

Module: Introduction**Page: Introduction**

CC0.1**Introduction**

Please give a general description and introduction to your organization.

JBS SA is a food Company with 63 years of tradition and global leader in animal protein processing. Operating in more than 20 countries, the Company serves a base of more than 300,000 customers in over 150 countries through a diverse portfolio of products and brands. Headquartered in Brazil, JBS has approximately 235,000 employees – from factories to sales offices. The structure involves processing units of cattle, pigs, sheep, poultry, leather, and confinement of cattle and sheep. JBS is present in five continents with factories and offices in Brazil, United States, Australia, Canada, Italy, Argentina, Uruguay, Paraguay, Mexico, China, UK and others operating in the segments of beef, pork, lamb and chicken, production and marketing of leather, pet products, hygiene and cleanliness, cans, collagen, biodiesel, transportation and vegetables. Also incorporated into its business management is the pursuit for modernization, quality of products and raw materials, 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. The Company's main customers are retail chains, wholesale clubs and companies in the food service industry - restaurants, hotels, food service distributors and further processors. With an annual net revenue of BRL 170.4 billion, JBS is positioned as the largest animal protein Company in the world/ beef producer, with a strong presence in the most competitive production regions on earth. In 2016, the company's businesses were divided into six units: Seara, JBS Mercosul, JBS USA Beef, JBS USA Pork, JBS USA Chicken (Pilgrim's Pride) and JBS Europe. More information can be found in the official JBS site (<http://www.jbs.com.br>) and in the JBS 2016 Annual and Sustainability Report (<http://jboss.infoinvest.com.br/enu/4070/JBS%20RAS%202016%20EN%20170502%20Final.pdf>).

CC0.2**Reporting Year**

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year.

Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed
Fri 01 Jan 2016 - Sat 31 Dec 2016

CC0.3

Country list configuration

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country
Brazil
Australia
Argentina
Canada
United States of America
Mexico
Puerto Rico
Uruguay
Germany
Paraguay
Ireland

Select country
United Kingdom
France
Italy
New Zealand

CC0.4

Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

BRL(R\$)

CC0.6

Modules

As part of the request for information on behalf of investors, companies in the electric utility sector, companies in the automobile and auto component manufacturing sector, companies in the oil and gas sector, companies in the information and communications technology sector (ICT) and companies in the food, beverage and tobacco sector (FBT) should complete supplementary questions in addition to the core questionnaire.

If you are in these sector groupings, the corresponding sector modules will not appear among the options of question CC0.6 but will automatically appear in the ORS navigation bar when you save this page. If you want to query your classification, please email respond@cdp.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below in CC0.6.

Further Information

Module: Management

Page: CC1. Governance

CC1.1

Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a

Please identify the position of the individual or name of the committee with this responsibility

Sustainability Committee Board. Created in 2008, the Sustainability Committee was first reformulated in 2013, following the governance restructure in the Company and another rearrangement has been made in 2016. This last reformulation, which is currently established, resulted in a structure composed by four members of the senior management, including one independent consultant and the company's CEO, who heads the Sustainability Committee as President. The other two Members of the Sustainability Committee are the Executive Director of JBS International Relations and the President of JBS Beef Brazil business division.

The Sustainability Committee Board is responsible for dealing with and connecting all subjects related to the topic of sustainability and climate change in the Company's business in a global perspective, 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 investments in sustainability with positive impacts in the short, medium and long run. Moreover, the committee activities focuses on i) integrating the JBS' sustainability culture and practices in the recent acquired companies and ii) create a sustainability framework at a global level to set guidelines regarding both the supply chain (cattle purchase programs and actions on the poultry chain) and processing products (internal environmental improvements and eco-efficiency).

Besides, JBS also has a corporate team dedicated to the Sustainability issues, including climate change strategy and projects, and trained professionals - environmental analysts in all production units, ensuring the unique tracking ahead to the issues of Sustainability.

CC1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a

Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Environment/Sustainability managers	Monetary reward	Emissions reduction project Energy reduction project Energy reduction target Efficiency project Efficiency target	The eco-efficiency and emissions reduction projects are carried out in a global amplitude, which encompass diverse business units (beef, leather, poultry etc.). Based on NBR ISO 14001:2004, Brazilian 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, solid waste and water consumption (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 Environment/ Sustainability managers.
Facility managers	Monetary reward	Emissions reduction project Efficiency project Efficiency target	Also includes Corporative Manager of Engineering and Operations Director. The eco-efficiency and emissions reduction projects are carried out in a global amplitude, which encompass diverse business units (beef, leather, poultry etc.). Based on NBR ISO 14001:2004, Brazilian 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, solid waste and water consumption. JBS puts targets into effect for these eco-efficiency projects (intensity indicator/ consumption per tonnes produced), applicable for facility managers, Corporative Manager of Engineering, also Operations Director. The operational unit's projects are essentially linked to targets related to JBS's program of annual bonus, resulting in monetary rewards to them.
Other: Regional environmental coordinators and facilities environmental supervisor	Monetary reward	Emissions reduction project Efficiency project Efficiency target	As cited previously the eco-efficiency and emissions reduction projects are carried out in a global amplitude, which encompass diverse business units (beef, leather, poultry etc.). Based on NBR ISO 14001:2004, Brazilian operational units are underpinned by the implementation of the environmental management system and by 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, solid waste and water consumption (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 Environment/ Sustainability coordinators and supervisors as well.
Other: Senior Managers with operational & sustainability	Monetary reward	Energy reduction	The incentivized performance indicator is embodied with annual objectives and forms portion of performance review annually.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
responsibilities		project Energy reduction target	

Further Information

Page: **CC2. Strategy**

CC2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

CC2.1a

Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Six-monthly or more frequently	Board or individual/sub-set of the Board or committee appointed by	All areas where JBS has operations.	> 6 years	The process of risks and opportunities identification is under the responsibility of the Sustainability Direction, which reports to the Sustainability Committee Board. The Sustainability Committee Board meets every quarter, where major

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
	the Board			advances and new opportunities and risks identified are evaluated, which guidelines and action plans are forwarded to the technical team developing the necessary actions. It comprises every JBS's operations around the world and aims to identify risks and opportunities in the long-term view. Since JBS is a commodity company, climate change is an issue strictly linked to its core business, which demands a very intensive investment in risk management procedures.

CC2.1b

Please describe how your risk and opportunity identification processes are applied at both company and asset level

The processes of risk and opportunity identification applied are under the responsibility of the Sustainability Direction, which reports to the Sustainability Committee Board. To evaluate the climate change risks and opportunities at the Company (strategic) level and at the operational (asset) level, the process 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 and new opportunities and risks identified are evaluated. The guidelines and action plans elaborated are forwarded to the technical team developing 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 in the matter that 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 processes 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. As an example, the new plants built aim compliance with the best sustainability practices, as it is clearly visible in JBS Paraguay. The project was elaborated with best practices implemented in JBS worldwide, assuring higher yields and production efficiency.

CC2.1c

How do you prioritize the risks and opportunities identified?

To evaluate and prioritize the risks and opportunities within JBS (Company and asset level) in relation to climate change, as already briefly mentioned in the previous question, 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 allow the Technical Team to perform the mapping process;

(b) Analysis of mapped Risks and Opportunities and their prioritization. This step is based on business impact level and likelihood of occurrence:

i) Each risk or opportunity is classified as a consequence of its impact on business and its likelihood of occurrence. This classification is developed under three different scenarios: short, medium and long term.

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. JBS's unit's size is also taken into consideration, due to its proportional potential impact to the environment.

CC2.1d

Please explain why you do not have a process in place for assessing and managing risks and opportunities from climate change, and whether you plan to introduce such a process in future

Main reason for not having a process	Do you plan to introduce a process?	Comment
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CC2.2

Is climate change integrated into your business strategy?

Yes

CC2.2a

Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

Climate change is a priority issue and it is integrated into JBS's business strategy globally. It may presents 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, such as JBS Paraguay unit (Belén), built in 2016. 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.

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 implementation of the New Field Program. This initiative promotes sustainable cattle raising in the Amazon biome and develops production models that improve management avoiding deforestation.

vi) JBS has currently a better understanding of the risks and opportunities related to climate change. Therefore, we consider ourselves more prepared to the possible climate change impacts. We have been witnessing positive results derived from New Field Program so we believe that from preventing risks, incorporating climate change components through our business strategy and developing action plans and initiatives arises opportunities and leads us to what we believe it is constant strategic advantages. In fact, we were the first Company of our sector with a CDM project registered on UNFCCC and one of the pioneers on elaborating GHG emissions inventory in Brazil. JBS's business strategy decision to build new plants following the sustainability best practices accordingly to eco-efficiency

measures is a clear commitment to risk mitigation and to improve the opportunities related to climate change.

vii) In 2016, JBS set up emissions reduction targets related to energy efficiency projects for a large amount of production units, some of them are: fuel consumption optimization, waste reduction, wastewater treatment improvement, etc. It is a reinforcement towards the company's Climate Change strategy guidelines and a run up for risks mitigation to seize the opportunities mapped for climate change. In order to constantly evolve on this important issue, JBS participates as an active member of EPC (Business for the Climate Platform). It is a continuous Brazilian business platform, whose goal is to mobilize, engage and involve corporate leaderships for managing and reducing GHG emissions, managing climate risks, as well as suggesting public policies and positive incentives in climate change context.

viii) One of JBS's public commitments and 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.

ix) In 2016 JBS invested roughly BRL855 million in environmental management improvements.

CC2.2b

Please explain why climate change is not integrated into your business strategy

CC2.2c

Does your company use an internal price on carbon?

No, but we anticipate doing so in the next 2 years

CC2.2d

Please provide details and examples of how your company uses an internal price on carbon

CC2.3

Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

Direct engagement with policy makers
Trade associations
Funding research organizations
Other

CC2.3a

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 Moypark, actively engages directly with policy makers. The environmental issues and awareness is 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, 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.

CC2.3b

Are you on the Board of any trade associations or provide funding beyond membership?

Yes

CC2.3c

Please enter the details of those trade associations that are likely to take a position on climate change legislation

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you, or are you attempting to, influence the position?
National Cattlemen's Beef Association (NCBA), Texas Cattle Feeders Association and Colorado Livestock Association	Consistent	JBS presents a consistent position towards the trade associations mentioned because it supports and tries to amplify the development of accurate greenhouse gas emissions data for domestic cattle production systems based on sound science. Also develops a communication strategy that addresses inaccuracies regarding greenhouse gas emissions from cattle and accurately states the greenhouse gas emissions of domestic cattle production systems and supports unlimited offsets for agriculture.	JBS Five Rivers, a business unit from JBS USA, attempts to influence the consistent position due to its presence and participation on the Board and Executive Committee of National Cattlemen's Beef Association (NCBA), Texas Cattle Feeders Association and Colorado Livestock Association.
British Poultry Council lobbying for economically effective Sector Energy & Emissions Policy & Targets	Consistent	BPC are currently working of a draft public statement on their position on Climate Change.	Responded to BPC discussion document on the effective cost of carbon measures government could deploy to stimulate improvements within the Climate Change Agreement scheme.

CC2.3d

Do you publicly disclose a list of all the research organizations that you fund?

Yes

CC2.3e**Please provide details of the other engagement activities that you undertake**

JBS is part of the Board of The Global Roundtable for Sustainable Beef (GRSB), 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.

