

**Learn what
we're doing**
*to create the food you
love in a safer, fairer and
more sustainable way*

REPORT
2021



gfi / Brazil™

Cultivated Meat Balls: Upside Foods

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THE GOOD FOOD INSTITUTE

For a safe, fair and sustainable food system

The Good Food Institute is an international non-profit organization working to transform the food production system. Our team has more than 100 professionals working in Brazil, the United States, India, Israel, European countries and the Asia-Pacific region, to build a world where alternative proteins are the number one option for consumers. We are 100% funded by philanthropy and all our work is offered free of charge to society. We exist to make our food systems better for the planet, people and animals.



Episode 1: Can you imagine?
Get to know The Good Food Institute

WHO WE ARE

Mission

We want to pave the way for a protein production chain that is safe, fair and sustainable. In order to do this, we identify the most effective solutions, mobilize resources and talent, and empower partners across the food system to make alternative proteins more affordable and delicious.

Vision

A world where alternative proteins are no longer alternatives.

Values

We believe change is possible.

We do the most good we can.

We share knowledge freely.

We act on evidence.

We invite everyone to the table.

GFI is a nonprofit working internationally to make the global food system better for the planet, people, and animals.

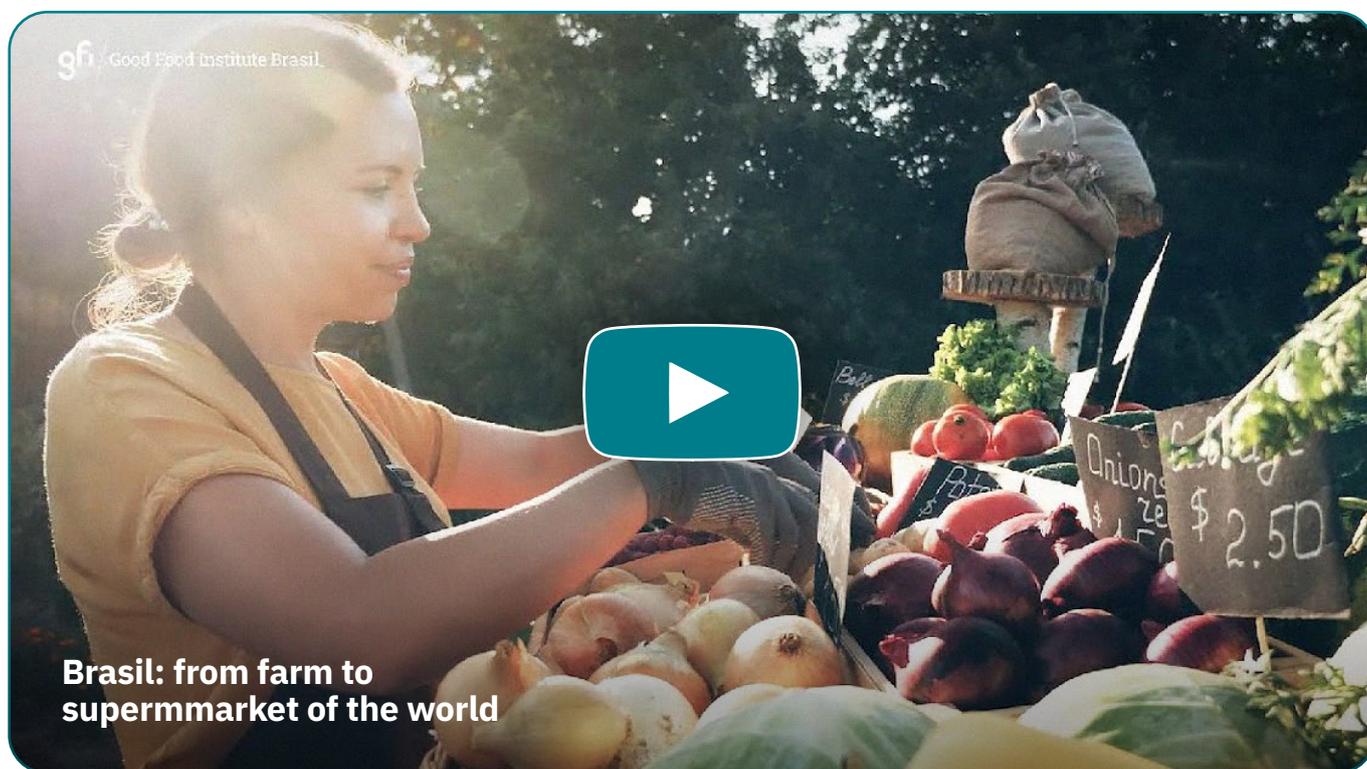
GFI BRAZIL

We are helping to make Brazil the supermarket of the world!



Brazil is a crucial country for the global food industry. We have at our disposal an excellent agribusiness, one of the richest biodiversity on the planet, research institutions with robust scientific knowledge and logistical capacity for the distribution of food products. This scenario also gives us the certainty that we can lead the world market

for alternative proteins, moving from being just the storehouse to being the supermarket of the world. By diversifying our economic matrix, we can supply our country, conquer the international market with unique flavors and contribute to the preservation of the environment, generating positive impacts on the local economy.



