

*Position Paper*

# VISION OF INNOVATION AND COMPETITIVENESS OF THE AGRIBUSINESS



Brazilian Agribusiness Association (Abag) Innovation  
Committee 2023



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# SUMMARY

This document is an initiative of the Innovation Committee of the Brazilian Association of Agribusiness (Abag) to analyze the situation, challenges and changes in the Agribusiness innovation and competitiveness scenario. It is an update of the first position paper released in 2020. The content was developed from research carried out between December 2022 and January 2023.

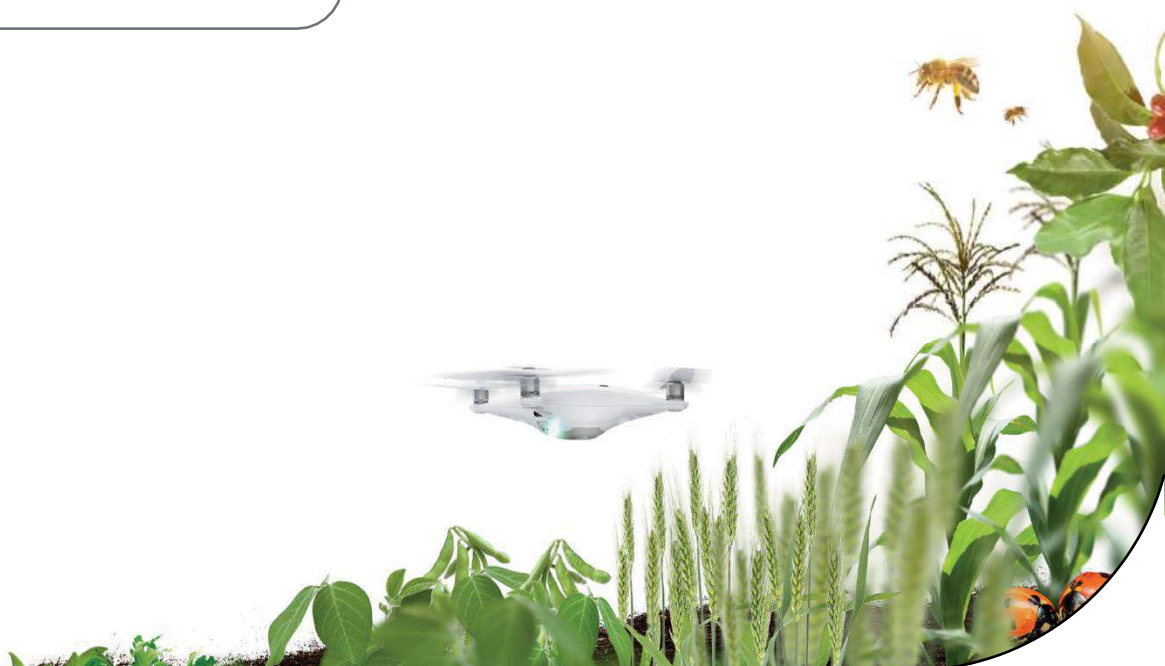
The survey resulted in a very diverse profile, with the participation of 100 professionals in various segments directly and indirectly linked to the Agribusiness ecosystem. We highlight innovation hubs, which was cited by 22% of the participants.

Among the sector's bottlenecks, infrastructure was by far the most cited issue, with 85% of responses, followed by the effects of climate change and regulations/public policies. As for the challenges of the organization itself, the emphasis was on financial resources and management.

If, on the one hand, the connectivity of 4.0 technologies has gained more relevance, the human factor is still seen as the most important factor in innovation and competitiveness, as well as the need for partnerships to implement effective improvements.

## KEY WORDS

- ✓ A View to Innovation
- ✓ Competitiveness of Agribusiness
- ✓ Innovation
- ✓ Technology
- ✓ Human Capital



# INTRODUCTION

The Position Paper: Vision of Innovation and Competitiveness of the Agribusiness is a proposal to understand how the principles of innovation and competitiveness are being worked, including broadening the debate on the impacts of Agribusiness in different sectors of society and in global value chains, in particular in relation to food security, the production of renewable raw materials, sustainable development, climate change, implementation of new technologies and balance of economic power.

Therefore, when implementing global policies, several aspects must be considered by the interested parties, such as companies, civil society organizations, public services, government agencies, institutions, researchers, workers and consumers.