In the same way, JBS is also part of the Board of The Brazilian Roundtable on Sustainable Livestock (BRSL) which its main goal is to discuss and formulate, in a transparent manner, principles, standards and common practices to be adopted by the sector, which contribute to the development of a sustainable cattle ranching, socially just, environmentally friend and economically viable.

With the policy of not acquiring cattle and soy from farms listed among the IBAMA (Brazilian Institute of the Environment) areas of illegal deforestation, JBS works through ABIEC - Brazilian Beef Exporters Association and the sector of grains (ABIOVE - Brazilian Oilseed Processors Association) to improve the public list of illegal deforestation areas. Because of these efforts, in 2012 the GT-IBAMA (IBAMA Working Group) was created, in order to propose solutions to operational improvements relating to the public list of areas embargoed by IBAMA. This joint work in partnership with the productive sector and technicians from IBAMA has led to continuous improvement of the IBAMA list as a query tool for companies that establishes environmental criteria for their suppliers.

Moreover, the Company is often involved in events, participates in seminars and multi-stakeholders meetings where JBS is requested to provide information on the policies and procedures related to social responsibility and corporate sustainability, including climate change.

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, managing climate risks, suggesting public policies and positive incentives in the context of climate change. EPC is seeking proper financial and economical mechanisms for mitigation and adaption on climate change.

Since 2012, JBS became 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 for reporting information regarding GHG emissions and the management strategy and related climate change, such as the CDP - Driving Sustainable Economies and the Carbon Efficient Index (ICO2) of BM&FBOVESPA and the Climate Change Protocol of São Paulo State Government. Besides, JBS has participated in the Scope 3 Technical Working Group of the Brazilian GHG Protocol Program, for further discussion and development of auxiliary tool for calculating emissions from transportation. 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.

Every JBS's voluntary commitments, projects and partnerships with these institutions (funding, co-working, institutional support) against deforestation decrease on greenhouse gases emissions toward sustainability and potentially influence public policies on climate change to meet the need established by the Brazilian Government on its National Policy on Climate Change (2008). The National Plan on Climate Change is established through two plans: the Prevention and Control Action Plans of deforestation in the biomes, and the Department of Mitigation and Adaptation.

CC2.3f**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 is strictly related to the Company's climate change strategy, i.e., participation on activities related to the mapped risks and opportunities previously identified by the Sustainability Direction, which reports it to the Sustainability Committee Board.

To ensure that all JBS's engagements are consistent with the overall climate change strategy, the Sustainability Committee Board is responsible for dealing with and

connecting all subjects related to the topic of sustainability and climate change in the Company's business in a global perspective, 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 investments in sustainability.

The Sustainability and climate change strategy of JBS is focused on both the supply chain (cattle purchase programs and actions on the poultry chain and swine chain) and processing products (internal environmental improvements and eco-efficiency).

Regarding 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 in Brazil are related to decreased pressure on new pastures and thus contributing to reduce deforestation, and consequently to reduce CO2 emissions. Following this strategy, since 2010, we have been supporting EMBRAPA (Brazilian Corporation of Agricultural Research) for developing a Technical Cooperation Agreement to inform and support farmers in implementing best practices in agribusiness and sustainable use of natural resources involved in production. Also, the New Field Project aims to promote sustainable cattle raising in the Amazon biome, developing production models that improve management, increase productivity, increment quality in the product delivered to the market, reduce emissions of greenhouse gases in the production system (mainly avoided deforestation) and comply with environmental legislation. Every supplier must present the approved License of Operation, which guarantee the compliance of the facilities with the demands of the environmental bodies. Moreover, in relation to the system for social and environmental monitoring of cattle suppliers implemented in the Amazon region, a public commitment assumed by JBS whether one supplier falls within any of the list of embargoed cattle producers and/or whether deforestation is identified in conservation areas, the trade is cancelled, thus preventing the acquisition of raw materials from deforestation. Every year the Company is audited by a third party and publishes the results about its endeavor against deforestation. According to the 2014, 2015 and 2016 independent audit results, the compliance level was 99.75%, 99.97% and 99.97% respectively.

Thus, JBS has a policy of only buying soy products from companies that are signatories of the Soy Moratorium, an initiative launched by ABIOVE (Brazilian Association of Vegetable Oil Industries) and ANEC (National Association of Cereal Exporters), operationalized by the GTS (Soy Working Group), entity formed by rural producers and national and international NGOs. By this agreement, participants commit to not purchase soy produced in land deforested after 2006, including direct and indirect soy suppliers.

This is a result of the company's public commitment to not purchase raw materials from farms that have deforested native forests in the Amazon Biome that are located within Indigenous Lands and Environmental Conservation Areas or have used work practices that are degrading or analogue to slavery.

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.

Besides that, according to the JBS Sustainability policy, JBS's commitment to sustainability is evidenced by the manner in which the relationships are established with willing partners who seek to make a positive impact throughout its value chain.

CC2.3g

Please explain why you do not engage with policy makers

Further Information

Page: CC3. Targets and Initiatives

CC3.1

Did you have an emissions reduction or renewable energy consumption or production target that was active (ongoing or reached completion) in the reporting year?

Intensity target
Renewable energy consumption and/or production target

CC3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions covered by target (metric tonnes CO2e)	Target year	Is this a science-based target?	Comment
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CC3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
Int1	Scope 2 (location-based)	1.58%	14.00%	Other: kg CO2e per tonne of product	2015	6.69	2016	No, but we anticipate setting one in the next 2	As a reinforcement towards its climate change strategy guidelines and a run up for mitigation of risks and seize the opportunities mapped for climate change, JBS decides to enlarge its GHG emissions

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
								years	reduction targets for another business units. After the initial target set up for Seara in 2015, one year later the Brazilian branch of the Company decided to set up a GHG emissions reduction target for JBS Beef Brazil, experimentally. This unit (Santa Fé do Sul/SP) had set up an intensity (per tonnes of processed cattle) emission reduction target after accomplish energy efficiency projects in the machine room – directly linked to the operational processes. By this moment, setting its GHG emissions reduction targets did not mean any external commitment by the Company, but just an internal Climate Change issue management procedure. In relation to a science-based target, JBS expects to set one according to the evolution of the definitions towards the Brazilian Emissions Trading Scheme through EPC (Business for the Climate Platform), even in an experimental way. It is clear that any target decision for the Companies must be science-based, a fact that promotes more credibility to it. The percentage of emissions in scope represents the participation of this business unit emissions in JBS Beef Brazil scope 2 emissions.
Int2	Scope 1	100%	5.00%	Metric tonnes CO2e per metric tonne of product	2015	0.0020	2016	No, but we anticipate setting one in the next 2 years	Moypark had established a general emissions reduction target (5%) for all business units, as agreed with the Executive Director responsible for Sustainability, concerning the improvement on thermal energy generation (MWh/tonnes of processed products).
Int3	Scope 2 (location-based)	100%	5.00%	Metric tonnes CO2e per metric tonne of	2015	0.0035	2016	No, but we anticipate setting one in the next 2 years	Moypark had established a general emissions reduction target (5%) for all business units, as agreed with the Executive Director responsible for Sustainability, concerning £1.5 million annualized savings due to energy efficiency projects

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions covered by target	Target year	Is this a science-based target?	Comment
				product					(MWh/tonnes of processed products).

CC3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
Int1	No change	0.03			Considering JBS Beef scope 1 + scope 2 emissions in 2015 (326888.59 tCO2e), the reduction emissions achieved (87.82 tCO2e) represents roughly no changes. Considering JBS Beef scope 2 in 2015 (80944.62 tCO2e), the reduction emissions achieved represents 0.11%. Despite this low achievement when comparing to the total emissions, setting emissions target is very important for establishing a Company culture of emissions reductions through processes improvement and the use of more efficiency equipments along the production process.
Int2	Decrease	1.42			Considering Moypark scope 1 + scope 2 emissions in 2015 (163803.31 tCO2e), the reduction emissions achieved (2330.90) represents 1.42%. Considering Moypark scope 1 in 2015 (102960,25 tCO2e), the reduction emissions achieved represents 2.26%.
Int3	Decrease	1.52			Considering Moypark scope 1 + scope 2 emissions in 2015 (163803.31 tCO2e), the reduction emissions achieved (2.494.56) represents 1.52%. Considering Moypark scope 2 in 2015 (60843,05 tCO2e), the reduction emissions achieved represents 4.10%.

CC3.1d

Please provide details of your renewable energy consumption and/or production target

ID	Energy types covered by target	Base year	Base year energy for energy type covered (MWh)	% renewable energy in base year	Target year	% renewable energy in target year	Comment
RE1	Electricity production	2015	179697.43	3.44%	2017	5.00%	Biolins production target for 2017 is 220,000.00 MWh.

CC3.1e

For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions or renewable energy)	Comment
Int1	100%	100%	Considering the same 2015 GRID emission factor (0.1244 tCO2/MWh) for 2015 and 2016 (same comparison basis), the target was overcome (GHG emissions 13.76% lower than the target and 25.46% lower than 2015 consumption data).
Int2	100%	59.60%	In 2016, Moypark's business units reached an average emissions reduction of 2.98% (stationary combustion) due to accomplished improvements on thermal energy generation.
Int3	100%	82.00%	In 2016, Moypark's business units reached an average emissions reduction of 4.10%, which represented £2.3m delivered.
RE1	50.00%	72.61%	In 2016, Biolins production decreased from 179697.43 to 159744.51 due to market restrictions. However, Biolins keeps the expectation to reach its production target in 2017.

CC3.1f

Please explain (i) why you do not have a target; and (ii) forecast how your emissions will change over the next five years

CC3.2

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

CC3.2a

Please 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	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
Product	With biodiesel produced by JBS Biodiesel using beef tallow, the company contributes to reducing emissions from third parties scope 1 regarding fossil fuels avoidance. In 2016, JBS produced	Avoided emissions	Other: Brazilian GHG Protocol Program			JBS Biodiesel is the largest vertically integrated global producer of biodiesel from beef tallow. It has production capacity authorized by the National Agency of Petroleum, Natural Gas and Biofuels

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
	<p>approximately 210 million liters (184.8 thousand tonnes) of biodiesel from animal and plant oils. By producing biodiesel in 2016, it is estimated were avoided the emission of around 516,252 tCO₂, 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 – 184,800.00 tones x 0.0377 TJ/ton = 6,966.96 TJ), that could result in emissions from diesel (6,966.96 TJ x 74.1 tCO₂/TJ = 516,252 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).</p>					<p>(ANP) of more than 500 million liters per year and is the first biodiesel industry in Brazil with 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. 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.</p>
Product	<p>JBS offers solid waste management solutions by its Company, JBS Environmental (JBS Ambiental), that directly enables scope 1 GHG emissions to be avoided by a third party. JBS exclusive and independent business unit that offers solid waste management solutions, with treatment and proper</p>	Avoided emissions	Other: Brazilian GHG Protocol Program			<p>Investments were made in the recycle chain since 2015. In 2016, JBS made investments to promote the recycling chain through the reverse logistics of packaging our products. The activities are focused on developing and empowering screening cooperatives of recyclable materials, educating consumers about the proper</p>

