C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

JBS is the largest global producer of protein-based food products and has recently entered the cultivated protein segment. We also have a strong presence in prepared foods in both Brazil and internationally. Because of its global production platform diversified by geographic location and protein types, the Company has greater access to raw materials. Working to process animal protein and value-added products in the beef, pork, lamb, fish, poultry segments and plated-based the Company also operates related businesses, such as prepared food, leather, biodiesel, personal care and cleaning, solid waste management solutions and metal packaging.

With locations in more than 20 countries and over 500 production units and commercial offices on five continents (the Americas, Asia, Europe, Africa and Oceania), JBS serves around 275,000 customers, in over 190 countries, ranging from supermarket chains to small retailers, wholesale clubs and food service companies.

With around 260,000 team members, the same sustainability (economic, social and environmental), quality and food safety guidelines are followed in every region, adopting best practices based on the Company's mission and values and, focusing on operational excellence, as well as the establishment of better relationships with partners, customers, employees and society, the satisfaction of its shareholders and the commitment to social and environmental responsibility issues. For example:

In March 2021, JBS was the first global meat company to pledge to achieve net-zero greenhouse gas (GHG) emissions by 2040, ten years ahead of the deadline set by most companies and governments around fthe world. Now, we are working to transparently share how we intend to achieve this absolute reduction in our scope 1, 2, and 3 emissions, while continuing to grow our business and meet the increasing global need for safe, affordable access to high-quality protein. To further bolster our commitment, we have adopted several near-term targets to achieve reductions in emissions, including reducing our scope 1 & 2 GHG emission intensity by 30% by 2030, and reaching 60% renewable electricity by 2030 and 100% by 2040. In addition, US$3 billion were issued in Sustainability Linked Bonds (SLB) at JBS S.A. and PPC and R$ 1 billion in bonds liked to sustainability in Brazil. In 2023, we will work to develop a robust Net Zero Roadmap that outlines our priorities and guides our actions over the next 17 years. It will be iterative and flexible to allow our businesses to design and implement strategies best suited for their specific operations. Starting this process meant taking inventory of the challenge in its entirety. For 13 years, we have measured, monitored, and recorded our direct and indirect GHG emissions by scope 1, 2, and 3 (partial) categorizations to be voluntarily reported to GHG Protocol, CDP, regional regulatory frameworks, and more. In 2022, we expanded our approach by carrying out the first-ever comprehensive analysis of our company's global GHG emission inventory, inclusive of all relevant scope 3 emissions, in alignment with GHG Protocol methodologies. In 2022 JBS operated the Plataforma Pecuária Transparente ("Transparent Livestock Platform"), launched in 2021 which, through blockchain technology, extends socio-environmental monitoring to the suppliers of its livestock suppliers. By the end of 2025, 100% of JBS' cattle suppliers will be part of the program.

JBS is advancing in the assistance and inclusion of producers who seek to adapt the socio-environmental situation of their properties. The company has already 18 green offices offering environmental, legal and technical advice. JBS has a widely diversified product portfolio, from fresh and frozen meats to ready to-eat (prepared) dishes, with leading brands that are recognized for excellence and innovation in-market, such as: Friboi, Just Bare, Pilgrim's, Primo, Seara and Swift. JBS also launched an entire line of plant-based products in Brazil called Incrível! and the Ozo brand in US. In Australia, under PRIMO brand, launched a flexitarian sausage.

JBS has the following structure: 1. JBS Brasil, which includes Friboi, Swift, JBS Couros and Novos Negócios; 2. Seara; 3. JBS USA Beef (JBS USA Beef, JBS Canada, JBS USA Retail Ready, JBS USA Carriers and JBS Australia); 4. JBS USA Pork (JBS USA Pork, JBS USA Live Pork, Swift Prepared Foods and JBS USA Retail Ready); 5. PPC (Pilgrim's); and 6. Rigamonti.

In 2022, JBS's net revenue was R$ 374.9 billion

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date
January 1 2022

End date
December 31 2022

Indicate if you are providing emissions data for past reporting years
No

Select the number of past reporting years you will be providing Scope 1 emissions data for
<Not Applicable>

Select the number of past reporting years you will be providing Scope 2 emissions data for
<Not Applicable>

Select the number of past reporting years you will be providing Scope 3 emissions data for
<Not Applicable>

C0.3

(C0.3) Select the countries/areas in which you operate.
Argentina
Australia
Brazil
Canada
France
Germany
Hungary
Italy
Mexico
Netherlands
New Zealand
Portugal
Puerto Rico
United Kingdom of Great Britain and Northern Ireland
United States of America
Uruguay
Viet Nam

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.
BRL

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.
Operational control

C-AC0.6/C-FB0.6/C-PF0.6

(C-AC0.6/C-FB0.6/C-PF0.6) Are emissions from agricultural/forestry, processing/manufacturing, distribution activities or emissions from the consumption of your products – whether in your direct operations or in other parts of your value chain – relevant to your current CDP climate change disclosure?

	Relevance
Agriculture/Forestry	Both own land and elsewhere in the value chain [Agriculture/Forestry only]
Processing/Manufacturing	Direct operations only [Processing/manufacturing/Distribution only]
Distribution	Both direct operations and elsewhere in the value chain [Processing/manufacturing/Distribution only]
Consumption	No

C-AC0.6g/C-FB0.6g/C-PF0.6g

(C-AC0.6g/C-FB0.6g/C-PF0.6g) Why are emissions from the consumption of your products not relevant to your current CDP climate change disclosure?

Row 1

Primary reason

Evaluated but judged to be unimportant

Please explain

The majority of JBS products are food consumed by humans and in a wide variety of ways and locations. We serve over 275 thousand customers in more than 190 countries, managing a customer portfolio that includes retailers from major regional chains to small scale retailers, as well as wholesale clubs and food service companies (restaurants, hotels, food service distributors and supplementary processing companies). The potential GHG emissions from the consumption of JBS products would be due to energy consumption (electric energy or fuel) to cook food and refrigeration. However, these GHG emissions estimation would present a significant uncertainty. Furthermore, these emissions can be considered low when compared to the entire value chain, such as agriculture and industrial process, for example. In 2019, JBS contributed with Getulio Vargas Foundation's Sustainability Study Center's (FGVces) research on Brazilian beef carbon footprint. The study included the following production chain processes: input transportation and production (animal feed, fertilizers and correctives), farming activities (breeding, backgrounding and fattening), live cattle shipping, production units, shipping to Brazilian ports and maritime transportation to the Rotterdam port, in the Netherlands. The research concluded that about half of the cattle emission occurs in the reproductive phase, before the cattle arrives at the operational area.
In addition, during the 8th International Conference on Lifecycle Management (LCM 2017) in Luxemburg, JBS presented a leading study regarding the Company's carbon footprint across its beef (Picanha Maturatta Friboi) and chicken (Seara DaGranja). The study was carried out in partnership with FGVces as part of the Applied Lifecycle (CiViA) initiative, and it was used as a benchmark for the Lifecycle Assessment (LCA) methodology. The LCA technique analyses industrial performance (for goods and services) based on natural resource usage across various stages of the value chain: from raw material production to product disposal, including processing, distribution and consumption. Using this information, the LCA may identify environmental impacts from these processes and support strategic decisions to minimize them.

C-AC0.7/C-FB0.7/C-PF0.7

(C-AC0.7/C-FB0.7/C-PF0.7) Which agricultural commodity(ies) that your organization produces and/or sources are the most significant to your business by revenue? Select up to five.

Agricultural commodity

Cattle products

% of revenue dependent on this agricultural commodity

40-60%

Produced or sourced

Produced

Please explain

JBS has 34 beef processing units and 9 feedlots in Brazil as well as 18 beef processing units and 6 feedlots in the USA, Canada and Australia. To calculate this figure, we have considered all our cattle products.

Agricultural commodity

Other, please specify (Poultry products)

% of revenue dependent on this agricultural commodity

20-40%

Produced or sourced

Produced

Please explain

JBS has 30 poultry processing units in Brazil and 36 in the USA, Mexico and Europe. To calculate this figure, we have considered all our poultry products.

Agricultural commodity

Other, please specify (Pork products)

% of revenue dependent on this agricultural commodity

10-20%

Produced or sourced

Produced

Please explain

JBS has 8 pork processing units in Brazil , 8 in the USA and Australia and 3 in United Kingdom. To calculate this figure, we have considered all our pork products.

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	RJBSSACNOR8
Yes, an ISIN code	US4661101034
Yes, a CUSIP number	466110103
Yes, a Ticker symbol	JBSS3
Yes, a Ticker symbol	JBSAY
Yes, a SEDOL code	B3K5JC0 US
Yes, a SEDOL code	B1V74X7 BZ

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual or committee	Responsibilities for climate-related issues
Board Chair	The Board Chair is the President of the Socio-Environmental Responsibility Committee (SERC). The SERC is an assessment body linked to the board of directors to advise them regarding the risks and opportunities in sustainability initiatives. It is responsible for dealing and connecting subjects related to sustainability in the company's business, such as: identification, evaluation and treatment of critical issues that results in risks and business impact; monitoring and implementation of policies, strategies and actions; and evaluation of proposals for investments in sustainability. In this way, all relevant Climate Change issues are dealt by the Committee, under the president's coordination. The President is responsible for organizing and coordinating the Committee's activities, including, among other duties the,investment approval in order to improve JBS Transition to NetZero.
Chief Sustainability Officer (CSO)	In August 2022 a Global Sustainability Directors was created to improve JBS Sustainability Management Globally. The Brazil Sustainability Board responds to this council in a matrix manner. The guidelines approved by the Sustainability Committee are established between the Brazil Sustainability Director and the Global CSO. The Socio-Environmental Responsibility Committee shall advise the Board of Directors regarding the risks and opportunities in sustainability initiatives. It is responsible for dealing with and connecting subjects related to sustainability in the company's business, such as: identification, evaluation and treatment of critical issues that results in risks and business impact; monitoring and implementation of policies, strategies and specific actions; and defining the investments that should be approved on the SERC.The Sustainability area also reports to the Socio-Environmental Responsibility Committee the performance of Climate Change practices.
Board-level committee	In JBS' Bylaws, it is defined that the Board of Directors is responsible for, in addition to other attributions conferred on it by law or by the Bylaws themselves: I. establish the general orientation of the Company's business, considering the safety of people, the development of society and respect for the environment. This commitment to sustainability provided for in the Bylaws permeates all Business Unites and areas of the Company, in all countries where it operates and conducts its business. Therefore, the Company maintains an important governance authority for this topic through the JBS Social and Environmental Responsibility Committee, led by the Chairman of the Board of Directors. The Committee operates on a permanent basis and is composed of a minimum of 3 and a maximum of 5 members, elected by the Board of Directors. The Committee currently consists of 5 members and acts independently from the company's executive board. The Social and Environmental Responsibility Committee has the objective of (i) advising the Board of Directors in the fulfillment of its legal attributions in relation to the sustainability of the Company's business such mapping of risks and opportunities related on climate issues, identification and treatment of critical issues that may result in risks or impacts on the business, and evaluation of proposed investments in sustainability; and (ii) discuss and recommend that the Company adopt policies and measures related to sustainability and social and environmental responsibility. Examples of climate-related decisions: (i) the committee guided the discussions and supported the decision to JBS to pledge to achieve net zero greenhouse gas emissions by 2040. In 2023, we will work to develop a robust Net Zero Roadmap that outlines our priorities and guides our actions over the next 17 years. It will be iterative and flexible to allow our businesses to design and implement strategies best suited for their specific operations. For 13 years, we have measured, monitored, and recorded our direct and indirect GHG emissions by scope 1, 2, and 3 (partial) categorizations to be voluntarily reported to GHG Protocol, CDP, regional regulatory frameworks, and more. In 2022, we expanded our approach by carrying out the first-ever comprehensive analysis of our company’s global GHG emission inventory, inclusive of all relevant scope 3 emissions, in alignment with GHG Protocol methodologies.

C1.1b

(C1.1b) Provide further details on the board’s oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – all meetings	Reviewing and guiding annual budgets Reviewing and guiding strategy Monitoring progress towards corporate targets Reviewing and guiding the risk management process	<Not Applicable>	As a priority strictly related to JBS’s core operations, climate-related issues are discussed in all meetings of JBS Social and Environmental Responsibility Committee, which reports directly to the Board of Directors - and since 2019 has also the Board Chairman as member. Discussions on this subject comprises the assessment and review of the related strategy elements; the undergoing action plan and its related budget; the assessment of every business plan, whether it is considering climat related issues, setting underlying performance objectives, monitoring its implementation and monitoring its performance through following the results of the emissions reductions projects and KPIs of the related strategic drivers, for example, correcting any needed routing paths. In 2022, one of the guidelines presented and discussed by the board was the JBS decarbonization plan, JBS emissions was discussed due to main company NetZero Challenge. In addition, the Socio-environmental Responsibility Committee has the following attributions: to advise the Board of Directors on issues of sustainability and socioenvironmental responsibility related to the Company's business; make recommendations to the Board of Directors on sustainability objectives and monitor the implementation of policies, strategies, actions and projects related to the sustainable development of the Company's business, including social and environmental management and communication; evaluate the reports issued by regulatory bodies on the Company, in what may impact its sustainable development; prepare a summary annual report containing the description of the Committee's activities, which must be sent to the Board of Directors; contribute with guidelines for the formulation of a sustainability strategy and socio-environmental responsibility, in line with the Company's mission and values, such as factors and impacts in the social and environmental sphere

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	The assessment of competence of board members is based on Board Internal Regulation and Board and Committee Member Nomination and Training Policy. The Board and Committee Member nomination policy determines that competencies will be assessed to insure its member have reciprocal skills including hight qualified professional skills with extensive (technical, professional, academic) in experiences aligned with JBS business needs. Aware of the challenge that climate change represents for the company, sustainability and climate change skills are contemplated in assessment. The Board of Directors has two members with climate change competency.	<Not Applicable>	<Not Applicable>

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Position or committee
Chief Sustainability Officer (CSO)

Climate-related responsibilities of this position
Developing a climate transition plan
Implementing a climate transition plan
Integrating climate-related issues into the strategy
Conducting climate-related scenario analysis
Monitoring progress against climate-related corporate targets
Assessing climate-related risks and opportunities

Coverage of responsibilities
<Not Applicable>

Reporting line
Reports to the board directly

Frequency of reporting to the board on climate-related issues via this reporting line
Quarterly

Please explain
At JBS, the defined organizational structure aims to build a process of continuous improvement and increase business performance in the short and long term, in addition to identifying risks and opportunities related to climate change. Therefore, the Company maintains an important governance authority for this topic through the JBS Social and Environmental Responsibility Committee, which is responsible for discussing strategic issues at the global level. The Committee main responsibility is to advise the Board of Directors in relation to sustainability risks and opportunities, including climate issues.
The information and insights that involves the Company result and performance regarding climate issues are provided by CSO to the Social and Environmental Responsibility Committee. In 2022, reinforcing its commitment towards a global ESG Agenda JBS created the role of Global Chief Sustainability Office. In general terms, the Global CSO's responsibility is to lead JBS sustainability area with focus on developing JBS's scienced based goal plan to fulfill the pledge to achieve net-zero by 2024, assessing and managing climate risks and opportunities - sustainability strategy to support risk management, reduce the Company's environmental footprint and manage relationships with society and stakeholder engagement. At the corporate level, the company has two global managers – one in Brazil and one in the United States – responsible for managing and communicating the topic, engaging the Business areas and the entire value chain in sustainability management. These tasks are performed through the sustainability corporate team and for each sustainability / environmental specific professionals and manager / supervisor allocated in each production plant (complying with the Environmental Policy and engaging with the suppliers, for example). These professionals are responsible for operationally implementing and monitoring the action plans with the tasks defined by the Social and Environmental Responsibility Committee. So, the defined structure for managing climate-related issues is: i) Social and Environmental Responsibility Committee; ii) Global CSO; iii) local CSO; iv) Manager; v) Sustainability/environmental professional and plant manager/supervisor of each plant. Besides, the Company structured a working group (WG) with the participation of focal points from all businesses (Brazil, USA, Canada, Mexico, Europe, Australia/New Zealand) to identify solutions that reduce greenhouse gas emissions and can generate value.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	JBS encourages their Management group to address climate-change issues with positive incentives rewarding performance monetarily.

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive
Chief Operating Officer (COO)

Type of incentive
Monetary reward

Incentive(s)
Bonus - % of salary

Performance indicator(s)
Reduction in emissions intensity
Energy efficiency improvement

Incentive plan(s) this incentive is linked to
Short-Term Incentive Plan

Further details of incentive(s)
A goal chart is used as a performance measurement tool for leaders linked to a bônus. The KPIs consideres in Leaders bônus are defined annually and include Sustainability KPIs due to monitor environmental management system based on ISO 14001 recommendations.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan
The eco-efficiency and emissions reduction efforts (projects and targets) at JBS are carried out in the global level and includes all business units (beef, leather, poultry, etc.). Based on ISO 14001, operational units are underpinned by the implementation of the environmental management system and by the action plans from the sustainability assessment strategy, which contains targets for water consumption, wastewater treatment, environmental compliance, by-product recovery in wastewater treatment plant, energy efficiency and solid waste (indicators related to production). The operational unit's projects are essentially linked to targets related to JBS's program of annual bonus, resulting in monetary rewards for the COOs, which includes energy, facility, and environmental/sustainability targets.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?
Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	Time horizon defined by JBS Social and Environmental Responsibility Committee.
Medium-term	3	10	Time horizon defined by JBS Social and Environmental Responsibility Committee
Long-term	10	20	Time horizon defined by JBS Social and Environmental Responsibility Committee

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

JBS defines its financial and strategic impact at the corporate level. The approach to define the impact is performed by mapping the Company's risks, which includes operational, financial and strategic effects and the effects within the operational plants and / or business. Regarding the climate change scenarios, substantive impact is those that can have adverse effects the operational results, financial and liquidity state of the Company and intervene the operations through lack of energy, fuel and input shortage, damage or losses within the production or facilities, interruption of means of transportation, among others that may affect the results of the Company. These assumptions are defined together with the Risk Control department and approved by the Board of Directors. The quantitative assessment is analyzed through the materiality of the risk impact (low, medium, high, critical) based in financial KPI's. The qualitative analysis considers regulatory, image and reputation risks with the Company's stakeholders and shareholders.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered
Direct operations
Upstream
Downstream

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Short-term
Medium-term
Long-term

