

Welcome to your CDP Climate Change Questionnaire 2020

C0. Introduction

C0.1

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

JBS is the largest animal protein company and second largest food company in the world. 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 and poultry segments, the Company also operates related businesses, such as leather, biodiesel, personal care and cleaning, solid waste management solutions, and metal packaging.

With locations in 15 countries and over 400 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 over 240,000 team members, the same sustainability (economic, social and environmental), innovation, quality and food safety guidelines are followed in every region, adopting best practices based on the Company's mission and values and a focus 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.

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, Plumrose, Primo, Seara and Swift. JBS also launched an entire line of plant-based products in Brazil called Incrível Seara and the Ozo brand in US. In Australia, under PRIMO brand, launched a flexitarian sausage. Company operations in the United States, Australia, Canada, Mexico, Puerto Rico, New Zealand, the United Kingdom and Mainland Europe are controlled by JBS USA, which includes the JBS USA Beef, JBS USA Pork and Pilgrim's Pride Corporation (holder of the Moy Park and Tulip operations) business units. In Brazil, the Company develops beef, poultry, pork and prepared food businesses, split among the Friboi and Seara main brands.

In 2019, JBS's net revenue was R\$204.5 billion, equivalent to US\$ 49.7 billion. This is 13% higher than 2018.



More information can be found in the official JBS website (<https://jbs.com.br/en/>) and in the JBS 2019 Annual and Sustainability Report (<https://jbs.com.br/wp-content/uploads/2020/05/ras-jbs-2019-eng-final.pdf>).”

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years
Reporting year	January 1, 2019	December 31, 2019	No

C0.3

(C0.3) Select the countries/areas for which you will be supplying data.

- Argentina
- Australia
- Brazil
- Canada
- France
- Germany
- Italy
- Mexico
- Netherlands
- New Zealand
- 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	Own land only [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 (FGVces) in a research about 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 stage, 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 37 beef processing units and 5 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 39 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 and 1 in the USA.

To calculate this figure, we have considered all our pork products.

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(s)	Please explain
Board-level committee	At JBS, sustainability is a commitment that underpins the Company's Business Units and areas, in all countries where it maintains operations and conduct business, based on ethical and transparent work, constructive relationship with its stakeholders, and responsibility in the treatment given to people, animals and the environment. That is why the Company maintains an important governance authority for this topic through the JBS Sustainability Committee, which is responsible for discussing strategic issues at the

	<p>global level, such as climate issues. This group reports directly to the Board of Directors. The Board’s Chairman also joined the Sustainability Committee in 2019. Accordingly, the Committee is responsible for connecting all topics related to the Company’s business in a global perspective, including: identification, addressing and treatment of critical issues that result in risks or impacts on business; monitoring and implementation of policies, strategies and specific initiatives; and evaluation of proposed sustainability investments. As an example of climate-related decision made, the Committee established that the Company’s goal for 2020 and beyond is to develop a project for reforestation of environmental liabilities in the Legal Amazon in partnership with its cattle suppliers and civil society organizations There are four members on the Committee.</p>
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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	Please explain
Scheduled – all meetings	<ul style="list-style-type: none"> Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives 	<p>As a priority strictly related to JBS’s core operations, climate-related issues are discussed in all meetings of JBS Sustainability Committee, which reports directly to the Board of Directors - and since 2019 has also the Board Chairman as member.</p> <p>The discussions about 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 climate-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.</p>

	Monitoring implementation and performance of objectives	
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C1.2

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

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Sustainability Officer (CSO)	Both assessing and managing climate-related risks and opportunities	Quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

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 Sustainability 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. Accordingly, the committee is responsible for connecting all topics related to the Company's business in a global perspective, including: identification, addressing and treatment of critical issues that result in risks or impacts on business; monitoring and implementation of policies, strategies and specific initiatives; and evaluation of proposed sustainability investments.

The information and insights that involves the Company result and performance regarding climate issues are provided by CSO to the Sustainability Committee. In general terms, the CSO's responsibility is both 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. The Brazilian department tracks the domestic operations and their ramifications in other countries: Argentina, Uruguay, Mexico, USA, Germany, Italy and Vietnam, while the team headquartered in the USA is focused on the national market, as well as on Canada, Australia, New Zealand, Mexico, Puerto Rico and Europe.

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 Sustainability Committee. So, the defined structure for managing climate-related issues is: i) Sustainability Committee; ii) CSO; and iii) Sustainability/environmental professional and plant manager/supervisor of each plant.

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 encourage 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	Type of incentive	Activity incentivized	Comment
Management group	Monetary reward	Emissions reduction project Emissions reduction target Energy reduction project	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 management group, which includes energy, facility, and environmental/sustainability managers.

		Energy reduction target Efficiency project Efficiency target	
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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 Sustainability Committee.
Medium-term	3	10	Time horizon defined by JBS Sustainability Committee.
Long-term	10	20	Time horizon defined by JBS Sustainability 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 scenario, substantive impact are those that can have adverse effects the operational results, financial and liquidity state of the Company and intervene

the operations by power failure, fuel 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 premises are defined together with the Risk Control department and approved by the Board of Directors. The quantitative assessment is analysed 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. The KPIs are defined and monitored through the Company's specific process, for example, use of water, generation and analysis of effluents, energy consumption, steam generation, waste generation, transportation, refrigerant gases, production data, greenhouse gas emission data.

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 Sustainability 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 Sustainability 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 Sustainability 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 performance as climate change affects water availability, which consequently impacts grain (commodities) and energy availability.

JBS has an annual plan to invest in environmental improvements that focuses on its use of natural resources. 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 and Biolins.

To evaluate and prioritize the risks and opportunities within JBS (Company and asset level) in relation to climate change, the process itself follows a methodology issued by the Sustainability Committee Board, in which the main steps are 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 Sustainability 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 Sustainability 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 air quality, 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).

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 suppliers’ operations. Monitoring involves taking a global inventory of direct and indirect GHG emissions using the international annually on the CDP platform. 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.

Each facility was then tasked with identifying data-informed 2020 improvement goals and an implementation plan by which to achieve these goals. Based on the cumulative facility improvement goals, each JBS USA business unit developed reduction targets that were agreed to by the executive team, including the CEO and business unit presidents, and aggregated to form aggressive JBS USA 2020 improvement goals GHG Protocol methodology. The results of the inventory are published annually on the CDP platform. 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.

Our JBS USA business units defined and benchmarked approximately 30 Key Performance Indicators (KPIs) based on performance data for 2013, 2014 and 2015, across more than 60 facilities in the U.S. and Canada.

Each facility was then tasked with identifying data-informed 2020 improvement goals and an implementation plan by which to achieve these goals. Based on the cumulative facility improvement goals, each JBS USA business unit developed reduction targets that were agreed to by the executive team, including the CEO and business unit presidents, and aggregated to form aggressive JBS USA 2020 improvement goals.

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	We are subject to strict environmental legislations due to the nature of our business as well as emerging related legislations, for example, 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. As a priority issue strictly

		<p>related to our core operations, risks regarding current regulation are discussed in JBS's Sustainability Committee Board meetings and are a concern in other spheres of influence within the company.</p> <p>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.</p>
Emerging regulation	Relevant, always included	<p>We are subject to strict environmental legislations due to the nature of our business as well as emerging related legislations, for example, 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.</p> <p>For example, 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.</p>
Technology	Relevant, always included	<p>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.</p> <p>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.</p> <p>In order to mitigate the risk JBS developed a system on the cattle purchase from the Amazon biome, pledging to purchase cattle exclusively from farms that are in compliance with social, environmental and land standards. This Monitoring System monitors a wide range of issues, from deforestation of native forest on indigenous land, in environmental conservation areas or areas embargoed by the Brazilian Institute for the Environment and Natural Resources (IBAMA), to ensuring suppliers do not employ child or slave labor. Around 50 thousand registered Brazilian cattle suppliers are assessed daily using satellite imagery, farm geo-referencing data and information from government agencies.</p> <p>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 (https://jbs.com.br/en/compliance-en/codes-and-policies/codes-of-</p>

		conduct/). Third parties carrying out any kind of transaction with JBS, such as customers and suppliers, must follow this Code.
Legal	Relevant, always included	<p>Legal risks are very relevant and assessed in meetings across all business units in order to avoid all possible climate-related litigation claims.</p> <p>Since 2017, JBS has maintained a global board that leads the Compliance issue independently, reporting directly to the Board of Directors. In addition, 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 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.</p> <p>In addition, 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.</p> <p>In order to mitigate the risk JBS pledge commitments and 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 Business Associate Code of Conduct (https://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.</p>
Market	Relevant, always included	<p>Changes in market, mainly in commodities products supplying, is very risky in terms of availability and prices fluctuation, and could be a damage to our business due to this variability.</p> <p>For example, the profitability of the poultry industry is significantly affected by commodity prices for food ingredients for</p>

		<p>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 and other countries, 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.</p> <p>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, among other things, the growing demand for these products worldwide and the alternative uses of these products, such 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.</p>
<p>Reputation</p>	<p>Relevant, always included</p>	<p>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. For example, Friboi, the JBS beef business unit, has signed an agreement with Araguaia League (Liga do Araguaia) to promote and increase sustainable livestock farming and assist producers in the Médio Vale do Araguaia region, in the state of Mato Grosso. As part of the Rebanho Araguaia project, the League can organize cattle breeders while Friboi provides the financial support to hire management consultants and increase pasture usage, not only to increase productivity, but also to help protect the local biome. This partnership will enhance sustainable meat production in the Cerrado region and meet the demands of important players who increasingly want to buy sustainable products. The Araguaia League, with Friboi's support, arranged a Field Day (Dia de Campo) at Água Viva Farm to showcase its entirely sustainable production process.</p> <p>The company also applies internal process to avoid sourcing livestock from suppliers listed in IBAMA list, for example. 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.</p>

Acute physical	Relevant, always included	<p>It is very risky to our business since its effects already caused damaged to us. For example, in 2015 some plants from JBS Brazil had their production affected due to droughts.</p> <p>The company mapped all its plants and the possibilities of water shortage and other physical parameter risks.</p> <p>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.</p>
Chronic physical	Relevant, always included	<p>It is very risky to our business since its effects already caused damaged to us. For example, in 2015 some plants from JBS Brazil had their production affected due to droughts. The company mapped all its plants and the possibilities of water shortage and other physical parameter risks.</p>

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

Legal

Exposure to litigation

Primary potential financial impact

Increased indirect (operating) costs

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 35 beef processing units, 21 of which are buyers of cattle from farms located within the Amazon Biome and which represented an average of 71,401 purchase orders in 2019. 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)

Potential financial impact figure – minimum (currency)

50

Potential financial impact figure – maximum (currency)

50,000,000

Explanation of financial impact figure

The impact figure was estimated according to the Brazilian Federal law Nº 9.605, DE 12 DE FEVEREIRO DE 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 farms 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 BRL 50.00 to 50 million and other sanctions imposed by government authorities. In addition, in an internal assessment made by the company we also consider financial impact figure as an estimate for the reputation impact.

Cost of response to risk

2,000,000

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, which establishes social and environmental criteria for selecting cattle supplier. The policy assumes that all supplier must be compliant and there is no sourcing from supplier involved in the deforestation of native forests, invasion of public lands such as indigenous 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 (<https://jbs.com.br/en/compliance-en/codes-and-policies/codes-of-conduct/>) and Company also has a Business Associate Code of Conduct (<https://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.

The cost of response to the risk encompass the annual investment by company to improve the internal process and monitoring controls. JBS annually invest R\$2 million a supplier monitoring system and control programs that considers costs with third parties (geographic monitoring, preparation of Easy Map project system, advanced analysis and integration of systems), audits, travel for training and meetings with involved employees.

With the monitoring system the company assesses daily 50,000 farms to avoid purchasing animals from properties involved with deforestation of old growth forests, invasion of indigenous lands and environmental preservation areas or areas listed as under embargo by the Brazilian

Institute for the Environment and Natural Resources (Ibama) and around 9,000 cattle supplier farms have been blocked by the monitoring system for failing to comply with social and environmental requirements.

Comment

As part of its commitment to transparency, the Company's cattle procurement operations and its entire supplier monitoring system are audited annually by independent auditors, with results published to the Company's website. Audits have shown that in recent years, over 99.9% of JBS's cattle purchases from farms located in the Amazon region were compliant with the Company's social and environmental criteria. In 2019, the DNV-GL company of Norway, an international reference in social and environmental auditing, consulting and certifications, confirmed that 100% of cattle acquisitions made by the Company in the Amazonian 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), part of 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. JBS was the first company in the food industry in Brazil to become a member of InPACTO, a multi-stakeholder organization combating the use of forced labor in the country's main production chains. 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 (www.beefontrack.org/), which establishes criteria for purchasing raw material for the Company's operations in the region. The Company's goal for 2020 and beyond is to develop a project for reforestation of environmental liabilities in the Legal Amazon in partnership with its cattle suppliers and civil society organization.

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

Company-specific description

In 2019, for JBS Brazil 12.57% for energy consumption was from non-renewable sources, which represents 1,481,702.13 GJ. Within this value 90% of the energy was provided from the public power grid, resulting the amount consumed of 2,238,323.30 Mwh. The electricity fee for the ACL market for industrial sector increased per year an average of 13% in 2018, 99% in 2019 and to date 52% (June 2020). In 2019, the electricity taxation increased on average 20% per month, which means a cost of around R\$1231,25 per month (Source ANEEL, including taxes). The composition of this rate depend strongly on the public policies adopted for the electricity sector and includes variables like social, environmental, tax, fossil fuel policies and by microeconomics aspects and in "flag" mechanism, which determine the tax fee.

Energy related to regulations, including fossil fuel and electricity taxation, 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 company's cash flow 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)

5,511,871,126.25

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Brazilian units are experiencing an increase on electricity bills (also known as “red flag”). The “red flag” occurs in those months which the national energy agency considers that it was necessary to increase fees from 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 figure was based on the average of the increased of the electricity tax and energy consumption of JBS Brazil from the Grid. In 2019, JBS consumed 2,238,323.30 Mwh energy from ACL, if we assume the average that the average fee per month was R\$1231,25 in 2019, we may conclude the energy cost expenditure was around R\$ 2.755.935.563,12. Then, considering that the energy taxation variation fee between 2018 and 2019 increased 99% and applying this percentage to month fee we reach the value of R\$2462,50/mwh per month. Applying this premises to the total present value (PV) we can conclude that in a year the value of the fee could reach the amount of R\$ 5,511,871,126.25.

Cost of response to risk

65,001,321.98

Description of response and explanation of cost calculation

In Brazil, Corporate Sustainability department monitor any similar taxation, mainly through the Business for the Climate Platform (EPC). Furthermore, 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 has a co-generation unit in Lins (SP), called Biolins, which uses biomass (sugarcane bagasse, sawdust, peanut shells, rice hulls and eucalyptus chips) to generate thermoelectric and steam energy.

In 2019, JBS Brazil set 2025 reduction target to reduce energy consumption and fossil fuel consumption, as described in the question C4.2b. 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. The cost of response to risk figure is based on the investment made by JBS Brazil in 2019 to the implementations of projects and initiatives for energy resource in order to prevent future cost and mitigate the risk of costs of goods sale (COGS) and cash flow availability

Comment

The financial figures values is based linear calculation and did not consider inflation rate. The approach is based in historical data on taxation of energy consumption provided from the public energy grid. The impact figure is intended to be sufficiently broad to capture most scenarios efforts, yet generic enough that it can be tailored for regional considerations or unexpected roadblocks.

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

Company-specific description

JBS is global company and has operational facilities in 15 different countries, thus he 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, JBS considers Carbon Taxes very likely occurrence that the Company will have to deal medium-term horizon. We have been constantly monitoring Carbon Taxes legislation's in countries where we operate, in order to anticipate the related rules and to prepare the

management of this issue. For JBS Global, the risks about Carbon Taxes are related to financial penalties imposed to the Company due to the not achievement of the assumed / imposed GHG emissions reduction targets.

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)

993,455,257.6

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

JBS must anticipate additional costs as 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 updated Dynamic Integrated model of Climate and the Economy (DICE) estimated that the price associated with each ton of carbon dioxide emitted should be about 50% higher than the previous DICE version. DICE is one of the top three "integrated assessment models" used by governments and the private sector to estimate the cost, in today's dollars, of the damage that climate change will cause. The current US estimate is about \$ 40 (dollars per tonne of CO2 emitted). Thus, the value of Potential figure impact was estimated by the carbon price applied to Scopes 1 and 2 of JBS Global, and then to the exchange rate from USD to BRL.

(Scope1: 4,593,547.51 tCO₂e; Scope 2: 1,615,547.84 tCO₂e; Total:6,209,095.36) exchange rate: 1USD = 4BRL = 160 BRL per tonne of CO₂e. 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

1,895,494,667.12

Description of response and explanation of cost calculation

The cost to response to the risk considers the investment made in 2019 by JBS Global and allocated to environment engagements. 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.

Furthermore, in order to mitigate the risk described JBS established emission reduction target as described in question C4.1b and C4.2b.

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.

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Upstream

Risk type & Primary climate-related risk driver

Market

Increased cost of raw materials

Primary potential financial impact

Increased direct costs

Company-specific description

The productivity of livestock and crops/pasture may be severely affected by increasing temperatures, CO₂ concentration in the atmosphere, changes in annual rain patterns and future increase in disease, pests and weeds that affect livestock and plants alike. The studies regarding these variables have been developed for several years, however the effects are still fairly uncertain. Livestock: from an animal physiology perspective, an increase in overall temperatures to which the animals are exposed could have severe effects on the animals. If average temperatures reach a level above the animal's upper critical limit in its thermal neutral zone, studies have shown that the animal will suffer from heat stress and will require a higher energy and water intake, affecting the animal's weight gain and its ability to reproduce. In the long run this may affect cattle prices as well as its supply as farmers may prefer to raise other livestock that reacts better to higher temperatures. Feed: considering that part of the JBS's livestock supply is raised in feedlots, and that the largest percentage of feed, produced and supplied by the company to the pork and poultry suppliers, also contains grains, there is a natural worry about the supply and cost of feed. The precise effects of climate change in soybean and maize yields are yet uncertain, due to the complexity of the models required to make such estimates. While numerous studies expect the crop yields to increase due to higher CO₂ concentrations in the atmosphere, it is also widely accepted that due to the controlled nature of these studies their results cannot be considered conclusive due to the uncertainties regarding the interactions with water availability, soil nutrients, pests, weeds, etc. While JBS identifies feed availability as a risk, it is still uncertain about its magnitude. Pasture: as mentioned before, the effects of climate change are still uncertain regarding plants. Pastures can be considered a specific case, since there are known differences in the response to climate change between plants with different metabolic carbon fixations such as pastures. Changes in the pasture growth and availability could be risky for the supply of livestock, especially in Brazil.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

285,820,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

JBS is exposed to the volatility of cattle prices, variation in which is result from climatic change issue, volume of supply, transport costs, agricultural and other policies. The Potential financial impact figure was based on the Company's exposure fluctuation of cattle prices on December 31, 2019, as accounted within the company Financial Reports.