Brazil: from farm to supermarket of the world

ALTERNATIVE PROTEINS? NOT SO MUCH!

In 2021 we consumed, produced and exported like never before. Good for people and for the planet!

The year 2021 was again marked by the influence of Covid-19. However, although the damage was felt in all areas of society, it was also a period of hope and the beginning of the return to life as we knew it, thanks to the efforts of science and governments to provide mass vaccination. We can also say that the year revealed, above all, the urgency of adopting a more sustainable way of life if we want to have a future moving forward, which necessarily involves transforming the way we produce our food.

At the end of 2020, a [research](#) published in the journal Science showed that, even if all fossil fuel emissions were immediately zeroed, it would be impossible to meet the target established by the Paris Agreement, which determines to limit the increase in Earth's temperature to 1.5° C or up to 2°C above pre-industrial levels, due to emissions generated by the global food system alone.



Ground Beef: Fazenda Futuro



In February 2022, a new [study](#) published by PLOS Climate shows that if global meat and dairy production is gradually reduced to zero over the next 15 years, it will be tantamount to “canceling” the greenhouse gas (GHG) emissions generated by all other economic sectors for 30 to 50 years. In other words: a progressive transition to a global food system based on plants and other alternatives that do not include products of animal origin has the capacity to, in just over a decade, bring to zero the amount of GHG that all industries, transport and the energy sector, combined, would take up to more than half a century to emit into the atmosphere.

The first signs of awareness of the subject can already be felt in Brazil. In 2021, meat consumption was the lowest in 25 years. And, contrary to what many believe, the reasons go beyond high prices. According to Embrapa Cattle’s Beef Intelligence Center, after the end of the pandemic, [meat consumption](#) should grow and then stagnate in 2025.

The reduction in consumption of animal products has clear reasons. The main factor is the popularization of flexitarianism, a movement of people who reduce the consumption of meat, milk and eggs, but do not eliminate it definitively. This portion of the population already accounts for 50% of Brazilians, according to a [2020 survey by The Good Food Institute Brazil](#). Corroborating this information, a [2021 IPEC study](#), commissioned by the Brazilian Vegetarian Society, pointed out that 46% of Brazilians stopped consuming meat of their own volition at least once a week.

Health concerns is one of the most relevant reasons for this new behavior. [70% of people](#) say they stopped or decreased consumption of animal products for health-related reasons or medical restrictions. Other reasons involve the growing concern about environmental impacts and animal welfare.

It’s not just about price: why beef is losing space on Brazilian plates





Plant-based Mayo: N.ovo

As a result, [GFI's analysis](#) of investing activities using data from the PitchBook Data platform showed that global companies in the alternative protein sector received US\$5 billion in investments in 2021. This record number is 60% higher than the US\$3, 1 billion registered in the previous year and five times more than the US\$1 billion invested in the sector in 2019. [Agency Euromonitor](#) revealed that, in the last five years, Brazil has registered an annual growth of 11.1% in sales of substitute products of animal meat, which include other options besides alternative proteins. In 2015, the sector earned US\$ 48.8 million (about R\$ 246.7 million). In 2020, it was US\$ 82.8 million (R\$ 418.7 million), an increase of 70%. For 2025, the projection is to reach US\$ 131.8 million (R\$ 666.5 million).

These numbers mean an immense offer of new products launched in the market. In an estimate made by GFI Brazil, in 2021 alone, around 98 products were launched, including various cuts of meat, new substitutes for milk, cheeses, solutions for culinary cream, and sauces such as mayonnaise and omelets. All made from plants, with innovative technologies, reaching at least 30 countries. The year also marked announcements made by BRF and JBS, entering the cultivated meat market and promising the first products as early as 2024.



Plant-based Dairy Products: basi.co

It is also worth noting that this fertile environment has gained government attention and support. GFI Brazil has maintained an intense agenda, especially with the Ministries of Agriculture and Science, Technology and Innovation, in addition to the General Management of Food at Anvisa, in order to support decision-making on a regulatory framework for alternative proteins, that make the trade in these products fairer and more competitive. The [Alternative Protein Work Group](#), coordinated by GFI, hosted by the Brazilian Bioinnovation Association (ABBI) and composed of the main agents present in the Brazilian market, has established itself as an effective two-way channel of communication between regulators and regulated entities. At a global level, we also act as an observer organization in the Codex Alimentarius, guiding a global regulatory framework for the sector.

Whether it's compassion, empathy, environmental awareness, a concern for social or health issues or all of the above, what matters is that more and more people are changing their diets and finding that this transition can be, not only necessary but also delicious. At the same time, they begin to realize that the fork is an important political tool and that the food we put on our plate is a vote for the world we want. In this report, we detail a little more about this year of numerous challenges, but also many achievements. Have a great read!

**Learn more about the
Codex Alimentarius**



Brazil is advancing rapidly and has the potential to lead the world, using its biodiversity and cutting-edge industry.

Gustavo Guadagnini

Executive Director - The Good Food Institute Brazil

OUR THEORY OF CHANGE IN PRACTICE

Our team has grown and so has the impact of what we do!