Description of process
The processes of risk and opportunity identification are under the responsibility of the Sustainability Direction, which reports to the Social and Environmental Responsibility Committee Board. The approach to evaluate the climate change risks and opportunities at the Company (strategic) level and at the operational (asset) level, follows a methodology issued by the Social and Environmental Responsibility Committee Board. It includes mapping and description of risks and opportunities, performed by the technical team; analysis and prioritization of mapped risks and opportunities; evaluation and study to transform the risks into opportunities. The Social and Environmental Responsibility Committee Board meets every quarter, where major advances, new opportunities and/or risks are identified and evaluated. The guidelines and action plans developed are forwarded to the technical team, who will proceed with the necessary actions. In the asset level, each manager is responsible for monitoring the environmental legislation of their region / country and establishes measures for compliance. Climate change risks and opportunities assessment are directly linked with JBS operations (value chain) performance as climate change affects water availability, which consequently impacts grain (commodities), energy availability, production levels and so on. We monitor the environmental impacts from our direct (industrial, logistics and shipping) operations and taking steps to minimize the impact of our own and our value chain operations. Monitoring involves the elaboration of a global inventory of direct and indirect GHG emissions. JBS also monitors indicators representing the volume of water and electricity used by its operations in order to optimize production processes and gradually reduce consumption. To reduce the impact from JBS operations and create opportunities, the Company has an annual plan to invest in environmental improvements that focuses on use of natural resources, water and waste recycling and other issues. Through the risk identification (both in Company and asset level), any social and environmental factors that have been identified as operational risks can also represent business opportunities, helping JBS to improve efficiency and productivity and reduce costs, such as the cases of JBS Novos Negócios (JBS Ambiental and JBS Fertilizantes) and Biolins. The methodology issued by the Social and Environmental Responsibility Committee Board to evaluate and prioritize the risks and opportunities within JBS (Company and asset level) in relation to climate change follows the main steps described below: (a) Identification/ description of risks and opportunities, which allow the technical team to perform the mapping process; (b) Analysis of the mapped Risks and Opportunities and their prioritization. This step is based on business impact level and likelihood of occurrence; i) The impacts of the risks and opportunities on business are classified and categorized under three different scenarios (short, medium and long term), as well as considered its likelihood of occurrence. ii) The Social and Environmental Responsibility Committee Board focuses the Action Plan on the short-term scenario with risks or opportunities classified as high or medium impact to business, and high or medium probability of occurrence. In medium and long-term scenarios, only the risks or opportunities classified as high business impact and high probability of occurrence are object of attention on the Social and Environmental Responsibility Committee Board; (c) Study of the risks in order to forecast consequences, prevent them from occurring and transform them into opportunities; Moreover, the investments decisions are also based on legal requirements, payback and environmental benefits. The units' size is also taken into consideration, due to its proportional potential impact on the environment. As physical risk/opportunity, in Friboi and Seara, this assessment has determined that the plants need to have targets related to wastewater amount and parameters, energy efficiency, etc., controlled through a scorecard in order to mitigate the related-climate change risks. Climate change could have a negative impact on the Company's. businesses. Resources like water, electricity and animal feed (which is dependent on farming) are critical for production of raw materials (cattle, poultry, pork and lamb). In addition, in a partnership with a specialized consultancy, the company concluded in 2021 a climate scenario assessment study that identified the impacts reported by the units in Brazil related to climate events. The reported impacts were related to physical risks, such as: direct operations - water shortages (production was affected due to the lack of water access), floods and gales; and for supply chain (upstream and downstream) - water scarcity and thermal stress. Through the results achieved, the Company starts to develop a mitigation plan in order to avoid the physical risks identified. In relation to transitional risks, JBS brought forward by five years our goal of zero illegal deforestation across our entire cattle supply chain for our operation outside the Amazon, which are the Cerrado, Pantanal, Atlantic Forest and Caatinga biomes from 2030 to 2025. The rapid advancement of the Transparent Livestock Platform has allowed the date to be brought forward. Using blockchain technology, JBS will increase the traceability of its cattle supply chain by 2025, identifying upstream links and imposing sustainability criteria by analyzing its own suppliers' animal suppliers in each biome where it operates. Furthermore, JBS is advancing in the assistance and inclusion of producers who seek to adjust the social and environmental situation of their properties. We already have 18 Green Offices working in offering environmental, legal and technical consulting. JBS maintains a global risk management structure, with its own board and direct access to high administration through the Financial Committee and Risk Management. The focus is to follow the variables and the factors to which JBS is exposed in financial – market, credit and liquidity – as well non-financial issues, with focus in socioenvironmental topics. Climate Change, for example, is one of the risks monitored.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	One of the significant risks associated with climate change is regulatory risk. As awareness of the effects of climate change grows, governments and regulatory authorities are taking measures to mitigate these impacts. This includes implementing policies and regulations aimed at reducing greenhouse gas emissions, promoting the transition to clean energy sources, setting sustainability goals, and encouraging the adoption of responsible business practices. For JBS, this regulatory risk results in new legal requirements, operational constraints, or penalties for non-compliance with environmental standards. Therefore, it is essential for us to align with regulatory demands. Any supplier involved in illegal deforestation, invasion of protected areas, indigenous and quilombola lands, environmental preservation areas, settlements, or areas embargoed by IBAMA, and the use of slave labor is implicated in high-risk crimes and reputational damage, leading to immediate blocking from our supply chain. For example, if the company purchases cattle from slaughterhouses that acquired them from farms located in illegally deforested areas of the Amazon Biome, the company may be notified by the Brazilian Institute of Environment and Renewable Natural Resources, which could result in fines. This risk is rigorously monitored by JBS. JBS strives to improve industry standards through open dialogue and stakeholder engagement to enhance sustainability across the entire industry value chain. The company is a founding member of the Brazilian Roundtable on Sustainable Livestock (BRSL) and has representatives in the Global Roundtable for Sustainable Beef (GRSB) and is a member of the Tropical Forest Alliance (TFA). The company is also a member of the Brazil Climate, Forests, and Agriculture Coalition, which collaboratively addresses climate change-related issues. JBS supports the initiative "Be Legal in the Amazon," led by the Brazilian Agribusiness Association (ABAG), Brazilian Association of Meat Exporting Industries (ABIEC), and other institutions working to combat land grabbing and deforestation in the Amazon. In partnership with the Federal Public Ministry and the Forest and Agriculture Management and Certification Institute (Imaflora), JBS has made significant contributions to the industry's strategies for responsible cattle sourcing in the Amazon, known as "Boi na Linha" (which establishes criteria for raw material procurement for the company's operations in the region).
Emerging regulation	Relevant, always included	JBS is subject to requirements of the National Policy of Climate Change in Brazil and related legislations in the countries in which we operate, as well to the national NDCs requirements, which can include carbon taxes. For example, in Brazil there are states where JBS operates, that has already established reporting requirements for its GHG emissions, such as São Paulo, Rio de Janeiro and Minas Gerais. Moreover, in some cases GHG reporting are conditioned to environmental licensing. In São Paulo state, the environmental agency (CETESB) requires (directive 035/2021/P) the reporting of the Inventory of Greenhouse Gas Emissions for production units that exceed 20 thousand tCO2e in scope 1. Also, JBS considers the occurrence of Carbon Taxes very likely that the Company will have to face in the medium term. We have been constantly monitoring Carbon Taxes legislations in countries where we operate, in order to anticipate the related rules and to prepare the management of this issue. The Securities and Exchange Commission ("CVM", in Portuguese) has altered the rules of the Reference Form in 2022, starting to require disclosure of information on ESG aspects of the business. The change will require more detail in these aspects, with emphasis on environmental and social risks, including climate risks.
Technology	Relevant, always included	Climate change issues are embedded within JBS supply chain and within back office activities. For example, energy, fuel, units and sites monitoring, and control are supported by the use of technology. Any interruption in our system may affect the operations and financial results. The use of technology is also employed within JBS process in order to comply with applicable environmental and human rights legislation. For example, most of the cattle that the company processes are raised by its suppliers. If the Company is unable to ensure that livestock suppliers are in compliance with all applicable environmental and human rights laws and regulations, we may be subject to fines and other penalties that could adversely affect our image, reputation, business, financial condition and operating results. In order to mitigate the risk JBS developed a system on the cattle purchase, the JBS Geo-Monitoring System assesses almost 73,000 farms daily using advanced satellite imaging and supplier farm geo-referencing data to cover more than 71 million hectares monitored daily across the Amazon, Cerrado, Pampa, Pantanal, Mata Atlântica e Caatinga biomes in Brazil. Any farm involved in illegal deforestation, invasion of protected areas such as indigenous lands or environmental conservation areas, or that has areas embargoed by IBAMA (the Brazilian Environmental Agency) is automatically blocked from our supply chain. In addition, all Company's activities are based on a Raw Material Responsible Procurement Policy, which establishes social and environmental criteria for selecting cattle supplier. All practices and policies related to compliance are available in the Code of Conduct and Ethics (https://jbs.com.br/en/compliance-en/codes-and-policies/codes-of-conduct/) and the Company also has a Business Associate Code of Conduct (jbs.com.br/en/compliance-en/codes-and-policies/codes-of-conduct/). Third parties carrying out any kind of transaction with JBS, such as customers and suppliers, must follow this Code. In 2021, Seara launched a digital platform aimed at business management on integrated producer farms, the SuperAgroTech. The technology consists of bringing together in a single system, linked to the cloud, reports, documents, a communication channel, real-time monitoring, differentiated credit conditions and an exclusive e-commerce of inputs and equipment.
Legal	Relevant, always included	Legal risks are very relevant and assessed in meetings across all business units in order to avoid all possible climate-related litigation claims. Since 2017, JBS has maintained a global board that leads the Compliance issue independently, reporting directly to the Board of Directors. The company monitors the maturity of the processes and assesses the efficiency of the actions taken year after year, in all regions where it operates. The Company is subject to laws and regulations related to climate change and environmental issues, and compliance with related regulations can be difficult and costly. Stakeholders in the countries in which the Company operates, such as government agencies, legislators and regulators, shareholders and non-governmental organizations, as well as companies operating in many sectors, are considering ways to reduce GHG emissions. The Company may incur an increase in energy costs, environmental costs and other investments to comply with existing or new GHG emission restrictions. The Company may also incur additional costs related to defence of lawsuits and other legal proceedings related to climate change and the alleged impact of its activities on climate change. In addition, increased attention to environmental impact and climate change related to beef production in particular, may result in legislative or regulatory actions aimed at reducing GHG emissions from livestock, which can materially increase the cost of beef production. Most of the cattle that the company processes are raised by its suppliers and if the Company is unable to ensure that livestock suppliers are in compliance with all applicable environmental and human rights laws and regulations, we may be subject to fines and other penalties that could adversely affect our image, reputation, business, financial condition and operating results. In order to mitigate the risk JBS pledge commitments and all Company's activities are based on a Raw Material Responsible Procurement Policy (social and environmental criteria for selecting cattle supplier). In the most recent independent audit of the system, it was found that 100% of direct cattle purchases assessed by the auditors met the company's social-environmental criteria. The results of all independent audits are available on: https://jbs.com.br/en/sustainability/product-integrity/guarantee-of-origin/. In total JBS proactively blocked more than 12,000 supplier farms for non-compliance with policies and standards.
Market	Relevant, always included	Changes in market, mainly in commodities products supplying, is very risky in terms of availability and prices fluctuation could be a damage to our business due to this variability. In Brazil, energy tariffs present a variability due to its availability. Since the most part of the energy supply in Brazil is from hydro sources it depends on the levels of the reservoir (rains). In case of not enough rain, it is necessary to turn on the thermal power units, which is more expensive. For this reason, the Brazilian national energy agency triggers the "tariff flag" mechanism when there is lack of energy provided from hydroelectric and other renewable sources, which results in an increase in the energy tariff monthly. and consequently might affect the Company's costs of goods sale. In another example, the profitability of the poultry industry is significantly affected by commodity prices for food ingredients for chickens, such as corn and soybeans, which are determined by supply and demand factors. As a result, gains in the poultry industry are subject to cyclical fluctuations, dependent on the costs of their inputs. The production of food ingredients is positively or negatively affected, mainly by the global level of stocks and demand for food ingredients, by agricultural policies in the United States, Brazil etc., and by climate patterns around the world. Weather conditions often change agricultural conditions in unpredictable ways. A significant change in weather patterns could affect the supply of food ingredients, as well as the ability of both industry PPC and Seara to obtain food ingredients, to raise chickens or to deliver products. Historically, grain prices have remained relatively regular, with occasional peaks resulting from externalities. These externalities were often the result of poor weather conditions, such as drought or excessive rainfall, which lead to poor agricultural productivity, and increased demand for ethanol and proteins. The cost of corn and soybean, the main food ingredients of PPC and Seara, remained at their highest historical levels during the years 2016 and 2018 and have remained volatile since then. There is no guarantee that prices for corn or soybean will not rise again due to the growing demand for these products worldwide and the alternative uses of these products, as for ethanol production or biodiesel. The high prices of food ingredients may continue to have a substantial adverse effect on the Company's operating results.
Reputation	Relevant, always included	All risks that may expose the companies' brand in a negative way are evaluated by the company and monitored through commitments, internal policies, stakeholder engagement and environmental initiatives. It's our commitment to be transparent and report our aspirations, strategy and goals also measure results achieved by efforts in our sustainable journey. To sustainably ensure, the "Faça Sempre o Certo" Program, established internal controls to mitigate risks, monitoring donations of products, sponsorchips, receiving and/or offering gifts and entertainment, among others. Our Third- Party Due Diligence process relies on an automated tool specifically developed to assess the reputational risks of third parties in the sector witch we have commercial relationships. Our Geo-Monitoring System assesses 73,000 farms daily, covering 71 million hectares across Amazon, Cerrado, Pantanal Mata Atlântica and Caatinga biomes in Brazil. Any supplier involved in illegal deforestation, invasion of protected areas, indigenous land and quilombola, environmental conservation areas, settlements or areas embargoed by IBAMA (the Brazilian Environmental Agency) or any case that results in reputational damage is automatically and immediately blocked from our supply chain. The efforts through this initiatives and internal process seeks to ensure compliance and stakeholder engagement, aligned with the company's strategy and mitigating reputation risks.
Acute physical	Relevant, always included	It is very risky to our business since its effects already caused damaged to us. In a partnership with a specialized consultancy, JBS concluded in 2021 a climate scenario assessment study that identified the impacts reported by the units related to climate events. The reported impacts were: direct operations - lack of water (production was affected by lack of access to water), floods and windstorms; and for the supply chain - water scarcity and heat stress. The water scarcity also had negatively influenced the availability of energy to our production units and caused the raise of electrical energy tariffs. In addition, if heat waves and droughts occur more frequently and with greater intensity in the locations where the Company operates, the Company may incur additional expenses to maintain its products and raw materials in appropriate conditions or to move them to other locations.
Chronic physical	Relevant, always included	It is very risky to our business since its effects already caused damaged to us. In a partnership with a specialized consultancy, JBS concluded in 2021 a climate scenario assessment study that identified the impacts reported by the units related to climate events. The reported impacts were: direct operations - lack of water (production was affected by lack of access to water), floods and windstorms; and for the supply chain - water scarcity and heat stress. The water scarcity also had negatively influenced the availability of energy to our production units and caused the raise of electrical energy tariffs.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Risk 1

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Current regulation	Other, please specify (Exposure to litigation)

Primary potential financial impact
Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
JBS is exposed to risks that affect its operations and ability to operate in the international market. Climate change can induce changes in customer preferences for products/services. As the topic of climate change becomes a concern to consumers all over the world, the Company is aware of its responsibility, since it is a sensitive business for climate change like cattle raising and general agroindustry. JBS is working to create tools and control mechanisms that allows it to mitigate its exposure to reputational and image risks regarding the effect of its activities in climate change. The image risks that could affect JBS is related to food security, cattle raising and its wide supply chain, which may cause deforestation to create new pastures. Deforestation is a very sensitive issue not just in Brazil, but also with huge range throughout the world, mainly within the Amazon Biome. In Brazil, the company has 34 beef processing units, 21 of which are buyers of cattle from farms located within the Amazon Biome, according to our last auditing report (2022). Sourcing cattle from suppliers listed in Ibama list, MTE lists, indigenous areas and/or protect areas may lead to legal process and penalties against the company and to appearance to the media.

Time horizon
Short-term

Likelihood
Likely

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
50

Potential financial impact figure – maximum (currency)
50000000

Explanation of financial impact figure
The impact figure was estimated according to the Brazilian Federal law Nº 9.605 from February 12th, 1998 for environmental crimes, which states that the payment of fines for environmental violations can vary between 50 to 50,000,000 BRL. As an example of the financial impact, if the company sources cattle from beef processors who bought it from farm located in illegal deforestation areas from Amazon Biome the Company may be notified by Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) that could result in fines that can reach between 50 to 50 million BRL and other sanctions imposed by government authorities. In an internal assessment made by the company we also consider financial impact figure an estimative for the reputational impact.

Cost of response to risk
5900000

Description of response and explanation of cost calculation
In order to mitigate the risk JBS pledge commitments and all Company's activities are based on a Raw Material Responsible Procurement Policy, updated in 2022, which establishes social and environmental criteria for selecting cattle supplier. The policy assumes that all suppliers must be compliant and there is no sourcing from supplier involved in the deforestation of native forests, invasion of public lands such as indigenous and quilombola lands or environmental conservation units, rural violence and agrarian conflicts, or the use of compulsory and child labor. In addition, all practices and policies related to compliance are available in the Code of Conduct and Ethics and Company also has a Business Associate Code of Conduct. Third parties carrying out any kind of transaction with JBS, such as customers and suppliers, must follow this Code. In 2022, 5.9 million were invested in this topic.

Comment
As part of its commitment to transparency, the Company's cattle procurement operations and its entire supplier monitoring system are audited annually by independente auditors, with results published to the Company's website. In 2022, Control Union Certifications, an international reference in social and environmental auditing and certifications, confirmed that 100% of cattle acquisitions made by the Company in the Amazon Biome were socially and environmentally compliant. JBS makes efforts to enhance industry standards, through open dialog and by engaging stakeholders in order to improve sustainability across the industry's entire value chain. The Company is a founding member of the Brazilian Roundtable on Sustainable Livestock (BRSL) and the Global Roundtable for Sustainable Beef (GRSB) and a member of the Tropical Forest Alliance (TFA), an initiative connected to the World Economic Forum, fostering and promoting actions aimed at ending deforestation in the world. The Company is also a member of the Brazilian Coalition on Climate, Forests and Agriculture, which works collaboratively on issues connected to climate change. It is also a supporter of the "Be Legal in the Amazon" initiative, led by the Brazilian Agribusiness Association (ABAG), the Brazilian Beef Exporters Association (ABIEC) and other institutions who work to combat illegal occupation of public lands and deforestation in the Amazon. In partnership with the Federal Prosecution Office of Brazil and the Institute for Forest and Agricultural Management and Certification (Imaflora), JBS has made important contributions to building industry strategies for responsible cattle procurement in the Amazon, called Boi na Linha (https://www.boinalinha.org/), which establishes criteria for purchasing raw material for the Company's operations in the region. JBS has been helping producers in the environmental regularization of their properties through 18 Green Offices, located in various regions of the country. The company anticipated from

2030 to 2025 its goal of zero illegal deforestation for its supply chain, including its indirect suppliers in the Cerrado, Pantanal, Atlantic Forest and Caatinga, the same commitment already established for the Amazon. It was possible by the rapid advancement of the Transparent Livestock Platform. Using blockchain technology, it ensures that everyone is complying with the Company's Responsible Purchasing Policy.

Identifier
Risk 2

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Market	Other, please specify (Rise in risk-based pricing of energy taxation)

Primary potential financial impact
Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
In 2022, JBS Global consumed 6,028,369.23 MWh, of which JBS Brazil consumed 2,585,524.85 MWh of energy. The composition of energy costs depends on strongly on the public policies adopted for the electricity sector and includes variables such as social, environmental, tax, fossil fuel policies and also by microeconomic aspects like "tariff flag" mechanism, which determine the energy tariff monthly. Energy related to regulations, including fossil fuel and electricity costs variations, might affect the Company’s costs of goods sale (COGS), since they are used throughout the operational chain from production until transportation of products and might affect the companies cashflow health.

Time horizon
Short-term

Likelihood
Likely

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
597204536.78

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Brazilian units are experiencing an increase on electricity bills (also known as “tariff flags” - green/yellow/red). The “tariff flags” yellow and red occur in those months which the national energy agency considers that it was necessary an increase in feeding the Brazilian national grid with energy produced from fossil sources. This happens due to restrictions of energy from renewable sources, most of them produced from hydropower sources. This latter sources of energy eventually presents some constraints due to droughts / lack of rain, which could be a current effect of climate change, damaging the natural flow of the rains around the country. The financial impact was calculated from the price of the energy tarif: BRL/MWh 230.98. In 2022, JBS Brazil consumed 2,585,524.85 MWh of electricity. Considering the acquisitions of its total supply of energy from the national grid an average energy tariff of BRL/MWh 230,98, the energy costs for JBS Brazil would be estimated in BRL 597,204,536.78.

Cost of response to risk
33390290

Description of response and explanation of cost calculation
JBS is focused on efforts to make the energy matrix increasingly clean and renewable. The main strategy for managing energy at JBS Brasil is to invest in self-production, while also bringing down consumption and improving energy efficiency. The company prioritizes the energy acquired from clean sources (free Market) and Biolins, which is our cogeneration unit, located in the Lins Industrial Park, in the hinterland of São Paulo, generates thermoelectric energy and steam from biomass (sugarcane bagasse, eucalyptus chips and various biomass residues), with a generation capacity of around 45 megawatts of energy per hour. About 33% of the electricity generated supplies the plants of Friboi, JBS Couros and JBS Novos Negócios in the industrial complex where it is located. The remainder is distributed to JBS units and also sold to the domestic market. In 2020, the Company leased a photovoltaic plant to serve nine Swift stores which expanded to 50 stores in 2022. The project started in 2021 and its first phase lasted until December of this year, ending with the delivery of 21 stores in the city of São Paulo. In the second phase, which took place during 2022, 80 stores and the 3 solar farms that are currently in operation and generating energy for Swift were delivered. The plan is to reach 100% of the stores by 2025. The cost of response was based over the investiments made by JBS Brazil in 2020 for projects implementation for energy resource to prevent future cost and mitigate the risk of costs of goods sale (COGS) and cashflow avaiability. Part of JBS decarbonization plan is achieving 60% of renewable energy by 2030 and 100% by 2040. Also, production units of JBS throughout the world develops energy efficiency projects, promoting current and long run benefits, also supporting Company mitigate energy/fuel taxation effects in the operational costs.

Comment

Identifier
Risk 3

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Emerging regulation	Carbon pricing mechanisms

Primary potential financial impact
Increased indirect (operating) costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
JBS is a global company that has plants and DCs in 17 different countries and international offices in 25 countries. Thus the Company's businesses are subject to government policies and extensive regulation that affect the beef, pork, and poultry industries. There is a growing political and scientific consensus that greenhouse gas emissions and the climate issue has been strengthened due to the Nationals Policies on Climate Change and NDCs in countries which we operate. Thus, JBS considers carbon taxes a very likely occurrence that the Company will have to deal in a medium-term horizon. We have been constantly monitoring carbon tax legislations in countries where we operate to anticipate the related rules and prepare the Company's management approach to this issue. The transition to a greenhouse gas tax charging scenario would increase JBS's costs.

Time horizon
Medium-term

Likelihood
Likely

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
1393070728

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
JBS must anticipate additional costs as a result of additional investments that will bear to comply with new regulations and the price of carbon, which may need to pay as a result of its level of carbon emissions. The estimated financial impact of this risk was based on the Dynamic Integrated model of Climate and the Economy (DICE). DICE is an Integrated Assessment Model that integrates in the neoclassical economics, carbon cycle, climate science, and estimated impacts allowing the weighing of subjectively guessed costs and subjectively guessed benefits of taking steps to slow climate change. DICE model suggested a mean 2020 tax rate of $47 per metric ton of carbon dioxide. Thus, the value of potential figure impact was estimated by the carbon price considering Scopes 1 and 2 of JBS (globally) in 2022, and then the exchange rate from USD to BRL: Scope1: 4,008,484.00 tCO2e; Scope 2: 1,605,115.00 tCO2e; Scope 1 + Scope 2: 5,613,599.00tCO2e; Exchange rate (31/12/2022): 47 USD x 5.28 BRL/ 1 USD = 248.16 BRL per tonne of CO2; so 5,613,599.00tCO2e x 248.16 BRL per tonne of CO2 = 1,393,070,728.00 BRL. In that way, the figure impact was estimated in an conservative approach in order to be intended to be sufficiently broad to capture most scenarios efforts, yet generic enough that it can be tailored for regional considerations or unexpected roadblocks.

Cost of response to risk

Description of response and explanation of cost calculation
The cost of responding to the risk considers the financial amount that JBS will invest in the next 10 years in its decarbonization strategy, which is USD 1 billion, divided by 10 years to know the annual investment (USD 100 million, considering the exchange rate in 31/12/2021 - BRL 5.58 = BRL 558 million).

The announced investment was based on the environmental engagements investments made in the last year, for instance, it was invested BRL 494.2 million in environmental management at JBS operations worldwide in 2020. Every JBS unit throughout the world has GHG emission reduction projects, which is, indeed, not only an efficiency measure, but also an efficient manner to anticipate eventual penalties related to Carbon Taxes.

For instance, in Brazil one of JBS's highest GHG emission source is the wastewater treatment systems. So BRL 94.4 million were invested to improve on-site effluent treatment plants in the country. In Confresa, a Friboi's unit, there was a 20% reduction in wastewater GHG emissions intensity from 2019 to 2020 due to a equipment that was installed that reduces the organic material in the wastewater through blood separation and it was invested BRL 2 million in this project in the last year.
Up to this moment, we had identified Carbon Taxes in countries where we have units such as Mexico, UK, France and Argentina, but not strictly related to our core businesses so far.

Furthermore, to mitigate the risk described, JBS manages its GHG emissions elaborating its annually GHG inventory with external auditing; monitores environmental legislation, such as federal and state policies on Climate Change; participates in groups and associations for discussing GHG-emissions-related affairs and set GHG emissions reduction target: 30% reduction in its Scopes 1 and 2 GHG emissions by 2030, based on JBS 2019 figures. Also, JBS is working on its Net Zero by 2040 commitment, which contains intermediate targets by 2023, 2025 and 2030.

Comment
Costs related to the processes identification of carbon taxes are related to each country, specifically. For example, in Brazil this activity is in charge of the Sustainability Department. JBS units' GHG reduction emissions projects development is one of the manners of the company mitigate this risk. For example, in May 2020, Brooks, AB, beef plant commenced construction on a new 30 million-gallon anaerobic wastewater lagoon, equipped with a cover and biogas collection and handling system. Prior to this project, Brooks' previous lagoon was uncovered and would emit more than 200,000 tonnes of CO2e in methane per year, which the facility would have to pay for according to Canadian regulations. With this new lagoon, the facility will be able to reclaim the gas produced during the anaerobic stage of its wastewater treatment process and flare it – cutting the lagoon's emissions by approximately 90 percent.

Identifier
Risk 4

Where in the value chain does the risk driver occur?
Direct operations

Risk type & Primary climate-related risk driver

Chronic physical	Changing precipitation patterns and types (rain, hail, snow/ice)

Primary potential financial impact
Decreased revenues due to reduced production capacity

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
The physical risks identified by JBS are both local and global, and are divided by physical assets, supply chain and business structure. Some JBS Brazil and USA facilities are located in water-stressed areas. The water scarcity, due to the lack of a steady rainy season attributed to, among others, climate change, is a phenomenon that the Company faced in the recent years, mainly in Brazil, negatively influencing our business.
Specifically for Brazil, it was developed a study of climate scenario assessment which had identified the impacts reported by the units related to climate events. The reported impacts were: direct operations - water shortages (production was affected due to the lack of water access), floods and gales; and for supply chain - Water scarcity and thermal stress.
The water scarcity also had negatively influenced the availability of energy to our production units and caused the raise of electrical energy tariffs.
We recognize that water scarcity is a major global issue and is critical to securing a consistent, high-quality global food supply.