**In the information age, data have become a new and valuable commodity.**

Without the new technologies, it would be practically impossible to analyze the enormous volume of data generated by the Agri chains, either before, inside or outside the farm gate. However, technology alone does not solve everything. It is necessary to solve other gaps in the sector, such as infrastructure, regulations/public policies and management challenges of the organizations themselves.



Historically, talking about innovation has always been more connected to the context of new technologies, at least in the popular view. However, we live in a reality that demands that even the meaning of the word innovation be innovated. After all, innovation is nothing more than putting a good idea into practice.

**When the world asks for new paradigms, it is innovation that will speed up change.**

The current moment is one of great turbulence in the international scenario, with markets affected by the pandemic, wars, economic instabilities, climate crises and scarcity of inputs.

As a result, food and energy insecurity have become global priority issues.

The global governance landscape is extremely fragmented, creating a challenging and increasingly competitive international situation. The combination of a new “agroecological cold war” with a possible deglobalization could compromise the interconnection achieved and strongly impact Agribusiness.

Data from the Food and Agriculture Organization of the United Nations (FAO)<sup>1</sup> reveal that, in 2021, about 2.3 billion people faced moderate or severe food insecurity, almost 30% of the global population. In Brazil, this number exceeds 60 million (28.9%), considering the average for the period from 2019 to 2021. This problem could get even worse with the growth of the world population, which should reach 8.5 billion in 2030 and 9.7 billion in 2050. There is a projected increase in global demand for energy by 40% and for water by 50%, as well as the need to expand food production by 35% by 2030.

It is necessary to sustainably increase productivity to meet the growing demand for food, fiber, energy and renewable raw materials in livestock farming and forests, with emphasis on new integrated production systems: such as the ILPF (*Integração Lavoura-Pecuária-Floresta* (Crop-Livestock-Forest Integration) and others.



<sup>1</sup>Number of people affected by hunger rises to 828 million in 2021. United Nations Brazil, 06 July. 2022. Available at: < <https://brasil.un.org/pt-br/189062-numero-de-pessoas-afetadas-pela-fome-sobe-para-828-milhoes-em-2021>> . Last accessed at: 23 Feb 2023

**More than ever, the planet needs innovations converging to create opportunities.**

And if there is a sector that needs and can overcome challenges based on good ideas, it is certainly the Brazilian Agribusiness.

That is because as one of the greatest *players* on the world stage, Brazil has both the role and responsibility to adapt to the rules of the game.

**Climate change will impact the global market with increasing power, as the climate affects production and vice versa.**

Members of the European Union are discussing a new international trade regulation aimed at combating climate change. However, the so-called Green Deal lacks a broad and open dialogue with the entire international community. On the contrary, it imposes rules unilaterally, mainly with regard to the traceability of production and use of inputs, without taking into account the reality of Brazil and other countries in tropical regions, in relation to climate, geography, capacity to produce more crops and also the ability to produce using more sustainable solutions. An unequal barrier, since the restrictions would not also apply to the productive sector of these countries. (Being, therefore, unable to achieve the targets since it could reduce trade agreements and lead to shortages and higher consumer prices.)



At the same time, there is also a new understanding that the search for a balance between nature and agricultural production goes far beyond the climate. The innovative concepts of Regenerative Agriculture are gaining ground, especially with the use of biological inputs.

The national agribusiness plays a leading role, but it can also play an important role in devising public policies, inside and outside the country. In this reality, it is up to the sector to change what is possible and adapt to what is necessary, which is where the recognized Brazilian entrepreneurial capacity to innovate comes into play.



# GOALS

This survey has the main goal of identifying, mapping, systematizing and analyzing the actions employed or planned by organizations around the principles of a positive agenda of innovation and competitiveness for the Agribusiness, using the point of view of the productive chains of the sector.

## SECONDARY OBJECTIVES

✓ Identify the extent to which discussions around the adoption, implementation and use of new technologies are used by the different agents involved in the Agribusiness chains.

✓ Discover to what extent factors such as incentives and policies, 4.0 technologies, environmental, human and organizational nature can influence the development of a more effective system.

✓ Understand what organizations are considering in the search for more competitiveness.

✓ Guide the sector's strategic planning, actions and investments for innovation, technology, and competitiveness, as an important tool for direction and decision-making, both for the performance of Abag itself and for public, private and mixed economy organizations.