To carry out our work, we have a team of professionals in programmatic areas - science and technology, public policy and corporate engagement - and in support areas - operations, human resources, development and communication. We started 2021 with 9 professionals and ended the year with 7 new hires. Of the 15 people who worked at GFI Brazil last year, 12 were women, 70% in leadership positions.

GFI Brazil is concerned with creating a pleasant environment where everyone feels comfortable working with autonomy, responsibility, respect and collaboration. Our leadership and HR are focused on developing tools to support mental health and take care of the individual needs of each team member, contributing to a healthy environment both physically and emotionally. We also value an increasingly diverse and inclusive environment.



The result can be seen in our Engagement Survey carried out annually with our employees: they responded positively to 93% of the questions in 2021. This survey is a fundamental tool for GFI to be constantly evolving and to meet the needs of our employees.



I accepted the invitation from the GFI as soon as I received it, because the organization is absolutely committed to science and encourages the numerous sectors linked to low-impact food. It is a great privilege for me to have received this invitation and to be part of the team! Preserving the future, one meal at a time.

Danielle Zuckermann
Ambassador for GFI Brazil



80
scientific
research
projects

from 24
universities
submitted to the
Biomes Program



13
scientific research
projects approved in
the Biomas Program



67
projects registered
in the research
database



R\$2,2 MM
invested in
research through
the Biomas Program



7
scientific research
projects approved in
GFI's International Research
Incentive Programs



Participation in
32
events, symposia,
workshops and lectures



8.200
participants in
technical-scientific events
promoted by GFI Brazil



100 companies
mapped on our
Sector Map. 

2 companies
(JBS and BRF) announced
entering the cultured meat
field with GFI support.

Publication
of the Nomenclature
Study. 

+ 200 meetings
with companies, startups,
investors, retailers and
innovation hubs.

30 products
launched after
consulting with GFI.

752
articles
published



28,7%
in high relevance
vehicles



99%
publications
were positive



R\$7,28 MM
in media return



3850
followers
on social media



1802
subscribers
to our newsletter



**R\$1,3
million**
were raised by
GFI Brasil in 2021.



With this resource it was possible to finance the research projects of the Biomass Program, the studies regulatory and operating expenses.

In 2021, GFI also had the support of Tozzini Freire Advogados, which provided us with pro-bono services during the year, in addition to the support of our ambassador, Daniele Zukerman and our advisor, Vinícius Rodrigues.



Acted

in the National Congress in favor of the sector's agenda, with contacts with several parliamentary offices and participation in 2 events of the Parliamentary Bioeconomy Front.

Partnership

and constant contact throughout the year with the 3 most relevant agencies of the Executive Power for the alternative protein agenda: MAPA, MCTI and Anvisa.

3 regulatory

studies on fermentation, cultured meat and plant proteins.

2 workshops

workshops on cultivated meat for 60 professionals from Anvisa and MAPA (Department of Inspection of Products of Animal Origin / DIPOA).

12 meetings

of regulated agents within the scope of the Alternative Proteins Work Group hosted by the Brazilian Association of Bioinnovation (ABBI) that took place throughout 2021.

SCIENCE AND TECHNOLOGY

Building a scientific base made by brazilians!

The global challenge of feeding the 10 billion people by 2050 is one of the main reasons for GFI to invest in technologies capable of democratizing the population's access to food made from alternative proteins. It is urgent to create the necessary conditions for the available food to generate less and less environmental impacts, reduce dependence on natural resources in the production chain, guarantee food safety, be safe for consumption and not depend on the exploitation of animals.

This mission requires advancing open access research and creating a strong research and education ecosystem around these strategic fields. This is why, in 2021, GFI Brazil expanded its capacity to generate scientific information aimed at the production chain of alternative proteins, fostered and financed research from global and national programs, developed educational programs in partnership with universities and research institutions, engaged in Codex Alimentarius and developed a strategic plan for beef grown in Brazil.



I really admire the work that GFI does. In a way, the institute ends up playing the role that the Government should or could be doing, activating the academic and regulatory sectors as well as research and development, companies and investors. I think the way GFI supports this new industry is fundamental so that we can establish new standards and work toward a healthy diet, sustainable and accessible to everyone in Brazil and in the rest of the world.

Luismar Porto, PhD

Founder of Tubanharon Process Engineering

Learn about some
of these initiatives:

Biomes

*Research
incentive*

Engagement

Research

Biomes Program

Made possible by donations from two philanthropic institutions, GFI Brazil created a [research incentive program](#) for universities and research institutions. It is aimed at native species of plant extractivism that already have established production chains and excellent nutritional and technological characteristics. The objective is to meet the urgent demand of the Brazilian alternative protein industry for national ingredients that add sensory quality, functional and nutritional characteristics to plant-based products.



Although there are great opportunities in all Brazilian biomes, the program's first call for research focused on native species of the Amazon and Cerrado Biomes. In total, we received 80 proposals from universities and research institutions across the country. With the resource of R\$2.2 million, it will be possible to finance 13 proposals dedicated to the investigation of 4 fruits native to the Amazon (babassu and Brazil nuts, cupuaçu and guarana) and 3 from Cerrado (baru, macaúba and pequi), with expected results for 2023.