Time horizon
Short-term

Likelihood
Very likely

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
1392814.25

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
The climate scenario assessment study for JBS Brazil estimated a range for financial impact:

- There are 8 JBS units (5 Friboi and 3 JBS Couros) that may remain without rain for a period of about 2 consecutive months, which may cause a lack of operating water in the units where water recharge occurs through local rainfall. To assess the financial impact, it was considered that during these events of water scarcity (2 months per year), 30% of the volume of water consumed by these units (237,625m³) has to come from alternative sources of abstraction, which leads to an increase in water operating costs of up to BRL 5.00 / m³. Estimated average financial impact: BRL 1,188,123.25 / per year.

- There is 1 Seara unit that can remain for a period of more than a month without rain (40 days), which can cause a lack of water for operation in units where water recharge occurs through local rainfall. To assess the financial impact, it was considered that during these events of water scarcity, 30% of the volume of water consumed by these units (40,938m³) has to come from alternative sources of abstraction, which leads to an increase in operating costs of up to BRL 5 .00 / m³.

Estimated financial average impact: BRL 204,691.00 / per year. The estimated total potential financial impact figure is BRL 1,392,814.25 / year.

Cost of response to risk
112400668.58

Description of response and explanation of cost calculation
In order to mitigate the risk for water scarcity JBS allocated BRL 112,400,668.58 in the management and projects of water and wastewater in JBS operations around the world. Each of our production and further processing facilities has a tailored wastewater treatment program that meets its individual discharge permit requirements. These site-specific initiatives have helped reduce our total discharged water volume and addressed noncompliance issues.Regarding electrical energy in Brazil, JBS prioritizes the energy acquired from clean sources (free Market) and Biolins, which is our cogeneration unit, located in the Lins Industrial Park, in the hinterland of São Paulo, generates thermoelectric energy and steam from biomass (sugarcane bagasse, eucalyptus chips and various biomass residues), with a generation capacity of around 45 megawatts of energy per hour. About 33% of the electricity generated supplies the plants of Friboi, JBS Couros and JBS Novos Negócios in the industrial complex where it is located.

In 2020, the Company leased a photovoltaic plant to serve nine Swift stores which expanded to 50 stores in 2021. The plan is to reach 100% of the stores by 2025. The project started in 2021 and its first phase lasted until December of this year, ending with the delivery of 21 stores in the city of São Paulo. In the second phase, which took place during 2022, 80 stores and the 3 solar farms that are currently in operation and generating energy for Swift were delivered.

Comment
JBS allocated BRL 112,400,668.58 in the management of water and wastewater in JBS operations around the world in 2022.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?
Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Opp1

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Energy source

Primary climate-related opportunity driver
Use of lower-emission sources of energy

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
Biolins, JBS's cogeneration unit, located in the Lins Industrial Park, in the hinterland of São Paulo, generates thermoelectric energy and steam from biomass (sugarcane bagasse, eucalyptus chips and various biomass residues), with a generation capacity of around 45 megawatts of energy per hour, enough to supply a city with a population of 300,000. Biolins supplies 100% electrical energy and steam for the factories of Friboi, JBS Leather and JBS Novos Negócios own Lins industrial park. The remainder is sold to domestic market. There is an opportunity to sell renewable energy certification (IRECs - International REC Standard) to companies which aim to compensate their Scope 2 CO2e emissions, considering 67% of its energy production sold to the domestic market. In 2022, JBS starts issuing International Renewable Energy Certificates. The company is the first in the food sector to have an enterprise qualified to issue International Renewable Energy Certificates (International REC Standard / I-REC), which attest to the generation of electricity from renewable and environmentally responsible sources. Also, with RE 100, which is an important global corporate renewable energy initiative, the demand for IRECs and other instruments that prove renewable energy usage for industries and other players will increase, JBS itself has committed to use 60% of renewable electricity by 2030 and 100% by 2040.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
358687.37

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
Considering that Biolins sold to the domestic market (national grid) in 2022, 3,898.78MWh, the estimated revenue was BRL 358,687.37 (average energy tariff of BRL/MWh 230,98 in 2022).

Cost to realize opportunity
7013350.37

Strategy to realize opportunity and explanation of cost calculation
Biolins is an example of opportunity identified with the potential to have a substantive financial or strategic impact on JBS business, since it is a diversification of JBS core business, supplying renewable energy to other JBS plants and near companies, reducing JBS exposure to GHG emissions and another source of revenue through demand for lower emissions source of energy. The amount invested in Biolins in 2022 was BRL 7,013,350.37.

Comment
With RE 100, which is an important global corporate renewable energy initiative, the demand for IRECs and other instruments that prove renewable energy usage for industries and other players will increase, JBS itself has commited to use 60% of renewable electricity by 2030 and 100% by 2040.

Identifier
Opp2

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Products and services

Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
In 2008, the Brazilian government, through the National Program of Biodiesel Production and Use (PNPB) forced the mix of pure biodiesel (B100) in diesel oil used in the country in order to reduce GHG emissions. Between January and June 2008, the blend of biodiesel in diesel oil was 2% (B2) and in 2015 the blend was 7% (National Petroleum Agency). From 2014 to 2015, the blend percentage increased 1.3% (from 5.67% to 7%). In 2015, the Brazilian Government also sanctioned the law nº3834/2015, which established a timetable for increasing the mandatory blending of biodiesel to diesel. The regulatory framework establishes that, in 12 months, the mixture should be 8%, increasing to 10% in 3 years. In 2017, this mixture was 7,8%. In 2019, the mixture increased to 10,3%. In 2020 the mixture increased to 11,33%, reaching 13% in April 2021, but decreasing to 10% by the end of the year. In 2022, the mixture remained 10%.The regulation increases the demand for this biofuel in Brazil, consequently increasing the demand for the Biodiesel produced and sold by JBS Biodiesel. JBS Biodiesel, is a division of JBS Novos Negócios, and operates in three factories, located in Campo Verde (MT), Lins (SP) and Mafra(SC) the last one starts operating in January 2022. It is the world's largest verticalized producer of biodiesel made from beef tallow and the first company qualified to sell credits obtained through Renovabio, a Brazilian government program aimed at reducing emissions based on the obligations undertaken in the Paris Agreement. The Company uses waste as raw material, such as recycled used cooking oil and beef tallow.

Time horizon

Short-term

Likelihood
Virtually certain

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
1749960000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
In January 2022, JBS started the new biodiesel facility in Mafra (SC) through Seara Alimentos. This unity is operated by JBS Biodiesel having a total area of 76 thousand square meters, with a production capacity of around 1,000,000 liters of biodiesel per day.
The financial impact is based on this production capacity. Multiplying this number for 360 production days a year and for the price of biodiesel, which is, on average, 4.861 BRL/liter in 2022, we have the financial impact for this opportunity around BRL 1,749,960,000

Cost to realize opportunity
180000000

Strategy to realize opportunity and explanation of cost calculation
The cost of this opportunity is based on the Seara Alimentos investment in the constructions of the new biodiesel plant, located in the municipality of Mafra (SC). The plant will be operated by JBS Biodiesel, a division of JBS Novos Negócios, with an investment of BRL 180 million. The JBS Biodiesel plant will have a total area of 76 thousand square meters, with a production capacity of around 1 million liters of biodiesel per day. The project finished in 2021 and the company's biodiesel production uses, for the most part, animal fats from the JBS production chain. By correctly disposing of these residues and transforming them into biofuel, the company adds value to this by product and promotes sustainability in its operation. The municipality of Mafra is located in a strategic region for the national biofuel sector. In addition to having efficient loading and unloading logistics by rail and road, it is 120 kilometers away from Araucária (PR), where the Presidente Getúlio Vargas Refinery (Repar) is located, one of the main mixing and distribution units of diesel in the country.

Comment
JBS Novos Negócios develops operations dedicated to transforming coproducts and animal protein processing waste into high value-added products, such as biodiesel, collagen, casings for deli meats, nutraceutical products inputs, hygiene and cleaning materials and more, sold in the Brazilian market and exported to over two dozen countries. It also includes companies providing strategic services to JBS, in the metal packaging, trading, transport, recycling and waste management segments. The rationale governing JBS Novos Negócios is to allow a closed cycle to be formed, where waste from one particular operation serves as the raw material for another, in a movement of innovation, efficiency and sustainable practices, promoting a circular economy. JBS Biodiesel, is a division of JBS Novos Negócios, and operates in three factories, located in Campo Verde (MT), Lins (SP) and Mafra (SC). It is the world's largest verticalized producer of biodiesel made from beef tallow and the first company qualified to sell carbon credits obtained through Renovabio, a Brazilian government program aimed at reducing emissions based on the obligations undertaken in the Paris Agreement. The Company uses waste as raw material, such as recycled used cooking oil. The Lins (SP) and Campo Verde (MT) units will also receive investments, aimed at improving the industrial park and increasing production. JBS has invested BRL 180 million on the construction of its new biodiesel plant, located in the municipality of Mafra, in Santa Catarina.

Identifier
Opp3

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Markets

Primary climate-related opportunity driver
Other, please specify (Carbon market)

Primary potential financial impact
Increased revenues through access to new and emerging markets

Company-specific description
In 2019, JBS Biodiesel was authorized to take part in a new Brazilian policy to reduce greenhouse gas emissions, with the authorization of the country's National Agency of Petroleum, Natural Gas and Biofuels (ANP). This means that the Company now is authorized to issue Decarbonization Credits (CBio), as established by the RenovaBio program, which are obtained from production of biodiesel, the main raw material of which is bovine tallow. In 2022, the company has 2 biodiesel production units authorized to emit CBIOS, Lins (SP) and Campo Verde (MT). Biodiesel produced by these units prevents around 80 grams of carbon dioxide-equivalent per megajoule of energy generated by vehicles, when compared to the same energy generated from diesel use. For every 482 liters of biodiesel produced at its two plants, JBS will be able to issue 1 CBio, the equivalent of preventing one metric ton of carbon dioxide. In 2022, it was generated 583,123 CBios. Considering the new biodiesel plant in Mafra, which can produce on average 1 million liters a day, JBS can generate more than 1 million CBios annually.

Time horizon
Medium-term

Likelihood
Virtually certain

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)

65094020.94

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
For the estimation of the figure impact the following premises were adopted: for every 482 liters of biodiesel produced at its two plants, JBS will be able to issue 1 CBio, the equivalent of preventing one metric ton of carbon dioxide. Considering that JBS Biodiesel maintains the same amount of production and also considering the new plant in Mafra, the production capacity can be around 719 million a year, the Company will be able to issue around 1.9 million of CBios per year. In 2022, JBS issued 583,123 CBios. According to the average Cbio value negociated in 2022 for BRL 111.63 each, totalling BRL 65,094,020.94.

Cost to realize opportunity
325470

Strategy to realize opportunity and explanation of cost calculation
Considering that the cost of certification for RenovaBio Program, according to experts, is approximately 0.5% of annual revenue, the cost of the opportunity in this case would be approximately BRL 325,470.00

Comment
JBS Biodiesel became the first biodiesel company authorized to take part in a new Brazilian policy to reduce greenhouse gas emissions, with the authorization of the country's National Agency of Petroleum, Natural Gas and Biofuels (ANP). Through this certification, the Company is now qualified to issue decarbonization credits, called CBios, within the RenovaBio program for the biodiesel it produces, the raw material of which is beef tallow.

Identifier
Opp4

Where in the value chain does the opportunity occur?
Direct operations

Opportunity type
Resource efficiency

Primary climate-related opportunity driver
Use of recycling

Primary potential financial impact
Increased revenues resulting from increased demand for products and services

Company-specific description
In July 2020, JBS Novos Negócios started construction of the fertilizer plant in Guaiçara, the Campo Forte fertilizers, which is already in operation. Campo Forte is dedicated to promoting innovation for Brazilian agriculture through public and private partnerships, creating a relationship platform between companies, institutions and rural producers. We support research and disruptive innovation projects according to the closed-loop circular economy model, focusing on reducing nutrient losses to the environment, the needs of farmers and their cultures, and the challenges of each region. JBS will become the first food company in Brazil to use organic waste for fertilizer production. This reinforces JBS's commitment to optimize the use of resources in processes, placing the circular economy and innovation as company premises.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, a single figure estimate

Potential financial impact figure (currency)
19500000

Potential financial impact figure – minimum (currency)
<Not Applicable>

Potential financial impact figure – maximum (currency)
<Not Applicable>

Explanation of financial impact figure
The fertilizer production is estimated in 150,000 tonnes per year. Considering that is no longer necessary sending organic waste to landfills (cost of 130 BRL/tonne), it means a potential financial impact of BRL 19,500,000.

Cost to realize opportunity
134000000

Strategy to realize opportunity and explanation of cost calculation
The cost calculation was base in the amount of BLR 134 million JBS invested to build the new fertilizer factory in Guaiçara (SP).

Comment
8 of them are value generators that transform co-products into high added value products, promoting the circular economy. The other 6 operations generate sustainable strategic services, providing optimization and more efficiency for JBS and third parties.

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a climate transition plan within two years

Publicly available climate transition plan

<Not Applicable>

Mechanism by which feedback is collected from shareholders on your climate transition plan

<Not Applicable>

Description of feedback mechanism

<Not Applicable>

Frequency of feedback collection

<Not Applicable>

Attach any relevant documents which detail your climate transition plan (optional)

<Not Applicable>

Explain why your organization does not have a climate transition plan that aligns with a 1.5°C world and any plans to develop one in the future

In March 2021, JBS was the first global meat company to pledge to achieve net-zero greenhouse gas (GHG) emissions by 2040, ten years ahead of the deadline set by most companies and governments around the world. Now, we are working to transparently share how we intend to achieve this absolute reduction in our scope 1, 2, and 3 emissions, while continuing to grow our business and meet the increasing global need for safe, affordable access to high-quality protein. To further bolster our commitment, we have adopted several near-term targets to achieve reductions in emissions, including reducing our scope 1 & 2 GHG emission intensity by 30% by 2030, and reaching 60% renewable electricity by 2030 and 100% by 2040. In 2023, we will work to develop a robust Net Zero Roadmap that outlines our priorities and guides our actions over the next 17 years. It will be iterative and flexible to allow our businesses to design and implement strategies best suited for their specific operations. Starting this process meant taking inventory of the challenge in its entirety. For 13 years, we have measured, monitored, and recorded our direct and indirect GHG emissions by scope 1, 2, and 3 (partial) categorizations to be voluntarily reported to GHG Protocol, CDP, regional regulatory frameworks, and more. In 2022, we expanded our approach by carrying out the first-ever comprehensive analysis of our company's global GHG emission inventory, inclusive of all relevant scope 3 emissions, in alignment with GHG Protocol methodologies.

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, qualitative and quantitative	<Not Applicable>	<Not Applicable>

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Physical climate scenarios: RCP 4.5	Business division	<Not Applicable>	In 2021, JBS concluded, together with a specialized consultancy, the study "Climate Scenarios and Physical Risk Assessment", which analyzed an overview of the potential impact of climate change, in a future period, on the operations of the Company's Business Units and indirect impacts on the supply chain. In relation to direct operations, Friboi units, Seara units, Seara Margarinas units, JBS Couros units, as well as Friboi feedlots and Seara farms are included in the analysis. These operating units were grouped into the Friboi and Seara business divisions. The geographic locations of the 222 operating units of JBS considered in the study were surveyed. As a criterion of relevance of the operational units of JBS Brasil, the total production for the year 2020 was considered. In relation to the JBS supply chain, composed of more than 37 thousand suppliers, the Friboi and Seara divisions were considered. To build the climate scenarios, the climate variables of interest to the company's value chain were selected. The variables were selected based on a survey of the history of climatic events at the units, bibliographic references on the relationship between animal species and climatic variables, and information provided by the JBS team at meetings. The four variables are: Maximum Wind Intensity; Maximum temperature; Maximum precipitation in 5 consecutive days; Consecutive days without rain. The climate diagnosis and prognosis were built for the four climatic variables of interest, for the entire Brazilian territory. Each climate variable had its values presented in the RCP 4.5 and RCP 8.5 scenarios. The RCP 4.5 scenario assumes that measures will be adopted to reduce emissions across the planet, with peak emissions and subsequent stabilization in 2060. Regarding the "Maximum Wind Intensity", for example, the RCP 4.5 scenario represents the climate variable with the highest intensity for most of Brazil, compared to the RCP8.5 scenario. For the construction of the JBS climate scenario and the identification of future climate risks, it was necessary to establish a base period for comparison: the period between 1961-1990 and 2021-2050. Based on the climate scenarios, the regions of greatest climate vulnerability were identified in the JBS value chain. For priority regions (hotspots), the relevance of climate risks to the company's operations was evaluated, valuing the costs of possible impacts and responses to manage and mitigate these risks.
Physical climate scenarios: RCP 8.5	Business division	<Not Applicable>	In 2021, JBS concluded, together with a specialized consultancy, the study "Climate Scenarios and Physical Risk Assessment", which analyzed an overview of the potential impact of climate change, in a future period, on the operations of the Business Units of the Company. JBS Brasil and indirect impacts on the supply chain. In relation to direct operations, Friboi units, Seara units, Seara Margarinas units, JBS Couros units, as well as Friboi feedlots and Seara farms are included in the analysis. These operating units were grouped into the Friboi and Seara business divisions. The geographic locations of the 222 operating units of JBS considered in the study were surveyed. As a criterion of relevance of the operational units of JBS Brasil, the total production for the year 2020 was considered. Regarding the JBS supply chain, made up of more than 37 thousand suppliers, the Friboi and Seara divisions were considered. To build the climate scenarios, the climate variables of interest to the company's value chain were selected. The variables were selected based on a survey of the history of climatic events at the units, bibliographic references on the relationship between animal species and climatic variables, and information provided by the JBS team at meetings. The four variables are: Maximum Wind Intensity; Maximum temperature; Maximum precipitation in 5 consecutive days; Consecutive days without rain. The climate diagnosis and prognosis were built for the four climatic variables of interest, for the entire Brazilian territory. Each climate variable had its values presented in the RCP 4.5 and RCP 8.5 scenarios. The RCP 8.5 scenario envisages a global context in which greenhouse gas emissions increase until 2100, reaching levels twice as high as the RCP 4.5 scenario. Regarding the "Maximum Temperature", the RCP 8.5 scenario represents the worst scenario for this climate variable, compared to the RCP 4.5, with temperature intensification in most of Brazil. For the construction of the JBS climate scenario and the identification of future climate risks, it was necessary to establish a base period for comparison: periods 1961-1990 and 2021-2050. Based on the climate scenarios, the regions of greatest climate vulnerability were identified in the JBS value chain. For priority regions (hotspots), the relevance of climate risks to the company's operations was evaluated, valuing the costs of possible impacts and responses to manage and mitigate these risks.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

JBS's climate scenario analysis covers the characterization of the company's value chain, divided into direct operations and supply chain, the definition of the past climate, based on historical data, and the construction of a future climate scenario, based on scientific data. IPCC (Intergovernmental Panel on Climate Change).

For the study “Climate Scenarios and Physical Risk Assessment”, which was an overview of the potential impact of climate change based on climate scenarios, were adopted RCP's 4.5 and 8.5 scenarios with the purpose to have two different and contrasting conditions, one realistic and other pessimistic. The first assumes that measures will be adopted to reduce emissions across the planet, with a peak in emissions and subsequent stabilization in 2060. The second presupposes a global context in which greenhouse gas emissions increase by 2100, reaching levels twice larger than the RCP 4.5 scenario. Based on the climate scenarios, the regions of greatest climate vulnerability were identified in the JBS value chain. For priority regions (hotspots), the relevance of climate risks to the company's operations was evaluated, valuing the costs of possible impacts and responses to manage and mitigate these risks. An overview of the potential impact of climate change, in a future period, on the production of operational units, as well as indirect impacts on the supply chain, was evaluated. These elements can be used to support decision-making to reduce the company's climate risk. For JBS' operating units, a survey was carried out on the occurrence of weather events that may have had an impact in any way on the operation. A form called “JBS and Climate Change” was sent to JBS employees responsible for the operational units. The main occurrences recorded were: Flooding, Water Scarcity and Strong Winds. These climate risks were broken down into primary impacts and impacts on operations (eg: Flooding > Loss of water quality at the capturing point > Increased costs for water treatment). The occurrence of weather events that negatively impact animals supplied in regions of high concentration of supply represents a greater risk, as it can lead to more significant changes in your supply chain. In the same way that it was carried out for the bovine supply chain, we sought to characterize the relevance of poultry suppliers through the processing of production information from the Seara Aves operational units, distributing the total production of each unit to the nearest. Based on the identification of climate risks and impacts reported by the operating units of the two business divisions, the types of events that affect each business division were compared, considering, for example, types of climate events reported by business division and number of events weather reports per year.

Results of the climate-related scenario analysis with respect to the focal questions

Scenario analysis is used by JBS as a planning tool. It helps JBS to understand how your operations may be affected by climate change, identifying potential impacts and opportunities.

The Pantanal region stands out, where there are 6 Friboi operational units (4 in MS and 2 in MT) and about 1,049 bovine suppliers that were classified as critical, as they are in an area with temperatures that may exceed the threshold for animal welfare.

One of Seara's largest swine slaughtering units, in terms of production volume, is also located in a risk area due to the high temperatures projected in MS. In relation to animal production, high temperatures can lead to reduced digestibility of chickens, cattle and swine, abortion of these animals in reproduction, and in extreme cases, death.

Regarding water scarcity events, there is a tendency for an increase in consecutive days without rain in the future, especially in the RCP 4.5 scenario. The region most impacted by this variable is the northeast of Brazil, where a Seara chicken slaughtering unit was identified. High temperatures and longer periods of drought can lead to reduced growth and nutritional quality of pastures and other foods, which can have changes in carbohydrate and nitrogen concentrations.

Regarding the impacts on animal production, high temperatures can lead to reduced digestibility of chickens, cattle and swine, abortion of these animals in reproduction, and in extreme cases, death. Thus, the consumption of feed or grass should be adequate to the quality of the diet, with supplements, introduction of species in the pasture, irrigation, pasture rotation and management of soil fertility. This can significantly impact the cost of production.

Eight climate vulnerability regions were identified in the JBS value chain (4 in direct operations and 4 in the supply chain). The company then began a detailed assessment of these risk areas, analyzing the possible financial impacts on the units and their suppliers.

Based on this assessment, JBS has been refining the planning and prioritization of resource allocation to invest in reducing and mitigating climate risks at the operating units in the most relevant regions. And critical suppliers are also being engaged and receiving incentives to improve sustainable property management practices in order to reduce the risk associated with JBS's operations. The estimated total potential financial impact figure is BRL 1,392,814.25 / year.