It's important to note that the company operates with financial instruments in order to mitigate any financial risk and more detail can be access within the companies financial reports available at the company's website <https://mz-prod-cvm.s3.amazonaws.com/20575/FRE/2020/4aa5f8d2-9cec-4156-802c-3cbbc1fcbbac/20200530013416669211_02057520200101801.pdf>.

Furthermore, according to a recent study published by FAO and EU, the production of agricultural commodities shall rise up to 60% in the next 25 years. One of the main factors that may negatively influence this result is climate change. Therefore, the reversal of the current tendency of low prices is a likely possibility. High prices of agricultural commodities may continue to have an adverse effect on the JBS's operating results. Is important to note that the variation and forecast for commodities are very dynamic and any projection for potential impact is complex.

Cost of response to risk

4,000,000

Description of response and explanation of cost calculation

JBS seeks to assume advance purchase or financial derivative contracts for the purchase of agricultural commodities in order to manage the risk to the exposure.

Furthermore, JBS promotes within it business units initiatives to mitigate the risk described, thus the cost of response to risk is the amount invested in this initiatives. Friboi, the JBS beef business unit, has signed an agreement with Araguaia League (Liga do Araguaia) to promote and increase sustainable livestock farming and assist producers in the Médio Vale do Araguaia region, in the state of Mato Grosso. As part of the Rebanho Araguaia project, the League can organize cattle breeders while Friboi provides the financial support to hire management consultants and increase pasture usage, not only to increase productivity, but also to help protect the local biome. As a result, cattle breeders

will be in a better position to invest in production, which helps increase productivity, improve animal quality and, more importantly, support sustainability efforts.

Seara invests in projects that improve the feed conversion of poultry and pork, so that less food is necessary.

Comment

This partnership with Rebanho do Araguaia will enhance sustainable meat production in the Cerrado region and meet the demands of important players who increasingly want to buy sustainable products. The goal is to transform one of the main cattle producing regions in the country, which has around 60 producers affiliated with the League, into a benchmark for best global practices. Together, these cattle breeders help protect around 150 thousand hectares of pasture.

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Chronic physical

Changes in precipitation patterns and extreme variability in weather patterns

Primary potential financial impact

Decreased revenues due to reduced production capacity

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. We recognize that water scarcity is a major global issue and is critical to securing a consistent, high-quality global food supply.

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. For example, in Brazil, JBS's production was affected due to the increase of water scarcity the company had the necessity to look for another water supply and discharge sources that leads to an initial investment by the company.

In addition, water scarcity had negatively influenced the availability of energy to our production units and caused the raise of electrical energy fares.

Time horizon

Short-term

Likelihood

Virtually certain

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, an estimated range

Potential financial impact figure (currency)

Potential financial impact figure – minimum (currency)

100,000

Potential financial impact figure – maximum (currency)

150,000

Explanation of financial impact figure

The financial impact figure is based on the costs related to temporary purchase third-party water. It's important to note that the financial figure is related to specific units of JBS Brazil.

Cost of response to risk

100,000

Description of response and explanation of cost calculation

The costs are related to the purchase of new equipment more efficient in water use, as well as the development of new projects to reduce water consumption and / or increase the volume of reuse water.

The cost of response to risk are related to specific units of JBS Brazil, river basin South Atlantic.

Comment

In 2019, in order to reduce the risk of climate change that could affect the operational cost and financial results JBS invested more than R\$ 39 million in the management, measurement and initiatives to reduce water use and its reuse in JBS operations around the world.

Identifier

Risk 6

Where in the value chain does the risk driver occur?

Upstream

Risk type & Primary climate-related risk driver

Chronic physical

Changes in precipitation patterns and extreme variability in weather patterns

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

We recognize that water scarcity is a major global issue and is critical to securing a consistent, high-quality global food supply and it is a potential risk to agriculture in certain regions due to changes in water availability. This can affect the supply of raw material for the company, such as cattle, poultry, pork and animal feed.

Time horizon

Short-term

Likelihood

More likely than not

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)

30,750,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The value refers to the amount of revenue obtained by JBS Brazil units located in this river basin that may be associated with the reported impacts.

Cost of response to risk

0

Description of response and explanation of cost calculation

In order to mitigate the risk for water scarcity JBS works on the improvement of existing actions in the company's risk management, with the development modelling that allow to evaluate the impacts and recommend necessary measures. This action does not have significant costs.

Comment

A relevant activity performed by JBS USA is the conduction of a comprehensive water risk assessment at each facility, inclusive of quantity (baseline water stress, inter-annual variability, seasonal variability, flood occurrence, drought severity, upstream storage and groundwater

storage), quality (return flow ratio and upstream protected land) and regulatory and reputation risk (media coverage, access to water and threatened amphibians). The assessment identifies areas with higher exposure to water-related risks and based on the risk level defined by The World Resources Institute (WRI) tool/database, Aqueduct and we could conclude that the majority of the facilities are low-to-medium or medium-to-high risk.

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

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

JBS has a cogeneration unit in Lins (SP), called Biolins, which uses biomass (sugarcane bagasse, sawdust, peanut shells, rice hulls and eucalyptus chips) 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.

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)

154,189,375.93

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial impact was calculated considering that JBS saved around BRL 154,189,375.9 by producing energy at Biolins and not buying from other sources.

In 2019, Biolins generated 264.391,60 Mwh and 1,252,29.95 Mwh of the energy generated was sold to Friboi, JBS Couros and JBS Novos Negócios. This value was multiplied by the average taxation for ACR energy market in 2019, R\$ 1231,25 (Source ANEEL, including taxes), resulting the amount of BRL 154,189,375.9

Cost to realize opportunity

6,000,000

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 cost o realize opportunity represents the investment of R\$6,000,000 made in Bilolins in 2019.

Comment

Investments in Biolins were around BRL 6,000,000 in 2019.

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 nº 3834/2015, 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%. The regulation increases the demand for this biofuel in Brazil, consequently increasing the demand for the Biodiesel produced and sold by JBS.

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)

780,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Due to the regulations, today the biodiesel production also generates revenue for JBS. The estimated potential financial impact figure is the implications due to this opportunity is revenues of around an order of magnitude of BRL 780 million.

Cost to realize opportunity

180,000,000

Strategy to realize opportunity and explanation of cost calculation

In 2019, JBS Biodiesel saw record production of 265.7 million liters of biodiesel, 2% more than in 2018. Of raw material used in production, 18% (around 47.5 million liters) was from reused cooking oil. This reuse means that around 1.2 trillion liters of water is prevented from being contaminated, enough to meet the daily needs of nearly 30 million people for an entire year, according to the United Nations.

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 bovine tallow.

In October 2019, Lins (SP) was the first program-certified efficient biofuel plant, and in February 2020, the Campo Verde (MT) branch was also certified. RenovaBio is a federal government program launched by the Ministry of Mines and Energy, aimed at expanding biofuel production in Brazil to meet the demands of the Paris Agreement.

The cost to realize opportunity was estimated considering that JBS started the construction of its new biodiesel plant, located in the municipality of Mafra, in Santa Catarina. The plant will be operated by JBS Biodiesel, a division of JBS Novos Negócios, with an investment of R\$ 180 million through Seara Alimentos. The JBS Biodiesel plant in Mafra will have a total area of 76 thousand square meters, with a production capacity of around 1 million liters of biodiesel per day.

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, animal feed, pharmaceutical 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 two factories, located in Campo Verde (MT) and Lins (SP). 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. The Lins (SP) and Campo Verde (MT) units will also receive investments, aimed at improving the industrial park and increasing production.

In 2019 JBS invested R\$180 millions 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

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

JBS Ambiental's overriding commitments are management of solid waste generated by JBS production units, aimed at compliance with current laws; reuse to add value to waste generated by the Company, consolidating the circular economy concept; and development of products and processes using recycled raw materials and promoting the sustainability of the business.

JBS Ambiental has ten recycling units, in the states of Goiás, Minas Gerais, Mato Grosso do Sul and São Paulo. In 2019 alone, two waste centers were opened, including plants in Senador Canedo (GO) and Nova Andradina (MS). The Company provides products and solutions developed from industrial waste, such as plastic, wood and metal, which are transformed into trash bags, tarps, bags or plastic covers to be used in JBS operations. Manages and treats non-recyclable post-industrial solid waste, tracking its lifecycle and providing for correct disposal of this waste.

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)

79,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

JBS Ambiental business also generates revenue for JBS. The estimated potential financial impact figure is the implications due to this opportunity is revenues of around an order of magnitude of BRL 79 millions of JBS Ambiental.

Cost to realize opportunity

3,000,000

Strategy to realize opportunity and explanation of cost calculation

JBS Ambiental is an example of JBS ability to diversify business activities while reducing exposure to GHG emissions (decreasing the amount of waste sent to landfills) and an opportunity to increase Company's revenue.

JBS Ambiental's overriding commitments are management of solid waste generated by JBS production units, aimed at compliance with current laws; reuse to add value to waste generated by the Company, consolidating the circular economy concept; and development of products and

processes using recycled raw materials and promoting the sustainability of the business.

The cost to realize opportunity figure includes the investment made by JBS Ambiental to develop the project.

Comment

Investments by JBS Ambiental were around BRL 3 millions in 2019.

Identifier

Opp4

Where in the value chain does the opportunity occur?

Upstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development of climate adaptation, resilience and insurance risk solutions

Primary potential financial impact

Increased revenues resulting from increased production capacity

Company-specific description

Changes in temperature and rainfall may affect the productivity in pasture areas and JBS has the opportunity to support initiatives that promote the benefits for mitigating climate change along the value chain of its businesses. The Company has a distinct opportunity to become a market leader regarding environmental practices and climate change management in its operations worldwide. JBS intends to continue its pioneering initiatives regarding carbon markets as well as a special care for product stewardship. The Company is conscious of its responsibilities regarding stakeholder engagement, especially cattle ranchers.

Concerning a positive scenario in rainfall distribution throughout Brazilian pastures the consequences may fall upon JBS's suppliers and affect positively the company as well.

Time horizon

Long-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)

5,243,443

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial implications are not measurable, but it is estimated to result in increased income for JBS.

The financial figure impact is the amount allocated to the Sustainability Department to manage and develop the engagement, where in 2019 approximately R\$ 5,243,443 and to monitor and deal with reputation opportunities for the Company.

Cost to realize opportunity

500,000

Strategy to realize opportunity and explanation of cost calculation

A partnership between Araguaia League and JBS was created to strengthen sustainable beef production in the Cerrado region and to meet demand from major players, who are looking for products differentials. The goal is to transform the region, one of the biggest cattle producers in the country, within a global parameter of good production practices. Together, these livestock producers help to preserve an area of 54,000

hectares of legal reserve and permanent preservation areas.

The cost to realize opportunity of 500,000 BRL was based in investment forecast that JBS is planning to allocate annually in this Initiative.

Comment

In 2019, Friboi entered into a partnership with the Araguaia League, whose members include around 60 livestock producers in the Médio Vale do Araguaia region, located in the state of Mato Grosso. The goal is to promote sustainable livestock development in the region, with the support of local producers. Within the so-called Araguaia Herd project, Friboi funds contracts for firms providing consulting on livestock management to help in the process of intensifying farm pasture lands, therefore guaranteeing better productivity and contributing to environmental and local biodiversity conservation while reducing greenhouse gases in the livestock chain.

Investment forecast to manage this program is around 500.000 BRL annually.

Identifier

Opp5

Where in the value chain does the opportunity occur?

Upstream

Opportunity type

Resilience

Primary climate-related opportunity driver

Resource substitutes/diversification

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

JBS has the opportunity to support initiatives that promote the benefits for mitigating climate change along the value chain of its businesses.

The Company has a distinct opportunity to become a market leader regarding environmental practices and climate change management in its

operations worldwide. JBS intends to continue its pioneering initiatives regarding carbon markets as well as a special care for product stewardship. The Company is conscious of its responsibilities regarding stakeholder engagement, especially cattle ranchers.

Time horizon

Medium-term

Likelihood

Very likely

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)

2,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial implications are not measurable, but it is estimated to result in increased income for JBS.

The potential financial impact figure can be described as amount allocated to traceability activities, where in 2019 approximately R\$ 2,000,000 (BRL) and to monitor and deal with reputational opportunities for the Company.

Cost to realize opportunity

2,000,000

Strategy to realize opportunity and explanation of cost calculation

The management of this opportunity is done through its System for social and environmental monitoring of cattle suppliers. JBS is committed to combating, discouraging and eliminating deforestation of its supply chain in the Amazon. A pioneer in sustainable development initiatives in the region, the Company's activities are based on a Raw Material Responsible Procurement Policy, which establishes social and environmental criteria for selecting cattle suppliers.

Over the last 10 years, JBS has made substantial investments to make one of the largest private supplier monitoring systems in the world viable. Using satellite images and georeferenced data on supplier farms, the system monitors an area of 450,000 km² (45 million hectares) located in the Legal Amazon, equal to the size of Germany. In 2019 this investment was 2,000,000 million.

The Company assesses 50,000 farms daily to avoid purchasing animals from properties involved with deforestation of old growth forests, invasion of indigenous lands and environmental preservation areas or areas listed as under embargo by the Brazilian Institute for the Environment and Natural Resources (Ibama). JBS does not acquire cattle from suppliers involved with rural violence or agrarian conflicts or that use child or forced labor. During this period, around 9,000 cattle supplier farms have been blocked by the monitoring system for failing to comply with social and environmental requirements.

An audit done in 2019 of livestock purchases made by the Company throughout 2019 showed that 100% of processes complied with external and internal regulations.

Comment

Investments in monitoring system were around BRL 2,000,000 in 2019.

Identifier

Opp6

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of new technologies

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

JBS believes its biggest contribution to reducing emissions across its value chain comes from its adoption of best practices related to increasing the use of renewable energy and improving energy efficiency. This is a priority issue for both emissions management and overall eco-efficiency and is backed by a well-defined strategy and funding for implementation. Globally, the Company invested over R\$ 59.6 million energy efficiency projects in 2019. In Brazil, the Company reuses waste material to generate energy.

Time horizon

Medium-term

Likelihood

Very likely

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)

59,600,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial implications are not measurable but it is estimated to increased income for JBS.

To monitor and deal with energy issues the JBS's investment in 2019 was approximately BRL 59,600,000.

Cost to realize opportunity

59,600,000

Strategy to realize opportunity and explanation of cost calculation

Major trends regarding energy at JBS operations are: automation - which cuts costs by using more efficient equipment, replacing convention lights with LEDs and reducing natural gas consumption to replace it with cleaner fuels.

In 2019, JBS invested more than BRL 59,600,000.00 million in energy efficiency projects in the global level.

Comment

Globally, JBS invested more than BRL 59.6 million in energy-efficient projects.

Identifier

Opp7

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

JBS Novo Negócios, started the construction of a fertilizer factory in Guaiçara (SP), with an investment of R \$ 91 million and expected to be concluded within a year.

JBS will become the first food company in Brazil to use organic waste generated in our factories to produce fertilizers. Thus, JBS will be

fertilizer suppliers for large crops, such as soybeans, corn, coffee and cotton, as well as vegetables and fruits.

In 2019, JBS reused over 121,000 metric tons of waste to generate energy, which is 9% more than the previous year and over 1 million tons of waste generated by the Company were also reused, accounting for approximately 50% of all waste generate. This volume was used in composting, recycling, energy reuse and cogeneration. This reinforces the Company's commitment to optimize the use of resources in processes, using the circular economy as a premise and the fertilizer segment will bring even more innovation to the Company.

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)

91,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The financial impact figure was based in the amount invested to date to build the fertilizer factory and estimated to result in an increase to JBS income.

The building process will generate 450 jobs and the factory plant will have 51 thousand m² and 150 direct employees when it is in operation, which should occur within 1 year.

Cost to realize opportunity

91,000,000

Strategy to realize opportunity and explanation of cost calculation

The financial impact figure was based in the amount invested to date to build the fertilizer factory and estimated to result in increase income for JBS.

The building process will generate 450 jobs and the factory plant will have 51 thousand m² and 150 direct employees when it is in operation, which should occur within 1 year.

Comment

In Brazil, JBS Novos Negócios, JBS maintains businesses related to the food sector. There are 11 business units that mostly use what would be a co-product of food production for the manufacture of other products - among biodiesel, collagen, pharmaceutical ingredients, items for personal hygiene and cleaning, ingredients for animal nutrition and natural wraps , contributing to more sustainable production methods across the Company. JBS Novos Negócios also offers services and products complementary to the Company's value chain, such as metal packaging, trading, environmental solutions and transport services.

In 2019, JBS Novos Negócios invested 91 million (BRL) to build the new fertilizer factory.

Identifier

Opp8

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Participation in carbon market

Primary potential financial impact

Increased value of fixed assets

Company-specific description

In 2019, aimed at lowering emissions 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. The Company will sell Cbios from 2020.

In October 2019, Lins (SP) was the first plant certified, followed by Campo Verde (MT), in February 2020. 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 370 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 maintains the same biodiesel production level as in 2018 (260 million liters), the Company will be able to issue around 800,000 CBios per year.

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)

40,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

For the estimation of the figure impact the following premises were adopted: for every 370 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 maintains the same biodiesel production level as in 2018 (260 million liters), the Company will be able to issue around 800,000 CBios per year. The first Cbios negotiated were purchased for R \$ 50 each, totaling BRL 40,000,000.

Cost to realize opportunity

0

Strategy to realize opportunity and explanation of cost calculation

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 bovine tallow.

Under the program, producers start measuring and qualifying all of its greenhouse gas emissions in order to obtain an energy and environmental efficiency score to issue decarbonization credits, for sale on the stock exchange. Earnings should be invested in expanding and maintaining the production system.

The result is yet another step forward in JBS's history of creating value by reusing bovine tallow and other inputs, like recovered cooking oil, to produce biodiesel.

Due to strategic reasons the cost to realize the opportunity cannot be disclosed.

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 bovine tallow.

C3. Business Strategy

C3.1

(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform its strategy?

