

Environmental Product Declaration



In accordance with ISO 14025:2006
for frozen beef hamburgers.



THE INTERNATIONAL EPD® SYSTEM



QUICKFOOD S.A.
HAMBURGERS

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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An EPD should provide current information and may be updated conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see ISO 14025.



Preserves and preparations of meat (including meat offal or blood)

PRODUCT CATEGORY CLASSIFICATION: UN CPC 2118

PCR 2016:05 - VERSION 2.0 - VALID UNTIL: 2025-03-31

ADMINISTRATIVE INFORMATION

Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

PRESERVES AND PREPARATIONS OF MEAT (INCLUDING MEAT OFFAL OR BLOOD),
REGISTRATION NUMBER, VERSION: 2016:05, Version 2.0
UN CPC CODE: 2118

PCR review was conducted by: Sonia Pignatelli. The review panel may be contacted via info@environdec.

Company Information

Holder of the EPD: **QUICKFOOD S.A.**

Address: **Suipacha 1111, Piso 18 (CP 1008)**

Ciudad Autónoma de Buenos Aires (CABA), Argentina.

Web Site: www.marfrig.com.ar | Contact: sustentabilidad@marfrig.com

Life Cycle Assessment (LCA)

LCA accountability: Ing. Leticia Tuninetti, Lic. Maria Candela Garcia.

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Third-party verifier: Javier Martin Echazarreta | Instituto Nacional de Tecnología Industrial (INTI)

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third-party verifier:

Yes

Executive Report

Marfrig is one of the leading companies in beef production and the largest hamburger producer in the world. The food produced in our units reaches the shelves of millions of consumers through large restaurant and supermarket chains.

The company is recognized for its integrity, excellence and commitment to sustainability, and a production model that respects legal, environmental and animal welfare aspects.

To be part of our team of collaborators is to be part of a passionate team committed to providing the best protein and offering the best to our customers.

In Argentina, Marfrig leads the production and sale of beef-derived and processed foods in the country.

The verification Life Cycle Assessment (LCA) from PATY frozen beef hamburgers was carried out by INTI in order to get the Environmental Product Declaration (EPD). These are produced in the meat packing plant San Jorge, located in the homonymous town, province of Santa Fe, by the company QUICKFOOD S.A. (Marfrig Group), according to ISO 14025 and 14040 standards.

This study takes as reference the product category rule (PCR) called "PRESERVES AND REPARATIONS OF MEAT including meat offal or blood)" Version 2.0.

Functional Unit: one **kilogram of beef hamburger, frozen and packaged**. The weight of the packaging is not included in the kilogram.

The following environmental impact categories and their corresponding indicators were evaluated, which yielded the following results:

The results obtained for **one kilogram of beef hamburger, frozen and packaged**, were as follows for the category of climate change: total 3.45E+00 kg CO₂ eq; for ozone layer depletion it resulted in 3.44E-07 kg CFC11 eq; acidification 9.44E-03 mol H⁺ eq; eutrophication 1.82E-04 kg P eq for freshwater; 2.44E-03 g N eq for marine and 2.49E-02 mol N eq for terrestrial. For photochemical ozone formation, this resulted in 6.47E-03 kg NMVOC eq; the depletion of abiotic resources-minerals and metals accounted for 9.43E-06 kg Sb eq; while that of fossil fuels registered 5.08E+01 MJ, net calorific value. Water consumption was 2.92E+00 m³ global private eq.

Regarding the PATY[®] hamburger kilo, in the analysis of the complete life cycle of the product, it was observed that the conservation and consumption stage absorbed the greatest amount of environmental impact. However, an analysis was carried out as far as the distribution stage to identify the critical points where the company can intervene and suggest improvements. It was observed that the refrigeration stage and the transportation of raw materials, inputs and finished product are the points that had the greatest environmental impact due to energy and fuel consumption and, to a lesser extent, the emissions generated in the primary stage.

These results are in line with other international studies, with values within the range. These findings will be of interest to the company to identify critical points for improvement, as well as for consumers to make decisions on responsible consumption.



About Us

Marfrig is one of the leading companies in beef production and the largest hamburger producer in the world. The food produced in our units reaches the shelves of millions of consumers through large restaurant and supermarket chains.

The company is well known for its integrity, excellence and commitment to sustainability, and a production model that respects legal, environmental and animal welfare aspects.

To be part of our team of collaborators is to be part of a passionate team committed to providing the best protein and offering the best to our customers.

Marfrig's operations in Argentina lead the production and sale of beef-derived and processed foods in the country. We have 4 production plants with a capacity of more than 40 thousand tons of hamburgers per year and more than 30 thousand tons of other products.



1st producer
of hamburgers
in the world



2nd company
of beef protein in
the world, in terms
of production



1st company
in the sector, in the
production of vegetable
protein-based products

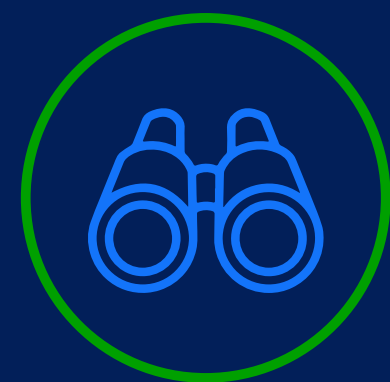


+100 countries
choose Marfrig
products



MISSION

Providing the best protein to our consumers through a long-term relationship and creating high-quality and safe products. We are driven to provide our customers with the best.



VISION

Being acknowledged as the best global protein company.



VALUES

Client-focused

We are fully committed to our internal and external customers and embrace their priorities as our own. Every step of the production chain, we put all our attention and passion in what we do to meet our customers' needs.