JBS is committed: to invest US$ 1 billion over the next 10 years in emission reduction projects; to achieve, by 2025, a cattle supply chain free from illegal deforestation in the Amazon and others Brazilian biomes, including the suppliers of these suppliers; to convert 100% of the electricity consumed in the entire JBS operation to renewable sources by 2040; to invest US$ 100 million in R&D, by 2030, to implement solutions to mitigate emissions; to link the variable compensation of senior executives to climate goals.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Products and services may be impacted due to climate-related risks and opportunities. Risks are mostly related to direct operations - water shortages (production was affected due to the lack of water access), floods and gales; and for supply chain - Water scarcity and thermal stress; availability and costs related to energy and reputational issues (as reported in C2.3a Risks 1, 2 and 4). On the other hand, opportunities are created since JBS has actions to mitigate the identified risks, changing these challenges to market opportunities for its products, once it has a robust management strategy and process related to the effects of climate change. For example, JBS executes an ongoing process to monitor suppliers' farms located in the Legal Amazon region and annually submit the results to third party assurance. Moreover, JBS has an ongoing project in partnership with "Liga Araguaia" to strengthen sustainable beef production in the Cerrado region and to meet demand from major players, who are looking for products differentials. Thus, JBS seized opportunities related to climate change, such as expanding its Biodiesel business (another plant in Mafra-SC), a new fertilizer plant and the development of carbon project projects (Renovabio Program) through its biodiesel plants (all detailed in C2.4a).
Supply chain and/or value chain	Yes	The risk of purchasing raw materials from suppliers involved in deforestation of native forests, invasion of protected areas such - as indigenous land or environmental conservation units,use of child or forced labor or products that could pose risks such as exposure to litigation and reputational risks (C3.2a Risk 1). JBS's cattle procurement operations and its entire supplier monitoring system are audited annually by independent auditors. At JBS, the acquisition of raw materials is guided by the principles of responsible purchasing. These precepts of issues such as compliance with each of the country's legislations and as industry benchmark practices. We also have a robust socio-environmental monitoring system capable of verifying how our ambience suppliers' activities comply with our suppliers determined by the policy, in order to guarantee a sustainable supply chain. Daily, more than 73 thousand registered cattle supply farms are located in the Amazon, Cerrado, Pantanal, Atlantic Forest and Pampas biomes. In all, we proactively blocked more than 12 thousand supplier farms for failing to comply with our policies and 71 million hectares are monitored daily. The supplier monitoring system is managed by Friboi's sustainability area and is constantly audited in internal processes (Sustainability, Internal Audit and Compliance) and annually in various external processes by independent auditors. In 2022, BRL 5.9 million was invested in the theme. The Verified Origin Program, created in 2020, uses advanced technology for existing Garantia stores, a process for reading customers and consumers and supermarkets, by reading customers and supermarkets QR Code available on packaging. JBS also launched the Transparent Livestock Platform in April 2021. All JBS beef suppliers must follow the platform by the end of 2025. The target of zero illegal deforestation was anticipated for suppliers of its suppliers in the Cerrado, Pantanal biomes, Atlantic Forest and Caatinga from 2030 to 2025. The company also identified for Brazilian operations, through an analysis of climate scenarios study for its supply chain risks of water scarcity and thermal stress. (C3.2a Risk 4).
Investment in R&D	Yes	All JBS operations invest in research and development to discover ways to reduce uses of materials and resources. Some examples of these are: (1) JBS Couros carries out of research and development in all stages of the leather production process. R&D has projects and initiatives from wet blue leather to finished leather. In 2022, projects such as the EVO line – finished leather that guarantees greater resistance and durability with this finish; the Essential line, finished leathers for the furniture segment with aroma and lower consumption of water and chemical products; and Waterless Chrome, a wet blue leather production process with less water and chemical consumption, greater use of chromium and less waste in the final bath; (2) JBS Ambiental also developed some projects in 2022: (i) Green Floor Project: Several models of the green floor were developed throughout 2022, which serve for different applications; (ii) Liner Circular Economy (label roll): through research and innovation, the plastic and cellulose waste generated after the consumption of labels was transformed into recycled pulp and applied to the cardboard packaging that is consumed by Friboi; (3) Meat Study and Technology Center (CETEC) Friboi is one of the most modern beef study and technology centers, the infrastructure is located in the municipality of Cajamar (SP) and is part of massive investments by JBS to monitor meat quality bovine; (4) At Swift, the main initiatives in 2022 were the replacement of food refrigeration equipment, using equipment with gases that do not harm the ozone layer, use of VRF air conditioning equipment, (108 stores with more efficient air conditioning systems installed, representing 45% of the stores), installation of photovoltaic systems on the roofs and solar farms to supply renewable energy (101 stores served with panels on the roof and 45 stores served by farms); (5) In line with the Packaging and Recycling Policy, in 2022, Seara carried out a scientific research in sustainable packaging, such as the partnership at the Itapojuca Margarine Unit, in Pernambuco, to generate a renewable and innovative fuel source, green hydrogen . Total investment in innovation in Seara's R&D area was BRL 82 million in 2022; (6) Embrace the Pantanal: initiative to protect 2.5 million hectares of native areas through monitoring cameras, artificial intelligence, and fire brigades.
Operations	Yes	JBS operations (plants) are very sensitive to the climate change effects. Through an analysis of climate scenarios study, it was identified the main risks for direct operations in Brazil are water shortages (production was affected due to the lack of water access), floods and gales (as reported in C2.3a Risk 4). On the other hand, the use of more climate-friendly fuels is an opportunity disseminated in the Company (as long as energy efficiency projects), including a business branch totally related to the production of clean energy (as reported in C2.4a - Opp 2). This is very important, since energy supply related to regulations, including fossil fuel and electricity costs variatons, might affect the Company's costs of goods sale (COGS) and might affect the companies cashflow health (as reported in C2.3a - Risk 2). In addition, JBS operation are subject to strict environmental legislation due to the nature of our business and, further on, due to emerging legislation, for example, requirements of the National Policy of Climate Change in Brazil and related legislation in the countries in which we operate, as well to the national NDCs requirements, which can include carbon taxes. As a priority issue strictly related to our core operations, risks regarding current regulation are discussed in JBS's Sustainability Committee Board meetings and it is a concern in other spheres of influence within the company (as reported in C2.3a Risk 3). For example, in Brazil there are states where JBS has an operation that has already established reporting requirements for its GHG emissions. Moreover, in some cases GHG reporting are conditioned to environmental licensing. In order to mitigate the risk, every JBS unit throughout the world has GHG emission reduction projects, which is, indeed, besides an efficiency measure, an efficient manner to anticipate eventual penalties related to Carbon Taxes. Up to this moment, we had identified Carbon Taxes, in countries where we have units, in Mexico, UK and France, Argentina, but not strictly related to our core businesses so far. Added to that, JBS executes emission reduction Initiatives and established a commitment to reduce greenhouse gas emissions by 30% in scopes 1 and 2 by 2030 and a Net Zero 2040 commitment.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Direct costs Indirect costs Capital allocation	The physical risks identified by JBS are local and global and are divided by physical assets, supply chain and business structure. Some facilities of JBS Brasil and USA are located in water scarcity areas. Water scarcity, due to the lack of a constant rainy season attributed, among others, to climate change, is a phenomenon that the Company has faced in recent years, mainly in Brazil, negatively influencing our business. Specifically for Brazil, a study was developed to assess climate scenarios that identified the impacts reported by the units related to climate events. This analysis was carried out in 2021 through the contrast between the past scenario (defined by the period from 1961 to 1990) and the future scenario (2021-2050), for IPCC RCPs 4.5 and 8.5. The reported impacts were: direct operations - lack of water (production was affected by lack of access to water), floods and windstorms; and for the supply chain - Water scarcity and thermal stress. The total estimated potential financial impact is R$12,623,168.00. JBS is also exposed to risks that affect its operations and ability to operate in the international market. Climate change can induce changes in customer preferences for products/services. As the issue of climate change becomes a concern of consumers around the world, the Company is aware of its responsibility, as it is a business sensitive to climate change, such as livestock and agribusiness in general. JBS is working to create tools and control mechanisms that allow it to mitigate its exposure to reputational and image risks regarding the effect of its activities on climate change. The image risks that can affect JBS are related to food security, livestock and its wide production chain, which can cause deforestation to create new pastures. Deforestation is a very sensitive issue not only in Brazil, but also with wide coverage throughout the world, especially in the Amazon Biome. Thus, among other options, JBS monitors the carbon tax legislation in the countries where it operates, in order to anticipate the related rules and prepare the management of this issue. The transition to a scenario of collecting taxes on greenhouse gases would increase JBS's costs, estimated in 2020 at around R$ 1.5 billion. To mitigate these risks and take advantage of related opportunities, JBS made investments: • All the Company's activities are based on a Responsible Raw Material Purchasing Policy, which establishes socio-environmental criteria for the selection of cattle suppliers. The policy assumes that all suppliers must comply and there is no supply from suppliers involved in clearing native forests, encroachment on public lands such as indigenous lands or environmental conservation units, rural violence and agrarian conflicts, or use of labor. The risk response cost encompasses the company's annual investment to improve its internal processes and monitoring controls. In the poultry and pork chain, Seara Alimentos only purchases soybean meal from companies that are signatories to the Soy Moratorium in the Amazon Biome, ensuring that it's products are not linked to the deforestation of the Amazon rainforest. JBS spends R$ 2 million annually on a supplier monitoring system and control programs that consider third-party costs (geographic monitoring, system preparation, advanced analysis and systems integration), audits, training trips and meetings with employees involved; • To mitigate the risk of water shortages, JBS allocated R$129,756,363.52 to water and effluent management and projects in JBS's operations in Brazil. Each of our production and further processing facilities has a customized effluent treatment program that meets individual discharge permit requirements. These site-specific initiatives helped reduce our total volume of water discharged and addressed non-compliance issues; • Regarding energy issues, the main strategy is to invest in self-production, in addition to reducing consumption and improving energy efficiency. The company prioritizes energy acquired from clean sources (free market) and Biolins (cogeneration unit) that generates thermoelectric energy and steam from biomass (sugarcane bagasse, eucalyptus chips and various biomass residues), with capacity to generate about 45 megawatts of energy per hour. About 33% of the electricity generated supplies the plants of Friboi, JBS Couros and JBS Novos Negócios in the industrial complex where it is located. The remainder is distributed to JBS units and also sold to the domestic market. In 2020, the Company leased a photovoltaic plant to serve nine Swift stores. By the end of 2021, we had 21 stores with the system operating, plus 15 stores with the modules installed in the commissioning stages and finalizing the concessionaire's release for installation! As a form of expansion, the partnership between Swift and Âmbar reached more than 80 stores with a solar roof in 2022. The result is part of the company's strategy so that, by 2025, 100% of the electricity consumption of its street establishments will be supplied for renewable and clean energy sources; • As a consolidated, continuous, and expanding business, JBS Biodiesel built a new plant in Mafra (SC), an investment of R$ 180,000,000.00. Another opportunity was the construction of a fertilizer factory in Guaiçara. JBS will become the first food company in Brazil to use organic waste to produce fertilizers. The investment for the construction of this plant was R$ 134,000,000.00. Finally, the cost of responding to carbon tax risk considers the financial value that JBS will invest US$1 billion by 2030 in its decarbonization strategy and US$100 million in R&D to implement solutions to mitigate our GHG emissions.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition	Indicate the level at which you identify the alignment of your spending/revenue with a sustainable finance taxonomy
Row 1	No, but we plan to in the next two years	<Not Applicable>

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Intensity target

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Is this a science-based target?

No, but we anticipate setting one in the next two years

Target ambition

<Not Applicable>

Year target was set

2021

Target coverage

Company-wide

Scope(s)
Scope 1
Scope 2

Scope 2 accounting method
Location-based

Scope 3 category(ies)
<Not Applicable>

Intensity metric
Other, please specify (Metric tons CO2e per metric tons of finished product)

Base year
2019

Intensity figure in base year for Scope 1 (metric tons CO2e per unit of activity)
0.1897

Intensity figure in base year for Scope 2 (metric tons CO2e per unit of activity)
0.0792

Intensity figure in base year for Scope 3, Category 1: Purchased goods and services (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 2: Capital goods (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 5: Waste generated in operations (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 6: Business travel (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 7: Employee commuting (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 8: Upstream leased assets (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 10: Processing of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 11: Use of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 13: Downstream leased assets (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 14: Franchises (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Category 15: Investments (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Other (upstream) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for Scope 3, Other (downstream) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for total Scope 3 (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in base year for all selected Scopes (metric tons CO2e per unit of activity)
0.2823

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure
100

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure
100

% of total base year emissions in Scope 3, Category 1: Purchased goods and services covered by this Scope 3, Category 1: Purchased goods and services intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 2: Capital goods covered by this Scope 3, Category 2: Capital goods intensity figure

<Not Applicable>

% of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) covered by this Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution covered by this Scope 3, Category 4: Upstream transportation and distribution intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 5: Waste generated in operations covered by this Scope 3, Category 5: Waste generated in operations intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 6: Business travel covered by this Scope 3, Category 6: Business travel intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 7: Employee commuting covered by this Scope 3, Category 7: Employee commuting intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 8: Upstream leased assets covered by this Scope 3, Category 8: Upstream leased assets intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution covered by this Scope 3, Category 9: Downstream transportation and distribution intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 10: Processing of sold products covered by this Scope 3, Category 10: Processing of sold products intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 11: Use of sold products covered by this Scope 3, Category 11: Use of sold products intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products covered by this Scope 3, Category 12: End-of-life treatment of sold products intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 13: Downstream leased assets covered by this Scope 3, Category 13: Downstream leased assets intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 14: Franchises covered by this Scope 3, Category 14: Franchises intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Category 15: Investments covered by this Scope 3, Category 15: Investments intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Other (upstream) covered by this Scope 3, Other (upstream) intensity figure
<Not Applicable>

% of total base year emissions in Scope 3, Other (downstream) covered by this Scope 3, Other (downstream) intensity figure
<Not Applicable>

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this total Scope 3 intensity figure
<Not Applicable>

% of total base year emissions in all selected Scopes covered by this intensity figure
100

Target year
2030

Targeted reduction from base year (%)
30

Intensity figure in target year for all selected Scopes (metric tons CO2e per unit of activity) [auto-calculated]

% change anticipated in absolute Scope 1+2 emissions
30

% change anticipated in absolute Scope 3 emissions
0

Intensity figure in reporting year for Scope 1 (metric tons CO2e per unit of activity)
0.202

Intensity figure in reporting year for Scope 2 (metric tons CO2e per unit of activity)
0.075

Intensity figure in reporting year for Scope 3, Category 1: Purchased goods and services (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 2: Capital goods (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e per unit of activity)

<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 5: Waste generated in operations (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 6: Business travel (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 7: Employee commuting (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 8: Upstream leased assets (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 10: Processing of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 11: Use of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 13: Downstream leased assets (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 14: Franchises (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Category 15: Investments (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Other (upstream) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for Scope 3, Other (downstream) (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for total Scope 3 (metric tons CO2e per unit of activity)
<Not Applicable>

Intensity figure in reporting year for all selected Scopes (metric tons CO2e per unit of activity)
0.2772

Does this target cover any land-related emissions?
Yes, it covers land-related emissions only (e.g. FLAG SBT)

% of target achieved relative to base year [auto-calculated]

Target status in reporting year
Underway

Please explain target coverage and identify any exclusions
In 2021, JBS pledged to achieve net-zero greenhouse gas (GHG) emissions by 2040. Now, we are working to transparently share how we intend to achieve this absolute reduction in our scope 1, 2, and 3 emissions, while continuing to grow our business and meet the increasing global need for safe, affordable access to high-quality protein. To further bolster our commitment, we have adopted several near-term targets to achieve reductions in emissions, including reducing our scope 1 & 2 GHG emission intensity by 30% by 2030, and reaching 60% renewable electricity by 2030 and 100% by 2040. In addition, US$3 billion were issued in Sustainability Linked Bonds (SLB) at JBS S.A. and PPC and R$ 1 billion in bonds liked to sustainability in Brazil. In 2023, we will work to develop a robust Net Zero Roadmap that outlines our priorities and guides our actions over the next 17 years. It will be iterative and flexible to allow our businesses to design and implement strategies best suited for their specific operations. Starting this process meant taking inventory of the challenge in its entirety. For 13 years, we have measured, monitored, and recorded our direct and indirect GHG emissions by scope 1, 2, and 3 (partial) categorizations to be voluntarily reported to GHG Protocol, CDP, regional regulatory frameworks, and more. In 2022, we expanded our approach by carrying out the first-ever comprehensive analysis of our company's global GHG emission inventory, inclusive of all relevant scope 3 emissions, in alignment with GHG Protocol methodologies.

Plan for achieving target, and progress made to the end of the reporting year
From 2019 to 2022, JBS has achieved a 3.6% reduction in scope 1 and 2 GHG emission intensity.

The company has adopted several strategies to support progress against this commitment, including 1) investing US$ 1 billion in emission reduction projects in JBS-owned facilities over the next 7 years, selected based on evaluations by JBS executives, academics and outside experts; 2) investing US$ 100 million in research and development projects over the next 7 years to support scope 3 emissions mitigation and reduction efforts throughout the JBS value chain (such as improved regenerative agricultural practices, intensified soil carbon sequestration, and supplier farm technologies); 3) reaching 60% renewable electricity use and 100% renewable electricity use across JBS global operations by 2030 and 2040, respectively; 4) tying the variable compensation of JBS senior executives to climate change targets; and 5) eliminating deforestation in our Brazilian supply chain through a number of different commitments:
• No legal or illegal deforestation by direct suppliers in the Amazon biome by 2023
• No legal or illegal deforestation by indirect suppliers in the Amazon biome by 2025
• No illegal deforestation by direct or indirect suppliers in the Cerrado biome by 2025
In tandem with these strategies, we are employing four primary means to decrease scope 1 & 2 emissions in our own facilities:
- Identifying opportunities by sharing best practices between company facilities, measuring and monitoring performance, and conducting site energy audits.
- Implementing behavioral improvements by establishing energy key performance indicators (KPIs) for each JBS facility, which prompt the implementation of no- or low-cost methods of reducing emissions through behavior.
- Approving capital expenditure upgrades to upgrade non-energy-efficient equipment, capture and use waste heat, and eliminate other inefficient processes.
Utilizing renewable energy by procuring both onsite and/or virtual renewable energy sources for the areas where physical decarbonization of company assets is not feasible.

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Target(s) to increase low-carbon energy consumption or production

Net-zero target(s)

C4.2a

(C4.2a) Provide details of your target(s) to increase low-carbon energy consumption or production.

Target reference number

Low 1

Year target was set

2021

Target coverage

Company-wide

Target type: energy carrier

Electricity

Target type: activity

Consumption

Target type: energy source

Renewable energy source(s) only

Base year

2019

Consumption or production of selected energy carrier in base year (MWh)

6484343

% share of low-carbon or renewable energy in base year

45.8

Target year

2030

% share of low-carbon or renewable energy in target year

60

% share of low-carbon or renewable energy in reporting year

45.3

% of target achieved relative to base year [auto-calculated]

Target status in reporting year

Underway

Is this target part of an emissions target?

Yes, Int 1.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

In 2021, JBS pledged to achieve net-zero greenhouse gas (GHG) emissions by 2040. Now, we are working to transparently share how we intend to achieve this absolute reduction in our scope 1, 2, and 3 emissions, while continuing to grow our business and meet the increasing global need for safe, affordable access to high-quality protein. To further bolster our commitment, we have adopted several near-term targets to achieve reductions in emissions, including reducing our scope 1 & 2 GHG emission intensity by 30% by 2030, and reaching 60% renewable electricity by 2030 and 100% by 2040.

In addition, US$3 billion were issued in Sustainability Linked Bonds (SLB) at JBS S.A. and PPC and R$ 1 billion in bonds liked to sustainability in Brazil. In 2023, we will work to develop a robust Net Zero Roadmap that outlines our priorities and guides our actions over the next 17 years. It will be iterative and flexible to allow our businesses to design and implement strategies best suited for their specific operations. Starting this process meant taking inventory of the challenge in its entirety. For 13 years, we have measured, monitored, and recorded our direct and indirect GHG emissions by scope 1, 2, and 3 (partial) categorizations to be voluntarily reported to GHG Protocol, CDP, regional regulatory frameworks, and more. In 2022, we expanded our approach by carrying out the first-ever comprehensive analysis of our company's global GHG emission inventory, inclusive of all relevant scope 3 emissions, in alignment with GHG Protocol methodologies.

Plan for achieving target, and progress made to the end of the reporting year

An example of this effort in Brazil today is the Biolins cogeneration unit, installed in the Lins industrial park, São Paulo, which generates the equivalent of 25% of the total electricity used by all JBS units in Brazil. The facility produces electricity and steam from biomass (sugarcane bagasse, eucalyptus chips and various biomass residues).

In the United Kingdom, 100% of Pilgrim's UK facilities have operated using 100% renewable electricity since 2020.

An additional example is that in 2022 four U.S. facilities commenced construction of biogas to electricity (cogeneration) systems. A natural gas fired cogeneration system (with potential to capture CO2 in exhaust) is also currently under construction.

List the actions which contributed most to achieving this target

<Not Applicable>

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number
NZ1

Target coverage
Company-wide

Absolute/intensity emission target(s) linked to this net-zero target
Abs1
Abs100

Target year for achieving net zero
2040

Is this a science-based target?
Yes, we consider this a science-based target, and we have committed to seek validation of this target by the Science Based Targets initiative in the next two years

Please explain target coverage and identify any exclusions
In 2021, JBS pledged to achieve net-zero greenhouse gas (GHG) emissions by 2040. Now, we are working to transparently share how we intend to achieve this absolute reduction in our scope 1, 2, and 3 emissions, while continuing to grow our business and meet the increasing global need for safe, affordable access to high-quality protein. To further bolster our commitment, we have adopted several near-term targets to achieve reductions in emissions, including reducing our scope 1 & 2 GHG emission intensity by 30% by 2030, and reaching 60% renewable electricity by 2030 and 100% by 2040. In addition, US$3 billion were issued in Sustainability Linked Bonds (SLB) at JBS S.A. and PPC and R$ 1 billion in bonds liked to sustainability in Brazil. In 2023, we will work to develop a robust Net Zero Roadmap that outlines our priorities and guides our actions over the next 17 years. It will be iterative and flexible to allow our businesses to design and implement strategies best suited for their specific operations. Starting this process meant taking inventory of the challenge in its entirety. For 13 years, we have measured, monitored, and recorded our direct and indirect GHG emissions by scope 1, 2, and 3 (partial) categorizations to be voluntarily reported to GHG Protocol, CDP, regional regulatory frameworks, and more. In 2022, we expanded our approach by carrying out the first-ever comprehensive analysis of our company's global GHG emission inventory, inclusive of all relevant scope 3 emissions, in alignment with GHG Protocol methodologies.
JBS developed a global, scope 1, 2, and 3 baseline GHG emission inventory and near-term and net-zero targets in line with science-based methodology. Now, we are currently working to discuss these targets with SBTi. The targets have not yet been approved.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?
Yes

Planned milestones and/or near-term investments for neutralization at target year
We have committed to verifying near- and long-term targets across JBS scope 1, 2, and 3 GHG emissions according to science-based methodology. These targets include:
- Reducing absolute scope 1, 2, and 3 GHG emissions 42% by 2030 from a 2021 base year
- Reducing absolute scope 1, 2, and 3 GHG emissions 90% by 2040 from a 2021 base year
- Reducing absolute scope 1 and 3 FLAG GHG emissions by 30.3% by 2030 from a 2021 base year
- Reducing absolute scope 1 and 3 FLAG GHG emissions 72% by 2040 from a 2021 base year

Given the size and complexity of scope 3 emissions in JBS's global supply chain, we plan to undertake a comprehensive and company-wide approach to working with our suppliers and customers to address our collective emissions. Because the majority of our emissions is associated with our upstream supply chain, we will prioritize addressing these reduction opportunities first.
We will pursue several parallel and simultaneous measures to address our scope 3 emissions, including: improving data measurement and reporting; eliminating deforestation from our global supply chains; developing scope 3 strategies and interventions for each protein (beef, pork, lamb, chicken, fish, plant-based); partnering with strategic agricultural commodity suppliers to co-develop and deploy deforestation-free and low-carbon initiatives; pilot-testing initiatives to better connect the agricultural food industry by building a shared data infrastructure between major supply chain sectors; and investing in research and development projects to accelerate breakthrough technologies and farming practices that will both reduce emissions and sequester carbon in grain and livestock production systems.