No, but we anticipate using qualitative and/or quantitative analysis in the next two years

C3.1c

(C3.1c) Why does your organization not use climate-related scenario analysis to inform its strategy?

The use of climate-related scenario analysis to improve the elements of our business strategy is a demand from the Sustainability Committee, but due to the company strategy and internal reasons does not characterize as a priority effort at the moment, as it was decided to wait and monitor the final version of the Brazilian NDC. Once the Brazilian NDC is complete, JBS will prepare a climate-related scenario analysis considering the main effects of climate change in its operational area, as well as in their suppliers, and coordinate efforts in order to improve its business strategy elements to meet the NDC requirements, mitigating the risks of its business and contributing to the National commitments through its NDC. So far there is a document named "Initial Proposal for the implementation of the Brazilian NDC", comprising important areas for JBS business, such as cattle raising and transportation.

Furthermore, JBS has a robust climate-related strategy fully linked to its business strategy and to date JBS is conducting risk assessment through scenario analysis tools. For example, JBS USA has conducted a comprehensive water risk assessment at each facility, inclusive of quantity (baseline water stress, inter-annual variability, seasonal variability, flood occurrence, drought severity, upstream storage and groundwater storage), quality (return flow ratio and upstream protected land) and regulatory and reputational risk (media coverage, access to water and threatened amphibians). The assessment identifies areas with higher exposure to water-related risks based on the risk level defined by The World Resources Institute (WRI) tool/database, Aqueduct. By the tool we can conclude that the majority of the facilities are low-to-medium or medium-to-high risk.

C3.1d

(C3.1d) 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	<p>Products and services may be impacted due to climate-related risks and opportunities. Risks are mostly related to supply of commodities constraints, reduced demand from customers and reputation effects generated from climate change effects (as reported in C2.3a Risk 1 and 4).</p> <p>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, since it has 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 (as reported in opp and C2.4a Opportunity 4 and 5).</p>
Supply chain and/or value chain	Yes	<p>Social and Environmental Risks: Raw Material Procurement - 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 a risk to consumer health (as reported in C2.3a Risk 1) - Cattle purchases: Notify the market of the social and environmental criteria adopted for cattle purchases and support for the use of best farming practices. In Brazil, supplier farms located in the Legal Amazon States are monitored using a geospatial system capable of identifying non-conformities and barring raw material purchases from non-compliant suppliers. The company monitors more than 50 thousand farms daily and since the implementation of the project around 9 thousand cattle suppliers (farms) were blocked by the system for socioenvironmental noncompliance and 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 (as reported in opp and C2.4a Opportunity 4 and 5).</p>

		<p>Poultry: The Company's relationship with animal breeders assures raw material quality. Suppliers are visited periodically, and to ensure production practices are in line with the JBS's criteria they are audited, Global GAP is one example of certification that the Company has.</p>
Investment in R&D	Yes	<p>JBS prioritizes the investments in R&D according to the companies' strategy and assessment of risks and opportunities and financial state of the company.</p> <p>All JBS operations invest in research and development to discover ways of reducing and optimizing packaging usage, particularly packaging that does not come into direct contact with food, thereby reducing the amount of waste produced and associated costs.</p> <p>For example, there are annual packaging waste reduction targets in Brazil. Many paths are taken to identify opportunities, either daily with ad hoc efforts to reduce waste or by developing new technologies. One of these initiatives is automatic assembly for boxes used to package poultry-based products. Compared with a manual process, this reduces the amount of cardboard used by 15%. Resizing product bags and boxes also helps to optimize truck space.</p> <p>JBS Ambiental has ten recycling units, in the states of Goiás, Minas Gerais, Mato Grosso do Sul and São Paulo. In 2019 alone, two waste centers were opened, including plants in Senador Canedo (GO) and Nova Andradina (MS). The Company provides products and solutions developed from industrial waste, such as plastic, wood and metal, which are transformed into trash bags, tarps, bags or plastic covers to be used in JBS operations. Manages and treats non-recyclable post-industrial solid waste, tracking its lifecycle and providing for correct disposal of this waste (as reported in C2.4a - Opp3).</p> <p>In addition, JBS Novo Negócios, started the construction of a fertilizer factory in Guaiçara (SP), with an investment of R \$ 91 million and expected to be concluded within a year and will become the first food company in Brazil to use organic waste generated in our factories to produce fertilizers. Thus, JBS will become fertilizer suppliers for large crops, such as soybeans, corn, coffee and cotton, as well as vegetables and fruits (as reported in C2.4a - Opp7).</p>
Operations	Yes	<p>JBS operations (plants) are very sensitive to the climate change effects., For example, mapping the risk of water shortage for every plant is a management process in order to avoid the closure of plants due to the lack of water for production (as reported in C2.3a Risk 5-6).</p> <p>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</p>

		<p>clean energy (as reported in C2.4a - Opp 1).</p> <p>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).</p> <p>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.</p> <p>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 2020 and 2025 reduction targets.</p> <p>Furthermore, Physical risks from climate change include rising sea levels and changes in weather conditions, such as an increase in rainfall changes and extreme weather events. It may have a material adverse effect on the Company's operating financial and liquidity state and incur additional expenses to maintain its products and raw materials in appropriate conditions or to move them to other locations (as reported in C2.3a Risk 4, 5 and 6).</p>
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C3.1e

(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.

Financial planning elements that have been influenced	Description of influence
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<p>Row 1</p>	<p>Direct costs Indirect costs Capital allocation</p>	<p>When JBS sets targets, the main risks that present significant impacts to the company’s operations are considered. JBS also make Action plans along with the targets in order to prevent operational costs.</p> <p>Natural disasters, fires, bioterrorism, pandemics, droughts, changes in rain patterns or extreme weather conditions, including floods, extreme cold or heat, hurricanes or other storms, could harm the health or growth of livestock or interfere with the Company's operations through power failure, fuel shortage, damage to production and facilities or interruption of means of transport, among other things. Any of these factors could have an adverse effect on our financial results.</p> <p>In 2019, more than R\$59,6 Million was invested in energy efficiency initiatives that will support JBS to accomplish the company's emission reduction targets for 2020 and 2025 and reduce financial losses. Added to that, the company has identified opportunities with potential financial and strategic impact to reduce JBS exposure to GHG emissions and results will be accountable in the long-term lifetime. For example, Biolins reduced our demand for purchase of energy by 20% (Friboi, JBS Novos Negócios and JBS Couros), which also means that the companies saved a around R\$154,189,375.9 (estimated amount) in energy fees and reduced emissions of 19,840.40 tCO2.</p> <p>Moreover, Waste management is done at every JBS unit around the world, based on a commitment to reduce waste generated, appropriately dispose of waste, lower the amount of waste sent to landfills and decrease costs, always in accordance with current laws in the countries where it operates. Management of solid waste generated during internal production processes at JBS is part of the strategy to reduce GHG emissions. JBS Novo Negócios, started the construction of a fertilizer factory in Guaíçara (SP), with an investment of R \$ 91 million and expected to be concluded within a year. Thus, JBS will be fertilizer suppliers for large crops, such as soybeans, corn, coffee and cotton, as well as vegetables and fruits. This reinforces the Company’s commitment to optimize the use of resources in processes, using the circular economy as a premise and the fertilizer segment will bring even more innovation to the Company.</p> <p>The Company also recognizes that water scarcity is a major global issue and is critical to securing a consistent, high-quality global food supply. In 2019, in order to reduce the risk of climate change that could affect the operational cost and financial results JBS invested more than R\$ 39 million in the management, measurement and initiatives to reduce water use and its reuse in JBS operations around the world. The reuse water is used, mainly, in the cleaning processes of external areas and cooling of equipment, according to the existing sanitary standards. It is important to note that specificities of local laws in each country define in which operations reuse water can be used. It is important to note that JBS reduced 4% of the volume of water used in its operations per ton of product and 84% of volume of water returned to the environment after treatment process, complying to quality and in a safety standards, making the water available to the environment again for new uses (exception only for the volume of effluent that is sent for treatment in the public network).</p>
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C3.1f

(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).

Climate change is a priority issue and it is integrated into JBS's business strategy globally. It may present risks to JBS operations since resources such as water and animal feed - significantly sensitive to climate change - are critical factors to raw material production, thus it may influence JBS business. In addition, new laws and regulations have been created due to climate change potential risks assessment, which consequences may affect the Company's business. Therefore, it is important to point out the following:

- i) JBS has an Environmental Policy aware of its responsibilities, which monitors the impacts generated by its operations in each region. JBS focuses on the entire production chain through the implementation of its business strategy in processes, which is directly influenced by this Policy because must be aligned with it, enabling mitigation of environmental impacts derived from global activities. This Policy established the commitment to pollution prevention, compliance with legal requirements and setting objectives and targets for continuous improvement in processes and optimization of natural resources. Thus, the goals and targets are clear evidences that the climate subject is taken into consideration in JBS's business strategy, reflecting in processes that drives paths capable of achieving them, and further, indicates willingness to emerge palpable results through a set of initiatives.
- ii) JBS sustainability initiatives are based on two different branches defined by JBS's business strategy: suppliers and industrial processes. The climate change aspects considered that guide the Company are based on physics, financial, regulatory and image risks due to their considerable interference in its operation. Therefore, JBS supported and developed the following initiatives arisen from the cited aspects: good practices in agribusiness, buying cattle from legal cattle suppliers, legal compliance and eco efficiency projects.

As a real example of how climate change is integrated into JBS's business strategy, the new plants built aim compliance with the best sustainability practices. It was elaborated with best eco efficiency practices and technologies implemented in JBS worldwide, assuring higher yields and production efficiency.

This is a substantial business decision, completely linked to promotion of mitigating actions, preventing the Company from climate change effects, such as water and energy scarcity, for example.

- iii) The main aspects of climate change which have been influencing JBS's business strategy are those related to regulatory issues and impact mitigation. The strategy comprises mechanisms that fully monitors and complies with the related legislation, and further, it allows JBS to develop programs, action plans and initiatives that ensure reduction of impacts along its supply chain.
- iv) Climate change components that have influenced the short-term business strategy: In order to measure the climate change impacts due to JBS's activities, the company performs annually its GHG Emissions Inventory since 2009, which is an instrument to measure GHG emissions from its

operations in Brazil, which accounts for direct and indirect emissions. From the year 2012, JBS expanded this measurement to its worldwide operations and became a member of the GHG Protocol Brazil Program, through the publication of its GHG Emissions Inventory.

These strict GHG monitoring systems allow JBS to identify priorities, foster mitigation initiatives and thus improve processes towards eco-efficiency. Along with regulatory issues, this is how the Company strategy has been influenced by climate change. In 2019, JBS Brazil and Seara GHG Emissions Inventory was verified by a Third party verification process.

v) Climate change components that have influenced its long-term business strategy: JBS intends to include all sectors of its supply chain worldwide in its GHG emission inventory and to promote mitigation of the supply chain emissions. Therefore, JBS aims to reduce directly and indirectly climate change impacts resulted from its global activities. Based on that, different initiatives have been developed and supported by JBS, such as the agreement between Friboi with Araguaia League (Liga do Araguaia) to promote and increase sustainable livestock farming and assist producers in the Médio Vale do Araguaia region, in the state of Mato Grosso. As part of the Rebanho Araguaia project, the League can organize cattle breeders while Friboi provides the financial support to hire management consultants and increase pasture usage, not only to increase productivity, but also to help protect the local biome.

As a result, cattle breeders will be in a better position to invest in production, which helps increase productivity, improve animal quality and, more importantly, support sustainability efforts. This partnership will enhance sustainable meat production in the Cerrado region and meet the demands of important players who increasingly want to buy sustainable products.

vi) One of JBS's most substantial business decision is the engagement in combating deforestation, which must comply with regulatory issues. The approach of mitigating deforestation is fundamental for our business success and performance, leading risk management for deforestation linked with cattle, lumber and soybean procurement practices. Therefore, practical actions have also been applied in policy and livestock sector of our cattle suppliers. JBS prepared internal guidelines and developed a system on the cattle purchase from the Amazon biome, pledging to purchase cattle exclusively from farms that are in regularity with social, environmental and land standards. This Monitoring System is audited annually, to guarantee compliance with the Company's commitments to sustainability.

vii) In 2019 JBS invested roughly BRL 698,82 million in environmental management improvements.

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 6

Year target was set

2019

Target coverage

Business division

Scope(s) (or Scope 3 category)

Scope 1+2 (location-based)

Intensity metric

Other, please specify

Metric tons CO₂e per metric tons of finished product

Base year

2015

Intensity figure in base year (metric tons CO₂e per unit of activity)

0.1078894335

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2025

Targeted reduction from base year (%)

10

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

0.0971004902

% change anticipated in absolute Scope 1+2 emissions

-8

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year (metric tons CO₂e per unit of activity)

0.100057458

% of target achieved [auto-calculated]

72.5926093587

Target status in reporting year

New

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

Please explain (including target coverage)

JBS Brazil and Seara operations have a commitment to reducing greenhouse gas emissions (Scope 1 + 2) by 8% by 2025.

Target reference number

Int 2

Year target was set

2015

Target coverage

Business division

Scope(s) (or Scope 3 category)

Scope 1+2 (location-based)

Intensity metric

Other, please specify

Metric tons CO₂e per 100 lbs of finished product

Base year

2015

Intensity figure in base year (metric tons CO₂e per unit of activity)

0.01089

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2020

Targeted reduction from base year (%)

20

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

0.008712

% change anticipated in absolute Scope 1+2 emissions

0.32

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year (metric tons CO2e per unit of activity)

0.0090693

% of target achieved [auto-calculated]

83.5950413223

Target status in reporting year

Revised

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

Please explain (including target coverage)

Pilgrim's operations have a public commitment to reducing greenhouse gas emissions (Scope 1 + 2) by 14% by 2020 (only USA and Puerto Rico).

Target reference number

Int 7

Year target was set

2015

Target coverage

Business division

Scope(s) (or Scope 3 category)

Scope 1+2 (location-based)

Intensity metric

Other, please specify

Metric tons CO2e per 100 lbs of finished product

Base year

2015

Intensity figure in base year (metric tons CO2e per unit of activity)

0.01101

% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure

100

Target year

2020

Targeted reduction from base year (%)

14

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

0.0094686

% change anticipated in absolute Scope 1+2 emissions

-10.73

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year (metric tons CO2e per unit of activity)

0.009423816

% of target achieved [auto-calculated]

102.9054106656

Target status in reporting year

Achieved

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

Please explain (including target coverage)

JBS USA operations have a public commitment to reducing natural gas consumption by 20% by 2020 (Only US and Canada).

C4.2

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

Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number

Oth 1

Year target was set

2019

Target coverage

Business division

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

MWh

Target denominator (intensity targets only)

Other, please specify

metric tons of finished product

Base year

2015

Figure or percentage in base year

0.2710667818

Target year

2025

Figure or percentage in target year

0.2646635544

Figure or percentage in reporting year

0.2848

% of target achieved [auto-calculated]

-214.4733794711

Target status in reporting year

New

Is this target part of an emissions target?

INT6

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

JBS Brazil and Seara operations have a public commitment to reducing electricity use by 9% by 2025.

Target reference number

Oth 2

Year target was set

2015

Target coverage

Business division

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

kWh

Target denominator (intensity targets only)

Other, please specify

100 lbs of finished products

Base year

2015

Figure or percentage in base year

10.24

Target year

2020

Figure or percentage in target year

9.0112

Figure or percentage in reporting year

8.46

% of target achieved [auto-calculated]

144.8567708333

Target status in reporting year

Achieved

Is this target part of an emissions target?

INT2

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

JBS USA operations have a public commitment to reducing electricity use by 12% by 2020 (only US and Canada).

Target reference number

Oth 3

Year target was set

2015

Target coverage

Business division

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Fossil fuel reduction target

Other, please specify

MMBTU

Target denominator (intensity targets only)

Other, please specify

100 lbs of finished products

Base year

2015

Figure or percentage in base year

0.076

Target year

2020

Figure or percentage in target year

0.0608

Figure or percentage in reporting year

0.065

% of target achieved [auto-calculated]

72.3684210526

Target status in reporting year

Underway

Is this target part of an emissions target?

INT 2

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

JBS USA operations have a public commitment to reducing natural gas consumption by 20% by 2020 (only US and Canada).

Target reference number

Oth 4

Year target was set

2015

Target coverage

Business division

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Energy consumption or efficiency

kWh

Target denominator (intensity targets only)

Other, please specify

100 lbs of finished products

Base year

2015

Figure or percentage in base year

12.17

Target year

2020

Figure or percentage in target year

10.7096

Figure or percentage in reporting year

11.08

% of target achieved [auto-calculated]

74.6370857299

Target status in reporting year

Underway

Is this target part of an emissions target?

INT7

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

Pilgrim's USA and Puerto Rico operations have a public commitment to reducing electricity use by 12% by 2020.

Target reference number

Oth 5

Year target was set

2015

Target coverage

Business division

Target type: absolute or intensity

Intensity

Target type: category & Metric (target numerator if reporting an intensity target)

Fossil fuel reduction target

Other, please specify

MMBTU

Target denominator (intensity targets only)

Other, please specify

100 lbs of finished products

Base year

2015

Figure or percentage in base year

0.073

Target year

2020

Figure or percentage in target year

0.06278

Figure or percentage in reporting year

0.066

% of target achieved [auto-calculated]

68.4931506849

Target status in reporting year

Underway

Is this target part of an emissions target?

INT 7

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain (including target coverage)

Pilgrim's USA and Puerto Rico operations have a public commitment to reducing natural gas consumption by 14% by 2020.

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	0	0
To be implemented*	0	0

Implementation commenced*	4	15,311.03
Implemented*	2	13,482
Not to be implemented	0	0

C4.3b

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

Initiative category & Initiative type

Transportation
Company fleet vehicle replacement

Estimated annual CO2e savings (metric tonnes CO2e)

872.13

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

1,050,780

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

100,000,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

JBS Transportadora promotes optimization of distribution routes as one of its biggest efforts to lower GHG emissions. Changing out the truck fleet resulted in savings of 83,000 liters of diesel fuel in the last quarter of 2019, equal to 5% of the total used. For 2020, savings are expected to reach 330,000 liters of oil during the year.