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
	<p>allocation of recyclable, non-recyclable and hazardous waste, as well as ensuring waste certification 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 Environmental, where is made all the plastic transformation process in recycled raw material. In 2016, JBS Environmental managed 3.700 tons of paper and cardboard, 8.300 tons of plastic and 7.100 tons of metals. This will avoid through the inherent decomposition years the emissions of approximately 7381.50 tCO₂e considering that the waste recycled by JBS Environmental 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).</p>					<p>disposal and increasing the production of recycled material. In compliance with National Policy on Solid Waste, JBS joined the National Sectorial Agreement, managed by the Business Commitment for Recycling (Cempre). In total JBS (Brazil) invested approximately 1 million.</p>
Product	The impact of livestock farming could be reduced by enhancing the efficiency of	Avoided emissions	Other: Brazilian GHG Protocol			It is necessary to evaluate actual initiatives that introduce practices based on the

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
	<p>beef production. It is estimated that meat production in Brazil can be at least doubled using existing pasture areas. Because their potential is not being explored as it should, grazing areas become susceptible to degradation. As a result, it is estimated that there are 40-50 million hectares of degraded pastures in Brazil today. For Brazil to meet the beef demand expected for 2030 with its current productivity trends, it would be necessary to increase its herd by about 15% (30 million head). In this context, it is believed that only the states in the Amazon region would be able to accommodate 40% of these additional animals. Therefore, attention has been drawn to the potential conversion of native areas and to the degradation of already established areas to accommodate these additional animals. The GHG Agricultural Protocol's calculator was used to assess the balance of GHG emissions from farms taking part in the Novo Campo Program before and after they joined the program.</p>		Program			<p>recovery of degraded pastures designed to enhance the efficiency of beef production in Brazil while reducing GHG emissions. This is the case, for example, of the Novo Campo Program. This program was designed to promote sustainable meat production practices in cattle ranches in the Amazon region, improving their economic, social, and environmental performance. It thus contributes to reducing deforestation, to conserving or restoring natural resources, and to boosting the local economy. The interventions promoted by this Program are based on the integrated management of farms with progressive adoption of Good Agricultural Practices – Beef Cattle developed by Embrapa and of the Guide on Sustainable Cattle Farming Indicators (GIPS) developed by the Working Group on Sustainable Cattle Farming (GTPS). Both are focused on recovering and intensifying degraded pastures, on promoting an appropriate supply of supplementation, on improving the herd's health and reproductive management, and on enhancing the environmental suitability of farms. This set of practices made it possible to gradually improve production efficiency on the farms and, two years after</p>

Level of aggregation	Description of product/Group of products	Are you reporting low carbon product/s or avoided emissions?	Taxonomy, project or methodology used to classify product/s as low carbon or to calculate avoided emissions	% revenue from low carbon product/s in the reporting year	% R&D in low carbon product/s in the reporting year	Comment
						<p>good agricultural practices were adopted, their average meat production had risen by 85% and their GHG emissions had declined by 25% per hectare. Thus, GHG emissions per kilogram of carcass produced on the farms were reduced by 60%. In the coming years, it is estimated that GHG emissions from those farms will hit the mark of 2.4 tCO₂e ha⁻¹ year⁻¹ and 7.0 t CO₂e per kg of carcasses produced. This means that this strategy will make it possible to increase meat production fivefold, which will reduce GHG emissions by 50% per hectare and by almost 90% per kg of meat produced as compared to the levels seen at the beginning of the program's pilot phase in 2012. Under this scenario, the farms are projected to adopt a full-cycle production system (breeding-rearing-fattening), with 100% of their pastures recovered and well managed. The drastic reduction in emissions projected for the coming years on the farms taking part in the program is mainly a result of carbon sequestration in soils during the process of fully restoring degraded pastures, which makes up for additional emissions from the herd and from using inputs.</p>

CC3.3

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

Yes

CC3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	18	0
Implementation commenced*	26	0
Implemented*	12	74003.08
Not to be implemented	0	0

CC3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Processes	JBS Pork USA launched a significant electrical use reduction program throughout the company, focusing on power factor savings projects, refrigeration energy projects, and lighting upgrades.		Scope 2 (location-based)	Voluntary			1-3 years	6-10 years	All CAPEX projects are approved and implemented based on projected savings.
Energy efficiency: Building fabric	Pilgrim's USA implemented a number of LED conversion projects including in Lufkin, TX, Sanford, NC, Natchitoches, LA, Marshville, NC, Mt. Pleasant, TX, Sumter, SC, Athens, GA and Moorefield, WV.		Scope 2 (location-based)	Voluntary			1-3 years	6-10 years	All CAPEX projects are approved and implemented based on projected savings.
Energy efficiency: Processes	JBS Beef USA invested in two new boilers in Plainwell, MI plant, which resulted in a subsequent 15% reduction in natural gas consumption.		Scope 1	Voluntary			1-3 years	16-20 years	All CAPEX projects are approved and implemented based on projected savings. It was estimated 15% reduction in natural gas consumption.
Other	JBS Beef USA implemented a biogas		Scope 1	Voluntary			1-3 years	16-20 years	All CAPEX projects are approved and

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	collection and utilization system in Hyrum UT plant, which supplies approximately 15% of the facilities' natural gas usage.								implemented based on projected savings.
Energy efficiency: Building fabric	Lighting conversion project for All Moypark UK units, excluding farms.	5773	Scope 2 (location-based)	Mandatory	2339500	0	<1 year	6-10 years	Third party funded project.
Other	Partial conversion from gas & LPG to Wood biomass - Donaghmore and Carn Hatcheries from Moypark.	150	Scope 1	Voluntary	1044420	835536	<1 year	16-20 years	KWth will remain unchanged - emissions reduction due to fuel switching.
Energy efficiency: Building services	Santa Fé do Sul (SAF) unit (JBS Beef Brazil) implemented an energy efficiency project, altering the engine room.	102.02	Scope 1	Voluntary	1701528	200000	<1 year	16-20 years	SAF engine room had 2 compressors of 400-450 hp, which before were not interconnected. Each one supplies half factory. Both compressors had to be connected full time. This project resulted in the interconnection of these two compressors, so it was possible to disconnect one of them most of the time and connect both at once only few hours a day.

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Transportation: use	Optimized Route Project (Outsourced Fleet).	20961.84	Scope 3	Voluntary	22378685	0	<1 year	Ongoing	All trucks carrying cargo to another state must be seized 100%, returning loaded with products from other partner companies.
Transportation: use	Optimized Route Project (Own Fleet).	9442.59	Scope 1	Voluntary	10135390	0	<1 year	Ongoing	All trucks carrying cargo to another state must be seized 100%, returning loaded with products from other partner companies.
Waste recovery	Pallets (from Meat Logistics) recycling project. In 2016 699,687 pallets were recovered. Equivalent to 21,113 tonnes of wood. The same pallet can be reused 8 times.	35892.10	Scope 3	Voluntary	15434781	4190973	<1 year	Ongoing	In 2016 699,687 pallets were recovered. Equivalent to 21,113 tonnes of wood. The same pallet can be reused 8 times.
Transportation: fleet	It was developed a truck model with higher internal height, internal partitions without tips and hydraulic lift. The increase in occupancy generates savings of 46,000 liters of diesel per month, reducing greenhouse gas	1452.91	Scope 1	Voluntary	1727760	45000	<1 year	Ongoing	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
	emissions in the atmosphere.								
Process emissions reductions	Acquisition of the press machine for "carnaça".	228.62	Scope 1	Voluntary	32053	105000	<1 year	Ongoing	Reduction of volume of fuel (steam) used in its cooking process. This project is in expansion, also being implemented in other units: Colorado do Oeste/RO, Cacoal/RO and in Colíder/MT.

CC3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for other emissions reduction activities	In 2016, it was possible to gather the most accurate data from the Brazilian businesses. In 2016 JBS invested roughly BRL855 million in environmental management improvements.
Other	Other investments in emissions reduction activities have been driving in accordance to the Guidelines of Sustainability and Environment Policy of the Company.

CC3.3d

If you do not have any emissions reduction initiatives, please explain why not

Further Information

Page: CC4. Communication

CC4.1

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	Status	Page/Section reference	Attach the document	Comment
In mainstream reports (including an integrated report) but have not used the CDSB Framework	Complete	JBS 2016 Annual and Sustainability Report – section: Sustainability > Global Material Issues > Climate Change” – page 124	https://www.cdp.net/sites/2017/30/9730/Climate Change 2017/Shared Documents/Attachments/CC4 .1/JBS RAS 2016 EN 170502 Final.pdf	This report is also available in: http://jbss.infoinvest.com.br/enu/4070/JBS%20RAS%202016%20EN%20170502%20Final.pdf
In voluntary communications	Under way - previous year attached	GHG Protocol Brazilian Program	https://www.cdp.net/sites/2017/30/9730/Climate Change 2017/Shared Documents/Attachments/CC4 .1/JBS 2015 GHG Inventory.pdf	2016 GHG Inventory Emissions reported in May 31st. It is not publically available by this questionnaire deadline. 2015 GHG Inventory Emissions is available in http://registropublicodeemissoes.com.br/participantes/475 .

Publication	Status	Page/Section reference	Attach the document	Comment
In voluntary communications	Under way - previous year attached	ICO2 Carbon Efficiency Index – BMF&BOVESPA - http://www.bmfbovespa.com.br/pt_br/pr odutos/indices/indices-de-sustentabilidade/indice-carbono-eficiente-ico2-composicao-da-carteira.htm	https://www.cdp.net/sites/2017/30/9730/Climate Change 2017/Shared Documents/Attachments/CC4.1/ICO2 JBS.xlsx	ICO2 2017 should be reported by August 31st.
In other regulatory filings	Complete	2016 Reference Form - JBS SA – pages 30 and 186	https://www.cdp.net/sites/2017/30/9730/Climate Change 2017/Shared Documents/Attachments/CC4.1/JBS 2016 Reference Form.pdf	2016 Reference Form – version 18.
In voluntary communications	Complete	Environmental System of São Paulo	https://www.cdp.net/sites/2017/30/9730/Climate Change 2017/Shared Documents/Attachments/CC4.1/protocolo-2o-ciclo-2016-13mar17.pdf	
In voluntary communications	Complete	Parana State Climate Seal	https://www.cdp.net/sites/2017/30/9730/Climate Change 2017/Shared Documents/Attachments/CC4.1/Certificado Clima Parana.pdf	More information available in: http://www.meioambiente.pr.gov.br/modules/conteudo/conteudo.php?conteudo=376 http://www.meioambiente.pr.gov.br/arquivos/File/Selo_CLIMA_PARANA_Empresas_e_contatos_2016.pdf http://www.meioambiente.pr.gov.br/modules/noticias/article.php?storyid=2368

Further Information

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any inherent climate change risks that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

CC5.1a

Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Carbon taxes	JBS considers Carbon Taxes a very likely measure that the Company will have to deal in a close future. 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	Increased operational cost	3 to 6 years	Direct	Likely	High	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. If the US President fails to consider climate change when formulating federal energy policies	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	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. In2016 were spent approximately R\$ 3,000,000

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	this issue.						(emerging trend seen from pulling out of Paris Agreement) the attitude will coincide with the boosting costs of climate according to an important projection. 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	we have units, in Mexico, UK and France, but not strictly related to our core businesses so far.	(BRL).