The [studies](#) should have a positive impact on the preservation of these biomes, in addition to having high socioeconomic potential. The program also has the possibility to add to government efforts aimed at promoting economic growth through inclusive industrialization and fostering innovation. In addition, research into new ingredients can increase product quality and competitiveness and reduce costs in the long run.



International Research Incentive Program

GFI has Research Project Funding Programs that support studies created to solve the biggest challenges that the plant-based and cultivated meat industries face, in order to develop solutions through open access research contributing to the development of new technologies, products and alternative protein ingredients that are flavorful, accessible and widely available.

In 2021, we launched three international calls for funding research projects and 7 Brazilian projects were selected. Among them, 3 are in the area of cultivated meat and the others in plant-based. In total, the incentive programs invested around R\$5 million with the approval of these projects.



GFI does essential work in the movement towards innovation. The organization acts as a bridge, connecting the productive sector to research and development. So, we can only thank the support, not just financial, but also the knowledge that guides our decision-making.

Caroline Mellinger, PhD

Researcher at Embrapa contemplated by the 2019 Research Incentive Program

Researcher engagement

In 2021, we held technical presentations at 32 events, including symposia and workshops. Topics addressed include alternative proteins and emerging markets, new protein sources, cellular agriculture, tissue engineering, and ingredient opportunities for the plant-based market from species from the Amazon and Cerrado Biomes, among many others.

The events were held in partnership with universities, scientific and innovation institutes and the government. We had more than 8,200 participants in the events, including researchers, students, professors, industry and government professionals.

With these initiatives, we were able to share technical information in the area of alternative proteins with more than 15 universities, education and research institutions, as well as companies, professional councils, government agencies and public research institutions across the country.



Companies research

GFI Brazil carried out a survey with professionals from the ingredient and plant products processing industry in order to identify the biggest challenges in the development of plant-based analogues to animal products in terms of quality, price and sensory characteristics required by consumers.

“Study shows that the ‘plant-based’ market demands more raw materials.”
- Estadão



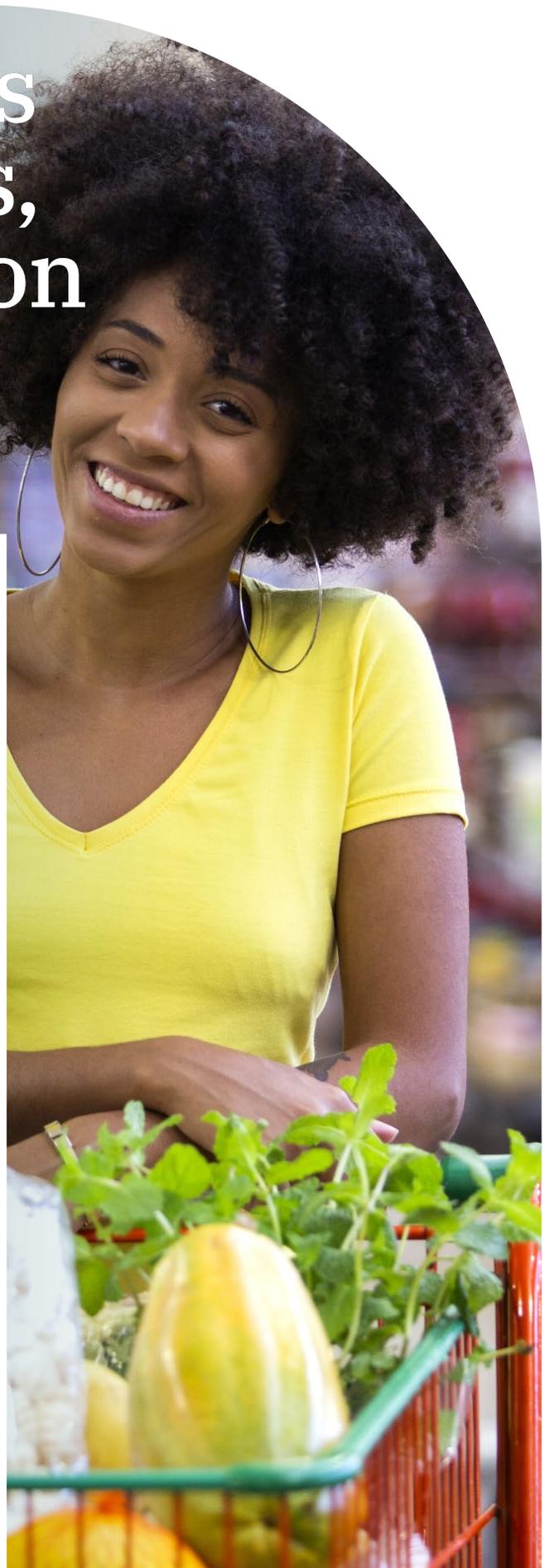
The research “Opportunities and Challenges in the Production of Plant-Based Analogous to Animal Products” had the contribution of 21 companies, and identified seven priority research lines for the advancement of the plant-based market in Brazil, which involve process improvement, search for new sources and raw materials, clean-label, improved nutritional characteristics, among others. From this information, it was possible to identify areas of opportunity for improvement in the production sector of alternative proteins.