Initiative category & Initiative type

Energy efficiency in buildings

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

3,279.46

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

1,680,000

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

1,100,000

Payback period

<1 year

Estimated lifetime of the initiative

Ongoing

Comment

In 2015, the JBS USA Greeley team recognized some major energy reduction opportunities throughout the plant and began implementing substantial projects to decrease usage. After several years of successfully spearheading further energy reduction initiatives, the plant found a new partner in its local utility company, Colorado Xcel Energy, and began utilizing their support to pursue bigger ventures. Colorado Xcel Energy’s Strategic Energy Management program helps the Greeley team to recognize and prioritize energy reduction projects across the facility, obtain sizable governmental rebates and contribute to the company’s overall environmental goals. In 2019, the team completed a variety of improvements, including a large refrigeration system project, LED lighting upgrades, motor VFD (Variable Frequency Drive) installations, large blower replacements at the water reclamation facility and more. As a result, the facility has significantly reduced its energy consumption over the last six months at a projected savings rate of 7,200,000 kWh per year and it is currently experiencing energy savings at a rate of 8.3 percent, or \$420,000 per year compared to 2018 performance.

Initiative category & Initiative type

Energy efficiency in production processes
Waste heat recovery

Estimated annual CO2e savings (metric tonnes CO2e)

1,800

Scope(s)

Scope 1

Voluntary/Mandatory

Voluntary

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

1,200,000

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

3,600,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

In the last five years, Pilgrim Moy Park's Anwick facility has vastly reduced fuel-oil consumption following the installation of a state-of-the-art heat recovery system at the site. The heating system's configuration means that the Anwick facility utilizes waste refrigeration heat, which would normally be discarded outdoors. The recovered heat is then used instead of boilers to heat water for processing. The system has also lowered water and chemical consumption from the site's cooling towers resulting in less waste.

Since its installation in 2015, the Anwick site has saved almost 800,000 gallons of fuel, and in the process it has reduced annual carbon emissions by approximately 1,800 tonnes of CO₂e per year - according to the U.S. EPA this is an amount equivalent to emissions from 382 passenger vehicles driven for one year. This annual carbon reduction at Anwick roughly balances against the carbon that Moy Park emits on air travel each year.

This technology is being installed (or is under consideration) at other sites across our Moy Park facilities as well.

Initiative category & Initiative type

Energy efficiency in production processes
Process optimization

Estimated annual CO₂e savings (metric tonnes CO₂e)

797.45

Scope(s)

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

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

4,772,876

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

1,323,000

Payback period

<1 year

Estimated lifetime of the initiative

Ongoing

Comment

Friboi implemented a project in order to avoid losses (energy, steam and water). In 2019, 10.626.776 kwh were saved.

Initiative category & Initiative type

Transportation

Other, please specify

Optimized Route

Estimated annual CO2e savings (metric tonnes CO2e)

11,682

Scope(s)

Scope 1

Scope 3

Voluntary/Mandatory

Voluntary

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

36,714,000

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

0

Payback period

No payback

Estimated lifetime of the initiative

Ongoing

Comment

The Optimized Route program aims to bring more efficiency to cargo transport, by optimizing the trips made by its own trucks and in partnership with third parties, so that trucks that would return to factories empty then transport partner cargo. This means that the entire route back and forth is used 100%, contributing to reducing fuel use and consequent CO2 emissions. Key Optimized Route results:

- Reduced greenhouse gas emissions by 11,682 metric tons, which is equal to the emissions generated annually by over 6,000 passenger vehicles.
- Savings of over 11.6 million liters of diesel fuel.
- Lowered kilometers travelled by over 28 million.

Initiative category & Initiative type

Low-carbon energy generation
Biogas

Estimated annual CO2e savings (metric tonnes CO2e)

10,362

Scope(s)

Scope 3



Voluntary/Mandatory

Voluntary

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

4,000,000

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

0

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

JBS USA Live Pork recently partnered with Ally Energy Solutions on a first ever swine-to-renewable natural gas project at its hog farm in Dalhart, Texas. The project modernized a two-and-a-half acre digester lagoon to capture and convert methane gas into clean (the lagoon is now expected to produce more than 50,000 MMBTU of biogas annually, eliminating 10,362 tonnes of CO2), 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 JBS’ 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, and JBS USA is positioned to take advantage of this opportunity, while cutting greenhouse gas emissions and meeting sustainability goals.

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	JBS invested over R\$ 1.9 billion in sustainability programs worldwide in 2019. Within this amount, JBS invested more than R\$ 698 million in environmental improvements, including environmental management at factories and invested R\$ 59.6 million in other projects, which contributed to GHG emission reductions, such as replacement of the company vehicle fleet and energy efficiency, optimization of route program and waste reduction. Moreover, with support from a social and environmental monitoring system that uses satellite imagery of supplier farms, JBS can control its cattle suppliers in the Legal Amazon, where the total area of the Amazon Forest is located. The program helps to reduce the Company’s carbon footprint and domestic greenhouse gas emissions – the result of deforestation caused by opening new areas for agriculture. It was invested in this project R\$ 2 million in 2019.
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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 adaption 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

Waste management

Description of management practice

Waste management for the production of fertilizers through aerobic composting.

Primary climate change-related benefit

Emission reductions (mitigation)

Estimated CO2e savings (metric tons CO2e)

147,163.81

Please explain

In Brazil, 60% of the composition of the overall waste is organic matter that is possible to recycling through the composting process (Brazilian Ministry of Environment). JBS's day-to-day routines include solid waste management – both waste generated by its own operations as well as waste from the company's product packaging after products have been consumed. A number of initiatives have been implemented in order to properly dispose of or treat this waste and avoid environmental impacts such as methane (CH4) emissions, which are one of the causes of global warming. Over 49% of post-industrial waste generated by JBS operations is used for composting, recycling or energy reuse. In 2019, 27% of total global waste generated were sent for composting.

Management practice reference number

MP2

Management practice

Reforestation

Description of management practice

Reforestation in Seara's own lands - new planting and regrowth conduction of eucalyptus trees.

Primary climate change-related benefit

Increase carbon sink (mitigation)

Estimated CO2e savings (metric tons CO2e)

147.88

Please explain

Seara conducts reforestation of own lands with eucalyptus trees:
- 32,5 ha in Mato Grosso do Sul (new planting)

Management practice reference number

MP3

Management practice

Reforestation

Description of management practice

Reforestation in JBS Carnes lands - new planting and regrowth conduction of eucalyptus trees.

Primary climate change-related benefit

Increase carbon sink (mitigation)

Estimated CO2e savings (metric tons CO2e)

2,093

Please explain

Friboi conducts reforestation of own lands with eucalyptus trees:
- 460 ha in Mato Grosso do Sul (new planting);

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Product

Description of product/Group of products

With biodiesel produced by JBS Biodiesel using beef tallow, contributes to reducing emissions from third parties' scope 1 regarding fossil fuels avoidance. In 2019, JBS Biodiesel saw record production of 265.7 million liters of biodiesel, approximately (234 thousand tonnes) of biodiesel from animal and plant oils. By producing biodiesel in 2019, it is estimated that it was avoided around 653,181.13 tCO₂e, that would be emitted if diesel were employed. The estimations were performed considering the amount of energy that would be generated by biodiesel (amount of biodiesel x net calorific value of biodiesel – 233,816.00 tonnes x 0.0377 TJ/tonnes = 8,814.86 TJ), that could result in emissions from diesel (8,814.86 TJ x 74.1 tCO₂/TJ = 653,181.13 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).

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

Brazilian GHG Protocol Program

% revenue from low carbon product(s) in the reporting year

1

Comment

With two plants located in Brazil – Campo Verde/Mt and Lins/SP – JBS Biodiesel is the largest vertically producer of biodiesel from beef tallow worldwide . It is the first and only 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.

Level of aggregation

Product

Description of product/Group of products

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. JBS exclusive and independent business unit that is specialized in offering sustainable high-quality products and services, developed to solve issues related to residues generated by industries or consumers, ensuring more efficiency and value to contribute to the Company’s and its client’s commitment to sustainability. 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. In 2019, JBS Ambiental managed: 3,696 tons of paper and cardboard, 3,368 tons of plastic and 8,031 tons of metals. Approximately 6,421.16 tCO2e emission were avoided considering that the waste recycled by JBS Ambiental would be sent to a sanitary landfill (paper and cardboard emission factor = 1,995 kgCO2e/tonnes. For plastic and metals, emission factor = 0 - 2006 IPCC Guidelines - Chapter 3 Solid Waste Disposal; GWP CH4 = 25).

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

Brazilian GHG Protocol Program

% revenue from low carbon product(s) in the reporting year

1

Comment

JBS Ambiental, which is located in Brazil and has ten recycling units, in the states of Goiás, Minas Gerais, Mato Grosso do Sul and São Paulo, is a unit 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. Part of this material is reused in JBS operations as trash bags, shrink wrap, pallet protectors and trays.

Level of aggregation

Product

Description of product/Group of products

JBS has a cogeneration unit called Biolins, which uses biomass (sugarcane bagasse, sawdust, peanut shells, rice hulls and eucalyptus chips) 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.

In 2019, Biolins produced 264,391.60 MWh which represents a reduction of 19,840.40 tCO₂).

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product and avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

Brazilian GHG Protocol Program

% revenue from low carbon product(s) in the reporting year

1

Comment

In Brazil, JBS has a cogeneration unit in Lins/SP, called Biolins, which uses biomass (sugarcane bagasse, sawdust, peanut shells, rice hulls and eucalyptus chips) 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.

Level of aggregation

Product

Description of product/Group of products

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. Water consumption in the tanning stage reduced by 46% and energy consumption fell by 20%.

It was estimated that the project reduced 65% CO2 emissions in the transportation stage.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify

Brazilian GHG Protocol Program

% revenue from low carbon product(s) in the reporting year

1

Comment

In 2019 JBS Couros launched the revolutionary Kind Leather, a product characterized as being even more sustainable and that uses a production process that reduces water and energy consumption, as well as CO2 emissions during transport.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO2e)

4,593,547.51

Comment

Data provided from the 2019 JBS Global GHG Inventory.

Scope 2 (location-based)

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO2e)

1,615,547.85

Comment

Data provided from the 2019 JBS Global GHG Inventory.

Scope 2 (market-based)

Base year start

January 1, 2019

Base year end

December 31, 2019

Base year emissions (metric tons CO₂e)

1,612,289.8

Comment

Data provided from the 2019 JBS Global GHG Inventory.

C5.2

(C5.2) 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)

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)

4,593,547.51

Comment

Data provided from the 2019 JBS Global GHG Inventory.

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 are reporting a Scope 2, market-based figure

Comment

JBS in Brazil has reported its Scope 2 - market-based. The Company has a cogeneration unit in Lins/SP. Biolins, which is located in the Lins Industrial Park, produces steam and thermal energy from biomass (sugarcane bagasse and eucalyptus chips). Biolins runs a thermal plant capable of generating around 45 MW of energy per hour, sufficient to supply a city of 300,000 habitants. Around 47% of this electricity is used to supply Friboi, JBS Couros and JBS Novos Negócios. The remaining is distributed to JBS units and sold on the energy free market. The steam

produced by the plant supplies the adjacent JBS units. Biolins alone generates the equivalent of 20% of all energy used by every JBS plant in Brazil.

C6.3

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

Reporting year

Scope 2, location-based

1,615,547.85

Scope 2, market-based (if applicable)

1,612,289.8

Comment

In 2018, JBS in Brazil reported for the first time its Scope 2 - market-based. Biolins, located in the Industrial Park of Lins (São Paulo), a thermoelectric plant that has the capacity to generate about 45 megawatts of energy per hour. About 47% of the electric energy generated supplies Friboi, JBS Couros and JBS Novos Negócios plants of the industrial complex in which it is installed.

C6.4

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

No

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, not yet calculated

Please explain

Due to the complexity and many stages of the business supply chain, JBS did not yet find a consensus about efficient and feasible methodology to calculate it

Capital goods

Evaluation status

Not relevant, explanation provided

Please explain

Capital goods required for the Company's operations do not contribute to their exposure to risks related to climate change and are not considered critical by stakeholders, and especially those associated with the life cycle emissions cannot be significantly influenced by the Company. Furthermore, compared to the emissions associated with purchased goods (mainly animals and meat), these emissions would be negligible.

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

Evaluation status

Not relevant, explanation provided

Please explain

The Company's activities do not require anything special in relation to the extraction / production and transport of fuels and energy. Thus, the emissions associated with these activities would be negligible forward to the emissions associated with purchased animals and meat, which are what the Company can influence more and more attract the attention of stakeholders.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

202,556.01

Emissions calculation methodology

The methodology used to calculate this GHG emissions complies with “The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)” and IPCC Guidelines for National Greenhouse Gas Inventories, 2006. For Brazil, it was considered national emission factors, according to Brazil GHG Protocol Programme.

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

100

Please explain

Emissions from transportation and distribution of products purchased or acquired by the organization.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO2e

600,415.55

Emissions calculation methodology

The methodology used to calculate this GHG emissions complies with “The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)” and IPCC Guidelines for National Greenhouse Gas Inventories, 2006.

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

0

Please explain

Emissions from external treatment of residues (landfill, composting, incineration and fertigation) from the organization's operations.
The data is provided by JBS operations.

Business travel

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

9,934.48

Emissions calculation methodology

The methodology applied is the Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting.

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

100

Please explain

The emissions described refer to the air travels from JBS staff.

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

37,416.62

Emissions calculation methodology

The methodology applied complies with Brazil GHG Protocol Programme.

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

100

Please explain

Emissions from this category are partially reported (only for Brazil) and the data is provided by JBS operations.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Upstream leased assets required for the Company's operations do not contribute to their exposure to risks related to climate change and are not considered critical by stakeholders, and especially those associated with the life cycle emissions cannot be significantly influenced by the Company. Furthermore, compared to emissions associated with purchased goods (mainly animals and meat), these emissions would be negligible.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

80,349.65

Emissions calculation methodology

The methodology used to calculate this GHG emissions complies with "The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)" and IPCC Guidelines for National Greenhouse Gas Inventories, 2006. For Brazil, it was considered national emission factors, according to Brazil GHG Protocol Programme.

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

100

Please explain

Emissions from transport and distribution of products sold by the organization

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

The vast majority of sales are now to the end consumer, not needing subsequent processing steps.

Use of sold products

Evaluation status

Not relevant, explanation provided

Please explain

The use of goods sold consists of the consumption of meat and processed food to meet nutritional needs. The only emissions associated would be the use of energy (or fuel) for cooking/ preparation and refrigeration products and fugitive emissions related to refrigerants.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

The term treatment of end of life cycle does not properly apply to products sold, since consumers ingest these. The exception would be in cases where the products become unfit for consumption and must be discarded. However, you can make this assessment on packaging in which products are sold, as they can result in some issue if they are disposed of in landfills or incinerated.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

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

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Not applicable to JBS operations.

Investments

Evaluation status

Not relevant, explanation provided

Please explain

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

Other (upstream)

Evaluation status

Not relevant, explanation provided

Please explain

There are no other (upstream) relevant emissions.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Please explain

There are no other (downstream) relevant emissions.

C-AC6.6/C-FB6.6/C-PF6.6

(C-AC6.6/C-FB6.6/C-PF6.6) Can you break down your Scope 3 emissions by relevant business activity area?

Yes

C-AC6.6a/C-FB6.6a/C-PF6.6a

(C-AC6.6a/C-FB6.6a/C-PF6.6a) Disclose your Scope 3 emissions for each of your relevant business activity areas.

Activity

Distribution

Scope 3 category

Upstream transportation and distribution

Emissions (metric tons CO₂e)

202,556.01

Please explain

To account for emissions from mobile sources, JBS considered the volume and type of fuel used in its supply chain fleet - upstream and downstream transportation (Scope 3), when reported by the business units.

When not available, the volume was estimated based on the mileage travelled by adopting the factor for each fuel type and vehicle performance provided by the Brazilian GHG Protocol Program tool.

To calculate emissions in Brazil, the biofuel content added in diesel and gasoline was considered, as provided by the Agência Nacional do Petróleo (ANP). In the case of international emissions, the gross fuel was considered for the calculation of emissions, as there is no information on biofuel blending in fossil fuels purchased in other countries where JBS operates.

Activity

Distribution

Scope 3 category

Downstream transportation and distribution

Emissions (metric tons CO2e)

80,349.65

Please explain

To account for emissions from mobile sources, JBS considered the volume and type of fuel used in its supply chain fleet - upstream and downstream transportation (Scope 3), when reported by the business units. When not available, the volume was estimated based on the mileage travelled by adopting the factor for each fuel type and vehicle performance provided by the Brazilian GHG Protocol Program tool. To calculate emissions in Brazil, the biofuel content added in diesel and gasoline was considered, as provided by the Agência Nacional do Petróleo (ANP). In the case of international emissions, the gross fuel was considered for the calculation of emissions, as there is no information on biofuel blending in fossil fuels purchased in other countries where JBS operates.

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

Please explain

The GHG emissions of production of cattle, poultry and pork products are calculated annually.

Agricultural commodities

Other

Poultry products

Do you collect or calculate GHG emissions for this commodity?

Yes

Please explain

The GHG emissions of production of cattle, poultry and pork products are calculated annually.

Agricultural commodities

Other

Pork products

Do you collect or calculate GHG emissions for this commodity?

Yes

Please explain

The GHG emissions of production of cattle, poultry and pork products are calculated annually.

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

(C-AC6.9a/C-FB6.9a/C-PF6.9a) Report your greenhouse gas emissions figure(s) for your disclosing commodity(ies), explain your methodology, and include any exclusions.

Cattle products

Reporting emissions by

Total

Emissions (metric tons CO2e)

1,474,030.44

Change from last reporting year

Lower

Please explain

The reported data comprises the Scope 1 emissions of the Friboi and JBS USA Beef business units. Cattle products reduced 2% of total emissions when compared to 2018.

Other

Reporting emissions by

Total

Emissions (metric tons CO2e)

2,487,076.21

Change from last reporting year

Lower

Please explain



The emissions figure reported includes emission from both Poultry and Pork commodities. Poultry and Pork emissions reduced 1% when compared to 2018.

For Poultry, the emissions amount was 959,858.92 tCO₂e and includes the following business units and proportion: Seara (12% of the total poultry emissions) + Pilgrim's Moy Park + Pilgrim's USA + Pilgrim's Puerto Rico + Pilgrim's Mexico (88%). Poultry products emission decreased of 11 % when compared to 2018.

For Pork the emissions amount was 1,527,217.29 tCO₂e and includes the following business units and proportion: Seara (2%) + JBS USA Pork + Plumrose + Pilgrim's Tulip (98%). Pork products emissions increased 6% when compared to 2018.