Planned actions to mitigate emissions beyond your value chain (optional)
The company will act beyond the value chain and is assessing the possibilities.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.
Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	211	60000
To be implemented*	32	10500
Implementation commenced*	27	20900
Implemented*	116	117100
Not to be implemented	93	68400

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Other, please specify	Other, please specify (Animal GHG Reduction)

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 3 category 1: Purchased goods & services

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

Payback period
Please select

Estimated lifetime of the initiative
Please select

Comment
This research and development project was funded to better understand the most relevant and scalable areas of focus for our GHG reduction strategy. As such, the full breadth of its potential impacts (from both a GHG emissions reduction and a financial standpoint) are not yet known.

Initiative category & Initiative type

Other, please specify	Other, please specify (Manure Management Emission reduction)

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 3 category 1: Purchased goods & services

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

Payback period
Please select

Estimated lifetime of the initiative
Please select

Comment
This research and development project was funded to better understand the most relevant and scalable areas of focus for our GHG reduction strategy. As such, the full breadth of its potential impacts (from both a GHG emissions reduction and a financial standpoint) are not yet known.

Initiative category & Initiative type

Other, please specify	Other, please specify (Reducing on Farm emissions)

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 3 category 1: Purchased goods & services

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

Payback period
Please select

Estimated lifetime of the initiative
Please select

Comment
This research and development project was funded to better understand the most relevant and scalable areas of focus for our GHG reduction strategy. As such, the full breadth of its potential impacts (from both a GHG emissions reduction and a financial standpoint) are not yet known.

Initiative category & Initiative type

Other, please specify	Other, please specify (Animal Feed Reduction)

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 3 category 1: Purchased goods & services

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

Payback period
Please select

Estimated lifetime of the initiative
Please select

Comment
This research and development project was funded to better understand the most relevant and scalable areas of focus for our GHG reduction strategy. As such, the full breadth of its potential impacts (from both a GHG emissions reduction and a financial standpoint) are not yet known.

Initiative category & Initiative type

Other, please specify	Other, please specify (Sludge for deef crops GHG Reduction)

Estimated annual CO2e savings (metric tonnes CO2e)

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 3 category 1: Purchased goods & services

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

Payback period
Please select

Estimated lifetime of the initiative
Please select

Comment
This research and development project was funded to better understand the most relevant and scalable areas of focus for our GHG reduction strategy. As such, the full breadth of its potential impacts (from both a GHG emissions reduction and a financial standpoint) are not yet known.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for other emissions reduction activities	To support our pledge to reach net-zero greenhouse gas emissions by 2040, we are investing US$1 billion in emission reduction initiatives over the next seven years. This includes projects both in JBS-owned facilities and throughout our value chain.
Dedicated budget for low-carbon product R&D	As part of the Company's US$1 billion commitment, JBS plans to invest $100 million through 2030 and co-fund along with other partners – including universities and non-profit research institutions, public agencies, and conservation NGOs – breakthrough technologies and farming practices with the objective of both reducing emissions and sequestering carbon in grain and livestock production systems.
Lower return on investment (ROI) specification	When allocating capital for GHG reduction projects, we 'score' the potential project based on a weighted calculation of the payback/return on investment (ROI) and the capital spend per metric ton of GHG emissions reduced. Therefore, there is no set payback/ROI threshold, rather an extended ROI must be offset by a low capital spend per metric ton of GHG emissions reduced. With that said, generally we find that the payback period should be less than 5 years to be considered for capital approval.
Employee engagement	We work to engage our employees and implement behavioral improvements by establishing key performance indicators (KPIs) for each JBS facility, which prompt the implementation of no- or low-cost methods of reducing emissions through behavior.
Marginal abatement cost curve	As noted previously, our 'score' to determine eligibility for capital spend on GHG emission reduction projects results in an informal marginal abatement cost (MAC) curve. While the MAC is not a formal factor in consideration for approval, it is used to track and compare each project, and the actual curve developed is compared to publicly available curves to guide our selection of future projects.

C-AC4.4/C-FB4.4/C-PF4.4

(C-AC4.4/C-FB4.4/C-PF4.4) Do you implement agriculture or forest management practices on your own land with a climate change mitigation and/or adaptation benefit?
Yes

C-AC4.4a/C-FB4.4a/C-PF4.4a

(C-AC4.4a/C-FB4.4a/C-PF4.4a) Specify the agricultural or forest management practice(s) implemented on your own land with climate change mitigation and/or adaptation benefits and provide a corresponding emissions figure, if known.

Management practice reference number
MP1

Management practice
Fertilizer management

Description of management practice
Our facility in Brooks, Canada, captures recoverable animal grease and biogas from its wastewater. The remaining water, relatively high in nutrients, is fertigated on approximately 4,300 acres of local farmland. A revised Nutrient Management Plan (NMP) was implemented to optimize soil health, crop yield, and nutrient management. This action promotes the long-term beneficial reuse of 1,000,000 pounds of organic ammonia and 225,000 pounds of phosphate per year.

Primary climate change-related benefit
Reduced demand for fertilizers (adaptation)

Estimated CO2e savings (metric tons CO2e)
1700

Please explain
These estimated savings were calculated based on an average of 2.86 tons of CO2e emitted per ton of NH3 production from a standard Haber Bosch process, plus emissions associated with transportation and application.

Management practice reference number
MP2

Management practice
Manure management

Description of management practice
Our Dalhart, Texas, live pork team renovated the wastewater treatment lagoon to convert methane gas into renewable energy. The lagoon is estimated to produce more than 75,000 MMBTU of biogas annually, eliminating 3,975 metric tons of CO2.

Our Dalhart facility partnered with Ally Energy Solutions on a first ever swine-to-renewable natural gas project at its hog farm. The project modernized a two-and-a-half acre digester lagoon to capture and convert methane gas into clean, renewable natural gas that is then sold to the California transportation fuel market.

The project, which was completed in less than 12 months, is an example of how our commitment to planetary stewardship through operations-based carbon footprint reductions is paying off, both financially and operationally. As we transition away from fossil fuels to renewable energy, the agricultural industry is positioned to be a major contributor to our national energy grid, while cutting greenhouse gas emissions and meeting sustainability goals.

Primary climate change-related benefit
Reduced demand for fossil fuel (adaptation)

Estimated CO2e savings (metric tons CO2e)
3975

Please explain
The renewable natural gas produced at this operation is tracked by a regulatory agency that verifies the CO2e reduction achieved.

Management practice reference number
MP3

Management practice
Waste management

Description of management practice
Our beef facility in Grand Island, Nebraska, used to dispose of more than 45,000 tons/year of organic waste solids in a regional landfill. To divert this waste from landfill, JBS partnered with a local farmer to turn it into compost. Once composted, the materials are expected to supply adequate Nitrogen for over 2500 acres of local cropland per year.

Primary climate change-related benefit
Emission reductions (mitigation)

Estimated CO2e savings (metric tons CO2e)
70000

Please explain
These estimated savings were calculated based on the Environmental Protection Agency (EPA) guidance that suggests up to 0.185 tons of CH4 is produced per ton of food waste sent to landfill.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?
Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon
Other, please specify (Renovabio)

Type of product(s) or service(s)

Biofuels	Other, please specify (biodiesel)

Description of product(s) or service(s)
JBS Biodiesel produces biodiesel using beef tallow and used cooking oil. It contributes to reducing GHG emissions from third parties' scope 1 regarding fossil fuel burning. With three plants located in Brazil – Campo Verde/Mt, Lins/SP and Mafra(SC) – JBS Biodiesel is the largest vertically producer of biodiesel from beef tallow worldwide. It is the first company in Brazil to hold the carbon, sustainability and traceability seal of the International Sustainability and Carbon Certification (ISCC), allowing it to enter the European market without restrictions on the products since 2013. Beef tallow is a byproduct of cattle slaughter activity and if the residue does not have the proper treatment or disposal, it can be considered as a high potential pollutant. Beef tallow is one of the most important raw materials for biodiesel production in Brazil. Beef tallow biodiesel is a clean and high-quality fuel that adds value to the beef chain and contributes to the environment by properly disposing unwanted waste. In Brazil, the production of biodiesel is promoted and regulated by the State. JBS is certified by Renovabio, which is a state policy that seeks to expand the production of biofuels, based on predictability and environmental, economic and social sustainability. Through Renovabio's certification, it is possible to issue CBios (decarbonization credits), which classifies biodiesel as a low carbon product.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
Yes

Methodology used to calculate avoided emissions
Other, please specify (Brazilian GHG Protocol Program)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Not applicable

Functional unit used
Amount of energy, in TJ, that would be generated by biodiesel that could result in emissions from diesel

Reference product/service or baseline scenario used
The estimations were performed considering the amount of energy that would be generated by biodiesel that could result in emissions from diesel

Life cycle stage(s) covered for the reference product/service or baseline scenario
Not applicable

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
942240.43

Explain your calculation of avoided emissions, including any assumptions
In 2022, JBS Biodiesel produced over 337 thousand tonnes of biodiesel. The estimations were performed considering the amount of energy that would be generated by biodiesel (amount of biodiesel x net calorific value of biodiesel – 337,289 tonnes x 0.0377 TJ/tonnes = 12,715.79 TJ), that could result in emissions from diesel (12,715.79 TJ x 74.1 tCO2/TJ = 942,240.43 tCO2). The emission factor of diesel available in 2006 IPCC Guidelines for National Greenhouse Gas Inventories (74.1 tCO2/TJ) were employed. The net calorific value was obtained from Brazilian National Energy Balance (0.0377 TJ/ton). A life cycle approach was not used to calculate the avoided emissions. Since, motivated by the Net Zero by 2040 commitment, our businesses are investing in research to better understand the product's carbon footprint. In this way, JBS can effectively understand better where to act in order to reduce emissions.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
1

Level of aggregation
Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon
No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Other	Other, please specify (Waste Management)

Description of product(s) or service(s)
JBS offers solid waste management solutions by its Company, JBS Ambiental, that directly enables scope 1 GHG emissions to be avoided by a third party. The goal is to reduce waste disposal in landfills and to create value from waste processing and turning it back into raw material. Waste from plastic packaging generated in the JBS units or coming from other sources are routed to the JBS Ambiental, where it is made all the plastic transformation process in recycled raw material. JBS Ambiental has 18 recycling units, in Brazil. It is a business that manages solid waste, recycling solutions and the circular economy for the business. Concepts like the circular economy, Where waste from one production chain becomes raw material for others, is not just a part of JBS's day-to day business, it is central to the business model at JBS Novos Negócios. Several of the Company's operations use materials that were previously disposed of to create new products. JBS Ambiental manages the waste from its own business and provides services to a number of JBS plants around the country. It also develops products and solutions using industrial waste. In 2021, the Company developed pallet WPC (wood-polymer composite) and furniture WPC from plastic waste from the Company's operations in addition to other products that were reinserted into JBS' production chains from other sources are routed to the JBS Ambiental, where it is made all the plastic transformation process in recycled raw material.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
Yes

Methodology used to calculate avoided emissions
Other, please specify (Brazilian GHG Protocol Program)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Not applicable

Functional unit used
Tons of paper and cardboard that would be sent to a sanitary landfill

Reference product/service or baseline scenario used
Considering that the waste recycled by JBS Ambiental would be sent to a sanitary landfill

Life cycle stage(s) covered for the reference product/service or baseline scenario
Not applicable

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
11887.68

Explain your calculation of avoided emissions, including any assumptions
In 2022, JBS Ambiental managed:
• 5,307 tons of paper and cardboard;
• 4,468 tons of plastic; and
• 9,365 tons of metals.
Considering that the waste recycled by JBS Ambiental would be sent to a sanitary landfill (paper and cardboard emission factor = 2,240 kgCO2e/tonnes. For plastic and metals, emission factor = 0 - IPCC 2006 - Volume 5 - Chapter 2/3 - Paper/cardboard; GWP CH4 = 28). A life cycle approach was not used to calculate the avoided emissions. Since, motivated by the Net Zero by 2040 commitment, our businesses are investing in research to better understand the product's carbon footprint. In this way, JBS can effectively understand better where to act in order to reduce emissions.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
1

Level of aggregation
Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon
No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Biofuels	Other, please specify (Biomass)

Description of product(s) or service(s)
In Brazil, JBS has a cogeneration unit in Lins/SP, called Biolins, which uses biomass (sugarcane bagasse, eucalyptus chips and various biomass residues) to generate thermoelectric and steam energy. The thermoelectric plant has the capacity to generate 45 megawatts of energy per hour, a volume sufficient to supply a city with a population of 300,000. Around 33% of electricity generated by Biolins supplies the Friboi, JBS Couros and JBS Novos Negócios production plants the same industrial complex where it is installed. The rest is distributed to JBS facilities and is sold to the national market. Steam generation, in turn, is solely used to supply adjacent JBS production plants. Biolins alone generates the equivalent of 20% of total energy used by all JBS factories in Brazil. In 2022, Biolins produced 42,798 MWh.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
Yes

Methodology used to calculate avoided emissions
Other, please specify (Brazilian GHG Protocol Program)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Not applicable

Functional unit used
Amount of energy, in MWh, that would be consumed by grid electricity.

Reference product/service or baseline scenario used
The estimations were performed considering the amount of energy, in MWh that would be consumed by grid electricity.

Life cycle stage(s) covered for the reference product/service or baseline scenario
Not applicable

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
5409.67

Explain your calculation of avoided emissions, including any assumptions
In 2022, Biolins produced 42,798 MWh, which represents a reduction of 5,409.67tCO2e, comparing the same amout of energy used but considering different emission factors, one for grid consumption (Grid = 0.1264tCO2e/MWh) and the other one for Biolins. A life cycle approach was not used to calculate the avoided emissions. Since, motivated by the Net Zero by 2040 commitment, our businesses are investing in research to better understand the product's carbon footprint. In this way, JBS can effectively understand better where to act in order to reduce emissions.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
1

Level of aggregation
Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon
No taxonomy used to classify product(s) or service(s) as low carbon

Type of product(s) or service(s)

Other	Other, please specify (JBS Leather)

Description of product(s) or service(s)
JBS Couros, through Kind Leather, has offered the industry the solution kindest to the world: remove the hide parts that are not as frequently used right at the start of the process, since this material can still be used as raw material in other industries, such as the pharmaceutical and food industries. This means waste is turned into raw material, making a significant contribution to the entire chain's sustainability. This product production reduces water consumption by 52%, by energy consumption by 62% and solid waste 93% throughout the production chain.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
Yes

Methodology used to calculate avoided emissions
Estimating and Reporting the Comparative Emissions Impacts of Products (WRI)

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
Cradle-to-gate

Functional unit used
The LCA study compares a m² of finished Regular Leather, full substance, article against its Kind Leather.

Reference product/service or baseline scenario used
The LCA study compares a Regular Leather, full substance, article against its Kind Leather, lime split.

Life cycle stage(s) covered for the reference product/service or baseline scenario
Cradle-to-gate

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
0.00586

Explain your calculation of avoided emissions, including any assumptions
The analysis has been carried on a specific leather article, named Kind Leather Antique Rave, of the tannery and not on its average production, while other sectoral studies have mainly been produced using data referring to the whole production of a reference tannery in a reference period. The main reason of the study is to provide a solid reference and indications on differences in environmental impacts on the 2 products.
All primary data collected in tanneries refer to 2019, being it 10 months old at the moment of publication of the study. Primary data have been collected using as a reference the whole year. All datasets used for modelling are the ones included in Ecoinvent 3.6. Thanks to its particular structure, JBS has been able to collect primary data referring to the overall 2019 supply of Hides to the São Luis de Montes Belos factory, in order to properly allocate impacts of the farming processes:
• Mass fraction 9,23%
• Economic allocation 0,87%.
Regarding the methodolody used to calculate GHG Emissions from both products was IPCC 2013 GWP 100a. The Kind Leather article's version has a impact 44% lower than its original version in Regular Leather, which represents -5,86 kgCO2eq/m² of finished leather.

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
0.1

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?
No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?
Yes, an acquisition

Name of organization(s) acquired, divested from, or merged with
In 2022, following multi-protein strategy and focusing on diversifying its portfolio, JBS acquired 4 organizations: Grupo King (Italian charcuterie), Rivalea (Australian leader in hog breeding), BioTech Foods (global leader in the development of biotechnology for the production of cultivated protein) and TriOak Foods (pork producer and grain marketer). Five unit emissions have been integrated in JBS GHG inventory: Rivalea, Sunnyvalley, Huon, Empire Packing and Pilgrim's Food Masters.

Details of structural change(s), including completion dates
King Acquisition – In 2021, JBS S.A. announced it had executed an agreement to acquire King's Group ("King"), a global producer of bresaola with a presence in both Italy and the United States.The King Acquisition strengthened our position in the production and distribution of Italian meat specialties, placing us among the leaders in the production of Italian salumeria. The King Acquisition was completed on February 4, 2022.
Rivalea Acquisition - In 2021, JBS S.A announced that JBS Australia had executed an agreement to acquire Rivalea Holdings Pty Ltd and Oxdale Dairy Enterprise Pty Ltd. ("Rivalea"), a leading hog breeding and processing business in Australia .The Rivalea Acquisition was completed on January 4, 2022.
BiotTech - JBS S.A. concluded on May 5, 2022, the acquisition of the control of the Spanish company BioTech Foods, S.L., one of the global leaders in the development of biotechnology for the production of cultivated protein.The acquisitions mark the Company's entry into the cultivated protein market, which consists of the production of food from animal cells, which are aligned with JBS´s strategy of expanding its platform of new forms of protein production, as a reflection of new consumption trends and population growth in the coming decades.
TriOak Business Acquisition - On December 2, 2022, JBS USA acquired the TriOak Foods ("TriOak") business. TriOak is an American pork producer and grain marketer. In acquiring the TriOak business, JBS USA ensures access to a consistent supply of premium pork, strengthening its ability to provide high-quality pork products.

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	Yes, a change in methodology Yes, a change in boundary	In 2022, a comprehensive analysis of the Company's global GHG Inventory, inclusive of all relevant scope 3 emissions and in alignment with GHG Protocol methodologies, was conducted. To assist JBS with this effort, the company partnered with a leading GHG Accounting Company to carry out the calculation and modeling process. In comparison to previous years, more precise regional emission factors and Lifecycle Analyses were utilized. In addition, increased primary data was used, where available. Collectively, these actions improved the accuracy of our emissions calculations. For example, the methodology used to calculate upstream transportation and distribution was changed in our 2022 GHG Inventory. Until year-end 2021, JBS considered that all trucks used in upstream transportation were exclusively dedicated to JBS. From 2022 to date, we started considering transported cargo and distance travelled in our calculation to ensure emissions were being allocated to JBS only for JBS cargo. The change in methodology didn't significantly affect scope 3 emissions. In addition, a new category of scope 3 was included: Use of sold products – biodiesel. Finally, emissions associated with land use change were not included in this reporting year's boundary because these calculations are currently being improved (for example, the current GHG Protocol Land Sector Removal Guidance accounts for biogenic emissions but not biogenic removals).

C5.1c

(C5.1c) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in C5.1a and/or C5.1b?

	Base year recalculation	Scope(s) recalculated	Base year emissions recalculation policy, including significance threshold	Past years' recalculation
Row 1	No, because the impact does not meet our significance threshold	<Not Applicable>	Base year emissions are recalculated only if change in calculation result in change of 5% or more of total emissions following GHG Protocol recommendations.	No

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
4675368.17

Comment
Data provided from the 2021 JBS Global GHG Inventory: emissions from stationary combustion, mobile combustion, agricultural, waste and effluent, fugitive and process emissions.

Scope 2 (location-based)

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
1399521.01

Comment
Data provided from the 2021 JBS Global GHG Inventory.

Scope 2 (market-based)

Base year start
July 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
0

Comment
N/A

Scope 3 category 1: Purchased goods and services

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
53626205.21

Comment
Data provided by the JBS Global GHG Inventory 2021. To calculate the Purchased Goods and Services category, the following data were used: enteric fermentation of purchased cattle, purchase of grains and packaging.

Scope 3 category 2: Capital goods

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
225526.11

Comment
Data provided from the 2021 JBS Global GHG Inventory: emissions from capital goods.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start
January 1 2021

Base year end
December 31 2020

Base year emissions (metric tons CO2e)
129123.3

Comment
Data provided from the 2021 JBS Global GHG Inventory: emissions from energy and fuel related activities.
CDP.

Scope 3 category 4: Upstream transportation and distribution

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
3115035.66

Comment
Data provided from the 20201JBS Global GHG Inventory: emissions from transportation and distribution of products purchased or acquired by the organization. Emissions from category 9 were reported together with category 4, due to the difficulty of segregating data.

Scope 3 category 5: Waste generated in operations

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
475050.57

Comment
Data provided from the 2021 JBS Global GHG Inventory: emissions from external treatment of residues (landfill, composting, incineration and fertigation) from the organization's operations. The data is provided by JBS operations.

Scope 3 category 6: Business travel

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
2401.21

Comment
Data provided from the 2021 JBS Global GHG Inventory. In this way, the emissions described refer to the air travels from JBS staff.

Scope 3 category 7: Employee commuting

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
55228.87

Comment
Data provided from the 2021 JBS Global GHG Inventory. In this way, the emissions from this category are partially reported (only for Brazil) and the data is provided by JBS operations.

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
169940.24

Comment
Emissions in this category were reported together with category 4, due to the difficulty of segregating data.

Scope 3 category 10: Processing of sold products

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
169940.24

Comment
Data provided from the 2021 JBS Global GHG Inventory: emissions from processing of sold products.

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start
January 1 2021

Base year end
December 31 2021

Base year emissions (metric tons CO2e)
311761.57

Comment
Data provided from the 2021 JBS Global GHG Inventory.