CORPORATE ENGAGEMENT

More products on the shelves, more quality on the plate!

In 2021, we increased our support for companies expanding their portfolios and new players entering the alternative protein market. Confirming previous predictions made by GFI Brazil, this was the year for national brands to invest in indulgence products, whole cuts of meat and new national ingredients.

Our [map of the alternative protein sector](#) identified at least 100 companies operating in the plant-based and cultivated protein market and accounted for at least 98 new products.



Check out the main highlights of the year:

Cultivated meat

National brands

*Innovation
bottlenecks*

*Rural
producers*

Brazil on the map of cultivated meat

With support from GFI Brazil, [JBS](#) and [BRF](#) announced investments in cultivated meat, with the forecast of commercializing the first products in 2024. We worked to connect both companies with startups, researchers, and professionals in the sector and also to create business plans that made it possible for the companies to enter the cultured meat sector. Two of the largest protein companies in the world (and the only ones in Brazil to date) directing all their investment, scale and execution potential into the cultivated meat market.



GFI has been a tireless and unique partner on this journey. It is extremely welcome to have an entity such as the nonprofit GFI, which works with the objective of promoting the best model of food development. In addition, the technical bodies that are part of GFI, not only in Brazil but in the whole world, are highly qualified and the level of discussion we have is always very rich. This reputable aspect, which dialogues in the same way with industry, the government and the new economy, without any kind of bias, is something charming. We are very happy to have you as partners on this journey.

Sérgio Pinto

Global Director of Innovation and New Business at BRF



National brands in more than 30 countries

Several companies in the sector, such as JBS (Incrível line), BRF (Sadia Veg & Tal), PlantPlus (a joint venture between ADM and Marfrig) and Fazenda Futuro expanded their portfolios and the commercialization of their plant-based products in Brazil and abroad. We hold several meetings with companies to present business opportunities, create connections with suppliers and partners, present market data and consumer perception, and offer support in marketing challenges and product development in order to help companies in their operations. Brazilian products are already in the main retail stores in the country and they are currently sold in more than 30 countries.

We believe that all initiatives to promote the development of alternative proteins are very good and very welcome. We fully support this type of action and we have been working together, including in our innovation hubs, and it has been very productive in this regard. Alternative proteins are a relevant part of our strategy.

Eduardo Noronha

Global Head of HR and Operational Excellence at JBS



Innovation bottlenecks in alternative proteins

We carried out a survey of the main innovation bottlenecks for the alternative protein market in Brazil and started a project with Insper, one of the most renowned business schools in Brazil, to create a publication on the topics raised.

In addition to examining the success factors and critical points of global startups in the alternative protein sector, we carried out a study on how these conditions could be applied to Brazil in order to draw an overview and understand how we can act to promote further innovation in the alternative protein sector. The expectation is to unlock innovation bottlenecks and support new market entrants. The survey will be launched in 2022.



Involvement of rural producers in the production chain of alternative proteins

We started working to engage stakeholders connected to rural producers (Confederation of Agriculture and Livestock of Brazil - CNA, National Rural Learning Service - Senar, Brazilian Council of Beans e Pulses - CBFP, Brazilian Institute of Beans and Pulses - Ibrafe) to understand how to include farmers in the alternative protein market.

With this initiative, we hope to understand how we can support the inclusion of rural producers in the alternative protein market in order to increase their profitability, promote more sustainable businesses and foster a national chain of Brazilian ingredients to supply not only the domestic market but also markets abroad. The result will be the strengthening of agribusiness and the Brazilian economy as a whole, as well as the preservation and enhancement of our biomes.



PUBLIC POLICIES

A regulatory framework that promotes the expansion of the sector in Brazil

In several countries, such as Singapore, the Netherlands and the United States, progress has been made in governmental recognition of the alternative protein sector. Singapore was the first country to regulate the market for cultured meat at the end of 2020 and other countries should be next at the beginning of 2022. In the same direction, this year we focused our efforts in Brazil to establish the basis of the debate aiming at the design of a national regulatory framework for alternative protein products. We have prepared a set of materials that provide a robust scientific basis for the debate and provide a broad survey of regulatory experiences in other countries. The focus is to promote the construction of a more competitive market for products made from plants, obtained by fermentation and grown from cells.

Complementing this action, we are working to insert the alternative protein agenda into the Brazilian bioeconomy and bio innovation policies. As Codex Alimentarius observers, we are actively participating in debates on the relevance of this topic being part of the

institution's agenda, which may result in establishing a global regulatory framework for alternative proteins. At the state level, we promote the topic in the State of Amazonas, through a Technical Cooperation Agreement focused on developing a local innovation ecosystem for alternative proteins.