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

0.0000303626

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

6,209,095.36

Metric denominator

unit total revenue

Metric denominator: Unit total

204,500,000,000

Scope 2 figure used

Location-based

% change from previous year

6

Direction of change

Decreased

Reason for change

JBS revenue YoY 2018 and 2019 increased 13% , as the GHG emission due to the increase of production. However, JBS was able to reduce its intensity ratio due to the reduction emissions initiatives such as the replacement of the company's truck fleet, prioritized energy consumption projects by improving the energy efficiency in the buildings by changing the lighting, refrigeration system and optimized process to avoid losses.

Intensity figure

0.128979

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

885,543.67

Metric denominator

metric ton of product

Metric denominator: Unit total

6,865,778.54

Scope 2 figure used

Location-based

% change from previous year

2.4

Direction of change

Increased

Reason for change

This intensity figures considers only the emissions and production of the Brazilians units of JBS Carnes, JBS Couros, Rigamonti, JBS Novos Negócios and Seara, once it represents almost 99% of all JBS Brazil production. The 2019 combined Scope 1 + Scope 2 is 2.4% higher than in previous year.

The main reason for the slight increase in 2019 is the increase of emission and production.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	1,800,158.9	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	2,387,860.55	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	356,659.01	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	48,869.05	IPCC Fourth Assessment Report (AR4 - 100 year)

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
----------------	--------------------------------------

Brazil	684,010.15
Italy	4,963.73
Argentina	5,491.52
Uruguay	524.43
Germany	2,633.78
Mexico	182,752.51
United Kingdom of Great Britain and Northern Ireland	407,761.42
France	11,059.53
Netherlands	709.45
United States of America	2,262,013.68
Canada	70,061.32
Australia	953,709.04
Puerto Rico	729.69
New Zealand	1,845.42
Viet Nam	5,281.84

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 Brazil	553,948.66
Seara	149,413.14
JBS USA	3,890,185.71

C7.3c

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

Activity	Scope 1 emissions (metric tons CO2e)
Agricultural	894,967.75
Stationary Combustion	1,320,771.04
Mobile Combustion	294,247.33
Process Emissions	242,606.87
Fugitive Emissions	48,869.05
Waste and Effluent	1,792,085.47

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 (metric tons CO2e)

894,967.75

Methodology

Other, please specify

Brazilian GHG Protocol Program

Please explain

For Agriculture/Forestry emission we considered we included all CO2 emission from enteric fermentation and fertigation.

Activity

Processing/Manufacturing

Emissions (metric tons CO2e)

3,375,406.27

Methodology

Other, please specify

Brazilian GHG Protocol Program

Please explain

For processing/manufacturing emissions we considered the emissions from Stationary combustion, waste and effluents, fugitives and process.

Activity

Distribution

Emissions (metric tons CO2e)

294,247.33

Methodology

Other, please specify

Brazilian GHG Protocol Program

Please explain

For emission from distribution we considered emission from Mobile Combustion.

C7.5

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

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted for in Scope 2 market-based approach (MWh)
Brazil	170,779.07	167,521.02	3,274,431.97	125,229.95
Italy	4,005.99	4,005.99	12,250.76	12,250.76
Argentina	3,207.19	3,207.19	7,324.03	7,324.03
Uruguay	2,933.86	2,933.86	5,110.44	5,110.44
Germany	43.58	43.58	92.92	92.92

Mexico	104,706.53	104,706.53	198,391.99	198,391.99
United Kingdom of Great Britain and Northern Ireland	73,490.13	73,490.13	287,520.09	287,520.09
France	2,002.46	2,002.46	42,605.49	42,605.49
Netherlands	1,488.97	1,488.97	3,258.14	3,258.14
United States of America	980,346.69	980,346.69	2,152,337.52	2,152,337.52
Canada	9,689.16	9,689.16	74,532	74,532
Puerto Rico	3,925.32	3,925.32	8,699.72	8,699.72
Australia	250,631.29	250,631.29	309,421.35	309,421.35
New Zealand	67.44	67.44	9,114.01	9,114.01
Viet Nam	8,230.14	8,230.14	10,093.38	10,093.38

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 Brazil	86,063.46	82,805.41
Seara	106,253.2	106,253.2

JBS USA	1,423,231.18	1,423,231.18
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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	1,612,643.03	1,609,384.98
Purchase of Steam	2,904.82	2,904.82

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?

Increased

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	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	In 2019, the consumption of renewable energy (location base) had no change despite the increase of production. In 2018, Scope 1+2 accounted for 5,929,876.38 tCO2e and renewable energy consumption accounted for 2,408.93 tCO2e $((2,408.93 / 5,929,876.38) * 100 = 0.15\%)$.

				In 2019, Scope 1+2 accounted for 6,209,095.36tCO2e and the emission of renewable energy consumption was 2405.65 tCO2e, therefore energy emissions also represented 0.15% $((2405.65 / 6,209,095.36) * 100)$.
Other emissions reduction activities	18,431.03	Decreased	0.31	Due to 'emissions reduction initiatives implemented during the year, despite an increase in production, emissions have not grown as high as could be expected. In 2019, 18,431.03 tCO2e were reduced by our emissions reduction projects, and our total Scope 1 and Scope 2 emissions in 2018 was 4.381.369,82 tCO2e, therefore we arrived at -0.31% through $(18508.04 / 5929876.38) * 100 =$ (i.e. a 0.31% decrease in emissions).
Divestment				
Acquisitions	245,285.05	Increased	4	On August 28, 2019, Pilgrim's Pride Corporation ("PPC") signed a contract to acquire Tulip Company ("Tulip"), a leader in the production of pork and prepared foods with operations in the United Kingdom, in a transaction valuing Tulip at £ 290 million (or approximately R\$ 1450 million) to create a leader in protein and prepared foods in Europe by expanding the prepared foods portfolio to 21% of Pilgrim's global sales. In 2019, Tulip, which emissions are accounted within United Kingdom business units represented an increase of 4% of the total emissions of Scope 1+2 if compared with 2018.
Mergers				
Change in output				
Change in methodology				
Change in boundary				
Change in physical operating conditions				

Unidentified				
Other				

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?

Location-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	No
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)	5,985,155.37	7,097,986.69	13,083,142.07
Consumption of purchased or acquired electricity		1,914,970.83	3,444,089.32	5,359,060.15
Consumption of purchased or acquired steam		996,086.51	40,022.15	1,036,108.6
Consumption of self-generated non-fuel renewable energy		0		0
Total energy consumption		8,896,212.71	10,582,098.17	19,478,310.88

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	No

C8.2c

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

Fuels (excluding feedstocks)

Butane

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

991.36

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

991.36

Emission factor

3.3843

Unit

kg CO₂e per metric ton

Emissions factor source

IPCC 2006 v2c2 Table 2.13

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1,238,838.33

MWh fuel consumed for self-generation of electricity

44,805.79

MWh fuel consumed for self-generation of heat

1,157,660

MWh fuel consumed for self-generation of steam

36,372.54

Emission factor

2.7221

Unit

kg CO2e per liter

Emissions factor source

WRI GHG Emission Factors Compilation / Chapter 2 IPCC 2006 Guidelines

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

5,337,813.2

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

58,975.16

MWh fuel consumed for self-generation of steam

5,278,838.05

Emission factor

2.05

Unit

kg CO₂e per m³

Emissions factor source

Natural gas - Unity of volume - Defra 2018

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

329,043.57

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

212,234.75

MWh fuel consumed for self-generation of steam

116,808.82

Emission factor

2.99

Unit

kg CO₂e per metric ton

Emissions factor source

IPCC 2006 Guidelines

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Wood Waste

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

5,027,641.75

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

6,020.78

MWh fuel consumed for self-generation of steam

5,021,620.97

Emission factor

30.3

Unit

kg CO₂e per metric ton

Emissions factor source

WRI GHG Emission Factors Compilation / Chapter 2 IPCC 2006 Guidelines

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

9,443.74

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

9,443.74

MWh fuel consumed for self-generation of steam

0

Emission factor

2.31

Unit

kg CO2e per liter

Emissions factor source

Gasoline – Stationary Combustion - UK - Defra 2018

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Bituminous Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

146,713.33

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

146,713.33

Emission factor

1,829.46

Unit

kg CO2e per metric ton

Emissions factor source

Calculation tool of the Brazilian GHG Protocol Program

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Shale Oil

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

22,063.77

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

22,063.77

Emission factor

2.8

Unit

kg CO2e per metric ton

Emissions factor source

Calculation tool of the Brazilian GHG Protocol Program

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Biogas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

38,877.44

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

12,191.51

MWh fuel consumed for self-generation of steam

26,685.93

Emission factor

2.75

Unit

kg CO2e per metric ton

Emissions factor source

WRI GHG Emission Factors Compilation / Chapter 2 IPCC 2006 Guidelines

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Kerosene

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

7,741.36

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

7,741.36

MWh fuel consumed for self-generation of steam

0

Emission factor

3.14

Unit

kg CO2e per liter

Emissions factor source

IPCC 2006 Guidelines

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Other, please specify

Vegetable Waste

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

5,145.5

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

5,145.5

Emission factor

17.3188

Unit

kg CO₂e per metric ton

Emissions factor source

Calculation tool of the Brazilian GHG Protocol Program

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Other, please specify

Tallow

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

89,808.65

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

89,808.65

Emission factor

2.22

Unit

kg CO2e per liter

Emissions factor source

National Greenhouse Accounts (NGA) Factors - Australian Government - Dept. of Climate Change

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Other, please specify

Sawdust

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

211,258.01

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

211,258.01

Emission factor

35.12

Unit

kg CO2e per metric ton

Emissions factor source

Calculation tool of the Brazilian GHG Protocol Program

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Other, please specify

Ethanol

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1,075.26

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

1,075.26

MWh fuel consumed for self-generation of steam

0

Emission factor

0.01

Unit

kg CO₂e per liter

Emissions factor source

IPCC 2006 Guidelines

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Other, please specify

Sugarcane bagasse

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

611,348.75

MWh fuel consumed for self-generation of electricity

611,348.75

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

Emission factor

867

Unit

kg CO₂e per metric ton

Emissions factor source

Calculation tool of the Brazilian GHG Protocol Program

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Other, please specify

Residual Oil (BFP)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1,321.45

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

1,321.45

Emission factor

3.12

Unit

kg CO₂e per metric ton

Emissions factor source

IPCC 2006 Guidelines

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

Fuels (excluding feedstocks)

Other, please specify

Other oil products

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

4,016.57

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

4,016.57

Emission factor

2.8403

Unit

kg CO2e per liter

Emissions factor source

WRI GHG Emission Factors Compilation / Chapter 2 IPCC 2006 Guidelines

Comment

Emission factor used for calculation of 2019 JBS Global GHG Inventory.

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	656,154.54	170,035.74	611,348.75	125,229.95
Heat	1,465,342.56	1,465,342.56	19,287.55	19,287.55

Steam	10,961,644.96	10,961,644.96	5,354,519.07	5,354,519.07
Cooling	0	0	0	0

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and/or cooling amounts that were accounted for at a zero emission factor in the market-based Scope 2 figure reported in C6.3.

Sourcing method

Power purchase agreement (PPA) with a grid-connected generator without energy attribute certificates

Low-carbon technology type

Biomass

Country/region of consumption of low-carbon electricity, heat, steam or cooling

Brazil

MWh consumed accounted for at a zero emission factor

125,229.95

Comment

Biolins, a cogeneration unit which uses biomass (sugarcane bagasse, sawdust, peanut shells, rice hulls and eucalyptus chips), provides renewable electricity energy for JBS's industrial complex located in Lins/SP. Biolins provided a "Declaration of the amount of renewable electrical energy" to the referred industrial sites.

C9. Additional metrics

C9.1

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

Description

Waste

Metric value

2,176,975.87

Metric numerator

Metric intensity is in metric tonnes

Metric denominator (intensity metric only)

Production/tonnes

% change from previous year

4

Direction of change

Decreased

Please explain

In 2019, JBS had a decreased of 4% of the intensity of waste generated (intensity of tonnes waste by tonnes produced). The tonnes produced had an increase of 3%, while the tonnes waste generated had a decrease of 1%. This result shows JBS efforts to improve our impacts.

Description

Energy usage

Metric value

69,978,035.37

Metric numerator

Metric value in GJ.

Metric denominator (intensity metric only)

Metric intensity is in metric tonnes.

% change from previous year

3

Direction of change

Increased

Please explain

JBS invests in adopting best practices related to energy consumption. The Company is conscious of its responsibility to use renewable energies in order to reduce emissions in its value chain. This item is a priority for management, in terms of both the Company's emissions and eco-efficiency and relies on a definite strategy as well as resources for implementation. Although the energy usage increased 3%, intensity decreased 0.14%.

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	No third-party verification or assurance

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

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Management System Certification_CDP.pdf

Page/ section reference

Page 01

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

15

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

Complete

Type of verification or assurance

Limited assurance

Attach the statement

 Management System Certification_CDP.pdf

Page/ section reference

Page 01

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

12

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.

Alberta Carbon Competitive Incentive Regulation (CCIR) – ETS

EU ETS

C11.1b

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

Alberta Carbon Competitive Incentive Regulation (CCIR) – ETS

% of Scope 1 emissions covered by the ETS

22.71

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2019

Period end date

December 31, 2019

Allowances allocated

0

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO₂e

0

Verified Scope 2 emissions in metric tons CO₂e

0

Details of ownership

Facilities we own but do not operate

Comment

Stationary combustion (natural gas, diesel), enteric fermentation, manure extraction, storage, volatilization and leaching, soil fertilization and crop growth, on site transportation (Gasoline and propane), Wastewater emissions, emissions from decomposition of biomass. More than 58,796 Emission Performance Credits Potential. No credits are required in 2019.

EU ETS

% of Scope 1 emissions covered by the ETS

100

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2013

Period end date

December 31, 2021

Allowances allocated

4,531

Allowances purchased

1,400

Verified Scope 1 emissions in metric tons CO₂e

17,989.83

Verified Scope 2 emissions in metric tons CO₂e

0

Details of ownership

Facilities we own but do not operate

Comment

The trading system includes Pilgrim's Moy Park Dungannon, Country Tyrone, Northern Ireland.

C11.1d

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



JBS business unit that was actively participating in an emissions trading scheme was Pilgrim’s Moypark, located in UK (France, Holland and the Republic of Ireland) fall below the EU ETS threshold. In the UK, Pilgrim’s Moy Park adhere to a voluntary carbon emissions reduction scheme, “Climate Change Agreements”, Pilgrim’s Moy Park complies with that 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. During 2019 the company has invested in converting the thermal combustion equipment to natural gas. The infrastructure/natural gas pipeline has become available during this period. This delivers on previous strategic investment and preparatory work in the past three years.

The Impact was CO2e emissions reduction of 14%, cost management benefit on fuel supply and the cost of carbon.

For JBS USA, the strategy is using capital project underway to build and cover anaerobic lagoon (contributed 76% of total emissions) and flare biogas. Expected timeline for to Lagoon going online is Fall 2020. Ongoing projects to recycle hot water (reduce natural gas) and install LED lights as well as VFDs to reduce electricity consumption.

In addition to the 2019 action plan, JBS will do not owe any amount to be paid due to enhance and consistent best practices for sampling procedures at Anaerobic and Facultative Lagoon.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

Yes

C11.2a

(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.

Credit origination or credit purchase

Credit origination

Project type

Other, please specify

Decarbonization credits

Project identification

Production of Biofuels is issued by an inspecting firm accredited by RenovaBio as a result of the Biofuels Certification process approved by Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (ANP). Certificates of Efficient Biofuel Production approved by the ANP is available for consultation at <http://www.anp.gov.br/producao-de-biocombustiveis/renovabio/certificados-producao-importacao-eficiente>.

Verified to which standard

Other, please specify

Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (ANP)

Number of credits (metric tonnes CO2e)

200,000

Number of credits (metric tonnes CO2e): Risk adjusted volume

200,000

Credits cancelled

No

Purpose, e.g. compliance

Compliance

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

Yes, other partners in the value chain

C12.1a

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

Type of engagement

Innovation & collaboration (changing markets)

Details of engagement

Run a campaign to encourage innovation to reduce climate impacts on products and services

% of suppliers by number

100

% total procurement spend (direct and indirect)

20

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

6

Rationale for the coverage of your engagement

The engagement program called Optimized Route aims to bring more efficiency to cargo transport, by optimizing the trips made by its own trucks and in partnership with third parties, so that trucks that would return to factories empty then transport partner cargo. This means that the entire route back and forth is used 100%, contributing to reducing fuel use and consequent CO2 emissions.

The engagement is based in JBS Brazil and includes supplier of logistics service.

Impact of engagement, including measures of success

The impact expectation of this engagement is to reduce GHG emissions. The measure of its success is assessed by KPI that monitors saving of kilometer driven, consumption fuel and GHG emissions and results have already show reduction of fuel used and CO2 emission and it includes supplier GHG emissions reductions as well. As a result, in 2019, we reduced 8,550.7817 tCO2e emission.

Comment

In 2019, key results from the Optimized Route includes: reduced greenhouse gas emissions by 11,682 metric tons, which is equal to the emissions generated annually by over 6,000 passenger vehicles, savings of over 11.6 million liters of diesel fuel and lowered kilometers travelled by over 28 million

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism

% of suppliers by number

100

% total procurement spend (direct and indirect)

40

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

0

Rationale for the coverage of your engagement

At JBS, the acquisition of raw materials is based on the principles of responsible procurement; this means they are based not only on compliance with federal and local regulations, but also aligned with the most sustainable practices in the sector. This is where the Company's guarantee of origin begins.

Friboi has a robust system of social and environmental monitoring, to analyse and verify whether its livestock sourcing from farms follow the criteria stipulated in its Policy on Responsible Procurement of Raw Materials (<https://jbs.com.br/wp-content/uploads/2020/06/Politica-de-Compra-Responsavel-EN.pdf>), aimed at guaranteeing a sustainable supply chain. There are about 45 million hectares monitored in the Amazon region.

The system covers the identification of deforestation of old growth forests, invasion of indigenous lands and environmental conservation areas or areas under embargo by the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), in addition to cases where forced labor is used.

The group of suppliers was chosen because it's the company's core business suppliers and due to its geographic location, since in Brazil cattle farming is concentrated at an important biome and JBS is committed to protect and remove incentives that could encourage deforestation in Amazon. And 100% of these suppliers are covered by this monitoring system.

Impact of engagement, including measures of success

To comply with the JBS Responsible Procurement Policy, Friboi has the Social and Environmental Monitoring of Cattle Suppliers in Brazil which is a consolidated supplier monitoring system which JBS develops in order to mitigate risks in its supply chain. 100% of these suppliers are covered by this monitoring system.