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							emitted), which means roughly 148 million dollars in 2016.		
Cap and trade schemes	Tied to the Brazilian National Policy on Climate Change, that incentivizes financial mechanisms for emissions mitigation and climate change adaptation actions, JBS and other companies are jointly discussing ways to implement a Brazilian Emissions Trading Scheme through EPC ("Empresas pelo Clima" - Business for the Climate Platform). For JBS Global, the risks about Carbon Taxes are related to financial penalties imposed to the Company due to the not achievement of	Increased operational cost	3 to 6 years	Direct	Very likely	Medium	Increase of operational costs. May incur increased energy costs (as shows the real increase over 60% in energy cost for Brazilian industry in the last four years) environmental costs and other, and investments to comply with existing or new restrictions GHG emissions.	In Brazil, JBS currently is an active member of EPC (Business for the Climate Platform), which are designing a Brazilian Emissions Trading Scheme.	Brazil – Cap and trade schemes opportunities are managed by the Sustainability Department, where in 2016 approximately R\$ 3,000,000 (BRL) were spent.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	the assumed / imposed GHG emissions reduction targets.								
Fuel/energy taxes and regulations	Energy related to regulations, including fossil fuel and electricity taxation, might affect the Company's costs of goods sale (COGS), since as a production inputs until the transportation of products.	Increased operational cost	1 to 3 years	Direct	Likely	Low	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 an increase in feeding the Brazilian national grid with energy produced from fossil sources. This happens due to restrictions of energy from renewable sources, most of them produced from hydropower sources. This latter sources of energy eventually presents some constraints due to droughts / lack of rain, which could be a current	In Brazil, Corporate Sustainability department is monitoring any similar taxation, mainly through EPC (Business for the Climate Platform). 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. JBS Brazil buys energy from free market (there is an area for that) and it also has a unit that produces energy. Therefore, it is possible to	Brazil – Fuel/ Energy Taxes and Regulations are managed by the Sustainability Department, where in 2016 approximately R\$ 3,000,000 (BRL) were spent.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
							effect of climate change, damaging the natural flow of the rains around the country.	prevent some future expenses.	
Uncertainty surrounding new regulation	<p>As JBS is present in many different countries worldwide and faces different regulatory risks according to its location, in the medium and long term we have been expecting more strict legislation regarding GHG emissions reduction as an approach to mitigate climate change.</p> <p>Therefore, there is a risk that our business will have to comply by changing operation processes and investing on new mandatory technologies, processes and</p>	Increased operational cost	3 to 6 years	Direct	Very likely	Medium	<p>The risks presented by this type of regulation translate into higher production and energy costs, as well as a possible effect on market competitiveness. So far, it is not possible to provide an accurate or even an estimated final implication.</p> <p>Nevertheless, JBS is expecting consequences in the agriculture, livestock and production operations sectors.</p>	<p>JBS believes that the inclusion of sustainability principles, aligned with its Sustainability strategy, in all operations allows innovation and continuous development of its business; therefore, it could anticipate future obligations. This commitment, formally expressed in the Environmental Policy, is the basis for the EMS based on ISO14001 standard. The adoption of good governance practices and socio-environmental management by JBS units have</p>	<p>Brazil – The related regulation are monitored and managed by the Sustainability Department, where in 2016 approximately R\$ 3,000,000 (BRL) were spent.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>complying schemes. The risks related to uncertainty surrounding new regulation are the following: - Brazilian National Policy on Climate Change: In December 2010, the Brazilian government published Decree 7390, which regulates the National Policy on Climate Change. It was established through two plans: the Prevention and Control Action Plans of deforestation in the biomes, and the Department of Mitigation and Adaptation. The decree states that the sector plans will be prepared and shall include emission reduction targets for 2020. Although there are no reduction</p>							<p>provided success in the development of initiatives through mapping risks and opportunities. The Sustainability Committee identifies and deals with critical matters, which represent risks or may have a relevant impact on the Company. Thus, the awareness about new regulation on climate change is one of the hot topics of its meetings. Moreover, Climate Change was defined as a material issue for the company globally. In addition, every JBS unit is aware about these issues, which implies in the identification of these risks locally and, further, the</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>targets for each sector separately, the Decree emphasizes the voluntary commitment to reduce national emissions by 36.1% to 38.9% by 2020. - Brazilian States Carbon Mitigation regulations: First of all, JBS had identified two regulations in state level in Brazil: 1. Environmental Company from São Paulo State (CETESB) – according to the regulation 254/2012/V/I, from August 22nd 2012, it institutes the obligation of some sectors to elaborate its greenhouse gases inventory and are demanded to provide it annually to the environmental</p>							<p>need of anticipate future obligations. Finally, as an example, in 2015 JBS voluntarily adhered to the São Paulo State Climate Protocol, which aim is stimulate companies in reducing their GHG emissions and seeks for climate change adaptation measures (and reflexes one of the commitments of São Paulo State presented in COP21). In addition, in 2016 JBS won Parana Climate Seal Recognition from the Parana State Government.</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>body. 2. Environment State Institute (INEA) – Rio de Janeiro – according to the regulation Nr. 64, companies that applies for the environmental licenses are obligated to provide its verified greenhouse gases inventory to the environmental body. - COP 21 – Paris Agreement: According to the Paris Agreement, countries should comply with their own INDC (Intended Nationally Determined Contribution). These commitments varies from countries and, as a global company, JBS business units should map every local agreements and regulations</p>								

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	towards the achievement of each assumed commitment. Since this agreement occurred in December 2015, JBS units around the world are still determining the related impacts and preparing the planning to attend it.								
Cap and trade schemes	Specifically for Moy Park, JBS units in UK, participate in the EU ETS emissions reduction scheme as well as the Climate Change Agreement Scheme across industrial and agricultural sectors.	Increased operational cost	>6 years	Direct	Virtually certain	Low	2016 financial impact roughly £ 124,000.	Moy Park Ltd – Dungannon is eligible with EU ETS and, according to “GB-ETS-0030-04”, had set the allocations allowances from 2013 to 2020 phase three period of EU ETS (total of 63,756 tCO ₂ e). Management reviewing proposal specialist advisory service to strategically purchase carbon.	Specialist Advisory costs roughly £ 3,500/year.
Fuel/energy	Whilst Climate	Increased	1 to 3	Direct	Virtually	Low	In UK, due to the	In Brazil,	Costs are

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
taxes and regulations	Change Agreements (CCA) are not compulsory within the UK, they provide the certain Agriculture and Food& Drink sectors an opportunity to commit to emissions reductions through the CCA Scheme. By embracing this scheme over a prescribed percentage of the UK organizational activities this provides an exemption from a mandatory Carbon management compliance Scheme Carbon Reduction Commitment Scheme (CRC). As the CRC scheme is an indirect tax scheme the business impact, financially and reputationally are	operational cost	years		certain		"Climate Change Agreements", Moypark expects for the period between 2019-2023 a cost of energy carbon to increase by roughly 100,000 pounds. 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.	Corporate Sustainability department is monitoring any similar taxation, mainly through EPC (Business for the Climate Platform). In UK, this issue is fully comprised by Moypark risk management. Management techniques include fuel switching to lower carbon thermal fuel, introduction of wood based biomass within the Agricultural division, improving utility efficiency, installation of lower carbon lighting, setting annual energy efficiency targets and management of these targets through KPIs.	embodied within the Sustainability management function of which energy and subsequent emissions mitigation management fall.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	materially higher than the CCA Scheme. Therefore, selecting and remaining within the CCA scheme mitigates the associated risks of the CRC scheme.								
Cap and trade schemes	Specifically for USA units, the probability to create a national cap and trade market for GHG emissions is considered as high within the next years. Our units in the United States are currently seeking strategic positioning and studying how it might adapt to emission targets. The West Coast of the United States is developing several climate change initiatives, especially the State of California,	Increased capital cost	>6 years	Direct	About as likely as not	Low-medium	USD50-100 million CAPEX project to take advantage of carbon trading.	In the USA, EPA regulates emissions of greenhouse gases through the Clean Air Act. A number of the Company's facilities are already required to monitor and report emissions of greenhouse gases, according to reports from the EPA.	It was assumed no costs.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	which has developed a cap and trade scheme. The Environmental Protection Agency has released in April 2009 new mandatory GHG reporting guidelines that are being enforced since the beginning of 2011 in different sectors, including the Food Processing and Manure Management.								

CC5.1b

Please describe your inherent risks that are driven by changes in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Induced	The physical risks	Increased	1 to 3	Direct	Very likely	High	The potential	Regarding	Brazil – Mapping

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
changes in natural resources	identified by JBS are both local and global, and are divided by physical assets, supply chain and business structure. 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. The water scarcity had negatively influenced the availability of energy to our production units and caused the raise of electrical energy fares. In addition, JBS was obligated to partially discontinue some operations in Brazil due to the lack of water access.	operational cost	years				financial implications of the risk before taking action are related to the increase in operational costs. JBS is facing financial implications due to changes in natural resources already.	electrical energy in Brazil, JBS prioritizes the energy acquired from clean sources (free Market) and from own production (power plant by sugar cane bagasse). Regarding water availability, JBS planned to start in 2017 a mapping of water stress for all its production units in Brazil (which comprises a substantial part of its supply chain).	of water stress is managed by the Sustainability Department, where in 2016 approximately R\$ 3,000,000 (BRL) were spent.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Induced changes in natural resources	<p>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.</p> <p>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</p>	Increased operational cost	1 to 3 years	Indirect (Supply chain)	More likely than not	High	<p>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 factor 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.</p>	<p>JBS seeks to assume advance purchase or financial derivative contracts for the purchase of agricultural commodities in order to manage their costs with feed ingredients. Moreover, JBS develops projects for avoiding and mitigating GHG emissions, as for example, the New Field Project in a partnership with ICV ("Instituto Centro de Vida"), which aims to promote sustainable livestock farming in the Amazonia biome. Moreover, Seara invests in projects that improve the feed conversion of poultry and pork, so that less food is necessary.</p>	<p>As a result of the partnership with ICV, JBS developed subsidy protocols for purchase of cattle in the project area which comply with the criteria of quality and the basic requirements of Good Agricultural Practices. Other costs are related to the support on the dissemination of results of Good Agricultural Practices through corporate videos, brochures, field days in conjunction with the ICV a and training of technical and ranchers together with ICV regarding good practice. The costs in 2016 regarding this partnership are estimated in BRL 50,000 including travel expenses, sponsorship for day camp and</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>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.</p> <p>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</p>								<p>institutional video, advertising materials (banners and brochures) and training in agricultural techniques.</p>

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>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.</p> <p>Pasture: as</p>								

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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 and Argentina.								