✓ Contribute to discussions on innovation in agriculture as a way to mitigate risks and reduce insecurity in relationships around the digital environment between different peoples and states of global ecosystems.

✓ Inspire future works and debates on the subject, as well as possible regulations, since the definition of Agribusiness as a strategic priority of foreign policy is an important path for world food security.



# RESULTS

This work was carried out based on an exploratory proposal, by applying a questionnaire containing open and closed questions related to the different challenges involving the Agribusiness chain before, inside and outside the farm gate.

The survey was open to the public for filling out the questionnaires between the months of December 2022 and January 2023, with the aim of measuring the importance of several factors that impact Agribusiness and the Brazilian Agribusinesses, including startups It is scaleups.

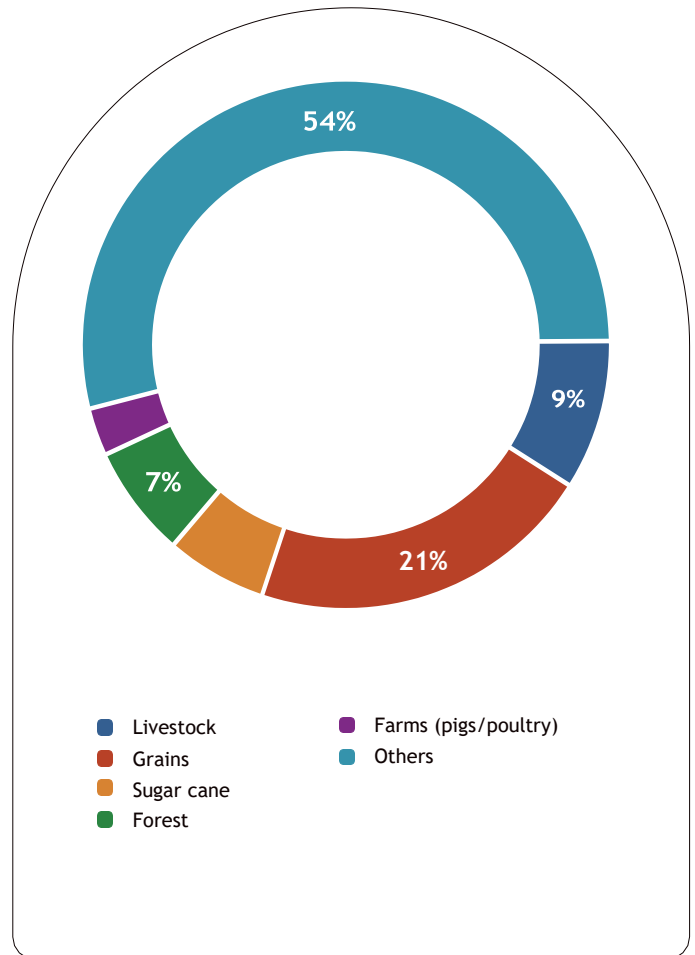
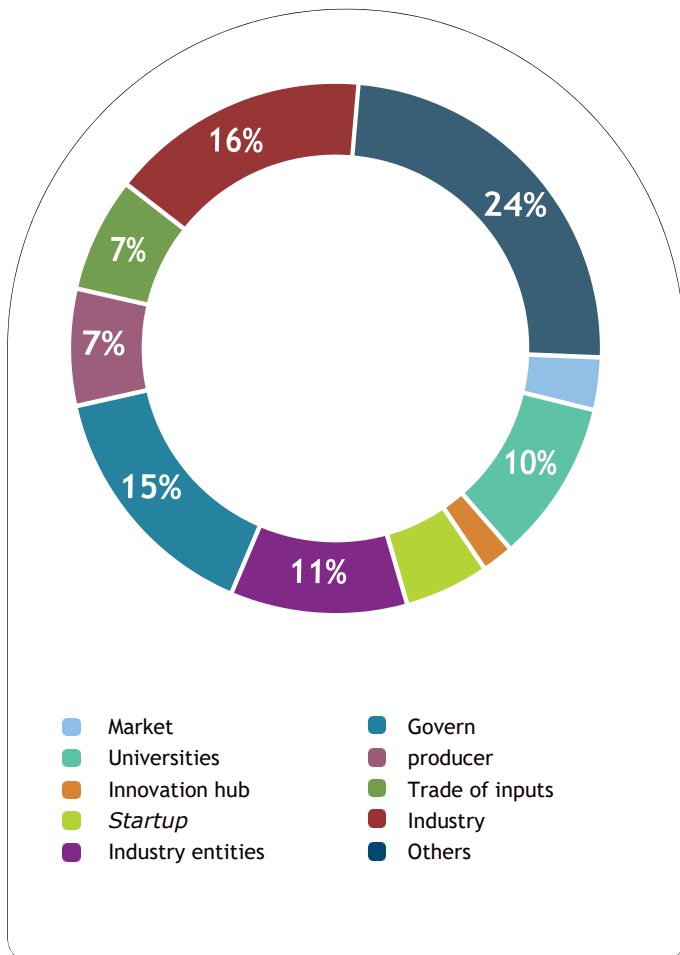
With a total of 100 respondents, the survey obtained responses from those who really know the day-to-day and the bottlenecks in the sector, providing a better understanding of the economic and social effects arising from the change in behavior with the new flows of information and adoption of technology tools in the digital age.