The system monitors a wide range of issues, from deforestation of native forest on indigenous land, in environmental conservation areas or areas embargoed by the Brazilian Institute for the Environment and Natural Resources (IBAMA), to ensuring suppliers do not employ child or slave labor. As around 50 thousand registered Brazilian cattle suppliers are assessed daily using satellite imagery, farm geo-referencing data and information from government agencies. Using satellite images and georeferenced data on supplier farms, the system monitors an area of 450,000 km² (45 million hectares) located in the Legal Amazon, equal to the size of Germany. If it detects farms that fail to comply with any of the Company's social and environmental criteria of the Public Livestock Commitment, the system suspends trading with the supplier and blocks purchases until the situation has been corrected. As a result, during this period, around 9,000 cattle supplier farms have been blocked by the monitoring system for failing to comply with social and environmental requirements.

In 2019, DNV-GL company of Norway, an international reference in social and environmental auditing, consulting and certifications, confirmed that 100% of cattle acquisitions made by the Company in the Amazonian biome were socially and environmentally compliant (https://jbs.com.br/wp-content/uploads/2019/11/JBS_Relat%C3%B3rioAuditoriaCompromissoPublico_DNVGL-2019_EN.pdf)

This commitment may result in cancellation of contracts when irregularities or incompatible practices are found. That is why there are control mechanisms at various stages of the process.

Comment

The Social and Environmental Monitoring of Cattle Suppliers in Brazil is a consolidated supplier monitoring system which JBS develops in order to mitigate risks in its supply chain. 100% of these suppliers are covered by this monitoring system.

C12.1b

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

Type of engagement

Education/information sharing

Details of engagement

Run an engagement campaign to education customers about your climate change performance and strategy

% 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

Despite it's not feasible to calculate JBS products consumption emissions, the Company runs some engagements and commitments campaigns in order to inform its main customers about its climate change performance and strategy. Considering as an information basis its main customers, JBS gets success in informing them about the related information and obtaining the duly engagement.

Impact of engagement, including measures of success

JBS engagements and commitments campaigns to inform its main customers about its climate change performance and strategy are disseminated through its Sustainability Report (in Portuguese and English), CDP Supply Chain Climate Change and CDP Supply Chain Forest, Public Registration of Emissions (Brazilian Program GHG Protocol), ICD (B3), customers' questionnaires in specific platforms, press releases and participation in diverse thematic events as speaker by its Sustainability professionals.

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 recognizes that in order to achieve meaningful progress to sustainability, it must build partnerships with other stakeholders and organizations who share the same values and commitment to a sustainable future. Thus, JBS participates and holds leadership roles in several multi-stakeholder partnerships dedicated to responsibly addressing sustainability to advance continuous improvement throughout the supply chain. 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. JBS USA is a founding member of the Global Roundtable for Sustainable Beef (GRSB), the U.S. Roundtable for Sustainable Beef (USRSB), the Canadian Roundtable for Sustainable Beef (CRSB) and the Australian Beef Sustainability Framework. JBS USA has held numerous leadership positions in these organizations, including President, Executive Committee member and Board of Director member for the GRSB and Chair of the USRSB and Council for the CRSB. Pilgrim's is a founding member of the U.S. Roundtable for Sustainable Poultry and Eggs (US-RSPE) and serves on the Board of Directors, and 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 and Board member of the Sustainable Livestock Working Group (GTPS), part of 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. Furthermore, the company is also a member of the Brazilian Coalition on Climate, Forests and Agriculture, which works collaboratively on issues connected to climate change and it is a member of the Leather Working Group (LWG).

In 2019, Friboi entered into a partnership with the Araguaia League, whose members include around 60 livestock producers in the Médio Vale do Araguaia region, located in the state of Mato Grosso. The goal is to promote sustainable livestock development in the region, with the support of local producers guaranteeing better productivity and contributing to environmental and local biodiversity conservation while reducing greenhouse gases in the livestock chain. This partnership with JBS was created to strengthen sustainable beef production in the Cerrado region and to meet demand from

major players, who are looking for products differentials. Together, with the livestock producers we helped to preserve an area of 54,000 hectares of legal reserve and permanent preservation areas.

Poultry and pork suppliers undergo through a social and environmental assessment and any project for supplier’s expansion for new registration also undergo through this assessment. Approved Poultry and Pork suppliers must comply with environmental legislation and obtain operating license approved by the environmental agency. In addition, all farms are visited and receive technical guidance regarding multiple topics, including environmental issues.

In conclusion, the measurement of success occurs through acceptance and recognition of our customers, increasing of revenues, acknowledgments and prizes won by JBS due to its value chain sustainable programs.

In addition, JBS has been engaging with significant number of customers in order to reach out sustainability best practices.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

- Direct engagement with policy makers
- Trade associations
- Funding research organizations
- Other

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Energy efficiency	Support with major exceptions	Consultation responses directly and through lobby bodies CBI (Confederation of British Industry) and BPC (British Polling Council).	JBS, through its subsidiary in Europe Pilgrim's Moypark, actively engages directly with policy makers. The environmental issues and awareness are very effective in Europe, which demands Company tighten its actions in relation to the risks and opportunities of its business. For this energy efficiency issue, Pilgrim's Moypark is supporting an UK Energy tax reform.

Energy efficiency	Support with minor exceptions	Energy Saving Opportunity Scheme (ESOS) consultation response.	ESOS review. Provide an industry perspective on the consultation document.
Cap and trade	Support with minor exceptions	EU ETS Consultation response.	EU ETS reform. Provide an industry perspective on the consultation document.
Cap and trade	Oppose	Climate Change Agreement (CCA) consultation response.	CCA review. Provide an industry perspective on the consultation document.
Carbon tax	Support with minor exceptions	Carbon Reduction Commitment (CRC) simplification consultation response.	CRC scheme reform. Provide an industry perspective on the consultation document.
Carbon tax	Support with minor exceptions	Streamlined Energy & Carbon Reporting (SECR)	Elimination of the CRC scheme, aggregation of several policy instruments into a single instrument. Provide an industry perspective on the consultation document.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Brazilian Roundtable on Sustainable Livestock (BRSL)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's 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).

How have you influenced, or are you attempting to influence their position?

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.

Trade association

Global Roundtable for Sustainable Beef (GRSB)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

JBS is a founding member of the 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 environmentally sound, socially responsible and economically viable.

How have you influenced, or are you attempting to influence their position?

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.

Trade association

British Poultry Council lobbying for economically effective Sector Energy & Emissions Policy & Targets

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

Reducing the potential for climate change is integral to 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 the reduction of energy use. BPC member companies are required to be part of the CCA for both their farms and processing plants. Our members are also part of environmental permitting regulations, whereby emissions, including odour, are monitored, controlled, and reduced.

How have you influenced, or are you attempting to influence their position?

Responded to BPC discussion document on the effective cost of carbon measures government could deploy to stimulate improvements within the Climate Change Agreement scheme.

Trade association

U.S. Roundtable for Sustainable Beef (USRSB)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The USRSB is a multi-stakeholder initiative developed to advance, support and communicate continuous improvement in 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 environmentally sound, socially responsible and economically viable beef.

How have you influenced, or are you attempting to influence their position?

JBS USA is a founding member, board of directors' member and past Chair.

The USRSB is comprised of the following five constituencies: producers, allied industry, packers/processing, retail/food service, and civil society.

The Board of Directors, made up of equal board seats from representation of each constituency, directs the activities of the USRSB. The Board of Directors guides the work of the USRSB through Working Groups, Committees and Task Forces. It is through these working groups that the USRSB's work is accomplished.

These working groups examine issues and seek solutions to advance, support and communicate continuous improvement in beef sustainability.

Trade association

U.S. Roundtable for Sustainable Poultry and Eggs (US-RSPE)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's 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. Environmental: Air quality, by-products, energy use, GHG emissions, land use, nutrient management, solid waste, water quality and water use. Social: Community relations, employee relations, employee retention, employee safety, food security and grower relations.

Economic: Legal compliance, profitability, consumer confidence and industry structure.

How have you influenced, or are you attempting to influence their position?

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.

C12.3d

(C12.3d) Do you publicly disclose a list of all research organizations that you fund?

Yes

C12.3e

(C12.3e) Provide details of the other engagement activities that you undertake.

JBS USA holds leadership roles in several multi-stakeholder partnerships dedicated to responsibly addressing sustainability to advance continuous improvement through the supply chain. JBS USA is a founding member of the Canadian Roundtable for Sustainable Beef (CRSB) and the Australian Beef Sustainability Framework. Pilgrim's Moy Park is a member of the Sustainable Agriculture Initiative (SAI) Platform.

In Brazil, JBS is 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. For example, through ABIEC and the sector of grains (Brazilian Oilseed Processors Association - ABIOVE) the company worked to improve the public list of illegal deforestation areas. Because of these efforts, in 2012 the IBAMA Working Group (GT IBAMA) was created,

in order to propose solutions to operational improvements relating to the public list of areas embargoed by IBAMA. This partnership work with the productive sector and technicians from IBAMA led to improvement of the IBAMA list as a query tool for companies that establishes environmental criteria for their suppliers.

Furthermore, 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 (www.beefontrack.org/), which establishes criteria for purchasing raw material for the Company's operations in the region. Moreover, JBS holds the Presidency of the Sustainable Committee of the Brazilian Animal Protein Association (ABPA), a member of the Leather Working Group (LWG), which the objective of this multi-stakeholder group is to develop and maintain a protocol that assesses the environmental compliance and performance capabilities of leather manufacturers and promotes sustainable and appropriate environmental business practices within the leather industry.

In 2015, JBS became an active member of EPC ("Empresas pelo Clima" - Business for the Climate Platform), a continuous Brazilian business platform, whose goal is to mobilize, engage and involve corporate leaderships for managing and reducing GHG emissions.

Since 2012, JBS has been a member of the Brazilian GHG Protocol Program, through the publication of its Greenhouse Gases Emissions Inventory in the Public Registry of Emissions Platform. The Company also participates in other initiatives such as the CDP and the Carbon Efficient Index (ICO2) of B3 (Brazilian stock exchange) and the Paraná Climate Seal and the Sao Paulo State Climate Protocol, managed by the two states' Environment Secretariats, JBS has participated in the Scope 3 Technical Working Group of the Brazilian GHG Protocol Program. The company also contributed to the Working Group of the Agriculture GHG Protocol, which developed a tool with a new metric for calculating carbon emissions by the agribusiness sector, seeking to adapt to the Brazilian reality the indicators used worldwide (countries of temperate climate), currently in agricultural measurement. Over the course of the year 2019, 19,056 head of cattle were acquired from family farmers through the Social Fuel Seal program, a 60% increase year-over-year. The programs approach includes training small livestock producers in an effort to improve pasture lands, property management, herd management and genetic improvement, with purchases guaranteed by the Company. Total revenue for the 338 families surpassed R\$ 38.5 million for the year. Around 30,000 head of cattle are expected to be purchased in 2020, involving more than 400 families. The Social Fuel Seal was offered exclusively to farmers, in order to foster development and generation of biodiesel based on oilseed sources, such as soybeans, since beef tallow, a coproduct of meat processing, is the second most important source of raw material for the production of Brazilian biodiesel, the inclusion of the livestock chain in the National Program of Biodiesel Production and Use National Program of Biodiesel Production and Use (PNPB) may stimulate the economy. The Social Fuel Seal (SCS), given by the *Ministério da Agricultura, Pecuária e Abastecimento* (MAPA), is connected to the National Program for Biodiesel Production and Use (PNPB). Support for the project has qualified JBS Biodiesel for the Brazilian government's Social Fuel Seal. Two JBS Biodiesel units hold the seal.

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

The direct and indirect activities which JBS undertake are strictly related to the Company's climate change strategy, thus to ensure that all JBS's engagements are consistent with the overall climate change strategy, the Sustainability Committee Board is responsible for dealing and connecting all subjects related sustainability and climate change in the Company's business in a global level, such as: identification, evaluation and treatment of critical issues that result in risks and business impact; monitoring and implementation of policies, strategies and specific actions and evaluation of proposals for sustainability investments.

The Sustainability and climate change strategy of JBS is focused on both supply chain (cattle purchase programs and actions on the poultry chain and pork chain) and processing products (internal environmental improvements and eco-efficiency) and in order to express and guarantee that the principles are embed within it strategy to its activities and all team members, in Brazil, the Company has formalized environmental policy and relies on a management system and indicators to guide development of short and long-term strategies.

For the supply chain and based on the best practices in agribusiness, the main strategies adopted by Sustainability Committee Board is to promote the Sustainable Farming Program, that in Brazil is related to decreased pressure on new pastures, contributing to reduce deforestation, and consequently to reduce CO2 emissions. In Brazil, JBS has not only an important instrument for guaranteeing raw material integrity and quality, which is the Supply Chain Protocol, but also, a robust social and environmental monitoring system to verify whether its cattle suppliers comply with the social and environmental criteria defined on the Raw Material Responsible Procurement Policy. The system monitors a wide range of issues, from deforestation of native forest on indigenous land, in environmental conservation areas or areas embargoed by the Brazilian Institute for the Environment and Natural Resources (IBAMA), to ensure suppliers do not employ child or slave labor. Around 50 thousand registered Brazilian cattle suppliers are assessed daily using satellite imagery, farm geo-referencing data and information from government agencies. This exclusive JBS monitoring system covers over 45 million ha in the Amazon region. If it detects farms that fail to comply with any of the Company's social and environmental criteria of the Public Livestock Commitment, the system blocks the supplier until the situation has been corrected. The entire cattle procurement process and the Social and Environmental Monitoring System are audited annually by independent, third-party company. For more transparency, the audit reports can be access at https://jbs.com.br/wp-content/uploads/2019/11/JBS_Relat%C3%B3rioAuditoriaCompromissoPublico_DNVGL-2019_EN.pdf. In 2019, the audit process performed by the company DNV-GL confirmed that 100% of cattle acquisitions made by the Company in the Amazonian biome were compliant. Moreover, JBS only buy soy products from companies that are signatories of the Soy Moratorium, an initiative launched by the Brazilian Association of Vegetable Oil Industries (ABIOVE) and the National Association of Cereal Exporters (ANEC), operationalized by the Soy Working Group (GTS). By this agreement, participants commit to not purchase soy produced in land deforested after 2006, including direct and indirect soy suppliers.

JBS also requires the poultry and pork suppliers to present its environmental licensing and have instructed them to perform composting of the organic waste produced by the farms. Moreover, the pork suppliers are also encouraged to put in place a wastewater treatment. Both initiatives encourage the suppliers to reduce their GHG emissions.

JBS Couros launched 360, a platform where is possible to access information from the farm of origin to the final product. Through the jbs360.com.br website, customers have quick access to information on the origin of leather. Each item is identified, allowing the website to be used to trace where the product was originated, the production units of raw materials and their respective locations, as well as the tanneries where leather was processed. Besides that, according to the JBS Sustainability policy, JBS's commitment to sustainability is evidenced by the way the relationships are established with willing partners who seek to make a positive impact throughout its value chain.

In addition, the corporate sustainability team is responsible for following the demands climate agendas, mapping their related risks and opportunities, monitoring the indicators and reporting these issues to decision making in the sustainability committee, who reports to the Chair Board.

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 mainstream reports

Status

Complete

Attach the document

 RAS JBS 2019_EN.pdf

Page/Section reference

All document

Content elements

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets

Comment

Document available at <https://jbs.com.br/wp-content/uploads/2020/05/ras-jbs-2019-eng-final.pdf>

Publication

In mainstream reports

Status

Complete

Attach the document

 JBS USA_ RAS2019_ExecutiveSummary.pdf

Page/Section reference

All document

Content elements

- Governance
- Strategy
- Risks & opportunities
- Emissions figures
- Emission targets

Comment

Complete document available at <https://sustainability.jbssa.com/>

Publication

In mainstream reports

Status

Complete

Attach the document

 PILGRIMS_RAS2019_ExecutiveSummary.pdf

Page/Section reference

All document

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets

Comment

Complete document available at <https://sustainability.pilgrims.com/>

Publication

In other regulatory filings

Status

Complete

Attach the document

 Formulário Referência.pdf

Page/Section reference

Section 4, 5, 7 and 12

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures

Comment

Document available at https://mz-prod-cvm.s3.amazonaws.com/20575/FRE/2020/4aa5f8d2-9cec-4156-802c-3cbbc1fcbbac/20200530013416669211_02057520200101801.pdf

Publication

In voluntary communications

Status

Underway – previous year attached

Attach the document

 PBGHG_JBS_Inventário 2018.pdf

Page/Section reference

All document

Content elements

Emissions figures

Comment

Document available at <https://registropublicodeemissoes.com.br/participantes/475>

Publication

In voluntary communications

Status

Complete

Attach the document

 ICO2_ResumoCarteiraTeorica.pdf

Page/Section reference

2

Content elements

Emissions figures

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

Publication

In voluntary sustainability report

Status

Complete

Attach the document

1

 Selo Clima Paraná 2019.pdf

Page/Section reference

1

Content elements

Strategy

Emissions figures

Comment

Certified issued by GOVERNO ESTADO DO PARANÁ

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?

No

Description of the response(s)

Since there are only positive impacts, there is no need for implementation of any response regarding the detailed impacts.

Management practice reference number

MP2

Overall effect

Positive

Which of the following has been impacted?

Biodiversity

Soil

Description of impact

The reforestation of degraded lands means an improvement in the quality of the soil, allowing the development of crop and livestock integration and improving the biodiversity around the reforestation area.

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

No

Description of the response(s)

Since there are only positive impacts, there is no need for implementation of any response regarding the detailed impacts.

C15. 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.

C15.1

(C15.1) 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 animal protein company and second largest food company in the world. 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 and poultry segments, the Company also operates related businesses, such as leather, biodiesel, personal care and cleaning, solid waste management solutions, and metal packaging.

With locations in 15 countries and over 400 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 over 240,000 team members, the same sustainability (economic, social and environmental), innovation, quality and food safety guidelines are followed in every region, adopting best practices based on the Company's mission and values and a focus 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.

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, Plumrose, Primo, Seara and Swift. JBS also launched an entire line of plant-based products in Brazil called Incrível Seara and the Ozo brand in US. In Australia, under PRIMO brand, launched a flexitarian sausage. Company operations in the United States, Australia, Canada, Mexico, Puerto Rico, New Zealand, the United Kingdom and Mainland Europe are controlled by JBS USA, which includes the JBS USA Beef, JBS USA Pork and Pilgrim's Pride Corporation (holder of the Moy Park and Tulip operations) business units. In Brazil, the Company develops beef, poultry, pork and prepared food businesses, split among the Friboi and Seara main brands.