See the details of
these initiatives:

*Dissemination
of knowledge*

*Bio innovation
agenda*

*Discussions on
alternative proteins*

*Technical
cooperation*

Dissemination of knowledge in alternative proteins

In this moment of structuring the sector, sharing knowledge and exchanging experiences is essential. Thus, with funding from companies that support this initiative, we commissioned the Food Technology Institute (Ital) for the development of three regulatory studies, one for each of the key technologies involved in alternative protein production. Each study is divided into three parts; first is presented an analysis of the scientific aspects involved, highlighting points of attention for the regulatory agent; then, a brief survey of regulatory experiences in other countries is presented; and finally, suggestions for adapting the Brazilian regulatory framework to the demands of the protein alternative sector.

Other materials were developed to complement the regulatory studies. We worked to create a standardized response from the regulated sector to the Public Procurement of Subsidies on Plant-Based Products conducted by the Ministry of Agriculture (MAPA). We develop a theoretical nutritional study comparing products made from plants and their animal analogs. In addition, we hold cultivated meat workshops to connect Brazilian regulators with foreign scientists and regulators.



Cultivated Meatstick: Upside Foods

Such initiatives have a threefold role. First, to act as an information element, providing regulatory bodies with scientific arguments for debate. Second, to act as a tool to align the Brazilian regulatory experience with the experiences of other countries. Finally, to be a mobilizing agent, catalyzing the work of an intragovernmental group responsible for the activities provided for in the Regulatory Impact Analysis.

Alternative proteins gain space on the bio innovation agenda

The Brazilian Bioeconomy Observatory (ODBio) has explicitly included alternative proteins in the framework of Bioinnovation opportunities for agricultural decarbonization initiatives. In addition, the Department of Innovation of the Ministry of Agriculture elaborated throughout the year a “National Plan for Alternative Proteins”, which should be launched in 2022 within its strategic agenda for innovation in the food sector.

The Alternative Proteins Work Group, composed of the signatories of the Support Manifesto, hosted by the Brazilian Association of Bioinnovation (ABBI) and coordinated by GFI, maintained its monthly frequency of meetings throughout 2021. This working group has been a relevant forum for debates and an effective two-way channel of communication between regulators and the regulated sector.

The debate on sustainable proteins for human consumption has strengthened, especially after the United Nations Summit on Food Systems (UNFSS) and the last United Nations Conference on Climate Change (COP26). This is particularly relevant for Brazil, one of the main leaders in the production of animal

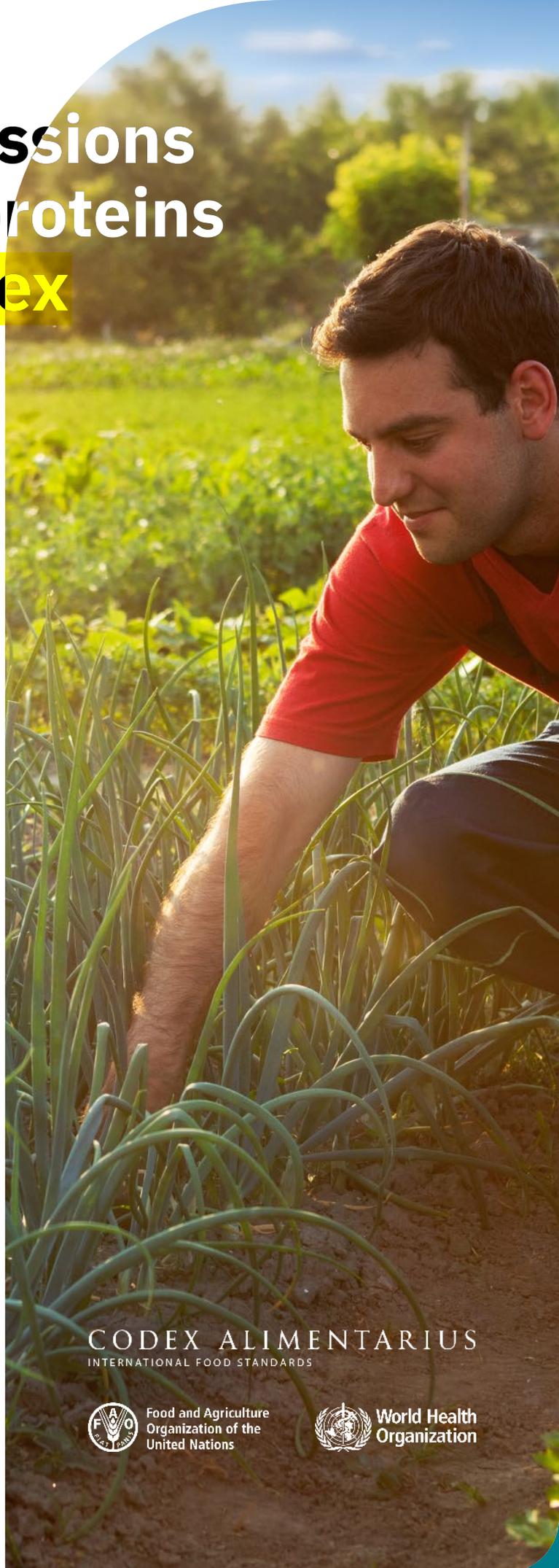


protein in the world. Including alternative proteins as one of the initiatives for net-zero emissions can provide an additional boost to this market in Brazil, targeting both the domestic market and exports.