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

Brazil GHG Protocol Programme
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
ISO 14064-1
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
Other, please specify (The Greenhouse Gas Protocol: Scope 3 Evaluator)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
4045137

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
Data provided from the 2022 JBS Global GHG Inventory: emissions from stationary combustion, mobile combustion, agricultural, waste and effluent, fugitive and process emissions.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We have operations where we are able to access electricity supplier emission factors or residual emissions factors, but are unable to report a Scope 2, market-based figure

Comment
The Company has a cogeneration unit installed in Lins/SP, called Biolins, which is responsible for producing electricity and steam from biomass (sugarcane bagasse, eucalyptus chips and various biomass residues), with a generating capacity of 45 megawatts (MW). This way, Biolins supplies 100% of electricity and steam to the Friboi, JBS Couros and JBS Novos Negócios plants, resulting in the equivalent of 25% of the total electricity used by all JBS units in Brazil. In addition, the company has expanded its use of solar energy from nine in 2020 to 50 Swift stores in 2021. In 2021, it was not possible to obtain energy-specific data under the market-based method due to improved data collection and the search for closer contact with suppliers in order to access emission factors.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based
1605115

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
<Not Applicable>

End date
<Not Applicable>

Comment
Data provided from the 2022 JBS Global GHG Inventory: emissions from purchased electricity, steam, heat, and cooling.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure?
Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source of excluded emissions
Emissions From Vivera

Scope(s) or Scope 3 category(ies)
Scope 1
Scope 2 (location-based)
Scope 2 (market-based)
Scope 3: Purchased goods and services
Scope 3: Capital goods
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Waste generated in operations
Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Upstream leased assets
Scope 3: Downstream transportation and distribution
Scope 3: Processing of sold products
Scope 3: Use of sold products
Scope 3: End-of-life treatment of sold products
Scope 3: Downstream leased assets

Relevance of Scope 1 emissions from this source
Emissions excluded due to a recent acquisition or merger

Relevance of location-based Scope 2 emissions from this source
Emissions excluded due to a recent acquisition or merger

Relevance of market-based Scope 2 emissions from this source
Emissions excluded due to a recent acquisition or merger

Relevance of Scope 3 emissions from this source
Emissions excluded due to a recent acquisition or merger

Date of completion of acquisition or merger
July 17 2021

Estimated percentage of total Scope 1+2 emissions this excluded source represents
<Not Applicable>

Estimated percentage of total Scope 3 emissions this excluded source represents
<Not Applicable>

Explain why this source is excluded
The integration of the company's data systems was not yet complete in the 2022 reporting year.

Explain how you estimated the percentage of emissions this excluded source represents
<Not Applicable>

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
157608330

Emissions calculation methodology
Average spend-based method
Distance-based method
Other, please specify (Method based on the purchase of animal and grain)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Livestock emissions were calculated using GLEAM emissions factors. Any purchased feed was calculated based on the emission factor for the region the crop was grown and the distance the truck had to travel from state to farm. For materials purchased we used the distance method if we did not have distances, we used the spend based method. Land use change emissions were not included as those calculations are currently being improved.

Capital goods

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
241982.35

Emissions calculation methodology
Spend-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Capital goods emissions were calculated using spend-based emission factors.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
890252.06

Emissions calculation methodology
Fuel-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Fuel and energy related activity emissions were calculated using WTT scope 3 factors provided by BEIS, EPA, and other government authorities.

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
6176849

Emissions calculation methodology
Spend-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Upstream transportation calculated based on estimated distances and logistics costs.

Waste generated in operations

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
388607.47

Emissions calculation methodology
Waste-type-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Emissions calculated based on different waste treatments.

Business travel

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
12512

Emissions calculation methodology
Average data method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Estimated average distance traveled

Employee commuting

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
194703.88

Emissions calculation methodology
Average data method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Estimated speed, travel times, and distances traveled

Upstream leased assets

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
71272

Emissions calculation methodology
Asset-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain

Downstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
6314659

Emissions calculation methodology
Spend-based method
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Downstream transportation calculated based on estimated distances and spend based method.

Processing of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
1437556.05

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Quantity based approach based on different products sold and use of product

Use of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
4436735.84

Emissions calculation methodology
Average product method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Quantity based approach based on different products sold and use of product.

End of life treatment of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
2567110

Emissions calculation methodology
Average product method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Quantity based approach based on different products sold and use of product.

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Compared to the owned units themselves, the leased plants are not relevant.

Franchises

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
Not applicable to JBS operations.

Investments

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
28583

Emissions calculation methodology
Investment-specific method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
0

Please explain
Emissions of investments are not significant in comparison with the other scope 3 emissions.

Other (upstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no other (upstream) relevant emissions.

Other (downstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There are no other (downstream) relevant emissions.

C-AC6.8/C-FB6.8/C-PF6.8

(C-AC6.8/C-FB6.8/C-PF6.8) Is biogenic carbon pertaining to your direct operations relevant to your current CDP climate change disclosure?
No

C-AC6.9/C-FB6.9/C-PF6.9

(C-AC6.9/C-FB6.9/C-PF6.9) Do you collect or calculate greenhouse gas emissions for each commodity reported as significant to your business in C-AC0.7/FB0.7/PF0.7?

Agricultural commodities
Cattle products

Do you collect or calculate GHG emissions for this commodity?
Yes

Reporting emissions by
Total

Emissions (metric tons CO2e)
2188717.04

Denominator: unit of production
<Not Applicable>

Change from last reporting year
Lower

Please explain
The reported data includes scope 1 and 2 emissions associated with JBS production of beef and lamb products, and includes the activities performed by the company's JBS USA Beef, JBS
Canada, JBS Australia and Friboi business units. Scope 2 emissions are market-based.

Explain why you do not calculate GHG emission for this commodity and your plans to do so in the future
<Not Applicable>

Agricultural commodities
Other, please specify (Poutry products)

Do you collect or calculate GHG emissions for this commodity?
Yes

Reporting emissions by
Total

Emissions (metric tons CO2e)
1467265.07

Denominator: unit of production
<Not Applicable>

Change from last reporting year
Lower

Please explain
The reported data includes scope 1 and 2 emissions associated with JBS production of poultry products, and includes the activities performed by the company's Pilgrim's (Pilgrim's U.S., Pilgrim's Mexico, Pilgrim's Moy Park, and Pilgrim's Food Masters) and Seara poultry business units. Scope 2 emissions are market-based.

Explain why you do not calculate GHG emission for this commodity and your plans to do so in the future
<Not Applicable>

Agricultural commodities
Please select

Do you collect or calculate GHG emissions for this commodity?
Yes

Reporting emissions by
Total

Emissions (metric tons CO2e)
1462105.16

Denominator: unit of production
<Not Applicable>

Change from last reporting year
Lower

Please explain
The reported data includes scope 1 and 2 emissions associated with JBS production of pork products, and includes the activities performed by the company's Seara, JBS USA Pork, Swift Prepared Foods, Pilgrim's UK, and JBS Australia Pork business units. Scope 2 emissions are market-based.

Scope 3 emissions were not included in this value because the company's scope 3 Land Use Change emissions calculations are currently being improved.

It is also worth mentioning, that to calculate the percentage change from the previous year, recalculated 2021 emissions data was used. Thus, there was a decrease of 1.96% in the metric.

Explain why you do not calculate GHG emission for this commodity and your plans to do so in the future
<Not Applicable>

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure
0.00001598

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
5558684.79

Metric denominator
unit total revenue

Metric denominator: Unit total
347900000000

Scope 2 figure used
Market-based

% change from previous year
8.6

Direction of change
Decreased

Reason(s) for change
Other emissions reduction activities

Please explain

Intensity figure
0.2771

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
5558684.79

Metric denominator
metric ton of product

Metric denominator: Unit total
20056764.36

Scope 2 figure used
Market-based

% change from previous year
8.1

Direction of change
Decreased

Reason(s) for change
Other emissions reduction activities

Please explain

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?
No

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/area/region.

Country/area/region	Scope 1 emissions (metric tons CO2e)
Brazil	984412.91
Italy	5167.87
Argentina	6054.1
Uruguay	2.32
Germany	937.55
Mexico	148856.19
United Kingdom of Great Britain and Northern Ireland	65286.85
France	16345.29
Netherlands	4705.81
United States of America	1854440.16
Canada	60452
Australia	843109
New Zealand	2386.6
Viet Nam	1616.49
Ireland	53750.65

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division
By activity

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
JBS North America	2233340
JBS South America	998212.32
Pilgrim's	813584.35

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Agricultural	1236377.04
Stationary Combustion	1296737.37
Mobile Combustion	419122.38
Process Emissions	159681
Fugitive Emissions	67762.87
Waste and Effluent	865458.22

C-AC7.4/C-FB7.4/C-PF7.4

(C-AC7.4/C-FB7.4/C-PF7.4) Do you include emissions pertaining to your business activity(ies) in your direct operations as part of your global gross Scope 1 figure?

Yes

C-AC7.4a/C-FB7.4a/C-PF7.4a

(C-AC7.4a/C-FB7.4a/C-PF7.4a) Select the form(s) in which you are reporting your agricultural/forestry emissions.

Total emissions

C-AC7.4b/C-FB7.4b/C-PF7.4b

(C-AC7.4b/C-FB7.4b/C-PF7.4b) Report the Scope 1 emissions pertaining to your business activity(ies) and explain any exclusions. If applicable, disaggregate your agricultural/forestry by GHG emissions category.

Activity
Agriculture/Forestry

Emissions category
<Not Applicable>

Emissions (metric tons CO2e)
1236377.04

Methodology
Region-specific emissions factors

Please explain
Value includes enteric, fertigation, manure management, and overall livestock management emissions.

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/area/region.

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Brazil	110459.32	
Italy	3056.11	
Argentina	3419.25	
Uruguay	98.74	
Germany	31.78	
Mexico	96999.65	
United Kingdom of Great Britain and Northern Ireland	44107.93	
France	2332.87	
Netherlands	946.05	
United States of America	1013496.8	
Canada	48083.2	
Australia	241243.48	
New Zealand	949.52	
Viet Nam	3924.26	
Ireland	35965.49	3056.11

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.
By business division
By activity

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
JBS North America	840767	798393
JBS South America	123486	123486
Pilgrim's	640862	591669

C7.6c

(C7.6c) Break down your total gross global Scope 2 emissions by business activity.

Activity	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Purchase of Grid Electricity	1604799.18	1513232.15
Purchase of Steam	315.96	315.96

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?
Yes

C7.7a

(C7.7a) Break down your gross Scope 1 and Scope 2 emissions by subsidiary.

Subsidiary name
Pilgrim's

Primary activity
Animal processing

Select the unique identifier(s) you are able to provide for this subsidiary
No unique identifier

ISIN code – bond
<Not Applicable>

ISIN code – equity
<Not Applicable>

CUSIP number
<Not Applicable>

Ticker symbol
<Not Applicable>

SEDOL code
<Not Applicable>

LEI number
<Not Applicable>

Other unique identifier
<Not Applicable>

Scope 1 emissions (metric tons CO2e)
798864.08

Scope 2, location-based emissions (metric tons CO2e)
640861.57

Scope 2, market-based emissions (metric tons CO2e)
591668.54

Comment

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?
Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption		<Not Applicable>		
Other emissions reduction activities	570508.95	Decreased	9.3	Our global scope 1 and 2 (market-based) emissions decreased from 6,129,194 metric tons of CO2e in 2021 to 5,558,685 metric tons of CO2e in 2022. This 570,580.95 metric tons of CO2e reduction accounts for a 9.3% decrease year over year.
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output		<Not Applicable>		
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Market-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 5% but less than or equal to 10%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	645317.05	4401633588.97	4402278906.02
Consumption of purchased or acquired electricity	<Not Applicable>	2532116.62	3500261.54	6032378.16
Consumption of purchased or acquired heat	<Not Applicable>	35748.64	17123.97	52872.61
Consumption of purchased or acquired steam	<Not Applicable>	5755769.46	254313.61	6010083.07
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	633	<Not Applicable>	633
Total energy consumption	<Not Applicable>	8969584.77	4405405288.09	4414374872.86

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value
Unable to confirm heating value

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
N/A

Other biomass

Heating value
LHV

Total fuel MWh consumed by the organization
5631804.61

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
35748.64

MWh fuel consumed for self-generation of steam
5569407.08

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
26648.89

Comment
For heat generation the following fuels were considered: wood chips and renewable firewood. For steam generation and cogeneration the following fuels were considered: sugarcane bagasse, eucalyptus chips and various biomass residues.

Other renewable fuels (e.g. renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
53859.98

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
53859.98

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
For heat generation the following fuels were considered: biodiesel and ethanol. For steam generation the following fuels were considered: biodiesel and biogas.

Coal

Heating value
Unable to confirm heating value

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
N/A

Oil

Heating value
Unable to confirm heating value

Total fuel MWh consumed by the organization
74814.45

MWh fuel consumed for self-generation of electricity
20463.45

MWh fuel consumed for self-generation of heat
2008.84

MWh fuel consumed for self-generation of steam
52342.16

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
N/A

Gas

Heating value
Unable to confirm heating value

Total fuel MWh consumed by the organization
222934.43

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
21075.42

MWh fuel consumed for self-generation of steam
201859.01

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
N/A

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value
LHV

Total fuel MWh consumed by the organization
281.18

MWh fuel consumed for self-generation of electricity
281.18

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
0

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
For electricity generation the following fuels were considered: Diesel and gasoline. For heat generation the following fuels were considered: Diesel, GLP, Natural Gas, gasoline and kerosone. For steam generation the following fuels were considered: Diesel, GLP, Natural Gas, GMP, Shale Oil, and gasoline.

Total fuel

Heating value
Unable to confirm heating value

Total fuel MWh consumed by the organization
5983694.65

MWh fuel consumed for self-generation of electricity
20744.63

MWh fuel consumed for self-generation of heat
58832.9

MWh fuel consumed for self-generation of steam
5877468.23

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
26648.89

Comment
N/A

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	63389.61	63389.61	21900.34	42644.98
Heat	117665.8	117665.8	35748.64	23084.26
Steam	11336587.79	11336587.79	5414092.72	254201.17
Cooling	0	0	0	0

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area
Other, please specify (JBS South America)

Consumption of purchased electricity (MWh)
2625607.71

Consumption of self-generated electricity (MWh)
41489.27

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
6062955.68

Consumption of self-generated heat, steam, and cooling (MWh)
11454253.59

Total non-fuel energy consumption (MWh) [Auto-calculated]

Country/area
Other, please specify (JBS South America)

Consumption of purchased electricity (MWh)
1697269.17

Consumption of self-generated electricity (MWh)
21900.34

Is this electricity consumption excluded from your RE100 commitment?
<Not Applicable>

Consumption of purchased heat, steam, and cooling (MWh)
0

Consumption of self-generated heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description
Waste

Metric value
0.03

Metric numerator
Waste sent to landfills in metric tonnes.

Metric denominator (intensity metric only)
Production data in metric tonnes

% change from previous year
17

Direction of change
Increased

Please explain

Description
Other, please specify (Wastewater discharged)

Metric value
7.36

Metric numerator
Total volume of discharged wastewater (m^3)

Metric denominator (intensity metric only)
Production data in metric tonnes

% change from previous year
2

Direction of change
Please select

Please explain

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Underway but not complete for reporting year – previous statement of process attached

Type of verification or assurance
Limited assurance

Attach the statement
JBS_SA-44675-V01-CDP-EN.pdf

Page/ section reference
All document

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
0

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Underway but not complete for reporting year – previous statement of process attached

Type of verification or assurance
Limited assurance

Attach the statement
JBS_SA-44675-V01-CDP-EN.pdf

Page/ section reference
All document

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
0

C10.1c

(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope 3 category
Scope 3: Purchased goods and services
Scope 3: Capital goods
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution
Scope 3: Waste generated in operations
Scope 3: Business travel
Scope 3: Employee commuting
Scope 3: Investments
Scope 3: Downstream transportation and distribution
Scope 3: Processing of sold products
Scope 3: Use of sold products
Scope 3: End-of-life treatment of sold products

Verification or assurance cycle in place
Please select

Status in the current reporting year
Underway but not complete for current reporting year – first year it has taken place

Type of verification or assurance
Limited assurance

Attach the statement

Page/section reference

Relevant standard
ISO14064-3

Proportion of reported emissions verified (%)
0

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?
No, but we are actively considering verifying within the next two years

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?
Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.
EU ETS
Mexico carbon tax

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

EU ETS

% of Scope 1 emissions covered by the ETS
44

% of Scope 2 emissions covered by the ETS
0

Period start date
January 1 2022

Period end date
December 31 2022

Allowances allocated
4531

Allowances purchased
1400

Verified Scope 1 emissions in metric tons CO2e
1798983

Verified Scope 2 emissions in metric tons CO2e
0

Details of ownership
Facilities we own and operate

Comment
The trading system includes Pilgrim's Moy Park Dungannon, Country Tyrone, Northern Ireland. Costs: 496,267 pounds.

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

Mexico carbon tax

Period start date
January 1 2022

Period end date
December 31 2022

% of total Scope 1 emissions covered by tax
19.3

Total cost of tax paid
2551624

Comment
Mexico's Carbon tax is fixed by every state. In 2022, it only applied to the Queretaro state and included only direct emissions from diesel, gasoline, LP gas, natural gas, refrigerants, wastewater emissions, and biogas.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

In the matrix of Main Financial and Social and Environmental Risks of JBS, the risk of Climate Change was mapped, which was described as: “Climate changes can negatively impact the company's business. Resources such as water, electricity and animal feed (dependent on agriculture) are essential for the production of raw materials (cattle, poultry, swine and sheep). Business can also be impacted by new legislation and regulations on the subject. And in the Risk Response procedures, it was highlighted that the Company assumed the commitment to zero the balance of its carbon emissions (scopes 1, 2 and 3) by 2040, in order to avoid potential carbon taxes. The commitment is to make the company Net Zero by 2040, that is, to bring the net balance of greenhouse gas emissions to zero. The company will invest US$ 1 billion until 2030 to decarbonize operations, allocating US$ 100 million in research and development actions. By mid-2023, the Company will present to the SBTi (Science Based Targets Initiative) a detailed roadmap to achieve the objective of being Net Zero. Many initiatives are already in place globally. For example, in 2021, JBS entered into a partnership to adopt a nutritional supplement capable of significantly reducing enteric methane emissions from cattle on a global scale, which is already being applied initially in Brazil.

Our UK/European facilities are subject to carbon regulation. They are EU ETS, Climate Change Agreement Scheme (UK), Community and Environmental Measurement Scheme (UK). Given the exit from the EU, the UK has migrated from EU ETS, to its own UK ETS Scheme, which is still aligned to the EU regulations until the end of 2023 at the earliest. As of April 1st 2019, the UK introduced the Streamline Energy and Carbon Reporting legislation (SCER), which large UK businesses (turnover of greater than £36M) must collect information relating their energy use and associated carbon emissions, then submit this as part of their annual reporting to Companies House.

Until today, the JBS business unit that actively participated in an emissions trading scheme was Pilgrim’s Moypark, located in the United Kingdom (France, Netherlands and Republic of Ireland) below the EU ETS threshold. In the UK, Pilgrim’s Moy Park joins a voluntary carbon emission reduction scheme, “Climate Change Agreements”, Pilgrim’s Moy Park abides by this agreement. Pilgrim’s Moypark are required to participate in EU ETS through emissions reduction projects and buying the necessary allowances. The agreement states that if the UK is to cut its greenhouse gas emissions by 80% by 2050, energy efficiency will have to increase across all sectors to the extent that energy use per capita is between a fifth and a half lower than it is today.

In order to comply with its obligations, Pilgrim’s Moy Park develops emissions reduction projects such as fuel switching, process improvements and technology upgrades.

Flaring Biogas will reduce 50% emission. Anaerobic lagoon is the highest factor for the CO2 tonnes for emissions. Furthermore, JBS is looking into opportunities to be able to use Biogas as renewable source back into facility. Electricity consumption is being reduced in plant by using LED lights on ongoing basis. In addition to the 2020 Action plan . JBS will optimize the new anaerobic system and use it to its full capacity this will enable us to start earning Emission Credits and put back in market place rather than owing emissions charges. JBS also commits to do best practices for sampling procedures at Anaerobic and Facultative Lagoon.

Today, 100% of the electricity consumed by Pilgrim’s Pride in the UK comes from renewable sources. In Brazil, this percentage is 90%. In the transport division of Moy Park, in the United Kingdom, we are promoting the decarbonisation of the local vehicle fleet, with the acquisition of trucks powered by biogas. In the same scope, No Carbon, a new JBS business focused on renting electric trucks, has already started its work in the operations of the group's own companies in Brazil. It is worth mentioning that Pilgrim's Moy Park and Pilgrim's UK already have emission reduction targets approved by the SBTi. Pilgrim’s Moy Park is still committed to zero waste to landfill, while Pilgrim’s UK has expanded this commitment to most of its sites. Moy Park and Pilgrim’s UK have adopted the strategy of “Remove, Reduce, Recycle and Research”, and will start using 100% recyclable rigid packaging by 2022. All other packaging will be largely recyclable by 2025.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers/clients

Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement
Engagement & incentivization (changing supplier behavior)

Details of engagement
Run an engagement campaign to educate suppliers about climate change

% of suppliers by number
70

% total procurement spend (direct and indirect)
70

% of supplier-related Scope 3 emissions as reported in C6.5
70

Rationale for the coverage of your engagement
With the aim of producing in an increasingly sustainable way, JBS has been investing in concrete environmental actions for over a decade. The Company uses satellite images to monitor an area that is larger than the territory of France, the largest country in Western Europe. In 2020, the Company went further, taking on a stronger commitment to sustainability in the region Amazon, by launching the Transparent Livestock Farming Platform, which allows JBS livestock suppliers to include their own suppliers in the register, with the aim of complying with the social and environmental aspects of cattle breeding. One of the Transparent Livestock Farming Platform's tools is the Gren Office In 2022 JBS had 18 Green Offices at processing units throughout the country in states of Mato Grosso, Goiás, Mato Grosso do Sul, Tocantins, Rondônia e Pará. Green Offices helped 3700 suppliers of JBS's suppliers to regularize their environmental situation in 2022. The states where the Green Offices are located produce over 70% of Friboi's production.

Impact of engagement, including measures of success
The impact of the Green Offices is to assist livestock farmers in the Amazon Biome region, especially those that are suppliers of JBS cattle suppliers, to meet the socioenvironmental requirements by the end of 2025, helping to avoid deforestation and consequently, GHG emissions.

Since the Green Offices have started until the beginning of 2022, around 3,700 direct and indirect suppliers have received technical support. In early 2022, JBS announced partnerships with Banco do Brasil and Bradesco to facilitate access to rural credit.

The JBS Green Offices have teams of specialist professionals and a network of certified consultants that work with livestock farmers to assist them with their environmental regularization. These professionals can provide this service in person at the offices located at the Friboi plants, or remotely via e-mail, telephone and WhatsApp. Livestock farmers interested in regularizing their status, therefore, can turn to one of the Green Offices for specialized professional assistance. This is an inclusion process that will assist both producers and the sustainable progress of Brazilian livestock farming.

The JBS Green Office's Teams are connected to a network of consultants specialized in environmental issues that will help producers in practical activities, such as registering the property in the Rural Environmental Registry (CAR), reforestation plans to comply with the Environmental Regularization Program (PRA), in addition to supporting processes for the regularization of areas with illegal deforestation or environmental embargoes from IBAMA or State Secretaries of the Environment. All this technical support will be free for our suppliers.