In 2019, JBS's net revenue was R\$204.5 billion, equivalent to US\$ 49.7 billion. This is 13% higher than 2018.

More information can be found in the official JBS website (<https://jbs.com.br/en/>) and in the JBS 2019 Annual and Sustainability Report (<https://jbs.com.br/wp-content/uploads/2020/05/ras-jbs-2019-eng-final.pdf>).”

SC0.1

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

	Annual Revenue
Row 1	204,500,000,000

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

Yes

SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	BR	JBSSACNOR8

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

McDonald's Corporation

Scope of emissions

Scope 1

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to McDonald's Corporation are provided from Seara, Friboi, JBS Australia, Pilgrim's Mexico and Pilgrim's Moypark.

Emissions in metric tonnes of CO₂e

61,197.83

Uncertainty (±%)

10

Major sources of emissions

Seara represents 2% of McDonald's Corporations' Scope 1 allocated emissions of JBS, the major sources from scope 1 are waste and effluents (40.2%, where 32.97% is from wastewater treatment), stationary combustion (28.4%, where 84.2% is from boilers) and fugitive emissions (24.4%) .

Friboi represents 4.43 % of McDonald's Corporations' Scope 1 allocated emissions of JBS, the major sources from scope 1 are waste and effluents (76.27%, where 73.95% is from wastewater treatment) and agriculture (15.42%, where 98% is from enteric fermentation).

JBS Australia represents 57.2 % of McDonald's Corporations' Scope 1 allocated emissions of JBS, the major source from scope 1 is agriculture (77.41% from enteric fermentation).

Pilgrim's Mexico represents 1,75% of McDonald's Corporations' Scope 1 allocated emissions of JBS, the major sources from scope 1 are stationary combustion (54.32%, where 34,34% is from boilers and 19,85% is from animal heating) and waste and effluents (34%).

Pilgrim's Moy Park represents 35,16% of McDonald's Corporations' Scope 1 allocated emissions of JBS, the major source from scope 1 is stationary combustion (39.5% from boilers).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 6 business divisions of JBS (Seara, Friboi, JBS Australia, Pilgrim's Mexico and Pilgrim's Moy Park) that supply to McDonald's Corporation. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 1 were respectively: Seara (994.94 tCO₂e), Friboi (2713.63 tCO₂e), JBS Australia (34896.54 tCO₂e), Pilgrim's Mexico (1073.91 tCO₂e) and Pilgrim's Moy Park (21518.80 tCO₂e).

Requesting member

McDonald's Corporation

Scope of emissions

Scope 2

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to McDonald's Corporation are provided from Seara, Friboi, JBS Australia, Pilgrim's Mexico and Pilgrim's Moypark.

Emissions in metric tonnes of CO₂e

16,033.49

Uncertainty (±%)

10

Major sources of emissions

Seara represents 4,41% of McDonald's Corporation's Scope 2 allocated emissions while for Friboi this amount corresponds to 2,41%. JBS Australia, 57,2%, for Pilgrim's Mexico, 3,82% and for Pilgrim's Moy Park, 32,1%. Seara's and Friboi's sources of emissions in Scope 2 are in vast majority from electricity purchased and consumed (steam represents 0.5% and 2,48% respectively). The emissions' sources in Scope 2 of JBS Australia, Pilgrim's Mexico and Pilgrim's Moy Park are from electricity purchased.

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 6 business divisions of JBS (Seara, Friboi, JBS Australia, Pilgrim's Mexico and Pilgrim's Moy Park) that supply to McDonald's Corporation. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 2 were respectively: Seara (707.53 tCO₂e), Friboi (385.95 tCO₂e), JBS Australia (9170.68 tCO₂e), Pilgrim's Mexico (614.82 tCO₂e) and Pilgrim's Moy Park (5154.47 tCO₂e).

Requesting member

McDonald's Corporation

Scope of emissions

Scope 3

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to McDonald's Corporation are provided from Seara, Friboi, JBS Australia, Pilgrim's Mexico and Pilgrim's Moypark.

Emissions in metric tonnes of CO2e

7,118.15

Uncertainty (±%)

10

Major sources of emissions

For Seara, its major scope 3 emission sources are waste generated in operations (32.97% - being 59.7% from sanitary landfill and 39.61% from composting), transport and distribution upstream (30.29%) and transport and distribution downstream (26.94%). It represents 27% of the allocated emissions in Scope 3. Thus, Friboi contributes with 28%, being waste generated in operations the main source (98% - being 90% from sanitary landfill).

JBS Australia contributes with 6.92%, being waste generated in operations the main source (94.8% - being 77.1% from sanitary landfill and 22.9% from composting).

Pilgrim's Mexico contributes with 2.43%, being waste generated in operations the main source (97.2% - being 63.62% from sanitary landfill and 36.35% from composting).

Pilgrim's Moy Park contributes with 35.44%, being waste generated in operations the main source (almost 100% - being almost 100% from incineration).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 6 business divisions of JBS (Seara, Friboi, JBS Australia, Pilgrim's Mexico and Pilgrim's Moy Park) that supply to McDonald's Corporation. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 3 were respectively: Seara (1913.97 tCO₂e), Friboi (2015.97 tCO₂e), JBS Australia (492.25 tCO₂e), Pilgrim's Mexico (173.21 tCO₂e) and Pilgrim's Moy Park (2522.73 tCO₂e).

Requesting member

Arcos Dorados

Scope of emissions

Scope 1

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Arcos Dourados are provided from Seara and Friboi.

Emissions in metric tonnes of CO₂e

3,667.44

Uncertainty (±%)

10

Major sources of emissions

Seara represents 27% of Arcos Dourados's Scope 1 allocated emissions from JBS, the major sources are waste and wastewater treatment (40% - being 82% from wastewater treatment), stationary combustion (29% - being 84% from boilers) and fugitive emissions (24%). Friboi represents 73% of Arcos Dourados's Scope 1 allocated emissions from JBS, the major sources are waste and wastewater treatment (76% - being 97% from wastewater treatment), agricultural activities (15% - being 98% from enteric fermentation) and stationary combustion (6% - being 56% from boilers).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 2 business divisions of JBS specific to Brazil (Seara and Friboi) that supply to Arcos Dourados. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 1 were respectively: Seara (994.94 tCO₂e) and Friboi (2,672.50 tCO₂e).

Requesting member

Arcos Dorados

Scope of emissions

Scope 2

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Arcos Dourados are provided from Seara and Friboi.

Emissions in metric tonnes of CO₂e

1,087.65

Uncertainty (±%)

10

Major sources of emissions

Seara represents 65% of Arcos Dourados's Scope 2 allocated emissions while for Friboi this amount corresponds to 35%. Seara's and Friboi's sources of emissions in Scope 2 are in vast majority from electricity purchased and consumed (only 0.5% of steam for the first and 2% for the second one).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 2018 JBS's GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 2 business

divisions of JBS specific to Brazil (Seara and Friboi) that supply to Arcos Dourados. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into Operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 2 were respectively: Seara (707.54 tCO₂e) and Friboi (380.11 tCO₂e).

Requesting member

Arcos Dorados

Scope of emissions

Scope 3

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Arcos Dourados are provided from Seara and Friboi.

Emissions in metric tonnes of CO₂e

3,899.38

Uncertainty (±%)

10

Major sources of emissions

For Seara, its major scope 3 emission sources are waste generated in operations (33% - being 60% from sanitary landfill and 40% from composting), transport and distribution downstream (30%) and transport and distribution upstream (27%). It represents 49% of the allocated emissions in Scope 3. Thus, Friboi contributes with 51%, being waste generated in operations the main source (98% - being 91% from sanitary landfill).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 2018 JBS's GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 2 business divisions of JBS specific to Brazil (Seara and Friboi) that supplies to Arcos Dourados. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 2 were respectively: Seara (881.90 tCO₂e) and Friboi (201.48 tCO₂e). Based on this calculation, the GHG allocated emissions for Scope 3 were respectively: Seara (1,913.98 tCO₂e) and Friboi (1,985,41 tCO₂e).

Requesting member

Johnson & Johnson

Scope of emissions

Scope 1

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Johnson & Johnson are provided from JBS Higiene & Limpeza.

Emissions in metric tonnes of CO₂e

89.9

Uncertainty (±%)

10

Major sources of emissions

In 2019, JBS Higiene & Limpeza released 407 tonnes of CO₂e in atmosphere, which the main source was transportation.

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from JBS Higiene & Limpeza that supplies to Johnson & Johnson. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton.

Requesting member

Johnson & Johnson

Scope of emissions

Scope 2

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Johnson & Johnson are provided from JBS Higiene & Limpeza.

Emissions in metric tonnes of CO₂e

419.41

Uncertainty (±%)

10

Major sources of emissions

In 2019, JBS Higiene & Limpeza released 1,057.15 tonnes of CO₂e in atmosphere, related to the purchase of grid electricity.

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from JBS Higiene & Limpeza that supplies to Johnson & Johnson. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are

grouped into Operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton.

Requesting member

Johnson & Johnson

Scope of emissions

Scope 3

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Johnson & Johnson are provided from JBS Higiene & Limpeza.

Emissions in metric tonnes of CO₂e

357.84

Uncertainty (±%)

10

Major sources of emissions

In 2019, JBS Higiene & Limpeza released 1,619.73 tonnes of CO₂e in atmosphere. Emissions from transportation represented 50% of total emissions and waste generated in the operations represented 48% of total emissions (of these - 87% from composing and 13% from sanitary landfill).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from JBS Higiene & Limpeza that supplies to Johnson & Johnson. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton.

Requesting member

Restaurant Brands International

Scope of emissions

Scope 1

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Restaurant Brands International are provided from Seara, Friboi, JBS Australia, Pilgrim's USA, Pilgrim's Mexico, Pilgrim's Moypark and Pilgrim's Puerto Rico.

Emissions in metric tonnes of CO₂e

335,670.34

Uncertainty (±%)

10

Major sources of emissions

Seara represents 0.04% of RBI's Scope 1 allocated emissions from JBS, the major sources are waste and wastewater treatment (76.27% - being 97% from wastewater treatment) and stationary combustion (28.74% - being 84.18% from boilers).

Friboi represents 0.82% of RBI's Scope 1 allocated emissions from JBS, the major sources are waste and wastewater treatment (81% - being 98% from wastewater treatment), agricultural activities (15.42% - being 98% from enteric fermentation) and stationary combustion (6.41% - being 56% from boilers).

JBS Australia represents 2.7% of RBI's Scope 1 allocated emissions from JBS, the major sources are agricultural activities (77.4% - being 100% from enteric fermentation), waste and wastewater treatment (15.59% - being 95.98% from manure management) and stationary combustion (6.44% - being almost 98.26% from boilers).

Pilgrim's USA represents 1% of RBI's Scope 1 allocated emissions from JBS, the major sources are stationary combustion (77,46% - being 100% from boilers) and emissions from process (22,54%).

Pilgrim's Mexico represents 0,53% of RBI's Scope 1 allocated emissions from JBS, the major sources are stationary combustion (54,32% - being 34,37% from boilers) and waste and wastewater treatment (34% - being almost 98.4% from manure management).

Pilgrim's Moy Park represents 94.86% of RBI's Scope 1 allocated emissions from JBS, the major sources are waste and wastewater treatment (41% - being 100% from manure management) and stationary combustion (39.52% - being 100% from boilers).

Pilgrim's Puerto Rico represents 0.1% of RBI's Scope 1 allocated emissions from JBS, the major sources are Mobile Combustion (81.83%) and fugitive emissions (12.19%).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 6 business divisions of JBS (Seara, Friboi, JBS Australia, Pilgrim's Mexico and Pilgrim's Moy Park) that supply to McDonald's Corporation. In order to

discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 1 were respectively: Seara (123.98 tCO₂e), Friboi (2751.48 tCO₂e), JBS Australia (9060.78 tCO₂e), Pilgrim's USA (3515,23 CO₂e), Pilgrim's Mexico (1772.5 tCO₂e) and Pilgrim's Moy Park (318424.19 tCO₂e) and Pilgrim's Puerto Rico (22.12 tCO₂e).

Requesting member

Restaurant Brands International

Scope of emissions

Scope 2

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Restaurant Brands International are provided from Seara, Friboi, JBS Australia, Pilgrim's USA, Pilgrim's Mexico, Pilgrim's Moypark and Pilgrim's Puerto Rico

Emissions in metric tonnes of CO₂e

84,028.79

Uncertainty (±%)

10

Major sources of emissions

Seara represents 0.1% of RBI's Scope 2 allocated emissions while for Friboi this amount corresponds to 0.47%. For Pilgrim's USA 4.48%, for JBS Australia 2.83%, for Pilgrim's Mexico 1.21%, 90.7% for Pilgrim's Moypark. Seara's and Friboi's sources of emissions in Scope 2 are in vast

majority from electricity purchased and consumed (steam represents 0.5% and 2,48% respectively). Emissions' sources in Scope 2 of JBS USA Beef, Pilgrim's USA, JBS Australia, Pilgrim's Mexico and Pilgrim's Moypark are from electricity purchased.

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 7 business divisions of JBS (Seara, Friboi, JBS USA Beef, JBS Australia, Pilgrim's USA, Pilgrim's Mexico and Pilgrim's Moy Park) that supply to RBI. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into Operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 2 were respectively: Seara (88.17tCO₂e), Friboi (391.34 tCO₂e), JBS Australia (2381.14 tCO₂e), Pilgrim's USA (3760.98 tCO₂e), Pilgrim's Mexico (1014.80 tCO₂e), Pilgrim's Moy Park (76273.34 tCO₂e) and Pilgrim's Puerto Rico (119 tCO₂e).

Requesting member

Restaurant Brands International

Scope of emissions

Scope 3

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Restaurant Brands International are provided from Seara, Friboi, JBS Australia, Pilgrim's USA, Pilgrim's Mexico, Pilgrim's Moypark and Pilgrim's Puerto Rico.

Emissions in metric tonnes of CO2e

41,298.51

Uncertainty (±%)

10

Major sources of emissions

For Seara, its major scope 3 emission sources are waste generated in operations (36% - being 56% from composting and 44% from sanitary landfill), transport and distribution downstream (31%) and transport and distribution upstream (24%). It represents 21% of the allocated emissions in Scope 3.

Friboi contributes with 4.95%, being waste generated in operations the main source (97.54% - being 90.94% from sanitary landfill and 8.7% from composting).

JBS Australia contributes with 0.31%, being waste generated in operations the main source (94.8% - being 77.1% from sanitary landfill and 22.9% from composting).

Pilgrim's USA contributes with 2.98%, being the main sources transport and distribution downstream (62.45%) and waste generated in operations (37.55% - being 100% from sanitary landfill).

Pilgrim's Mexico contributes with 0.69%, being waste generated in operations the main source (97.2% - being 63.62% from sanitary landfill and 36.35% from composting).

Pilgrim's Moypark contributes with 90.39%, being waste generated in operations the main source (almost 100% - being almost 100% from incineration).

Pilgrim's Puerto Rico 0.1% , the source is from waste generated in operations the main source (100% from incineration).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 7 business divisions of JBS (Seara, Friboi, JBS USA Beef, JBS Australia, Pilgrim's USA, Pilgrim's Mexico and Pilgrim's Moy Park) that supply to RBI. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 3 were respectively: Seara (238.51 tCO₂e), Friboi (2044.08 tCO₂e), JBS Australia (127.81 tCO₂e), Pilgrim's USA (1232.73 tCO₂e), Pilgrim's Mexico (285.90 tCO₂e), Pilgrim's Moy Park (37330.15 tCO₂e) and Pilgrim's Puerto Rico (39.31 tCO₂e).

Requesting member

Walmart, Inc.

Scope of emissions

Scope 1

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Walmart are provided from Friboi, JBS USA Beef, Plumose, JBS Food Canada, Pilgrim's USA and Pilgrim's Puerto Rico.

Emissions in metric tonnes of CO₂e

20,125.17

Uncertainty (±%)

10

Major sources of emissions

Friboi represents 1% of Walmart's Scope 1 allocated emissions from JBS, the major sources are waste and wastewater treatment (76% - being 97% from wastewater treatment), agricultural activities (15% - being 98% from enteric fermentation) and stationary combustion (6% - being 56% from boilers). JBS USA Beef represents 32% of Walmart's Scope 1 allocated emissions from JBS, the major sources are stationary combustion (73% - being 100% from boilers) and emissions from process (15%). Plumrose represents 11% of Walmart's Scope 1 allocated emissions from JBS, the major source is stationary combustion (almost 100% - being 100% from boilers). JBS Canada represents 0.4% of Walmart's Scope 1 allocated emissions from JBS, the major source is stationary combustion (73% - being almost 100% from boilers) and emissions from process (12%). Pilgrim's USA represents 55% of Walmart's Scope 1 allocated emissions from JBS, the major sources are stationary combustion (77% - being 100% from boilers) and emissions from process (23%). Pilgrim's Puerto Rico represents 0.6% of Walmart's Scope 1 allocated emissions from JBS, the major sources are transportation (82%), and fugitive emissions (12%).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 6 business divisions of JBS (Friboi, JBS USA Beef, Plumrose, JBS Canada, Pilgrim's USA and Pilgrim's Puerto Rico) that supply to Walmart. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for

Scope 1 were respectively: Friboi (213.50 tCO₂e), JBS USA Beef (6,403.14 tCO₂e), Plumrose (2,184.45 tCO₂e), JBS Canada (70.39 tCO₂e), Pilgrim's USA (11,129.27 tCO₂e) and Pilgrim's Puerto Rico (124.42 tCO₂e).

Requesting member

Walmart, Inc.

Scope of emissions

Scope 2

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Walmart are provided from Friboi, JBS USA Beef, Plumrose, JBS Food Canada, Pilgrim's USA and Pilgrim's Puerto Rico.

Emissions in metric tonnes of CO₂e

20,986.44

Uncertainty (±%)

10

Major sources of emissions

Friboi represents 0.1% of Walmart's Scope 2 allocated emissions. For Pilgrim's USA this amount corresponds to 57%, for JBS USA Beef, 17%, for Plumrose, 23%, for JBS Canada, 0.005% and for Pilgrim's Puerto Rico, 3%. JBS Friboi's sources of emissions in Scope 2 are in vast majority from electricity purchased and consumed (only 2% of steam). Emissions' sources in Scope 2 of Pilgrim's USA, JBS USA Beef, JBS USA Pork, Plumrose, JBS Canada and Pilgrim's PuertoRico are from electricity purchased.