CC5.1c

Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
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Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer behavior	JBS is exposed to risks that indirectly 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	Reduced demand for goods/services	1 to 3 years	Direct	Likely	High	The potential financial implication is a decrease of income due to the changing of consumer behavior and reputational risk. As an example of estimative, whether JBS is accused of commercializing meat from a deforested area in the Amazon region, the financial implication could be related to the purchase embargo from JBS's clients outside Brazil (which is a sensitive market considering this aspect) And the Brazilian retail clients due Greenpece's Brazilian campaign "Carne ao Molho Madeira" ("Beef in wood sauce").	JBS assumed the commitment to ensure the responsible origin of its raw materials. It does not acquire cattle from suppliers involved in the deforestation of native forests, the 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. To ensure it, JBS has developed a system for social and environmental monitoring of cattle suppliers. This system is comprised of two joint analysis procedures. The first involves	Approximately R\$ 1,000,000 (BRL) are spent per year with the social and environmental monitoring system, considering the 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.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>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.</p>						<p>This embargo could be estimated in around BRL 1.5 billion.</p>	<p>geospatial monitoring of the suppliers properties that performs the digital overlay of georeferenced maps of cattle suppliers' farms to official data of deforestation in Brazil and indigenous land and environmental conservation areas maps. The second performs the intersection of the registration data of the Company's cattle suppliers with the information from the public lists of areas embargoed by IBAMA - by illegal deforestation – and employers who used work practices that are degrading or analogue to</p>	

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								<p>slavery, according to the Ministry of Labor (MTE). This entire process of social and environmental analysis and monitoring of the farms is carried out on a daily basis, both for new suppliers as well as for those who are already included in JBS's registry of suppliers. The aim is to maintain the social and environmental compliance of the suppliers and block the purchase of raw materials from farms that do not comply with the JBS social and environmental criteria.</p>	

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1e

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC5.1f

Please explain why you do not consider your company to be exposed to inherent risks driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Page: CC6. Climate Change Opportunities

CC6.1

Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

Opportunities driven by changes in regulation

Opportunities driven by changes in physical climate parameters

Opportunities driven by changes in other climate-related developments

CC6.1a

Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Cap and trade schemes	Despite it also represents a risk, Cap and trade schemes are, on the other hand, a good opportunity for JBS globally. Due to its operational features and number of operational units, the Company could identify a significant amount of GHG emissions reduction projects opportunities. Currently, JBS has	Premium price opportunities	3 to 6 years	Direct	More likely than not	Medium	The development of project activities to reduce GHG emissions can generate positive financial implications to JBS through the revenue of sales of carbon credits. According to the PDDs from JBS CDM projects, about 73066 tCO2e would be generated per year. As currently the credit amount is low (about EUR 0.20 in June 2017 - BRL 0.71), the potential financial impact will not be	Besides its participation in EPC and in the other initiatives towards a cap a trade scheme in other locations where it operates, JBS will continue to invest in GHG emission reduction projects. The reason is because it is a prioritized issue and it is a Company guideline related to its sustainability strategy, regardless of the generation of additional revenue from the sale of carbon credits.	The development of these projects have associated costs. JBS has already spent about roughly 9,200,000 BRL in CDM projects.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>developed 2 CDM projects in Brazil (in monitoring phase), which can generate revenue through the sale of carbon credits. The scope of the project is avoidance of methane through wastewater treatment. The projects were implemented in two units: Vilhena (Rondonia) and Barra dos Garças (Mato Grosso), which were registered on UNFCCC (United Nations Framework Convention on Climate Change) in</p>						<p>significant (about BRL 52,900). Thus, JBS is waiting for a better time to verify the monitoring of these projects and sell the CERs in the market.</p>		

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	2011. Especially in Brazil, the participation of JBS in the EPC (Business for the Climate Platform), which are designing a Brazilian Emissions Trading Scheme, may open new opportunities to the Company earn a new source of revenues through the selling of carbon credits.								
Emission reporting obligations	JBS develops its GHG emissions inventory and reports into public voluntary platforms and in financial reports.	Increased stock price (market valuation)	Up to 1 year	Direct	Virtually certain	High	The participation of JBS in a sustainability index like BMF&BOVESPA ICO2, promotes intangible benefits, as increase on	The GHG Emissions report is elaborated annually by specialized advisory consultants and involves the Company globally. The participation	Sustainability department spent around 150,000 BRL per year for preparing JBS Global GHG emissions inventory.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>Despite an obligation for some conditions, as in Brazil (state of Rio de Janeiro: environmental license conditions; state of São Paulo: report to the environmental areas is an obligation for some business sectors and/or GHG emissions threshold) it is an efficient management tool and allows Company participates in a specific stock exchange index in Brazil (ICO2 Index).</p>						<p>reputation and market penetration, and tangible benefits, as the increase on shares negotiation (shares liquidity).</p>	<p>of JBS in ICO2 Index is prepared by the same consultants and by the Investor Relations Department. Moreover, in order to lead good practice and strengthen the relationship with the government, in 2015 JBS had adhered to the São Paulo State Climate Protocol in a voluntary manner, which aim is stimulate companies in reducing their GHG emissions and seeks for climate change adaptation measures. This protocol intends to establish public policies by improving competitiveness from the adoption of clean technologies. In the next years JBS plans to</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								adhere to initiatives from others state governments. In addition, in 2016 JBS won Parana Climate Seal Recognition from the Parana State Governmen, an initiative form the state environmental agency to mitigate climate change threatens.	
Other regulatory drivers	Biodiesel – 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	New products/business services	Up to 1 year	Direct	Virtually certain	Medium	Thanks to regulations, today the biodiesel production also generates revenue for JBS. The estimated financial implications due to this opportunity in 2016 was revenues around BRL 500 millions.	JBS Biodiesel is the world's largest verticallyintegrated producer of biodiesel using beef tallow. JBS has two plants in Brazil, one in Lins (SP) and another in Campo Verde (MT), the latter having received investments of R\$15 million in 2015 to double its production capacity, from 48 million liters/year to 100 million liters/year. In	JBS Biodiesel invested BRL 15 millions in the capacity increasing of Campo Verde (MT) unit. The Company also intends to invest from BRL 5 to 7 millions in capacity increasing in 2017.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>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</p>							<p>2016, having concluded refurbishment of the Campo Verde (MT) factory, it produced 210,000 L of biodiesel. In 2016, it also started using cooking oil to produce biodiesel. It is important to mention that 80% of the animal fat from JBS processes are used in biodiesel generation.</p>	

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	establishes that, in 12 months, the mixture should be 8%, increasing to 10% in 3 years. In 2016, this mixture was 7%. The regulation increases the demand for this biofuel in Brazil, consequently increasing the demand for the Biodiesel produced and sold by JBS.								

CC6.1b

Please describe your inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
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Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in mean (average) precipitation	Changes in temperature and rainfall can cause the increase of productivity in pasture areas.	Increased production capacity	>6 years	Indirect (Supply chain)	Likely	High	The potential financial implication is the increase of production capacity due to the increase in raw material availability. This opportunity, added to partnership of JBS and NGO ICV to promotes sustainable livestock farming in the Amazon biome, has the potential to become an important competitive advantage to the Company.	JBS and NGO ICV have partnered to support sustainable livestock farming in the Amazon biome by showing that livestock farming can be profitable even within a framework of rigorous environmental controls. The project, called New Field, helps the Livestock farmers to refurbish degraded pasture, promotes sustainable cattle raising in the Amazon biome, developing production models that improve management, increase productivity, increment quality in the product delivered to the market, strengthening of the local economy, reduce emissions of greenhouse gases in the production system (mainly avoided deforestation) and comply with environmental	As a result of the partnership with ICV, JBS developed subsidy protocols for purchase of cattle in the project area which comply with the criteria of quality and the basic requirements of Good Agricultural Practices. Other costs are related to the support on the dissemination of results of Good Agricultural Practices through corporate videos, brochures, field days in conjunction with the ICV a and training of technical and ranchers together with ICV regarding good practice. The costs in 2016 regarding this partnership is estimated in BRL 150,000 including travel expenses, sponsorship for day camp and institutional video, advertising

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								legislation. The results were that not only farm incomes rose, but the properties automatically started to implement a more environmentally responsible production model.	materials (banners and brochures) and training in agricultural techniques.

CC6.1c

Please describe your inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	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	Increased stock price (market valuation)	3 to 6 years	Direct	Very likely	Medium-high	The financial implications are not measurable but it is estimated to result in increased income for JBS.	JBS is developing mechanisms to support initiatives that promote the certification of its value chain. JBS supports the sustainable growth of the Brazilian livestock sector with the Sustainable Livestock Program. The program raises	To monitor and deal with reputational opportunities for the Company, the costs can be described as expenses in the area of sustainability, where in 2016 approximately R\$ 3,000,000

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	<p>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. The Sustainable Livestock program offers advisory for cattle ranchers for pasture management, pointing out the best practices available for sustainable ranching. This program promotes several indirect benefits for mitigating climate change, such as more sustainable and intensive use of the land, avoiding expansion of pasture</p>							<p>awareness and trains suppliers on social and environmental issues, food safety and animal welfare. To facilitate these trainings, JBS signed a partnership with EMBRAPA (Brazilian Agricultural Research Corporation). The Sustainable Livestock Program offers free technical support and assistance to providers of JBS through a specialized technical team. Another important measure that contributes to JBS's reputation is the commitment to not purchase raw materials from farms that have deforested native forests in the Amazon Biome that are located within Indigenous Lands and Environmental Conservation Areas or have used work</p>	<p>(BRL) were spent.</p>

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	areas, contributing substantially to the reduction of deforestation and, consequently, emissions related to changes in land use in Brazil.							practices that are degrading or analogue to slavery. The management of this opportunity is done through its System for social and environmental monitoring of cattle suppliers. Every year the Company is audited by a third party and publishes the results about its endeavour against deforestation. In 2016 JBS achieved a compliance level of 99.97%.	

CC6.1d

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in regulation that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1e

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in physical climate parameters that have the potential to generate a substantive change in your business operations, revenue or expenditure

CC6.1f

Please explain why you do not consider your company to be exposed to inherent opportunities driven by changes in other climate-related developments that have the potential to generate a substantive change in your business operations, revenue or expenditure

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Scope	Base year	Base year emissions (metric tonnes CO2e)
Scope 1	Fri 01 Jan 2016 - Sat 31 Dec 2016	6553358.35
Scope 2 (location-based)	Fri 01 Jan 2016 - Sat 31 Dec 2016	1745022.29
Scope 2 (market-based)	Fri 01 Jan 2016 - Sat 31 Dec	0

Scope	Base year	Base year emissions (metric tonnes CO2e)
	2016	

CC7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use
Brazil GHG Protocol Programme
IPCC Guidelines for National Greenhouse Gas Inventories, 2006
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

CC7.2a

If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Not Applicable.

CC7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	IPCC Fourth Assessment Report (AR4 - 100 year)

CC7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference

Further Information

Emission Factors spreadsheet for calculation of JBS Global GHG Emissions 2016 (question CC7.4).

Attachments

[https://www.cdp.net/sites/2017/30/9730/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/JBS_Fatores de Emissão - Inventário de GEE 2016_PARTE 2.xlsx](https://www.cdp.net/sites/2017/30/9730/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/JBS_Fatores%20de%20Emiss%C3%A3o%20-%20Invent%C3%A1rio%20de%20GEE%202016_PARTE%202.xlsx)
[https://www.cdp.net/sites/2017/30/9730/Climate Change 2017/Shared Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/JBS_Fatores de Emissão - Inventário de GEE 2016_v1.xlsx](https://www.cdp.net/sites/2017/30/9730/Climate%20Change%202017/Shared%20Documents/Attachments/ClimateChange2017/CC7.EmissionsMethodology/JBS_Fatores%20de%20Emiss%C3%A3o%20-%20Invent%C3%A1rio%20de%20GEE%202016_v1.xlsx)

CC8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Operational control

CC8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

6553358.35

CC8.3

Please describe your approach to reporting Scope 2 emissions

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting a Scope 2, location-based figure	We have no operations where we are able to access electricity supplier emissions factors or residual emissions factors and are unable to report a Scope 2, market-based figure	JBS in Brazil purchase Energy from marked-based (free market). However, once this energy is provided through the National Grid, JBS does not calculate it as market-based and it was not considered as a low carbon energy. Besides that, it is important to mention that roughly 60% of the energy purchased from Brazilian free market is considered renewable.