This content was reviewed and discussed by the Abag Innovation Committee, together with the assessment of the global context, to bring a deeper and more realistic view of the current scenario, and the challenges that involve the future of the Brazilian Agribusiness.



# RESPONDENTS' PROFILE

LEARN ABOUT THE REALITY OF THE WHOLE MARKET



The wide sampling encompassed the diversity and breadth of Brazilian Agribusiness, including the entire production chain, industry, services and entities, with a percentage of 80% not associated with ABAG. That allowed us to present the most different views in the answers, ensuring that they survey has an excellent representativeness and legitimacy.

In addition, the survey brought both the sectors that create innovation and those that benefit from it, the latter being represented by board members and management, which provides a more strategic view to the weightings.

## INCENTIVES AND POLICIES

The current perception is that much of the innovation is still focused on the private sector, but that could benefit more from partnerships with educational entities and technology transfer. The survey further pointed out a great need for improvement in public policies and incentives that strengthen the competitiveness of the sector, especially through education.

## HUMAN NATURE

In this topic, the strong impact of the pandemic on human capital was demonstrated, since motivation and purpose were placed as the greatest factor of competitiveness, together with commitment, and above the educational level. More than 60% considered that motivated and committed people are extremely important in the work environment.

## CHALLENGES OF THE SECTOR

External bottlenecks were the most cited, with 85% pointing to the lack of infrastructure as the main challenge for the competitiveness of the Brazilian agribusiness. Then came the effects of climate change, as well as regulations and public policies. Once again, highlighting the sector's concern with the impact of factors beyond the control of Agribusiness. The internal bottlenecks, on the other hand, demonstrated a need to improve the management and governance of companies in the sector.

## 4.0 TECHNOLOGIES

In the perception of the role of technological tools in Agribusiness, the need for innovation focused on management and governance tools became even more evident, since most cited factors as of great importance were Big Data & Analytics, cloud computing, internet of things (IoT), cybersecurity and systems integration.



## ENVIRONMENTAL NATURE

Looking at the context in which the Agribusiness companies are part, the respondents pointed out as an important factor for generating a competitive environment building alliances and the relationship with universities, reinforcing the relevance of partnerships for the innovation and competitiveness of the entire production chain.