GFI leads discussions on alternative proteins in the Food Codex

The global debate on alternative proteins would not be complete without involving international multilateral agencies. FAO is beginning to learn about the matter and the last meeting of the Codex Alimentarius (CAC44, in November 2021) dealt directly with the topic of NFPS (New Food Sources and Production Systems). GFI has taken an active role globally in influencing these institutions to include this topic on their agendas.

As an observer institution of the Codex since February 2021, GFI actively participated in CAC44, presenting a CRD (Conference Room Document) in which we defended the relevance of the topic in the scope of the Codex and that it was opportune that a broad debate between the member countries took place in some formal instance within the Codex framework. The expected development is the edition of a Circular Letter in early 2022, where opinions can be collected and, based on that, the debate resumed in CAC45. Balancing the playing field for alternative proteins in the Codex could impact several countries where the commission's texts are used as a reference for national food policies around issues such as food safety, labeling and trade.



CODEX ALIMENTARIUS
INTERNATIONAL FOOD STANDARDS



Food and Agriculture
Organization of the
United Nations

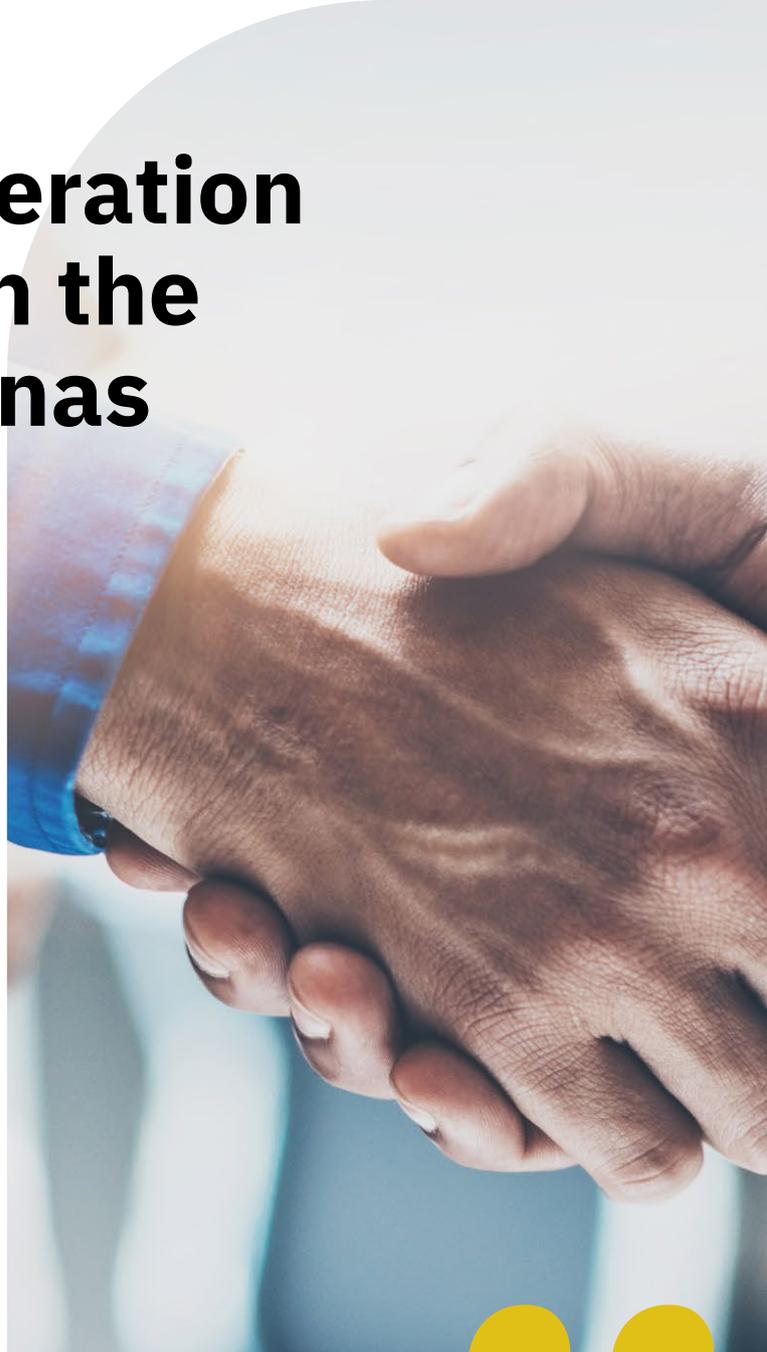


World Health
Organization

Technical Cooperation Agreement with the State of Amazonas

The agreement was signed in 2020 and renewed for 2021-22. It establishes joint activities between the teams of GFI and the State Secretariat for Economic Development, Science, Technology and Innovation (SEDECTI) of Amazonas to strengthen the bioeconomy agenda in the state, with a focus on alternative proteins.