CC8.3a

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

Scope 2, location-based	Scope 2, market-based (if applicable)	Comment
1745022.29	0	JBS in Brazil purchase Energy from marked-based (free market). However, once this energy is provided through the National Grid, JBS does not calculate it as market-based and it was not considered as a low carbon energy. Besides that, it is important to mention that roughly 60% of the energy purchased from Brazilian free market is considered renewable.

CC8.4

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

CC8.4a

Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure

Source	Relevance of Scope 1 emissions from this source	Relevance of location-based Scope 2 emissions from this source	Relevance of market-based Scope 2 emissions from this source (if applicable)	Explain why the source is excluded

CC8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	More than 2% but less than or equal to 5%	Other: Published Emissions Factors Data Management	In general, the IPCC factors have an uncertainty of 5% for carbon dioxide (GHG most representative). It was not possible to associate uncertainties related to the parameters quantification, because the data was collected aggregately in each unit by independent systems of information management.
Scope 2 (location-based)	More than 2% but less than or equal to 5%	Other: Published Emissions Factors Data Management	The emission factor was estimated based on the energy generation and fuel consumption available. However, the National Operator System (Brazilian Institution) has a strict control of the power plants, therefore we consider that the uncertainty is relatively low within the range selected.
Scope 2 (market-based)			

CC8.6

Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

No third party verification or assurance

CC8.6a

Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
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CC8.6b

Please provide further details of the regulatory regime to which you are complying that specifies the use of Continuous Emission Monitoring Systems (CEMS)

Regulation	% of emissions covered by the system	Compliance period	Evidence of submission
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CC8.7

Please indicate the verification/assurance status that applies to at least one of your reported Scope 2 emissions figures

No third party verification or assurance

CC8.7a

Please provide further details of the verification/assurance undertaken for your location-based and/or market-based Scope 2 emissions, and attach the relevant statements

Location-based or market-based figure?	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
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CC8.8

Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
Other: Not Applicable	Not Applicable.

CC8.9

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

Yes

CC8.9a

Please provide the emissions from biologically sequestered carbon relevant to your organization in metric tonnes CO2

2635125.93

Further Information

CC9.1

Do you have Scope 1 emissions sources in more than one country?

Yes

CC9.1a

Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e
Brazil	700956.96
Italy	1390.71
Argentina	47394.21
Paraguay	1334.26
Uruguay	3279.47
Germany	2735.67
Mexico	713462.74
United Kingdom	110436.00
Ireland	374.54
France	11217.00
United States of America	3695447.46
Canada	173899.43
Australia	1080189.67
Puerto Rico	4740.70
New Zealand	6499.51

CC9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division
By GHG type
By activity

CC9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
JBS Europa	123418.25
Seara	215089.50
JBS Mercosul	540616.89
JBS USA	5674233.72

CC9.2b

Please break down your total gross global Scope 1 emissions by facility

Facility	Scope 1 emissions (metric tonnes CO2e)	Latitude	Longitude
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CC9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	2284908.47
CH4	3387197.29
N2O	843296.39
HFCs	37956.21

CC9.2d

Please break down your total gross global Scope 1 emissions by activity

Activity	Scope 1 emissions (metric tonnes CO2e)
Agriculture	1959708.79
Stationary Combustion	1763126.49
Mobile Combustion	384966.26
Process Emissions	207869.67
Fugitive Emissions	37956.21
Waste and wastewater treatment	2199730.93

Further Information

CC10.1

Do you have Scope 2 emissions sources in more than one country?

Yes

CC10.1a

Please break down your total gross global Scope 2 emissions and energy consumption by country/region

Country/Region	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Brazil	182663.11	0	3016154.50	0
Italy	3790.93	0	9501.08	0
Argentina	35907.62	0	73732.27	0
Paraguay	3406.61	0	18494.07	0
Uruguay	4667.24	0	25337.91	0
Germany	58.80	0	124.62	0
Mexico	77609.36	0	173080.65	0
United Kingdom	81945.56	0	189475.71	0
Ireland	840.05	0	1834.00	0
France	2317.23	0	39543.09	0
United States of America	1052705.82	0	2032643.02	0
Canada	13202.15	0	80500.89	0
Australia	284738.84	0	347242.49	0
New Zealand	1168.98	0	7782.62	0

CC10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By business division

CC10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
JBS Europa	88893.77	0
Seara	111710.42	0
JBS Mercosul	115116.44	0
JBS USA	1429301.65	0

CC10.2b

Please break down your total gross global Scope 2 emissions by facility

Facility	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)
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CC10.2c

Please break down your total gross global Scope 2 emissions by activity

Activity	Scope 2, location-based (metric tonnes CO2e)	Scope 2, market-based (metric tonnes CO2e)

Further Information

Page: CC11. Energy

CC11.1

What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

CC11.2

Please state how much heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Heat	0
Steam	794749.44
Cooling	0

CC11.3

Please state how much fuel in MWh your organization has consumed (for energy purposes) during the reporting year

25777480.72

CC11.3a

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Diesel/Gas oil	1475223.64
Biodiesels	1637.33
Natural gas	5134710.34
Liquefied petroleum gas (LPG)	2747889.77
Wood or wood waste	3104787.82
Motor gasoline	40525.09
Propane	24465.54
Butane	655.63
Bituminous coal	140133.13
Shale oil	19999.99
Residual fuel oil	10347487.19
Biogas	159308.11
Kerosene	66983.87
Other: Vegetable waste	1436900.96
Other: Tallow	57528.83
Other: Sawdust	49536.77
Other: Ethanol	1383.04
Other: Sugarcane bagasse	944486.25

Fuels	MWh
Other: Fuel oil	23837.33
Other: Acetylene	0.09

CC11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the market-based Scope 2 figure reported in CC8.3a

Basis for applying a low carbon emission factor	MWh consumed associated with low carbon electricity, heat, steam or cooling	Emissions factor (in units of metric tonnes CO2e per MWh)	Comment
No purchases or generation of low carbon electricity, heat, steam or cooling accounted with a low carbon emissions factor	0	0	JBS in Brazil purchases Energy from marked-based (free market). However, once this energy is provided through the National Grid, JBS does not calculate it as market-based and it was not considered as a low carbon energy. Beside that, it is important to mention that roughly 60% of the energy purchased from free market is considered renewable.

CC11.5

Please report how much electricity you produce in MWh, and how much electricity you consume in MWh

Total electricity consumed (MWh)	Consumed electricity that is purchased (MWh)	Total electricity produced (MWh)	Total renewable electricity produced (MWh)	Consumed renewable electricity that is produced by company (MWh)	Comment
5220697.45	5203678.33	159744.51	159744.51	17019.12	"Consumed electricity that is purchased" consumed includes 1,405,357 MWh purchased in the Brazilian energy free market.

Further Information

Page: CC12. Emissions Performance

CC12.1

How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Increased

CC12.1a

Please 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

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
Emissions reduction activities	0.27	Decrease	The total Scope 1 and Scope 2 emissions in 2015 was 6,245,946.40 tCO ₂ e. In 2016, it is estimated that in total 74,003.08 tCO ₂ e were avoided by JBS's emissions reduction projects (Scopes 1, 2 and 3). On the other hand, the total emissions decrease regarding projects of Scope 1 and 2 were 17,149.14 tCO ₂ e. Therefore,

Reason	Emissions value (percentage)	Direction of change	Please explain and include calculation
			there was an estimated decrease of $(17,149.14 / 6,245,946.40) = 0.27\%$ in total emissions (avoided) in 2016, impelled by projects whose targets aimed foremost energy efficiency, switching of fossil fuel for renewable fuel, process emissions reductions, transportation and waste recovery.
Divestment			
Acquisitions	13.31	Increase	In 2016, JBS added to its GHG inventory the Live Pork Operations (USA) and New Zealand business units (units acquired in mid-2015). Thus 831,319.75 tonnes of CO ₂ e (Scopes 1+2) were added in the reporting year, representing an increase of $(6,245,946.39 / 831,319.76) * 100 = 13.31\%$ in its Scope 1 + 2 Global emissions in the base year (2015). Live Pork Operations represents 99.08% and New Zealand represents 0.92% of the total added amount of CO ₂ e emissions.
Mergers			
Change in output			
Change in methodology			
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other	18.08	Increase	In 2016, it was verified two significant increases of CO ₂ e emissions due to new data input (not considered in the year before) in Pilgrim's business: - Pilgrim's USA reported 517,142.76 tCO ₂ e due to the handling and management of organic waste produced in the poultry houses. This amount represents an increase of $(6,245,946.39 / 517,142.76) * 100 = 8.28\%$ in its Scope 1+2 Global emissions in the base year (2015); - Pilgrim's Mexico reported 612,400.13 tCO ₂ e due to emissions related to animal heating (stationary combustion). This amount represents an increase of $(6,245,946.39 / 612,400.13) * 100 = 9.8\%$ in its Scope 1+2 Global emissions in the base year (2015). Therefore, considering both new data reported sources, the average increase in emissions represents $(6,245,946.39 / 1,129,542.89) * 100 = 18.08\%$ in its Scope 1+2 Global emissions in the base year (2015).

Is your emissions performance calculations in CC12.1 and CC12.1a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

CC12.2

Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator: Unit total revenue	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.000049	metric tonnes CO2e	170400000000.00	Location-based	52.19	Increase	In 2016, JBS had presented a global increase on revenues around 4.5% from the previous year. In such, the main reasons for increasing the intensity figure by roughly 52% was due to the i) acquisition of Live Pork Operations (USA) and New Zealand business units; and ii) new reporting of data emissions from Pilgrim's USA and Pilgrim's Mexico, which means an increase of 18.08% in its Scope 1+2 Global emissions in the base year (2015).

CC12.3

Please provide any additional intensity (normalized) metrics that are appropriate to your business operations

Intensity figure =	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change from previous year	Reason for change
0.1107	metric tonnes CO2e	Other: thousand metric tonnes of product	6700673.84	Location-based	18.90	Decrease	This intensity figures considers only the emissions and production of the Brazilians units of JBS Beef, JBS Leather and Seara, once it represents more than 90% of all JBS Brazil production. Since the 2016 combined Scope 1 + Scope 2 is roughly 2% lower than in previous year, the increase on metric denominator (production) – about 21% - is the main reason for the decrease in 2016 intensity figure when compared to 2015 figure.

Further Information

Page: **CC13. Emissions Trading**

CC13.1

Do you participate in any emissions trading schemes?

Yes

CC13.1a

Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
European Union ETS	Fri 01 Jan 2016 - Sat 31 Dec 2016	7580	10000	18650	Facilities we own and operate

CC13.1b

What is your strategy for complying with the schemes in which you participate or anticipate participating?

The more countries face national or multinational agreements on climate change mitigation issues, more companies located in those countries must comply with them, mainly through emission trading schemes.

In 2016 the only JBS business unit that was actively participating in an emissions trading scheme was Moypark, located in UK (France, Holland and the Republic of Ireland fall below the EU ETS threshold. In the UK, Moypark adhere to a voluntary carbon emissions reduction scheme, "Climate Change Agreements", Moypark complies with that agreement.

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.

CC13.2

Has your organization originated any project-based carbon credits or purchased any within the reporting period?