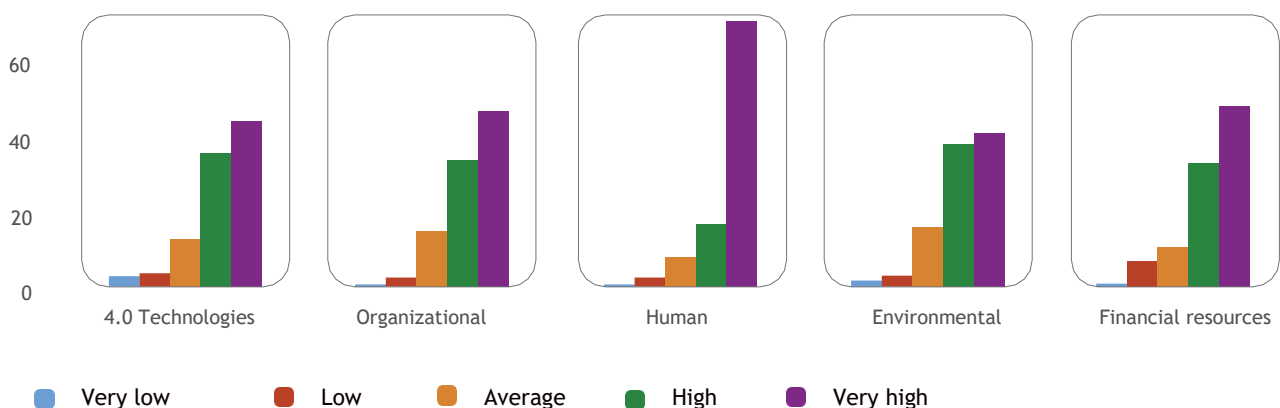
## ORGANIZATIONAL NATURE

This survey demonstrated the recognition that innovation must be an inherent part of all companies, regardless of the sector in which they operate. More than half of the participants pointed out that it is not possible to be competitive without Research & Development, and the companies having a view to innovation. Among the challenges for the organization to be more competitive, the lack of access to resources was cited by 52% of respondents as a very important bottleneck, along with cost management and productivity.



In a global assessment of the survey topics, the human factor was considered by far the most important factor for innovation and competitiveness, which shows that changes begin when people think differently.

### Degree of relevance according to the respondent.



## STRENGTHENING OF AGRIBUSINESS

To respondents, strengthening competitiveness and insertion in global value chains depend mainly on research and promotion of international trade, with these factors being mentioned by more than 60% as very relevant.



## STARTUPS AND COMPANIES

According to the survey, the engagement of *startups* and agri enterprises can be productive in the most diverse aspects. Respondents believe that the greatest contribution of this type of alliance can be in terms of competitiveness, such as gains in efficiency, productivity, scale, entrepreneurship and new business models. But the other factors were not far behind in the perception of relevance: brand innovation, value offering, platforms, solutions, processes, organization, supply chain, network presence, in addition to user experience.

Organizations were more open to partnerships for experimentation and development of pilot projects, in order to test and scale solutions with results in the field.

## TRENDS

When pointing out the trends for the coming years, the current perception is that innovation will have to take place both within the farm gate and in rest of the production chain. Precision agriculture, artificial intelligence, autonomous equipment, applications and software management were cited as highly relevant in innovation trends by over 60% of those surveyed.

Innovations that may play a leading role in the issue of traceability were also mentioned: blockchain and vertical agriculture.





# EVOLUTION

One of the great challenges of innovating is that the context is also constantly changing. Therefore, an innovation environment is above all an environment aligned between what was, what is and what could be soon.

**In a assessment since the last survey, carried out in 2020, there was a clear perception of changes.**

✓ In terms of Agribusiness challenges, infrastructure continues to be the main bottleneck, but regulations and public policies have gained prominence along with climate change.

✓ The main change in the perception of Technologies 4.0 came from the strategic point of view, highlighting big data & Analytics as highlights.

✓ In the human factor, motivation and purpose started to be seen as key factors.

✓ In global value chains, the synergy between public and private has lost space for research.

It is important to emphasize that the evolution was not only in perception, but also in practical aspects. This is because several Abag initiatives emerged as a direct response to the survey carried out in 2020:

✓ Implementation of the ABAGLab as an innovation ecosystem that includes, in addition to the entity's Innovation Committee, Working Groups (GTs) focused on specific innovation themes for the Agribusiness chain, a platform that connects innovative solutions to the challenges faced by companies in the sector, and the debate of relevant topics through ABAGTalks, which aims to educate and raise awareness among the general public.

✓ Increased engagement meetings with startups, which returned to the face-to-face format in the post-pandemic period.

✓ Strengthening the relationship with the press, with greater presence in articles on innovation.

✓ Participation in fairs focused on innovation, with emphasis on the presence in the evaluation panel of the Agrishow Startups 2022 award.

# STRATEGIC GUIDELINES

## SEARCH ↔ INNOVATION

- ✓ Using innovation not only to produce more, but to be cost competitive in the face of increasingly restrictive regulations.
- ✓ Stop being just a protagonist inside the farm gate to become a reference in agrotechnology, export of know-how and innovation.
- ✓ Expand incentives geared exclusively towards the acquisition of more modern and innovative tools and equipment.
- ✓ In the development of technologies, take into account the different realities of the Agribusiness chain and the structural difficulties of the field.
- ✓ Expand connectivity in the field, so as not to limit the implementation of new technologies and the integration of production chains.