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 6 business divisions of JBS (Friboi, JBS USA Beef, Plumrose, JBS Canada, Pilgrim's USA and Pilgrim's Puerto Rico) that supply to Walmart. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into Operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 2 were respectively: Friboi (30.37 tCO₂e), JBS USA Beef (3,567.47 tCO₂e), Plumrose (4,802.27 tCO₂e), JBS Canada (9.73 tCO₂e), Pilgrim's USA (11,907.31 tCO₂e) and Pilgrim's Puerto Rico (669.29 tCO₂e).

Requesting member

Walmart, Inc.

Scope of emissions

Scope 3

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Walmart are provided from Friboi, JBS USA Beef, Plumrose, JBS Food Canada, Pilgrim's USA and Pilgrim's Puerto Rico.

Emissions in metric tonnes of CO₂e

5,412.04

Uncertainty (±%)

10

Major sources of emissions

Friboi contributes with 3% of the allocated emissions in Scope 3, being waste generated in operations the main source (98% - being 91% from sanitary landfill). JBS USA Beef contributes with 12%, being waste generated in operations the main source (100% - being 70% from sanitary landfill and 30% from composting), Plumrose contributes with 9%, being waste generated in operations the main source (100% - being 100% from sanitary landfill), JBS Canada contributes with 0.02%, being waste generated in operations the main source (100% - being 100% from sanitary landfill), Pilgrim's USA contributes with 72%, being transport and distribution upstream (62%) and waste generated in operations (38% - being 100% from sanitary landfill) the main sources, Pilgrim's Puerto Rico contributes with 4%, being waste generated in operations the main source (100% - being 100% from sanitary landfill).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 6 business divisions of JBS (Friboi, JBS USA Beef, Plumrose, JBS Canada, Pilgrim's USA and Pilgrim's Puerto Rico) that supply to Walmart. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 3 were respectively: Friboi (158.61 tCO₂e), JBS USA Beef (653.72 tCO₂e), Plumrose (474.65 tCO₂e), JBS Canada (1.10 tCO₂e), Pilgrim's USA (3,902.84 tCO₂e) and Pilgrim's Puerto Rico (221.11 tCO₂e).

Requesting member

Wal Mart de Mexico

Scope of emissions

Scope 1

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Walmart de Mexico are provided from JBS USA Beef, JBS USA Pork, JBS Canada and Pilgrim's Mexico.

Emissions in metric tonnes of CO₂e

30,776.36

Uncertainty (±%)

10

Major sources of emissions

JBS USA Beef represents 3% of Walmart's Scope 1 allocated emissions from JBS, the major sources are stationary combustion (72% - being 100% from boilers) and emissions from process (15%).

JBS USA Pork represents 2% of Walmart's Scope 1 allocated emissions from JBS, the major sources are waste and wastewater (72% - being almost 100% emissions from waste management) and stationary combustion (16.33%).

JBS Canada represents 0.08% of Walmart's Scope 1 allocated emissions from JBS, the major source is stationary combustion (79.47% - being 100% from boilers).

Pilgrim's Mexico represents 83.97% of Walmart's Scope 1 allocated emissions from JBS, the major sources are stationary combustion (54,32% - being 34,37% from boilers) and waste and wastewater treatment (34% - being almost 98.4% from manure management).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 4 business divisions of JBS (JBS USA Beef, JBS USA Pork, JBS Canada, Pilgrim's Mexico) that supply to Walmart. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 1 were respectively: JBS USA Beef (837.52 tCO₂e), JBS USA Pork (4073.52 tCO₂e), JBS Canada (23.60 tCO₂e), Pilgrim's Mexico (25841.71 tCO₂e).

Requesting member

Wal Mart de Mexico

Scope of emissions

Scope 2

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Walmart de Mexico are provided from JBS USA Beef, JBS USA Pork, JBS Canada and Pilgrim's Mexico.

Emissions in metric tonnes of CO₂e

15,921.11

Uncertainty (±%)

10

Major sources of emissions

JBS USA Beef represents 3% of Walmart's Scope 2 allocated emissions, for JBS USA Pork this amount corresponds to 4%, for JBS Canada, 0.02% and for Pilgrim's Mexico, 92.93%. Emissions' sources in Scope 2 of JBS USA Beef, JBS USA Pork, JBS Canada and Pilgrim's Mexico are from electricity purchased.

Verified

No

Allocation method

Allocation based on mass of products purchased

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 JBS's 2019 GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 4 business divisions of JBS (JBS USA Beef, JBS USA Pork, JBS Canada, Pilgrim's Mexico) that supply to Walmart. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into Operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 2 were respectively: JBS USA Beef (466.62 tCO₂e), JBS USA Pork (656.49 tCO₂e), JBS Canada (3.26 tCO₂e), Pilgrim's Mexico (14794.74 tCO₂e).

Requesting member

Wal Mart de Mexico

Scope of emissions

Scope 3

Allocation level

Business unit (subsidiary company)

Allocation level detail

The products sold to Walmart de Mexico are provided from JBS USA Beef, JBS USA Pork, JBS Canada and Pilgrim's Mexico.

Emissions in metric tonnes of CO₂e

4,302.66

Uncertainty (±%)

10

Major sources of emissions

JBS USA Beef contributes with 2% of the allocated emissions in Scope 3, being waste generated in operations the main source (100% - being 70% from sanitary landfill and 30% from composting),

JBS USA Pork contributes with 1%, being waste generated in operations the main source (100% - being 70% from sanitary landfill and 30% from composting),

JBS Canada contributes with 0.01%, being waste generated in operations the main source (100% - being 100% from sanitary landfill),

Pilgrim's Mexico contributes with 96.87%, being waste generated in operations the main source (97.2% - being 63.62% from sanitary landfill and 36.35% from composting).

Verified

No

Allocation method

Allocation based on mass of products purchased

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 2019 JBS's GHG emissions inventory, using the approach of reporting operational control and based on Brazil GHG Protocol Programme, "IPCC Guidelines for National Greenhouse Gas Inventories" (2006) and the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" (Revised Edition). It was considered the allocated GHG emissions from 4 business divisions of JBS (JBS USA Beef, JBS USA Pork, JBS Canada, Pilgrim's Mexico) that supply to Walmart. In order to discriminate sources of direct and indirect emissions, promote transparency and be useful to different types of organizations, types of policies related to climate change and business objectives, the Brazilian GHG Protocol defines three "scopes" (Scope 1, Scope 2 and Scope 3). Each scope can be subdivided into categories. Thus, the sources themselves are grouped into operational limits. The GHG emissions allocated to the Company were calculated considering the following ratio: tCO₂e/produced ton. Based on this calculation, the GHG allocated emissions for Scope 3 were respectively: JBS USA Beef (85.50 tCO₂e), JBS USA Pork (48.66 tCO₂e), JBS Canada (0.37 tCO₂e), Pilgrim's Mexico (4168.12 tCO₂e).

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

- JBS 2019 Annual and Sustainability Report (English version) – section: "Climate Change" – page 103. This report is also available in: <https://jbs.com.br/wp-content/uploads/2020/05/ras-jbs-2019-eng-final.pdf>
- JBS USA 2019 Sustainability Report - section: "Energy and Emissions". This report is also available in: <https://sustainability.jbssa.com/chapters/environment/energy-emissions/>
- Pilgrims 2019 Sustainability Report – section: "Energy and Emissions". This reports is also available in: <https://sustainability.pilgrims.com/chapters/environment/energy-and-emissions/>
- GHG Protocol Brazilian Program. 2019 GHG Inventory Emissions reported in May 31st, not publicly available by this questionnaire deadline. 2018 GHG Inventory Emissions is available in <http://registropublicodeemissoes.com.br/participantes/475> (in Portuguese).
- ICO2 Carbon Efficiency Index – BMF&BOVESPA - http://www.b3.com.br/pt_br/market-data-e-indices/indices/indices-de-sustentabilidade/indice-carbono-eficiente-ico2-composicao-da-carteira.htm . ICO2 2019 should be reported by September 30th.

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://gvc.es.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

Arcos Dorados

Group type of project

Other, please specify
Sustainable supply chain

Type of project

Other, please specify
Sustainable livestock program

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized

0-1 year

Estimated lifetime CO2e savings

Estimated payback

0-1 year

Details of proposal

A very interesting reduction initiative, which happened in 2017, was the supplying of sustainable beef from Alta Floresta (MT) due to the Sustainable Livestock Program. The first sustainable hamburger was made in Brazil in partnership with McDonald's, meeting a range of social and environmental criteria. JBS was the exclusive partner and supplier for the McDonald's Sustainable Hamburger Program.

Requesting member

McDonald's Corporation

Group type of project

Other, please specify
Sustainable supply chain

Type of project

Other, please specify
Sustainable livestock program

Emissions targeted

Actions that would reduce both our own and our customers' emissions

Estimated timeframe for carbon reductions to be realized

0-1 year

Estimated lifetime CO2e savings

Estimated payback

0-1 year

Details of proposal

A very interesting reduction initiative, which happened in 2017, was the supplying of sustainable beef from Alta Floresta (MT) due to the Sustainable Livestock Program. The first sustainable hamburger was made in Brazil in partnership with McDonald's, meeting a range of social and environmental criteria. JBS was the exclusive partner and supplier for the McDonald's Sustainable Hamburger Program.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

Yes

SC2.2a

(SC2.2a) Specify the requesting member(s) that have driven organizational-level emissions reduction initiatives, and provide information on the initiatives.

Requesting member

Arcos Dorados

Initiative ID

2018-ID1

Group type of project

Reduce Logistics Emissions

Type of project

Route optimization

Description of the reduction initiative

The Optimized Route program aims to bring more efficiency to cargo transport, by optimizing the trips made by its own trucks and in partnership with third parties, so that trucks that would return to factories empty then transport partner cargo. This means that the entire route back and forth is used 100%, contributing to reducing fuel use and consequent CO2 emissions. Key Optimized Route results in 2019 were reduced greenhouse gas emissions by 11,682 metric tons, which is equal to the emissions generated annually by over 6,000 passenger vehicles; savings of over 11.6 million liters of diesel fuel and lowered kilometers traveled by over 28 million, which represented a reduction of 11,682 tCO2e.

Emissions reduction for the reporting year in metric tons of CO2e

11,682

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Arcos Dorados

Initiative ID

2018-ID2

Group type of project

Other, please specify

Sustainable supply chain

Type of project

Other, please specify

Sustainable livestock program

Description of the reduction initiative

Regarding the Livestock Supply Chain, JBS aim to promote the development of sustainable raw material valorization projects, such as livestock products that promote forest-crop-livestock integration. Impelling the improvement of pasture in order to increase livestock by area, thus allowing carbon sequestration and reducing the use of pasture areas.

Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Arcos Dorados

Initiative ID

2018-ID3

Group type of project

Change to supplier operations

Type of project

Implementation of energy reduction projects

Description of the reduction initiative

Development of projects along with pork farmers for the installation of biodigesters in the farms, allowing the conversion of methane into CO₂, as well as the reduction of the use of electric energy, since this methane can be used for generation of electrical energy through the installation of a specific generator.

Emissions reduction for the reporting year in metric tons of CO₂e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Arcos Dorados

Initiative ID

2018-ID4

Group type of project

Other, please specify
Sustainable supply chain

Type of project

Other, please specify
Packaging reduction measures

Description of the reduction initiative

Proposal of project that aims to separate the packaging of the products supplied for the Company for recycling it, thus reducing emission of scope 3 (landfill).

Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Johnson & Johnson

Initiative ID

2018-ID1

Group type of project

Reduce Logistics Emissions

Type of project

Route optimization

Description of the reduction initiative

The Optimized Route program aims to bring more efficiency to cargo transport, by optimizing the trips made by its own trucks and in partnership with third parties, so that trucks that would return to factories empty then transport partner cargo. This means that the entire route back and forth is used 100%, contributing to reducing fuel use and consequent CO2 emissions. Key Optimized Route results in 2019 were reduced greenhouse gas emissions by 11,682 metric tons, which is equal to the emissions generated annually by over 6,000 passenger vehicles; savings of over 11.6 million liters of diesel fuel and lowered kilometers traveled by over 28 million, which represented a reduction of 11,682 tCO2e.

Emissions reduction for the reporting year in metric tons of CO2e

11,682

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Johnson & Johnson

Initiative ID

2018-ID4

Group type of project

Other, please specify

Sustainable supply chain

Type of project

Other, please specify

Packaging reduction measures

Description of the reduction initiative

Proposal of project that aims to separate the packaging of the products supplied for the Company for recycling it, thus reducing emission of scope 3 (landfill).

Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

McDonald's Corporation

Initiative ID

2018-ID1

Group type of project

Reduce Logistics Emissions

Type of project

Route optimization

Description of the reduction initiative

The Optimized Route program aims to bring more efficiency to cargo transport, by optimizing the trips made by its own trucks and in partnership with third parties, so that trucks that would return to factories empty then transport partner cargo. This means that the entire route back and forth is used 100%, contributing to reducing fuel use and consequent CO₂ emissions. Key Optimized Route results in 2019 were reduced greenhouse gas emissions by 11,682 metric tons, which is equal to the emissions generated annually by over 6,000 passenger vehicles; savings of over 11.6 million liters of diesel fuel and lowered kilometers traveled by over 28 million, which represented a reduction of 11,682 tCO₂e.

Emissions reduction for the reporting year in metric tons of CO₂e

11,682

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

McDonald's Corporation

Initiative ID

2018-ID2

Group type of project

Other, please specify
Sustainable supply chain

Type of project

Other, please specify
Sustainable livestock program

Description of the reduction initiative

Regarding the Livestock Supply Chain, JBS aim to promote the development of sustainable raw material valorization projects, such as livestock products that promote forest-crop-livestock integration. Impelling the improvement of pasture in order to increase livestock by area, thus allowing carbon sequestration and reducing the use of pasture areas.

Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

McDonald's Corporation

Initiative ID

2018-ID3

Group type of project

Change to supplier operations

Type of project

Implementation of energy reduction projects

Description of the reduction initiative

Development of projects along with pork farmers for the installation of biodigesters in the farms, allowing the conversion of methane into CO₂, as well as the reduction of the use of electric energy, since this methane can be used for generation of electrical energy through the installation of a specific generator.

Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

McDonald's Corporation

Initiative ID

2018-ID4

Group type of project

Other, please specify

Sustainable supply chain

Type of project

Other, please specify

Packaging reduction measures

Description of the reduction initiative

Proposal of project that aims to separate the packaging of the products supplied for the Company for recycling it, thus reducing emission of scope 3 (landfill).

Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Restaurant Brands International

Initiative ID

2018-ID1

Group type of project

Reduce Logistics Emissions

Type of project

Route optimization

Description of the reduction initiative

The Optimized Route program aims to bring more efficiency to cargo transport, by optimizing the trips made by its own trucks and in partnership with third parties, so that trucks that would return to factories empty then transport partner cargo. This means that the entire route back and forth is used 100%, contributing to reducing fuel use and consequent CO2 emissions. Key Optimized Route results in 2019 were reduced greenhouse gas emissions by 11,682 metric tons, which is equal to the emissions generated annually by over 6,000 passenger vehicles; savings of over 11.6 million liters of diesel fuel and lowered kilometers traveled by over 28 million, which represented a reduction of 11,682 tCO2e.

Emissions reduction for the reporting year in metric tons of CO2e

11,682

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Restaurant Brands International

Initiative ID

2018-ID2

Group type of project

Other, please specify

Sustainable supply chain

Type of project

Other, please specify

Sustainable livestock program

Description of the reduction initiative

Regarding the Livestock Supply Chain, JBS aim to promote the development of sustainable raw material valorization projects, such as livestock products that promote forest-crop-livestock integration. Impelling the improvement of pasture in order to increase livestock by area, thus allowing carbon sequestration and reducing the use of pasture areas.

Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Restaurant Brands International

Initiative ID

2018-ID3

Group type of project

Change to supplier operations

Type of project

Implementation of energy reduction projects

Description of the reduction initiative

Development of projects along with pork farmers for the installation of biodigesters in the farms, allowing the conversion of methane into CO₂, as well as the reduction of the use of electric energy, since this methane can be used for generation of electrical energy through the installation of a specific generator.

Emissions reduction for the reporting year in metric tons of CO₂e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Restaurant Brands International

Initiative ID

2018-ID4

Group type of project

Other, please specify
Sustainable supply chain

Type of project

Other, please specify
Packaging reduction measures

Description of the reduction initiative

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Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

Requesting member

Wal Mart de Mexico

Initiative ID

2018-ID1

Group type of project

Reduce Logistics Emissions

Type of project

Route optimization

Description of the reduction initiative

The Optimized Route program aims to bring more efficiency to cargo transport, by optimizing the trips made by its own trucks and in partnership with third parties, so that trucks that would return to factories empty then transport partner cargo. This means that the entire route back and forth is used 100%, contributing to reducing fuel use and consequent CO2 emissions. Key Optimized Route results in 2019 were reduced greenhouse gas emissions by 11,682 metric tons, which is equal to the emissions generated annually by over 6,000 passenger vehicles; savings of over 11.6 million liters of diesel fuel and lowered kilometers traveled by over 28 million, which represented a reduction of 11,682 tCO2e.

Emissions reduction for the reporting year in metric tons of CO2e

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Requesting member

Wal Mart de Mexico

Initiative ID

2018-ID2

Group type of project

Other, please specify

Sustainable supply chain

Type of project

Other, please specify

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Requesting member

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Initiative ID

2018-ID3

Group type of project

Change to supplier operations

Type of project

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Initiative ID

2018-ID4

Group type of project

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Sustainable supply chain

Type of project

Other, please specify

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Yes

Requesting member

Walmart, Inc.

Initiative ID

2018-ID1

Group type of project

Reduce Logistics Emissions

Type of project

Route optimization

Description of the reduction initiative

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Requesting member

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Initiative ID

2018-ID2

Group type of project

Other, please specify

Sustainable supply chain

Type of project

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Requesting member

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Group type of project

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Initiative ID

2018-ID4

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Emissions reduction for the reporting year in metric tons of CO2e

Did you identify this opportunity as part of the CDP supply chain Action Exchange?

No

Would you be happy for CDP supply chain members to highlight this work in their external communication?

Yes

SC3.1

(SC3.1) Do you want to enroll in the 2020-2021 CDP Action Exchange initiative?



No

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2019-2020 Action Exchange initiative?

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 am submitting to	Public or Non-Public Submission	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Investors Customers	Public	Yes, submit Supply Chain Questions now

Please confirm below

I have read and accept the applicable Terms

