodiversity-for-food-agriculture/en/>

Our production is concentrated in the Midwest, South and Southeast regions and Brazil uses only 7.8% of its territory for crops and planted forests, with 66% of its area preserved.

Brazilian environmental legislation is one of the most restrictive in the world. Just as an example, in the Amazon, it is only possible to produce in 20% of the property, this when it is not part of Permanent Preservation Areas such as riverside, close to springs and hill tops, for example. And it never hurts to remember that the Amazon biome has 84% of its native area preserved.

https://www.youtube.com/watch?reload=9&v=LWCUkkvL_yg