### ROLE OF ABAG

Work to expand the scope of incentives for innovation so that it encompasses not only productive technologies and machinery for precision agriculture, but also the creation of new tools for management, governance, financial support, databases and information sharing .

## BRAZIL ↔ WORLD

- ✓ Integrate public and private initiative in the search for solutions for the main bottlenecks in Agribusiness for production and exports, especially logistics, storage, connectivity and new development models.
- ✓ Strengthen international representativeness through the work of class associations, complementing the government's diplomatic work, including using Brazil's leadership in the Latin American bloc as a negotiating power on the world stage.

### ROLE OF ABAG

Take a position whenever necessary and be the voice of technical responsibility to support the decisions of the Brazilian government and international entities, in order to bring public policies and regulations closer to the reality of national Agribusiness, acting as an intermediate with different bodies and in public hearings, in defense of the sector's interests, including the innovation segment focused on Agribusiness.

## MANAGEMENT ↔ EDUCATION

Align Universities, innovation companies and agribusinesses to work together to transform education focused on Agribusiness, bringing about relevant topics of innovation, competitiveness and the reality of the field to the curricula and academic research centers.

## AGRO ↔ ENVIRONMENT

Facing sustainability as an added and differentiating value for Brazilian Agribusiness, directly related to reducing the impacts of the climate issue and the competitiveness in international markets.

### ROLE OF ABAG

Through ABAGLab, seek, support, accelerate and expand open innovation, education and entrepreneurship initiatives and events, including partnerships with edtechs and Education Platforms. In this way, ABAGLab will be able to act as an innovation connector in the Brazilian agribusiness production chains, aiming at strengthening successful connections, networking and strategic alliances for the sustainable development of Agrobusiness products and solutions.

### ROLE OF ABAG

Do the work required to defend the interests of the sector in favor of public policies consistent with the Brazilian reality, especially on specific sustainability issues, such as direct planting, reduction of GHG (Greenhouse Gases) emissions and traceability, among others. Also, to strengthen the Agrobusiness' reputation on the international scene, by bringing about conversation that highlight the sustainability of the sector.

# FINAL CONSIDERATIONS

Innovation certainly played a role in bringing the Brazilian Agribusiness to what it is today: a productivity benchmark for the world. And Abag not only witnessed these great advances firsthand but played a key role in them. Therefore, there could not be a better moment than Abag's 30<sup>th</sup> anniversary to look at the reality of the field and see its potential to overcome new limits.

National agribusiness has all it takes to assume an even greater role and increasingly strengthen its position on the international scene. But for that to happen, it needs to innovate at every point of the production chain, with integrated management and a vision of the future based on sustainable assets, generating economic and social value, walking side by side with research and development, seeking to increase productivity and anticipate trends, through clear and efficient sectoral strategic planning.

Therefore, more than a guide to contribute to decision-making, this document proposes to translate Abag's commitment to make the Brazilian Agribusiness ever greater, strengthening partnerships, representing the sector, defending the interests of the field, supporting public and private initiatives, proposing ideas and, above all, promoting innovation in favor of competitiveness.





*Associação Brasileira do Agronegócio* (Brazilian Agribusiness Association) (ABAG) was created in 1993 with the purpose of establishing an organization in the process of sustainable development within the Brazilian Agribusiness, bringing the sector and all its domestic and international stakeholders closer together. It is the only association that brings together all the links in the chain, from the field to the industry, distribution and services, and it has a key role in strengthening the agro-industrial system and relations with the government, the private sector, class entities and educational institutions.

It is also worth highlighting the goals of the Abag Innovation Committee, which reinforce the Entity's commitment to the Agribusiness topics:

- ✓ Work with the government to establish and maintain public policies favorable to innovation in the sector;
- ✓ Defend the interests of the sector and, through innovation instruments, obtain and ensure greater productivity;
- ✓ Foster incremental and disruptive innovation initiatives in the Agribusiness sector;
- ✓ Analyze, propose ideas, encourage and align innovation programs in the Agribusiness sector;
- ✓ Promote the image of industry leadership through its innovative culture;
- ✓ Foster integration between ABAG committees in their innovation actions.





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