A great impact was generated on the region's research and development ecosystem through the Biomass Program, in addition to contributing to the dynamism of the entrepreneurship environment through contacts and lectures with different actors of the state innovation circuit.



Thinking about sources and inputs for the plant-based industry allows us to envision the possibility of transforming the economic matrix of the state of Amazonas into something where we can bring alternative proteins, high technology and cutting-edge science into the debate around sustainability, biodiversity and conservation of the Amazon biome.

Tatiana Schor

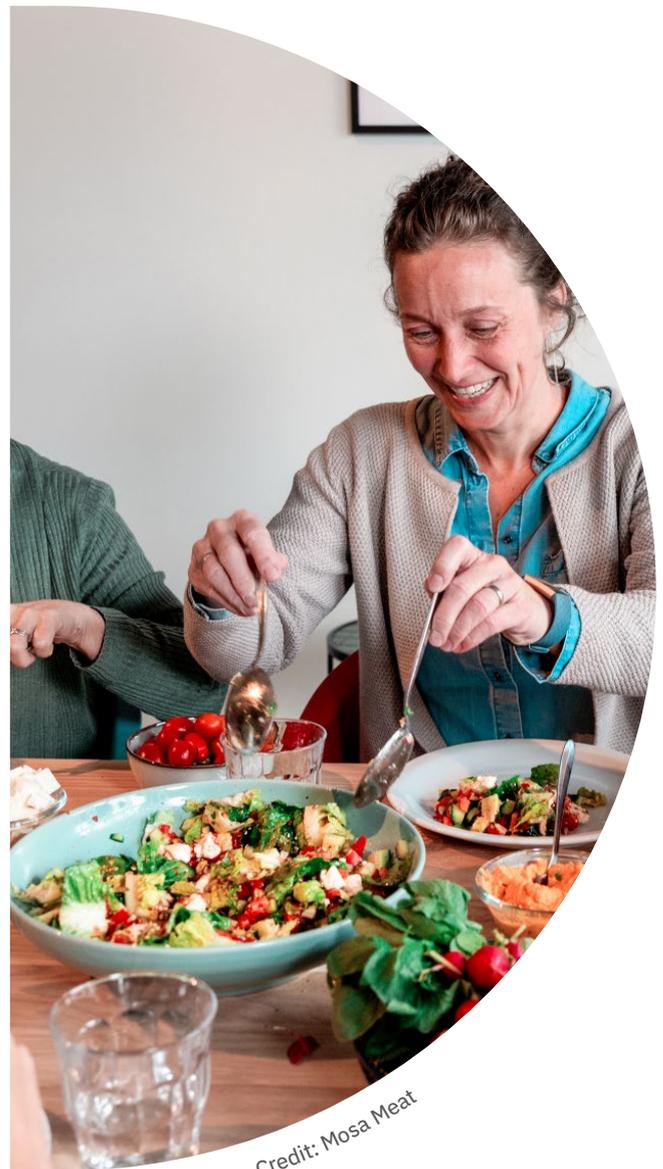
Executive Secretary of SEDECTI in 2020 and 2021

BE A DONOR

Help GFI transform the future of food!

All this work and projects were only possible because we had the support of our donors around the world. We are a nonprofit, non-governmental organization supported 100% by philanthropic resources. All the work developed is free of charge and therefore donations are vital to our mission.

You have the power to help us transform the global food production system. Your donation helps the alternative protein industry produce food that is better for the planet, people and animals. The future of food is also in your hands and you can change it for the better.



Credit: Mosa Meat



Get in touch with our
Development Manager,
Ana Carolina Rossetini.

ANAR@GFI.ORG

Do you want to know more about our work and find out how to be part of this revolution?

Watch the “Can you imagine?” video series, launched in 2021, which explains our performance, theory of change and presents the technologies we defend.

Also learn about the main results achieved by GFI between 2018 and 2020 through our first triennial report.



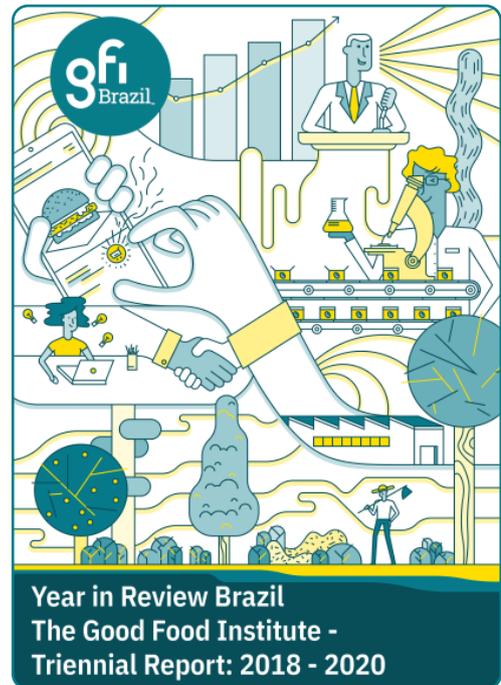
Episode 1: Can you imagine?
Get to know The Good Food Institute



Episode 2: Can you imagine?
Plant-based Protein



Episode 3: Can you imagine?
Cultivated Meat



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