Yes

CC13.2a

Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits canceled	Purpose, e.g. compliance
Credit origination	Methane avoidance	Project 2610 : Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Vilhena Unit http://cdm.unfccc.int/Projects/DB/TUEV-SUED1243507454.91/view	CDM (Clean Development Mechanism)	29912	29912	No	Voluntary Offsetting
Credit origination	Methane avoidance	Project 2609 : Project JBS S/A – Slaughterhouse Wastewater Aerobic Treatment – Barra do Garças Unit http://cdm.unfccc.int/Projects/DB/TUEVSUED1243498760.08/view	CDM (Clean Development Mechanism)	43154	43154	No	Voluntary Offsetting

Further Information

Page: CC14. Scope 3 Emissions

CC14.1

Please account for your organization’s Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Relevant, not yet calculated				Due to its very wide supply chain, JBS did not find so far a consensus about the best methodology to calculate it, by an efficient and feasible manner.
Capital goods	Not relevant, explanation provided				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)	Not relevant, explanation provided				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	Relevant, calculated	157836.28	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	100.00%	Emissions from transport and distribution of products purchased or acquired by the organization.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			Protocol Programme.		
Waste generated in operations	Relevant, calculated	323702.76	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.	100.00%	Emissions from external treatment of residues (landfill, composting, incineration and fertigation) from the organization's operations.
Business travel	Relevant, calculated	21997.61	The methodology applied is the Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting.	100.00%	The emissions described refer to the air travels of JBS staff.
Employee commuting	Relevant, calculated	24302.90	The methodology applied complies with Brazil GHG Protocol Programme.	100.00%	Emissions from this category are partially reported (only for Brazil).
Upstream leased assets	Not relevant, explanation provided				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	Relevant, calculated	106572.14	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	100.00%	Emissions from transport and distribution of products sold by the organization.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			Protocol Programme.		
Processing of sold products	Not relevant, explanation provided				The vast majority of sales are now to the end consumer, not needing subsequent processing steps.
Use of sold products	Not relevant, explanation provided				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	Not relevant, explanation provided				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	Not relevant, explanation provided				Compared to the owned units themselves, the leased plants are not relevant.
Franchises	Not relevant, explanation provided				Not applicable to JBS operations.
Investments	Not relevant, explanation provided				Emissions of investments are not significant in comparison with the other scope 3 emissions.
Other (upstream)					

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Other (downstream)					

CC14.2

Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

No third party verification or assurance

CC14.2a

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 3 emissions verified (%)

CC14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a

Please identify the reasons for any change in your Scope 3 emissions and for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Upstream transportation & distribution	Other: Lack of reported data	72.20	Decrease	The emissions in 2015 was 567,396 tCO ₂ e and in 2016 was 157,836 tCO ₂ e resulting in a (-409,560 tCO ₂ e / 2015 Emission) *100 = 72.2% decrease in emissions, foremost as result from a significant decrease in JBS' USA business division due to Canada's Food (Beef) unit emissions lack of report in 2016.
Waste generated in operations	Divestment	85.70	Decrease	In 2016 the emission was 323,702.76 tCO ₂ e in comparison to 2,256,709.25 tCO ₂ e in the previous year. Thus it was verified (-1,933,006.49 tCO ₂ e / 2015 Emissions)*100 = 85.7% reduction in emissions regarding mainly waste generated in operations avoidance (waste landfill) emissions in Pilgrim's Mexico. Pilgrim's Mexico has decided to send the waste generated in operations to landfills every three years, with no damage to your operational management and allowed by the local environmental agency, as a divestment for mitigating costs.
Business travel	Other: Increase on business travels	105.30	Increase	The emission in 2015 was 10,215.9 tCO ₂ e and in 2016 was 20,976.95 tCO ₂ e, leading to an increase in (10,761.06 tCO ₂ e / 2015 Emission)*100 = 105.3% in tCO ₂ e emissions. This result is essentially due to a business travel emissions boost in Seara (Brazil).
Employee commuting	Other: No significant change	4.20	No change	The emissions in 2015 was 23,319.87 tCO ₂ e and in 2016 was 24,302.90 tCO ₂ e, so there was a very slight increase in emissions of (983.03 tCO ₂ e / 2015 Emission)*100 = 4.2%, considered insignificant regarding other directions of change pointed out in this analysis.
Downstream transportation and distribution	Other: No significant change	8.10	No change	The emissions in 2015 was 98,600.2 tCO ₂ e and in 2016 was 106,572.14 tCO ₂ e, thus there was a slight increase in emissions of (983.03 tCO ₂ e / 2015 Emission)*100 = 8.1%, identified as insignificant regarding other directions of change pointed out in this analysis.

CC14.4

Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

Yes, our suppliers

Yes, our customers

Yes, other partners in the value chain

CC14.4a

Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

JBS sustainability strategy is focused on its supply chain prioritizing initiatives that promotes sustainable best practices on its cattle suppliers and avoiding deforestation from its value chain, according to its priorities issues of its business strategy.

JBS recognizes that in order to achieve meaningful progress in sustainability, we must partner up with other stakeholders and organizations who share our values and commitment to a sustainable future. As such, JBS participates and holds leadership roles in a number of 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 is a founding member of the Committee and the Executive Council of the Global Roundtable for Sustainable Beef in US - and currently board member of the Brazilian Roundtable on Sustainable Livestock. These methods of engagement held by the Company promote frequent dialogue with its suppliers, non-governmental organizations and the government itself. It also develop Good Practices in order to assist the producers, aiding them cultivate transparency towards its cattle suppliers and to promote the strengthening of value chain.

One of JBS's main public commitments is the engagement in combating Brazil deforestation. Therefore, practical actions have also been applied in policy and in livestock sector of our cattle supply. Through the "Legal Supplier" Program, JBS has built a network of environmental consulting to assist the Company's cattle suppliers to comply with the Rural Environmental Registry of their properties.

In addition, the "Easy Map" Program consists in a tool which enables JBS's cattle suppliers the opportunity to elaborate their georeferenced map of the properties for free at any of the units located in the Amazon.

Besides, JBS has developed a system for social and environmental monitoring of cattle suppliers and maintains the New Field Program. Its aim is to promote sustainable cattle raising in the Amazon biome, developing production models that improve management, increase productivity, increment quality in the product delivered to the market, reduce emissions of greenhouse gases in the production system (mainly avoiding deforestation) and comply with environmental legislation. Livestock farmers received help to refurbish degraded pasture, institute integrated management practices for pastureland and increase the number of cattle the property could handle. The results were that not only farm incomes rose, but also the properties automatically started to implement a more environmentally responsible production model. The application of best practices techniques allowed the number of head per hectare to rise from 1 to 3, increasing efficiency without the need to create additional farmland, therefore less is the need to deforest new land. Beneficiated farms already are beyond than five times more productive than average. In order to encourage farmer's participation JBS committed to purchase animals from this first phase of the program and is currently developing a specific bonus protocol for livestock farmers. The idea is to create an award for farmers who can ensure that animals sold through the Company offer both quality and

sustainability, providing to end consumers sustainable products that stand out.

According to the 2014, 2015 and 2016 independent audit results, the compliance level was 99.75%, 99.97% and 99.97% respectively.

Further, a pilot audit performed by an independent assurance firm confirmed that JBS is deploying raw material control systems for the acquisition of cattle only in areas without illegal logging, without invasion of public land and no slave labour in the state of Pará in Brazil, from an agreement made with the Federal Public Ministry since 2009.

Regarding its customers, JBS has been engaged with various, such as KFC, McDonald's and Walmart, regarding sustainability best practices. Poultry and pork suppliers undergo a social and environmental assessment to be part of the supplier's portfolio, which additionally is considered a strategy of prioritizing engagement by rating suppliers ranks in 3 colors: Green "labeling" means that the suppliers were approved, Yellow denotes that it is necessary to go through a committee for approval and red means suppliers are reproved. Any project for suppliers expansion for new registration also undergo this assessment. Approved Poultry and Pork suppliers have to comply with environmental legislation and to have its operating license approved by the environmental agency. In addition, all farms are visited and receive technical guidance from various topics, including environmental issues.

Concluding, 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.

CC14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Type of engagement	Number of suppliers	% of total spend (direct and indirect)	Impact of engagement
Compliance	5000	100%	Social and Environmental Monitoring of Cattle, Poultry and Pork Suppliers in Brazil.

CC14.4c

Please explain why you do not engage with any elements of your value chain on GHG emissions and climate change strategies, and any plans you have to develop an engagement strategy in the future

Further Information

Module: Sign Off

Page: CC15. Sign Off

CC15.1

Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Márcio Nappo	Sustainability Director	Director on board

Further Information

Module: FBT

Page: FBT1. Agriculture

FBT1.1

Are agricultural activities, whether in your direct operations or elsewhere in your value chain, relevant to your climate change disclosure?

Yes

FBT1.1a

Please explain why agricultural activities are not relevant to your climate change disclosure

FBT1.2

Are the agricultural activities that you have identified as relevant undertaken on your own farm(s), elsewhere in your value chain, or both?

Both own farm(s) and elsewhere in value chain

FBT1.2a

Please explain why agricultural emissions from your own farms are not relevant

FBT1.3

Do you account for greenhouse gas emissions from agricultural activities undertaken on your own farm(s) as part of the global gross Scope 1 emissions figure reported in CC8.2, and/or the Scope 2 figure reported in CC8.3a of the core climate change questionnaire?

Yes

FBT1.3a

Please select the form(s) in which you wish to report the greenhouse gas emissions produced by agricultural activities (agricultural emissions) undertaken on your own farm(s)

Total agricultural emissions separated by Scope 1 and 2

FBT1.3b

Please report your total agricultural emissions produced on your own farm(s) and identify any exclusions in the table below

Scope	Agricultural emissions (metric tonnes CO2e)	Methodology	Exclusions	Explanation	Comment
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Scope	Agricultural emissions (metric tonnes CO2e)	Methodology	Exclusions	Explanation	Comment
Scope 1	1055919.87	Default emissions factors	None	Considered emissions from enteric fermentation and fertigation.	
Scope 2	24047.23	Default emissions factors	None	Considered the scope 2 emissions from confinement activities.	

FBT1.3c

Please report your agricultural emissions produced on your own farm(s), disaggregated by category, and identify any exclusions in the table below

Emissions category	Agricultural emissions (metric tonnes CO2e)	Methodology	Exclusions	Explanation	Comment

FBT1.3d

Please explain why you do not account for greenhouse gas emissions from agricultural activities undertaken on your own farm(s), and describe any plans for the collection of this data in the future

FBT1.4

Do you implement agricultural management practices on your own farm(s) with a climate change mitigation and/or adaptation benefit?

Yes

FBT1.4a

Please identify agricultural management practices undertaken on your own farm(s) with a climate change mitigation and/or adaptation benefit. Complete the table

Activity ID	Agricultural management practice	Description of agricultural management practice	Climate change related benefit	Comment
1	Waste management	Waste management for the production of fertilizers through aerobic composting.	Emissions reductions (mitigation)	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. More than 60% of post-industrial waste generated by JBS operations is used for composting, recycling or energy reuse. In 2016, 1,575,690.76 tons of waste were processed this way.

FBT1.4b

Does your implementation of these agricultural management practices have other impacts? Complete the table

Activity ID	Impact on yield	Impact on cost	Impact on soil quality	Impact on biodiversity	Impact on water	Other impact	Description of impacts	Comment
1	Evaluated - no impact	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial 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.	

FBT1.4c

Do you have any plans to implement agricultural management practices in the future?