From the request of the producer who wants to regularize himself, the JBS Green Office team will ask him for the result of the socio-environmental analysis of his property on the Transparent Livestock Platform, identifying exactly what the problem is that needs to be solved. The solutions: Legal assistance for the administrative process of disembargo of embargoed areas (IBAMA and SEMAs); Preparation and submission of the technical project for reforestation of areas to be presented to environmental agencies (with the prior approval of the producer); State platforms for reinsertion of producers (IMAC and Sirflor); Action plan for the complete environmental regularization of the property.

Comment
More information about Green Offices and Transparent Livestock Farming Platform can be found at: https://www.pecuariatransparente.org.br/.

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Collaboration & innovation	Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

0

Please explain the rationale for selecting this group of customers and scope of engagement

The Company, by supporting Reverse Logistics Programs in Brazil, recovers at least 22% of packaging volume it places on the Brazilian market. All (100%) packaging volume in Brazil' operations is considered on the initiative, that means that 22% of all the primary and secondary package that our customer buy is part of a relevant logistics program.

Impact of engagement, including measures of success

City+ Program JBS supports the performance of the City+ Program, developed and managed by the NGO Recicleiros, which advises city halls on the implementation of selective collection while enabling companies to comply with Law 12305 National Solid Waste Policy (PNRS), which also requires investment in recyclable material collectors' cooperatives through training, infrastructure, equipment donation, among others. The program commits to recover 22% of the contracted volume in five years.

Prolata JBS is part of the Prolata Program, an initiative of the Brazilian Association of Steel Packaging (Abeaço), in compliance with the PNRS in 2014. The program operates on three pillars: reception/depot centers, with a structure aimed at receiving large volumes; cooperatives of recyclable material collectors, responsible for the work of social inclusion; and Voluntary Delivery Points (PEV), which interface with the end consumer.

The program is committed to recovering 28% of the steel packaging placed on the market. According to data from Abeaço, the program has already recycled more than 54 thousand tons of steel.

Friboi is partner of City + and Prolata programs in its reverse logistics projects. In 2021, Friboi recycled a total of 8,97 tons of plastic and cardboards and 3,36 tons of metal. In partnership with JBS Ambiental, the businesses have another project in progress to increase segregation efficiency of recyclable materials.

In 2020 Swift started a project to offset 100% of its packaging, directing to the recycling of waste equivalent to its own, in weight and material, with the objective of neutralizing possible impacts of its postconsumer packaging, going beyond what is established by the PNRS. For this, it signed a partnership with eureciclo, a reverse logistics certifier resulting in more than 2,488 tons of materials removed from the environment in 2022.

All products with the Swift brand will have the eureciclo seal, which is intended for companies seeking to communicate their concern and efforts to mitigate the impacts of their business on the environment.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

JBS sustainability strategy is focused on its supply chain and prioritize initiatives that promotes sustainable best practices on its cattle suppliers and avoiding deforestation from its value chain. JBS participates and holds leadership roles in several multi-stakeholder partnerships dedicated to responsibly addressing sustainability, including climate change aspects to advance continuous improvement throughout the supply chain. As mentioned before, JBS is committed to conducting its business ethically and with integrity and expects its Business Partners have the same commitment. All Business Partners agree to abide by the guidelines of this Business Partner Code of Conduct (the "CCPN"). A few of our active partnerships are listed below.

JBS USA holds leadership roles in several multi-stakeholder partnerships dedicated to responsibly addressing sustainability to advance continuous improvement through the supply chain: Global Roundtable for Sustainable Beef (GRSB), U.S. Roundtable for Sustainable Beef (USRSB), Canadian Roundtable for Sustainable Beef (CRSB) and Australian Beef Sustainability Framework. JBS USA has held numerous leadership positions in these organizations, including President, Executive Committee member, Board of Director member Chair, and Council. Pilgrim's is a founding member and board of directors member of the U.S. Roundtable for Sustainable Poultry and Eggs (USRSPE). Pilgrim's Moy Park is a member of the Sustainable Agriculture Initiative (SAI) Platform. JBS Brazil makes efforts to enhance industry standards, through open dialog and by engaging stakeholders in order to improve sustainability across the industry's entire value chain. The Company is a founding member of the Sustainable Livestock Working Group (GTPS), which the main goal is to debate and develop principles, standards and common practices adopted by the industry, with the premise of building sustainable, fair, environmentally correct and economically feasible breeding. Through GTPS, JBS participated in the creation of the Sustainable Livestock Indicators Guide (GIPS). It is also a member of the Tropical Forest Alliance (TFA) and of the Leather Working Group (LWG). The LWG is an organization that promotes sustainable practices in the leather industry. LWG certification has significant relevance for the leather industry in Brazil, as it enhances the country's reputation for responsible production, promotes environmentally sound practices and increases market access for Brazilian leather products. Besides, JBS is a CEBDS' member, Brazilian Business Council for Sustainable Development, a non-profit civil association that promotes sustainable development through articulation with governments and civil society, in addition to disseminating the most current concepts and practices on the subject. JBS promotes good practices among small livestock producers through the Social Biofuel Seal Program (Programa Selo Biocombustível Social), an initiative by the Department of Family Agriculture and Cooperatives (SAF) of the Ministry of Agriculture, Livestock Farming and Supply (Mapa). In this program, JBS' role is to support these ranchers with free technical assistance and guaranteed purchase of animals. Since the beginning of the integration of livestock to the Seal, in January 2017, the Company has already acquired more than 86.8 thousand animals from 683 properties in 36 municipalities, divided into Rondônia: 631 properties in 29 Municipalities and Mato Grosso: 52 properties in 7 Municipalities, with the Vale do Guaporé and Café regions with the highest concentration of farmers assisted by the program, in addition to investing around R$ 5 million in free technical assistance focused on efficient and responsible production;

Additionally, JBS developed the Fazenda Nota 10 program (Fazenda Nota 10), which offers training for high-performance management, allowing for the maximization of results on beef cattle farms in Brazil. Developed by the Company in partnership with Instituto Inttegra, the program is aimed at ranchers across the country. In the 2021/2022 harvest, 356 farms received digital assistance and more than 60 farms are in the registration process. The program offers more than 80 hours between live online meetings, real-time assistance by consultants (5 consultants attending participating farms daily) and reports with benchmarking for better decision making. decision. Today, 94% of farms have approved the content, methodology and 100% online format. In 2022 alone, more than 450 JBS suppliers participated in the program. Annually, Seara evaluates all its members through the Sustainability Index, which measures from the most basic to the most advanced practices in environmental, economic and social aspects. The results achieved in the 2020 assessment, the first year of application, showed an average score of 71% considering all dimensions assessed.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

To ensure a deforestation-free chain, in 2021 we started the Transparent Livestock Platform operation, which, using blockchain technology, operationalizes the tracking of the cattle chain. The objective is to achieve a deforestation-free supply structure by 2025, including direct and indirect suppliers.

Monitored suppliers must comply with the Company's Responsible Purchasing Policy; otherwise, they are blocked. As of January 1, 2026, 100% of direct suppliers will be required to integrate the Platform.

JBS successfully monitors all farms that directly supply cattle to the Company with a geospatial monitoring system, through the use of satellite images, considered one of the best and most sophisticated in the industry. Monitoring includes more than 860,000 square kilometers of area and assesses more than 72,000 potential direct supply farms every day. Around 12,000 properties have already been suspended for failing to comply with JBS' Raw Materials Responsible Purchasing Policy.

The supplier monitoring system is managed by Friboi's Sustainability area and is constantly audited in internal processes and annually by external processes. In 2022, BRL 5.9 million was invested in the theme.

The last four audits, carried out by an independent certifier, attested that 100% of the direct purchases of cattle verified were in compliance with JBS's Responsible Raw Material Purchasing Policy.

% suppliers by procurement spend that have to comply with this climate-related requirement

80

% suppliers by procurement spend in compliance with this climate-related requirement

80

Mechanisms for monitoring compliance with this climate-related requirement

On-site third-party verification

Response to supplier non-compliance with this climate-related requirement

Suspend and engage

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

As outlined in our Business Associate Code of Conduct, all JBS suppliers must comply with all applicable environmental laws and regulations in the jurisdiction where the supplier operates. They must also meet the sector's best practices and standards, managing the environmental impact of its operations in compliance with pertinent regulations.

% suppliers by procurement spend that have to comply with this climate-related requirement

100

% suppliers by procurement spend in compliance with this climate-related requirement

100

Mechanisms for monitoring compliance with this climate-related requirement

Other, please specify (Suppliers must notify JBS, regarding: the receipt of any subpoena, regulatory request, media inquiry or other third party request concerning JBS; any concerns, allegations of investigations or suspected violations of any law or regulation.)

Response to supplier non-compliance with this climate-related requirement

Suspend and engage

C-AC12.2/C-FB12.2/C-PF12.2

(C-AC12.2/C-FB12.2/C-PF12.2) Do you encourage your suppliers to undertake any agricultural or forest management practices with climate change mitigation and/or adaptation benefits?

Yes

C-AC12.2a/C-FB12.2a/C-PF12.2a

(C-AC12.2a/C-FB12.2a/C-PF12.2a) Specify which agricultural or forest management practices with climate change mitigation and/or adaptation benefits you encourage your suppliers to undertake and describe your role in the implementation of each practice.

Management practice reference number
MP1

Management practice
Other, please specify (Agroforestry management)

Description of management practice
To advancing supply chain traceability, JBS is also committed to promote sector-wide transformation by providing free legal, technical, and environmental assistance to non-compliant cattle producers currently blocked by the JBS system. Available across Brazil, our network of Green Offices was created to help ranchers address their environmental liabilities, regain their compliance, and restore their eligibility to supply cattle to other farms and/or slaughter facilities. Consulting services are provided free of charge by qualified professionals from different areas either in person at offices located at Friboi plants or remotely via email, telephone or WhatsApp.
To date, we have inaugurated 18 Green Offices at Friboi plants in different key livestock farming regions throughout Brazil. In 2022, 2,484 farms were regularized, bringing the total number of properties regularized to 4,182 since 2021. To further support farmers in their efforts to achieve compliance and improve productivity, JBS also established partnerships with Banco do Brasil and Bradesco in 2022 to facilitate access to rural credit.

Your role in the implementation
Financial

Explanation of how you encourage implementation
JBS Green Offices were created to support our suppliers in the environmental regularization processes of their properties. For this, we will be offering free legal and environmental advice, through specialized consultants, to resolve the environmental liabilities of the farms. Araguaia League's technical team organizes the livestock farmers, while Friboi subsidizes the hiring of consultants specialized in property management for the intensification of its pastures, ensuring better productivity per area and reducing the need for new pasture areas, the which contributes to the preservation of local vegetation and biodiversity. As a result, ranchers have better conditions to invest, increase their productivity indicators, improve the quality of their animals and, above all, collaborate with the sustainability of production.

Climate change related benefit
Emissions reductions (mitigation)

Comment
The Forest and Agricultural Management and Certification Institute (Imaflora), Inttegra – Institute of Agricultural Metrics and Ímpar – Consultancy in Agribusiness are strategic partners of the project.

C-AC12.2b/C-FB12.2b/C-PF12.2b

(C-AC12.2b/C-FB12.2b/C-PF12.2b) Do you collect information from your suppliers about the outcomes of any implemented agricultural/forest management practices you have encouraged?
Yes

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
Yes, we engage directly with policy makers
Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate
Yes, we fund organizations or individuals whose activities could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?
Yes

Attach commitment or position statement(s)
JBS NetZero Commitment:
http://jbs-homolog.adttemp.com.br/wp-content/uploads/2021/03/-carta-desktop.png

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan
In March 2021, JBS pledged to achieve net-zero greenhouse gas (GHG) emissions by 2040. Now, we are working to transparently share how we intend to achieve this absolute reduction in our scope 1, 2, and 3 emissions, while continuing to grow our business and meet the increasing global need for safe, affordable access to high-quality protein. To further bolster our commitment, we have adopted several near-term targets to achieve reductions in emissions, including reducing our scope 1 & 2 GHG emission intensity by 30% by 2030, and reaching 60% renewable electricity by 2030 and 100% by 2040. In addition, US$3 billion were issued in Sustainability Linked Bonds (SLB) at JBS S.A. and PPC, linked to KPIs of 30% reduction in greenhouse gas emissions intensity from scopes 1 and 2 by 2030, in addition to R$ 1 billion in bonds linked to sustainability in Brazil. In 2023, we will work to develop a robust Net Zero Roadmap that outlines our priorities and guides our actions over the next 17 years. It will be iterative and flexible to allow our businesses to design and implement strategies best suited for their specific operations. Starting this process meant taking inventory of the challenge in its entirety. For 13 years, we have measured, monitored, and recorded our direct and indirect GHG emissions by scope 1, 2, and 3 (partial) categorizations to be voluntarily reported to GHG Protocol, CDP, regional regulatory frameworks, and more. In 2022, we expanded our approach by carrying out the first-ever comprehensive analysis of our company's global GHG emission inventory, inclusive of all relevant scope 3 emissions, in alignment with GHG Protocol methodologies.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate
<Not Applicable>

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Specify the policy, law, or regulation on which your organization is engaging with policy makers
JBS, through its European subsidiary Pilgrim's Moy Park, actively engages directly with policymakers. Environmental issues and awareness are very effective in Europe, which requires the Company to narrow its actions in relation to the risks and opportunities of its business. For this energy efficiency issue, Pilgrim's Moy Park is supporting UK energy tax reform.

Category of policy, law, or regulation that may impact the climate
Climate change mitigation

Focus area of policy, law, or regulation that may impact the climate
Other, please specify (Energy efficiency)

Policy, law, or regulation geographic coverage
National

Country/area/region the policy, law, or regulation applies to
United Kingdom of Great Britain and Northern Ireland

Your organization's position on the policy, law, or regulation
Support with major exceptions

Description of engagement with policy makers
Consultation responses directly and through lobby bodies CBI (Confederation of British Industry) and BPC (British Polling Council).

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Review of the Energy Saving Opportunity Scheme (ESOS). Provide an industry perspective on the consultation document

Category of policy, law, or regulation that may impact the climate
Climate change mitigation

Focus area of policy, law, or regulation that may impact the climate
Other, please specify (Energy efficiency)

Policy, law, or regulation geographic coverage
National

Country/area/region the policy, law, or regulation applies to
United Kingdom of Great Britain and Northern Ireland

Your organization's position on the policy, law, or regulation
Support with minor exceptions

Description of engagement with policy makers
Energy Saving Opportunity Scheme (ESOS) consultation response.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

Specify the policy, law, or regulation on which your organization is engaging with policy makers
EU ETS reform. Provide an industry perspective on the consultation document.

Category of policy, law, or regulation that may impact the climate
Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate
Emissions trading schemes

Policy, law, or regulation geographic coverage
Regional

Country/area/region the policy, law, or regulation applies to
France
Germany
Italy
United Kingdom of Great Britain and Northern Ireland

Your organization's position on the policy, law, or regulation
Support with minor exceptions

Description of engagement with policy makers
EU ETS Consultation response.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Review of the Climate Change Agreement (CCA). Provide an industry perspective on the consultation document

Category of policy, law, or regulation that may impact the climate
Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate
Emissions trading schemes

Policy, law, or regulation geographic coverage
National

Country/area/region the policy, law, or regulation applies to
United Kingdom of Great Britain and Northern Ireland

Your organization's position on the policy, law, or regulation
Oppose

Description of engagement with policy makers
Climate Change Agreement (CCA) consultation response.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Reform of the Carbon Reduction Commitment (CRC) scheme. Provide an industry perspective on the consultation document.

Category of policy, law, or regulation that may impact the climate
Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate
Emissions trading schemes

Policy, law, or regulation geographic coverage
National

Country/area/region the policy, law, or regulation applies to
United Kingdom of Great Britain and Northern Ireland

Your organization's position on the policy, law, or regulation
Support with minor exceptions

Description of engagement with policy makers
Carbon Reduction Commitment (CRC) simplification consultation response

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Elimination of the Carbon Reduction Commitment (CRC) scheme, aggregation of several policy instruments into a single instrument. Provide an industry perspective on the consultation document.

Category of policy, law, or regulation that may impact the climate
Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate
Emissions trading schemes

Policy, law, or regulation geographic coverage
National

Country/area/region the policy, law, or regulation applies to
United Kingdom of Great Britain and Northern Ireland

Your organization's position on the policy, law, or regulation
Support with minor exceptions

Description of engagement with policy makers
Streamlined Energy & Carbon Reporting (SECR)

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Greenhouse Gas Emissions and Energy Manufacturing (GEMM II)
Pending rule that requires 20% reduction in Scope 1 emissions from select high emitting industry, including JBS

Category of policy, law, or regulation that may impact the climate
Climate change mitigation

Focus area of policy, law, or regulation that may impact the climate
Emissions – CO2

Policy, law, or regulation geographic coverage
Sub-national

Country/area/region the policy, law, or regulation applies to
United States of America

Your organization's position on the policy, law, or regulation
Support with minor exceptions

Description of engagement with policy makers
Direct engagement with Rule makers, and secondary engagement through a industry stakeholders group

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
Concurrent with the required reduction in GHG, the pending rule requires certain co-benefits must also be acheived, such as NOx or PM10 reductions.

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?
<Not Applicable>

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association
Other, please specify (U.S. Roundtable for Sustainable Beef (USRSB))

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
The USRSB is a multi-stakeholder initiative developed to advance, support and communicate continuous improvement in the sustainability of the U.S. beef value chain. The USRSB achieves this through leadership, innovation, multi-stakeholder engagement, and collaboration. The USRSB's vision is that the U.S. beef value chain is the trusted global leader in sustainability, including from a climate change perspective.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
71100

Describe the aim of your organization's funding
Annual membership

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (Brazilian Roundtable on Sustainable Livestock (BRSL))

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
JBS is a founding member of the Brazilian Roundtable on Sustainable Livestock (BRSL). Together with BRSL the Company is committed to the sustainable development of livestock, through the articulation with the supply chain, the dissemination of information and support for continuous improvement, seeking a balance between the economic, social and environmental pillars and developing sustainable livestock. BRSL's approach consists on practical tools, applicable to the Brazilian scenario that developed and assessed with indicators, which are oriented on the principles of transparency and dialogue to promote their development. Some works developed is the Guide to Sustainable Livestock Indicators (GIPS - Guia de Indicadores), the Sustainable livestock initiatives Map (MIPS) and handbook of sustainable livestock practices (MPPS).

BRSL is composed by different sectors of the industry and from the value chain, such as producers, industries, research centers, NGOs, civil society, retail and restaurants. As part of the Board of the Roundtable, JBS creates technical working groups and guides their scope of work. It is through these working groups that most of the activities are accomplished. Recently, JBS participated in a pioneering sectorial initiative which seeks to strengthen sustainability within the cattle chain. The Company promoted

meetings with about 150 ranchers in order to present the facilities and benefits of a new tool that will measure and indicate opportunities for continuous improvement related to the management and sustainability of properties in region. The initiative occurred in the municipalities of Novo Repartimento, Marabá and Itupiranga, in Pará. The initiative was developed in by BRSL and will be applied in partnership with Solidaridad Brasil, an international organization that works to promote socially inclusive, environmentally responsible and economically viable value chains.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
33000

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify ((Global Roundtable for Sustainable Beef (GRSB))

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
Global Roundtable for Sustainable Beef (GRSB) is a global, multi-stakeholder initiative developed to advance continuous improvement in sustainability of the global beef value chain through leadership, science and multi-stakeholder engagement and collaboration. The GRSB envisions a world in which all aspects of the beef value chain are sustainable responsible, especially from a climate change perspective. JBS is a founding member, past executive committee member, past board of directors' member and past President. The committee conducts the internal business of the roundtable to ensure members remain active in the operation of the organization. This is an important feature of a membership organization and it is essential that members maintain interest and involvement in the committees.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
18750

Describe the aim of your organization's funding
Annual membership

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (U.S. Roundtable for Sustainable Poultry and Eggs (US-RSPE))

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
The US-RSPE was launched in 2019 and is the nation's multi-stakeholder sustainability initiative for the U.S. poultry and egg value chain. The US-RSPE has the ability to bring together a broad group of diverse stakeholders, who can collaboratively focus and accelerate continuous improvement in the entire poultry and egg value chain. Together, they hope to continually advance the U.S. as a global leader in responsibly produced poultry and eggs. The US-RSPE's three focal points are to help define the scope and goals of the organization and the efforts to continuously improve poultry and egg sustainability: (1) Environmental: Air quality, by-products, energy use, GHG emissions, land use, nutrient management, solid waste, water quality and water use; (2) Social: Community relations, employee relations, employee retention, employee safety, food security and grower relations; (3) Economic: Legal compliance, profitability, consumer confidence and industry structure. Pilgrim's is a founding member and board of directors' member. The members of the roundtable main scope are to define sustainability in a way that is meaningful for stakeholders across the entire poultry and egg value chain - from farm to fork, address emerging issues facing poultry and egg sustainability stakeholders, define and measure progress in the poultry and egg sustainability continuous improvement journey and collaborate with the entire poultry and egg value chain to increase trust and transparency that allows consumers to make informed decisions.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
10000

Describe the aim of your organization's funding
Annual membership

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (British Poultry Council lobbying for economically effective Sector Energy & Emissions Policy & Targets)

Is your organization's position on climate change policy consistent with theirs?
Consistent

Has your organization attempted to influence their position in the reporting year?
Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position
Reducing the potential for climate change is an integral part of the activities of British Poultry Council member companies and forms part of the 'environment' pillar of sustainable food production. The BPC operates a Climate Change Agreement (CCA), which includes targets for reducing energy use. BPC member companies are required to join the CCA for their farms and processing plants. Our members are also part of environmental licensing regulations, whereby emissions, including odor, are monitored, controlled and reduced.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)
0

Describe the aim of your organization's funding

<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

C12.3c

(C12.3c) Provide details of the funding you provided to other organizations or individuals in the reporting year whose activities could influence policy, law, or regulation that may impact the climate.

Type of organization or individual
Non-Governmental Organization (NGO) or charitable organization

State the organization or individual to which you provided funding
Coalizão Brasil Clima Floresta

Funding figure your organization provided to this organization or individual in the reporting year (currency as selected in C0.4)
220000

Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate
JBS participates as an affiliate of associations and unions in the food sector and is part of some of the main trade associations and entities that promote Sustainability in the countries where it operates, such as the Coalizão Brasil Clima, Florestas e Floresta.

The Coalizão Brasil Clima, Florestas is a multisectoral movement, composed of entities that lead agribusiness in Brazil, the main civil organizations in environment and climate topics, important representatives of the academic environment, sectoral associations, and leading companies in the areas of wood, cosmetics, steel, pulp and paper, animal protein, among others.

All these forces came together to address issues arising from climate change from the perspective of a new economy, based on low greenhouse gas (GHG) emissions.

Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Type of organization or individual
Independent consultant

State the organization or individual to which you provided funding
Squire Patton Boggs

Funding figure your organization provided to this organization or individual in the reporting year (currency as selected in C0.4)
2275200

Describe the aim of this funding and how it could influence policy, law or regulation that may impact the climate
This funding is for consulting and lobbying. Squire Patton Boggs has helped JBS connect with lawmakers to discuss climate goals and mechanisms to boost public private partnerships in the agriculture sector.