Yes

FBT1.4d

Please detail your plans to implement agricultural management practices in the future

JBS and the Brazilian NGO Instituto Centro de Vida (ICV) promotes sustainable cattle raising in the Amazon biome (New Field Program), through the reduction of emissions of greenhouse gases in the production system (mainly avoided deforestation) and comply with environmental legislation.

Livestock farmers received help to refurbish degraded pasture, institute integrated management practices for pastureland and increase the number of cattle the property could handle. The results were that not only farm incomes rose, but also the properties automatically started to implement a more environmentally responsible production model. The application of best practices techniques allowed the number of head per hectare to rise from 1 to 3, increasing efficiency without the need to create additional farmland, therefore less the need to deforest new land. Beneficiated farms already are more than five times more productive than state average. In order to encourage farmer's participation JBS promised to purchase animals from this first phase of the program and is currently developing a specific bonus protocol for livestock farmers. The idea is to create an award for farmers who can ensure that animals sold through the Company offer both quality and sustainability, giving to end consumers sustainable products that stand out. The project is expected to grow, and the model to be replicated at other properties in Amazon.

Poultry and pork suppliers undergo a social and environmental assessment to be part of the JBS supplier's portfolio. The rating ranks suppliers in 3 colors: greens are approved, Yellow go through a committee before its approval and red is reprovved. Any project for suppliers expansion for new registration, also undergo this assessment. Poultry and pork suppliers that are approved have to comply with environmental legislation and to have its operating license approved by the environmental agency. In addition, all farms are visited and receive technical guidance from various topics, including environmental.

Also, the GHG Protocol Agriculture methodology support continued in 2016, when JBS supports the work of partner organizations such as World Resources Institute (WRI) in the training and field testing of this tool, complying a sample of its cattle suppliers.

FBT1.5

Is biogenic carbon pertaining to your own farm(s) relevant to your climate change disclosure?

No

FBT1.5a

Please report biogenic carbon data pertaining to your own farm(s) in the table below

CO2 flux	Emissions/ Removals (metric tonnes CO2e)	Methodology	Exclusions	Explanation	Comment
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FBT1.6

Do you account for greenhouse gas emissions from agricultural activities in your value chain as part of the Scope 3 category "Purchased goods and services" reported in CC14.1 of the core climate change questionnaire?

No

FBT1.6a

Please report these agricultural emissions from your value chain and identify any exclusions in the table below

Scope	Agricultural emissions (% of the emissions reported in the category "Purchased goods and services")	Exclusions	Explanation	Comment
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FBT1.6b

Please explain why you do not account for greenhouse gas emissions from agricultural activities in your value chain as part of the Scope 3 category "Purchased goods and services" reported in CC14.1 of the core climate change questionnaire

JBS supported the work of World Resources Institute (WRI) in the trained and field testing of the tool derived from the GHG Protocol Agriculture methodology, complying a sample of its cattle suppliers. Due to its very wide supply chain, by the end of 2016 it was not possible to compile and approve these data.

FBT1.7

Do you encourage your agricultural suppliers to undertake any agricultural management practices with a climate change mitigation and/or adaptation benefit?

Yes

FBT1.7a

Please identify agricultural management practices with a climate change mitigation and/or adaptation benefit that you encourage your suppliers to implement. Complete the table

Activity ID	Agricultural management practice	Description of agricultural management practice	Your role in the implementation of this practice	Explanation of how you encourage implementation	Climate change related benefit	Comment
1	Land use change	JBS and the Brazilian NGO Instituto Centro de Vida (ICV) promotes sustainable cattle raising in the Amazon biome (New Field Program), through the reduction of emissions of greenhouse gases in the production system (mainly avoided deforestation) and comply with environmental legislation.	Procurement	JBS is a partner in this initiative, which aims to increase adoption of best livestock production practices on farms in the Legal Amazon. Created and coordinated by the Center for Life Institute (ICV), the New Field Program provides guidance on social, environmental and production issues for livestock breeders in the Alta Floresta region, the largest livestock-breeding centre in the state of Mato Grosso. The JBS role is to develop bonus protocols for purchase of cattle in the project area that comply with the criteria of quality and the basic requirements of Good Agricultural Practices. The idea is to create an award for farmers who can ensure that animals sold through the Company offer both quality and sustainability, giving to end consumers sustainable	Emissions reductions (mitigation) Increasing resilience to climate change (adaptation)	Livestock farmers received help to refurbish degraded pasture, institute integrated management practices for pasture land and increase the number of cattle the property could handle. The results were that not only farm incomes rose, but the properties automatically started to implement a more environmentally responsible production model. The application of best practices techniques allowed the number of head per hectare to rise from 1 to 3, increasing efficiency without the need to create additional farmland, therefore less the need to deforest new land. Beneficiated farms already are more than five times more productive than the state average.

Activity ID	Agricultural management practice	Description of agricultural management practice	Your role in the implementation of this practice	Explanation of how you encourage implementation	Climate change related benefit	Comment
				<p>products that stand out. In addition, the Company support the dissemination of results of Good Agricultural Practices through corporate videos, brochures, field days in conjunction with the ICV team and training of technical and ranchers regarding good practice.</p>		
2	Other: Social and environmental monitoring system	Social and environmental monitoring system.	Procurement	<p>JBS prepared internal guidelines on the cattle purchase from the Amazon biome, pledging to purchase cattle only from farms that are in regularity with social, environmental and land standards. The Company's supplier list is frequently updated with official list of IBAMA, which indicates farms in environmental non-compliance, and with the Ministry of Labour (MTE), which indicates farms analogous to slave and/or child labour. Whether one falls within any of the list, trade relations are immediately cancelled with suppliers. Besides these controls, JBS performs satellite monitoring, where suppliers are located in Amazon biome. If deforestation is identified in conservation areas, the trade is cancelled, thus preventing the acquisition of raw materials from deforestation.</p>	Emissions reductions (mitigation) Increasing resilience to climate change (adaptation)	<p>This action aims to ensure the source of our raw material, but also serves to aid the reduction of deforestation in Amazon Biome, and therefore lower CO2 emissions from forest degradation. The Social and Environmental Suppliers Monitoring System of JBS is annually audited, independently, to ensure compliance with the Company's commitments to sustainability. In 2016, JBS achieved a compliance level of 99.7%. With the fulfilment of the criteria JBS ensures that your entire value chain, including all products and by-products derived from cattle operations are sustainable.</p>

FBT1.7b

Does the implementation of these agricultural management practices in your value chain have other impacts? Complete the table

Activity ID	Impact on yield	Impact on cost	Impact on soil quality	Impact on biodiversity	Impact on water	Other impact	Description of impacts	Comment
1	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial impact	The New Field Program aims to increase the farm profitability, improving soil quality, reducing the impact on biodiversity and water usage. Other Impact: GHG emissions reduction.	
2	Evaluated - no impact	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial impact	Evaluated - beneficial impact	The social and environmental monitoring system aims to reduce deforestation in Amazon Biome, reducing consequently carbon emission. Other Impact: GHG emissions reductions and positive social impact (avoidance of slave/child labour).	

FBT1.7c

Do you have any plans to engage with your suppliers on their implementation of agricultural management practices?

Yes

FBT1.7d

Please detail these plans to engage with your suppliers on their implementation of agricultural management practices

The New Field Program promotes more sustainable production techniques at husbandry farms in the Amazon region, such as:

- Intensification of the production area and an increase in productivity (through pasture reform and management);
- Nutritional supplementation of the animals to ensure weight gain;
- Installation of drinking stations in the grazing areas;
- Diversification of income sources, through the planting of trees with commercial value in the legal reserve areas.

Since the project start, the breeders who took part in the project perceived a variety of benefits. These included:

- Reduction in the production cycle from 44 to 36 months for male animals and from 34 to 26 months for females;
- Increase in productivity from 4.7 arrobas (unit of measure corresponding to 15 kilograms) to more than 10 arrobas per hectare per year;
- Improvement in the quality of the beef;
- Increase in income for producers.

Further Information

Page: FBT2. Processing

FBT2.1

Are processing activities, whether in your direct operations or elsewhere in your value chain, relevant to your climate change disclosure?

Yes

FBT2.1a

Please explain why processing activities are not relevant to your climate change disclosure

FBT2.2

Are the processing activities that you have identified as relevant undertaken in your direct operations, elsewhere in your value chain, or both?

Direct operations

FBT2.2a

Please explain why emissions from processing activities in your direct operations are not relevant

FBT2.3

Do you account for emissions from processing activities in your direct operations as part of the global gross Scope 1 emissions figure reported in CC8.2 and/or the Scope 2 figure reported in CC8.3a of the core climate change questionnaire?

Yes

FBT2.3a

Please report these emissions from processing activities in your direct operations and identify any exclusions in the table below

Scope	Emissions from processing activities (metric tonnes CO2e)	Exclusions	Explanation	Comment
Scope 1	3964713.67	None.	Considered stationary combustion, process emissions, fugitive emissions and waste and wastewater emissions.	
Scope 2	1720532.35	None.	Emissions from electric energy and steam purchased (except for confinement units and offices).	

FBT2.3b

Please explain why you do not account for emissions from processing activities in your direct operations, and describe any plans for the collection of this data in the future

FBT2.4

Do you account for emissions from processing activities in your value chain as part of the Scope 3 category "Purchased goods and services" and/or "Processing of sold products" reported in CC14.1 of the core climate change questionnaire?

Further Information

FBT3.1

Are distribution activities, whether in your direct operations or elsewhere in your value chain, relevant to your climate change disclosure?

Yes

FBT3.1a

Please explain why distribution activities are not relevant to your climate change disclosure

FBT3.2

Are the distribution activities that you have identified as relevant undertaken in your direct operations, elsewhere in your value chain, or both?

Both direct operations and elsewhere in value chain

FBT3.2a

Please explain why emissions from distribution activities in your direct operations are not relevant

FBT3.3

Do you account for emissions from distribution activities in your direct operations as part of the global gross Scope 1 emissions figure reported in CC8.2 and/or the Scope 2 figure reported in CC8.3a of the core climate change questionnaire?

Yes

FBT3.3a

Please report these emissions from distribution activities in your direct operations and identify any exclusions in the table below

Scope	Emissions from distribution activities (metric tonnes CO2e)	Exclusions	Explanation	Comment
Scope 1	87394.30	None.	Transportation of raw materials and finished product.	
Scope 2	0	None.	Emissions from electric energy purchased.	No data available in 2016.

FBT3.3b

Please explain why you do not account for emissions from distribution activities in your direct operations, and describe any plans for the collection of this data in the future

FBT3.4

Do you account for emissions from distribution activities in your value chain as part of the Scope 3 category "Upstream transportation and distribution" and/or "Downstream transportation and distribution" in CC14.1 of the core climate change questionnaire?

Yes

Further Information

Page: FBT4. Consumption

FBT4.1

Are emissions from the consumption of your products relevant to your climate change disclosure?

No

FBT4.1b

Please explain why emissions from the consumption of your products are not relevant to your climate change disclosure

The mostly of JBS products are food, consumed by humans and in a wide variety of ways and locations. For these reasons, any attempt to estimate the emissions from the consumption of JBS products should present a huge uncertainty, besides these emissions could be considered as lower than the emissions from the other parts of the value chain, as agriculture and industrial process, for example.

FBT4.1a

Do you account for emissions from the consumption of your products as part of the Scope 3 category "Use of sold products" and/or "End of life treatment of sold products" in CC14.1 of the core climate change questionnaire?

Further Information

CDP 2017 Climate Change 2017 Information Request