Have you evaluated whether this funding is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication
In voluntary communications

Status
Underway – previous year attached

Attach the document
-relatorio-anual-e-de-sustentabilidade-jbs-2021.pdf

Page/Section reference
All document

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment
Document available at: https://jbs.com.br/wp-content/uploads/2022/07/-relatorio-anual-e-de-sustentabilidade-2021.pdf

Our 2022 Sustainability Report will be released in late summer 2023.

Publication
In voluntary communications

Status
Underway – previous year attached

Attach the document
JBS 2021 Registro Público.pdf

Page/Section reference
All document

Content elements
Emission targets

Comment
Information about 2021 is available at: https://registropublicodeemissoes.fgv.br/participantes/475.

Publication
In voluntary communications

Status
Underway – previous year attached

Attach the document
ICO2Dia_26-07-23.pdf

Page/Section reference
Line 41

Content elements
Emission targets

Comment
Information available at: http://www.b3.com.br/pt_br/market-data-e-indices/indices/indices-de-sustentabilidade/indice-carbono-eficiente-ico2-composicao-da-carteira.htm

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C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	Business Ambition for 1.5C Other, please specify (Brazilian Business Council for Sustainable Development (CEBDS); Coalition Brazil Climate, Forests and Agriculture)	JBs is associated with Brazilian Business Council for Sustainable Development (CEBDS), a national business council of WBCSD. JBS participates in CEBDS discussions in workg groups and suports the council finantialy. In 2022, JBS participated in the thematic chambers on biodiversity, climate and water. The company has signed on to the United Nations Global Compact's Business Ambition for 1.5°C initiative, which aligns with the most ambitious aim of the Paris Agreement to limit global warming. JBS is a member of Coalition Brazil Climate, Forests and Agriculture a multi-sector movement, comprised of entities that lead agribusiness in Brazil, the main civil organizations in the environment and climate area, important representatives from academia, industrial associations and leading companies in the areas of wood, cosmetics, steel mining, paper and cellulose, animal protein, among others. All these forces have combined to address issues resulting from climate changes from the standpoint of a new economy, based on the low emission of greenhouse gases (GHG).

C13. Other land management impacts

C-AC13.1/C-FB13.1/C-PF13.1

(C-AC13.1/C-FB13.1/C-PF13.1) Do you know if any of the management practices implemented on your own land disclosed in C-AC4.4a/C-FB4.4a/C-PF4.4a have other impacts besides climate change mitigation/adaptation?

Yes

C-AC13.1a/C-FB13.1a/C-PF13.1a

(C-AC13.1a/C-FB13.1a/C-PF13.1a) Provide details on those management practices that have other impacts besides climate change mitigation/adaptation and on your management response.

Management practice reference number

MP1

Overall effect

Positive

Which of the following has been impacted?

Biodiversity
Soil
Water
Other, please specify (Cost)

Description of impact

Waste management for the production of fertilizers through aerobic composting generates positive impacts in cost, soil quality, biodiversity, water and climate change. The activity avoids the disposal in landfill and provides revenue through the fertilizer sale. Moreover, the fertilizer improves the soil quality and biodiversity. Other impact: GHG emissions reduction.

Have you implemented any response(s) to these impacts?

Yes

Description of the response(s)

We implement measures to maximize positive impacts. With the opening of a business unit called Campo Forte, in Guaiçara, in the interior of São Paulo, JBS became the first company in Brazil to use organic waste generated in its factories to produce fertilizers. Solid organic, organomineral and special fertilizers will be produced. This project is in line with JBS' circular economy strategy. With its Net Zero commitment, the Company will invest US$1 billion, by 2030, in projects to decarbonize all operations and will allocate US$100 million to research to develop solutions to reduce emissions, such as improving regenerative agricultural practices, intensification of soil carbon sequestration and technologies aimed at supplier farms.

C-AC13.2/C-FB13.2/C-PF13.2

(C-AC13.2/C-FB13.2/C-PF13.2) Do you know if any of the management practices mentioned in C-AC12.2a/C-FB12.2a/C-PF12.2a that were implemented by your suppliers have other impacts besides climate change mitigation/adaptation?

Yes

C-AC13.2a/C-FB13.2a/C-PF13.2a

(C-AC13.2a/C-FB13.2a/C-PF13.2a) Provide details of those management practices implemented by your suppliers that have other impacts besides climate change mitigation/adaptation.

Management practice reference number
MP1

Overall effect
Positive

Which of the following has been impacted?
Biodiversity
Soil
Water
Yield
Other, please specify (Cost)

Description of impacts
The socio-environmental monitoring system aims to reduce deforestation in the Amazon Biome, consequently reducing carbon emissions. JBS has had a geospatial monitoring system for over ten years, in line with its Responsible Purchasing Policy for raw materials in the beef chain. Monitoring includes more than 860,000 square kilometers of area (or 86 million hectares, equivalent to the sum of the territories of France and Germany), and evaluates more than 80,000 potential direct supply farms every day. Based on this system, around 14,000 properties have already been suspended for failing to comply with JBS's Responsible Purchasing of Raw Materials Policy. Other Impacts: Reduction of GHG emissions and positive social impact (combating slave/child labor).

Have any response to these impacts been implemented?
Yes

Description of the response(s)
We implement measures to maximize positive impacts. In 2021, JBS announced the commitment to be Net Zero by 2040, that is, to bring the net balance of greenhouse gas emissions to zero. The Company will invest US$1 billion by 2030 to decarbonize its operations, allocating US$100 million to research and development.

A key point of this journey is zero tolerance for illegal deforestation. In 2021, JBS implemented the Transparent Livestock Platform, which uses blockchain technology to overcome the sectoral challenge of extending this monitoring to suppliers' suppliers. By the end of 2025, the Company will be able to ensure compliance throughout its entire chain. As of January 1, 2026, 100% of direct suppliers will be required to integrate the Platform. In 2021, 14.6% of the cattle processed by the Company were already included in the Platform.

But it is not enough to block those suppliers that have registered nonconformities. The definitive solution also involves supporting farmers to improve their production practices. To this end, JBS has set up 15 Green Offices throughout Brazil, which so far have managed to provide technical support to more than 2,000 direct and indirect producers. In addition, the program includes easy access to credit via partner financial institutions.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, both board-level oversight and executive management-level responsibility	The Social and Environmental Responsibility Committee guides the Board of Directors in relation to the risks and opportunities existing in sustainability and social and environmental responsibility actions. It is responsible for taking care of and connecting all matters related to the subject in the company's business, in its global aspects, such as: identification, approach and treatment of critical matters that result in risks or impact on the business; monitoring and implementation of specific policies, strategies and actions; and evaluation of investment proposals in sustainability and socio-environmental responsibility. In the day-to-day operations of the Company, management is carried out by the environmental managers of each business and there are several practices implemented with the objective of ensuring biodiversity. Seara's agricultural production system, for example, is predominantly integrated. In this system, 100% of rural properties guarantee compliance with the country's forest code, which requires the preservation of a legal reserve on the properties. In this way, it favors the local biodiversity of the forests. The topic is also addressed through initiatives such as Jaguar Conservation, JBS Fund for the Amazon and Fire Fighting in the Pantanal.	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species	SDG Other, please specify ((JBS endorsed the creation of the JBS Fund for the Amazon))

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment
Yes

Value chain stage(s) covered
Upstream
Downstream

Portfolio activity
<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity
No biodiversity assessment tools/methods used

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)
<Not Applicable>

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment
No, but we plan to within the next two years

Value chain stage(s) covered
<Not Applicable>

Portfolio activity
<Not Applicable>

Tools and methods to assess impacts and/or dependencies on biodiversity
<Not Applicable>

Please explain how the tools and methods are implemented and provide an indication of the associated outcome(s)
<Not Applicable>

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?
Yes

C15.4a

(C15.4a) Provide details of your organization's activities in the reporting year located in or near to biodiversity -sensitive areas.

Classification of biodiversity -sensitive area
Please select

Country/area
Please select

Name of the biodiversity-sensitive area

Proximity
Please select

Briefly describe your organization's activities in the reporting year located in or near to the selected area

Indicate whether any of your organization's activities located in or near to the selected area could negatively affect biodiversity
Please select

Mitigation measures implemented within the selected area
<Not Applicable>

Explain how your organization's activities located in or near to the selected area could negatively affect biodiversity, how this was assessed, and describe any mitigation measures implemented
<Not Applicable>

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Education & awareness Livelihood, economic & other incentives

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	No	Please select

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
No publications	<Not Applicable>	<Not Applicable>

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Sustainability Director	Chief Sustainability Officer (CSO)

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

JBS is the largest global producer of protein-based food products and has recently entered the cultivated protein segment. We also have a strong presence in prepared foods in both Brazil and internationally. Because of its global production platform diversified by geographic location and protein types, the Company has greater access to raw materials. Working to process animal protein and value-added products in the beef, pork, lamb, fish, poultry segments and plated-based the Company also operates related businesses, such as prepared food, leather, biodiesel, personal care and cleaning, solid waste management solutions and metal packaging.

With locations in more than 20 countries and over 500 production units and commercial offices on five continents (the Americas, Asia, Europe, Africa and Oceania), JBS serves around 275,000 customers, in over 190 countries, ranging from supermarket chains to small retailers, wholesale clubs and food service companies.

With around 260,000 team members, the same sustainability (economic, social and environmental), quality and food safety guidelines are followed in every region, adopting best practices based on the Company's mission and values and, focusing on operational excellence, as well as the establishment of better relationships with partners, customers, employees and society, the satisfaction of its shareholders and the commitment to social and environmental responsibility issues. For example:

In March 2021, JBS was the first global meat company to pledge to achieve net-zero greenhouse gas (GHG) emissions by 2040, ten years ahead of the deadline set by most companies and governments around fthe world. Now, we are working to transparently share how we intend to achieve this absolute reduction in our scope 1, 2, and 3 emissions, while continuing to grow our business and meet the increasing global need for safe, affordable access to high-quality protein. To further bolster our commitment, we have adopted several near-term targets to achieve reductions in emissions, including reducing our scope 1 & 2 GHG emission intensity by 30% by 2030, and reaching 60% renewable electricity by 2030 and 100% by 2040. In addition, US$3 billion were issued in Sustainability Linked Bonds (SLB) at JBS S.A. and PPC and R$ 1 billion in bonds liked to sustainability in Brazil. In 2023, we will work to develop a robust Net Zero Roadmap that outlines our priorities and guides our actions over the next 17 years. It will be iterative and flexible to allow our businesses to design and implement strategies best suited for their specific operations. Starting this process meant taking inventory of the challenge in its entirety. For 13 years, we have measured, monitored, and recorded our direct and indirect GHG emissions by scope 1, 2, and 3 (partial) categorizations to be voluntarily reported to GHG Protocol, CDP, regional regulatory frameworks, and more. In 2022, we expanded our approach by carrying out the first-ever comprehensive analysis of our company's global GHG emission inventory, inclusive of all relevant scope 3 emissions, in alignment with GHG Protocol methodologies.

In 2022 JBS operated the Plataforma Pecuária Transparente ("Transparent Livestock Platform"), launched in 2021 which, through blockchain technology, extends socio-environmental monitoring to the suppliers of its livestock suppliers. By the end of 2025, 100% of JBS' cattle suppliers will be part of the program.

JBS is advancing in the assistance and inclusion of producers who seek to adapt the socio-environmental situation of their properties. The company has already 18 green offices offering environmental, legal and technical advice. JBS has a widely diversified product portfolio, from fresh and frozen meats to ready to-eat (prepared) dishes, with leading brands that are recognized for excellence and innovation in-market, such as: Friboi, Just Bare, Pilgrim's, Primo, Seara and Swift. JBS also launched an entire line of plant-based products in Brazil called Incrível! and the Ozo brand in US. In Australia, under PRIMO brand, launched a flexitarian sausage.

JBS has the following structure: 1. JBS Brasil, which includes Friboi, Swift, JBS Couros and Novos Negócios; 2. Seara; 3. JBS USA Beef (JBS USA Beef, JBS Canada, JBS USA Retail Ready, JBS USA Carriers and JBS Australia); 4. JBS USA Pork (JBS USA Pork, JBS USA Live Pork, Swift Prepared Foods and JBS USA Retail Ready); 5. PPC (Pilgrim's); and 6. Rigamonti.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	374900000000

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

Requesting member
Walmart, Inc.

Scope of emissions
Scope 1

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail
The allocation of scope 1 emissions was performed using JBS USA Beef, JBS USA Carriers, JBS USA Pork, Swift Prepared Foods, and Pilgrim's Pride US total sales to WalMart Inc, in comparison to the net revenue generated by those businesses in 2022.

Emissions in metric tonnes of CO2e

60038

Uncertainty (±%)
10

Major sources of emissions
The sources considered for scope 1 emissions were stationary and mobile combustion, fugitive emissions, waste, and agricultural emissions.

Verified
No

Allocation method
Allocation based on the market value of products purchased

Market value or quantity of goods/services supplied to the requesting member
5952342567

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
GHG emissions were calculated based on the JBS 2022 GHG inventory, which adheres to GHG Protocol Standards. The JBS GHG inventory includes scope 1 and 2 emissions broken down by business unit and region. The percentage of 2022 sales to Walmart Inc, was used to allocate GHG emissions dedicated to Walmart Inc, from total revenue generated by JBS in 2022.

Requesting member
Walmart, Inc.

Scope of emissions
Scope 2

Scope 2 accounting method
Market-based

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail
The allocation of scope 2 emissions was performed using JBS USA Beef, JBS USA Carriers, JBS USA Pork, Swift Prepared Foods, and Pilgrim's Pride US total sales to WalMart Inc, in comparison to the net revenue generated by those businesses in 2022.

Emissions in metric tonnes of CO2e
30418

Uncertainty (±%)
10

Major sources of emissions
The sources considered for scope 2 emissions were purchased electricity, heat, steam, and cooling.

Verified
No

Allocation method
Allocation based on the market value of products purchased

Market value or quantity of goods/services supplied to the requesting member
5952342567

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
GHG emissions were calculated based on the JBS 2022 GHG inventory, which adheres to GHG Protocol Standards. The JBS GHG inventory includes scope 1 and 2 emissions broken down by business unit and region. The percentage of 2022 sales to Walmart Inc, was used to allocate GHG emissions dedicated to Walmart Inc, from total revenue generated by JBS in 2022.

Requesting member
Ahold Delhaize

Scope of emissions
Scope 1

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail
The allocation of scope 1 emissions was performed using JBS USA Beef, JBS USA Retail Ready, JBS USA Pork, Swift Prepared Foods, Empire Packing, and Pilgrim's Pride US total sales to Ahold Delhaize in comparison to the net revenue generated by those businesses in 2022.

Emissions in metric tonnes of CO2e

24593

Uncertainty (±%)
10

Major sources of emissions
The sources considered for scope 1 emissions were stationary and mobile combustion, fugitive emissions, waste, and agricultural emissions.

Verified
No

Allocation method
Allocation based on the market value of products purchased

Market value or quantity of goods/services supplied to the requesting member
3866347778

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
GHG emissions were calculated based on the JBS 2022 GHG inventory, which adheres to GHG Protocol Standards. The JBS GHG inventory includes scope 1 and 2 emissions broken down by business unit and region. The percentage of 2022 sales to Ahold Delhaize, was used to allocate GHG emissions dedicated to Ahold Delhaize from total revenue generated by JBS in 2022.

Requesting member
Ahold Delhaize

Scope of emissions
Scope 2

Scope 2 accounting method
Market-based

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail
The allocation of scope 2 emissions was performed using JBS USA Beef, JBS USA Retail Ready, JBS USA Pork, Swift Prepared Foods, Empire Packing, and Pilgrim's Pride US total sales to Ahold Delhaize in comparison to the net revenue generated by those businesses in 2022.

Emissions in metric tonnes of CO2e
11786

Uncertainty (±%)
10

Major sources of emissions
The sources considered for scope 2 emissions were purchased electricity, heat, steam, and cooling.

Verified
No

Allocation method
Allocation based on the market value of products purchased

Market value or quantity of goods/services supplied to the requesting member
3866347778

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
GHG emissions were calculated based on the JBS 2022 GHG inventory, which adheres to GHG Protocol Standards. The JBS GHG inventory includes scope 1 and 2 emissions broken down by business unit and region. The percentage of 2022 sales to Ahold Delhaize, was used to allocate GHG emissions dedicated to Ahold Delhaize from total revenue generated by JBS in 2022.

Requesting member
Costco Wholesale Corporation

Scope of emissions
Scope 1

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail
The allocation of scope 1 emissions was performed using JBS USA Beef, JBS USA Retail Ready, JBS USA Carriers, JBS USA Pork, Swift Prepared Foods, Empire Packing, JBS Canada, and Pilgrim's Pride US total sales to Costco in comparison to the net revenue generated by those businesses in 2022.

Emissions in metric tonnes of CO2e

196449

Uncertainty (±%)
10

Major sources of emissions
The sources considered for scope 1 emissions were stationary and mobile combustion, fugitive emissions, waste, and agricultural emissions.

Verified
No

Allocation method
Allocation based on the market value of products purchased

Market value or quantity of goods/services supplied to the requesting member
19455204427

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
GHG emissions were calculated based on the JBS 2022 GHG inventory, which adheres to GHG Protocol Standards. The JBS GHG inventory includes scope 1 and 2 emissions broken down by business unit and region. The percentage of 2022 sales to Costco, was used to allocate GHG emissions dedicated to Costco, from total revenue generated by JBS in 2022.

Requesting member
Costco Wholesale Corporation

Scope of emissions
Scope 2

Scope 2 accounting method
Market-based

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail
The allocation of scope 2 emissions was performed using JBS USA Beef, JBS USA Retail Ready, JBS USA Carriers, JBS USA Pork, Swift Prepared Foods, Empire Packing, JBS Canada, and Pilgrim's Pride US total sales to Costco in comparison to the net revenue generated by those businesses in 2022.

Emissions in metric tonnes of CO2e
90917

Uncertainty (±%)
10

Major sources of emissions
The sources considered for scope 2 emissions were purchased electricity, heat, steam, and cooling.

Verified
No

Allocation method
Allocation based on the market value of products purchased

Market value or quantity of goods/services supplied to the requesting member
19455204427

Unit for market value or quantity of goods/services supplied
Currency

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
GHG emissions were calculated based on the JBS 2022 GHG inventory, which adheres to GHG Protocol Standards. The JBS GHG inventory includes scope 1 and 2 emissions broken down by business unit and region. The percentage of 2022 sales to Costco, was used to allocate GHG emissions dedicated to Costco, from total revenue generated by JBS in 2022.

Requesting member
J Sainsbury Plc

Scope of emissions
Scope 1

Scope 2 accounting method
<Not Applicable>

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail

Emissions in metric tonnes of CO2e
3549

Uncertainty (±%)
10

Major sources of emissions
The sources considered for scope 1 emissions were stationary and mobile combustion, fugitive emissions, waste, and agricultural emissions.

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member
23377.47

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The GHG emissions were calculated based on Pilgrim's Food Masters' 2022 GHG emissions inventory, using the approach of reporting operational control and based on GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition)

Requesting member
J Sainsbury Plc

Scope of emissions
Scope 2

Scope 2 accounting method
Market-based

Scope 3 category(ies)
<Not Applicable>

Allocation level
Business unit (subsidiary company)

Allocation level detail

Emissions in metric tonnes of CO2e
0

Uncertainty (±%)
10

Major sources of emissions
The sources considered for scope 2 emissions were purchased electricity, heat, steam, and cooling.

Verified
Yes

Allocation method
Allocation based on mass of products purchased

Market value or quantity of goods/services supplied to the requesting member
23377.47

Unit for market value or quantity of goods/services supplied
Metric tons

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made
The GHG emissions were calculated based on Pilgrim's Food Masters' 2022 GHG emissions inventory, using the approach of reporting operational control and based on GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition).

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

The Company's GHG Inventory emissions are not publicly available by the deadline date of this questionnaire. 2021 GHG Inventory emissions are available at https://jbs.com.br/storage/2022/08/-sustainability-in-report-jbs-2021.pdf

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	Due to diversity of product lines, it would be necessary additional financial and human resources for management and allocation of GHG emission data for every products.
Customer base is too large and diverse to accurately track emissions to the customer level	Due to the diversity of customers, it would be necessary additional financial and human resources for management and allocation of GHG emission data by customer.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

JBS Brazil and the Getulio Vargas Foundation's Sustainability Study Center (FGVces) developed a project which the purpose was to understand and measure the environmental impacts of certain animal protein products and their value chains, incorporating Life Cycle Thinking (LCT), using the Life Cycle Assessment (LCA) technique with a specific Climate Change approach. This assessment presented that for product 1 the emissions from "use" phase corresponded to 21.8% of total emissions, and product 2 emissions from similar phase corresponded to 5.9% of total emissions. More information available in: http://gvces.com.br/lcm-2017-gestao-do-ciclo-de-vida-de-produtos-no-centro-da-discussao-empresarial?locale=pt-br

JBS Brazil intends to do the same study for other products of its portfolio in the coming years.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

Requesting member
Walmart, Inc.

Group type of project
Relationship sustainability assessment

Type of project
Aligning goals to feed into customers targets and ambitions

Emissions targeted
Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized
1-3 years

Estimated lifetime CO2e savings
90456

Estimated payback
Cost/saving neutral

Details of proposal
As part of the JBS Net Zero Roadmap that is currently in development, we plan to collaborate with our key customers to start identifying project opportunities that would directly impact our collective emissions as well as our customers' specific sustainability goals.

Requesting member
Ahold Delhaize

Group type of project
Relationship sustainability assessment

Type of project
Aligning goals to feed into customers targets and ambitions

Emissions targeted
Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized
1-3 years

Estimated lifetime CO2e savings
36380

Estimated payback
Cost/saving neutral

Details of proposal
As part of the JBS Net Zero Roadmap that is currently in development, we plan to collaborate with our key customers to start identifying project opportunities that would directly impact our collective emissions as well as our customers' specific sustainability goals.

Requesting member
Costco Wholesale Corporation

Group type of project
Relationship sustainability assessment

Type of project
Aligning goals to feed into customers targets and ambitions

Emissions targeted
Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized
1-3 years

Estimated lifetime CO2e savings
287366

Estimated payback
Cost/saving neutral

Details of proposal
As part of the JBS Net Zero Roadmap that is currently in development, we plan to collaborate with our key customers to start identifying project opportunities that would directly impact our collective emissions as well as our customers' specific sustainability goals.

Requesting member
J Sainsbury Plc

Group type of project
Reduce Logistics Emissions

Type of project
Route optimization

Emissions targeted
Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized
1-3 years

Estimated lifetime CO2e savings
3549

Estimated payback
Cost/saving neutral

Details of proposal
Explore optimizing trips with the aim of reducing fuel use and consequent CO2e emissions.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?
No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?
No, I am not providing data

Submit your response

In which language are you submitting your response?
English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below
I have read and accept the applicable Terms