Simplicity

In making decisions, we believe in clarity, objectivity and simplicity, seeking to facilitate all processes. The idea of "less is more" governs everything we do.

Transparency

We do not hide our issues. Rather, our behaviors and conduct are aimed at learning from our mistakes so as not to make them again. Dialogue with our customers and suppliers is encouraged, which helps us to build trust and improve as professionals and people.

Respect

Treatment of everyone as we would like to be treated. We are guided by our ethical principles and are constantly motivated to develop our relationships.

Expertise

Innovation is constantly encouraged, and we strive for excellence in everything we do. We apply these values throughout the organization in order to ensure the loyalty of our internal and external customers.

Entrepreneurship

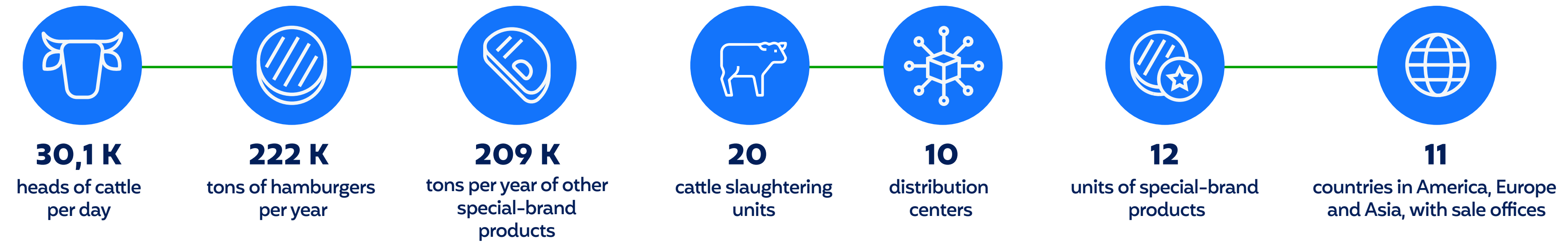
Always attentive to the market context in which we live, we adapt to it. We work passionately on our tasks and we know how to recover from adversity with resilience. There is ownership in taking care of our processes, productivity and resources. We are attentive to requests, issues and opportunities.

OUR GLOBAL OPERATION

Our broad portfolio includes a wide range of recognized brands, with high quality products, aimed at both the domestic and export markets. This portfolio features several differentiated products, such as organic and Viva!, which offers meat cuts produced under different concepts, such as Carbon Neutral Beef (CCN), a pioneer in Brazil.

ARGENTINA															
BRAZIL															
CHILE															
URUGUAY															
UNITED STATES															

Production Capacity



SUSTAINABILITY PLATFORM

As one of the largest animal protein companies in the world, sustainability is our main strategic line of action. It is through consistent sustainability guidelines and actions (related to minimizing the impact of our operations on the environment, ensuring animal welfare whenever possible and conserving natural resources) that we conduct business and generate value for our stakeholders.

Sustainability-related actions are a part of our day-to-day operations. To manage them, we divide the efforts into six strategic areas:



1. Source Control

Management of the source of raw materials and suppliers' commitment to best sustainability practices. Implements the **Programa Verde+**, whose objective is to disseminate sustainable and low-emission livestock farming throughout the value chain.

Within the industrial operations, it enforces strict quality control and food safety, through processes and procedures that contemplate the use of antibiotics, hormones and controversial substances, in case they are used in livestock farming.



2. Animal Welfare

Manages animal handling practices from farm to slaughter, which must be carried out in accordance with World Animal Protection recommendations and the strictest international humane standards.



5. Effluents and Waste

Spreads environmentally responsible conduct for the treatment and disposal of effluents and solid waste from operations.



3. Climate Change

Seeks continuous improvement in process efficiency, in order to minimize the impact of operations on climate change and to adapt them to the new context.



6. Social Commitment

Suppliers' commitment to practices respectful of human rights, support for the development of new means of production, technologies and initiatives that promote greater inclusion, positively impacting the locations where we operate.



4. Natural Resources

Promotes the management of water and energy consumption in production processes, and the search for alternative energy sources from clean and renewable sources.



ESG Marfrig / Argentina in numbers

THE TOP-RATED COMPANY IN THE INDUSTRY, YEAR AFTER YEAR



FAIRR 2023

Top ranking among beef protein companies

And also, the only one in the industry classified as low-risk among the companies assessed!



BBFAW 2023

Only beef protein company in the world classified Tier 2

Third consecutive year of recognition!



FOREST 500

Highest ranking among meat processing plants worldwide

A major achievement in a ranking that assesses the 350 leading companies on the planet!



CDP 2023

A in Climate Change

Only 1.7% of the 23,000 organizations assessed achieved this maximum grade in at least one of the evaluations! Marfrig also scored A in Water Security and Forestry.

COMPANY OVERVIEW

Certifications related to products or management systems of our plants in Argentina.









COMPANY INFORMATION

Holder of the EPD: **QUICKFOOD S.A.**

Address: **Suipacha 1111, Piso 18 (CP 1008), Ciudad Autónoma de Buenos Aires (CABA), Argentina.**

Web Site: www.marfrig.com.ar

Contact: sustentabilidad@marfrig.com

ARGENTINA		2023 NUMBER
	BRC Global Standards	3
	HACCP & GMP	1
	McDonald's SWA (private protocol in the CSR Code of Conduct and for the supply of raw materials and processed products to McDonald's)	2
	McDonald's SQMS	2
	McDonald's AHW Beef slaughter and deboning (private animal welfare protocol for supplying raw material to McDonald's)	1
	Certification in animal welfare practices under internal protocol	1

CATTLE RAISING: IN ARGENTINA

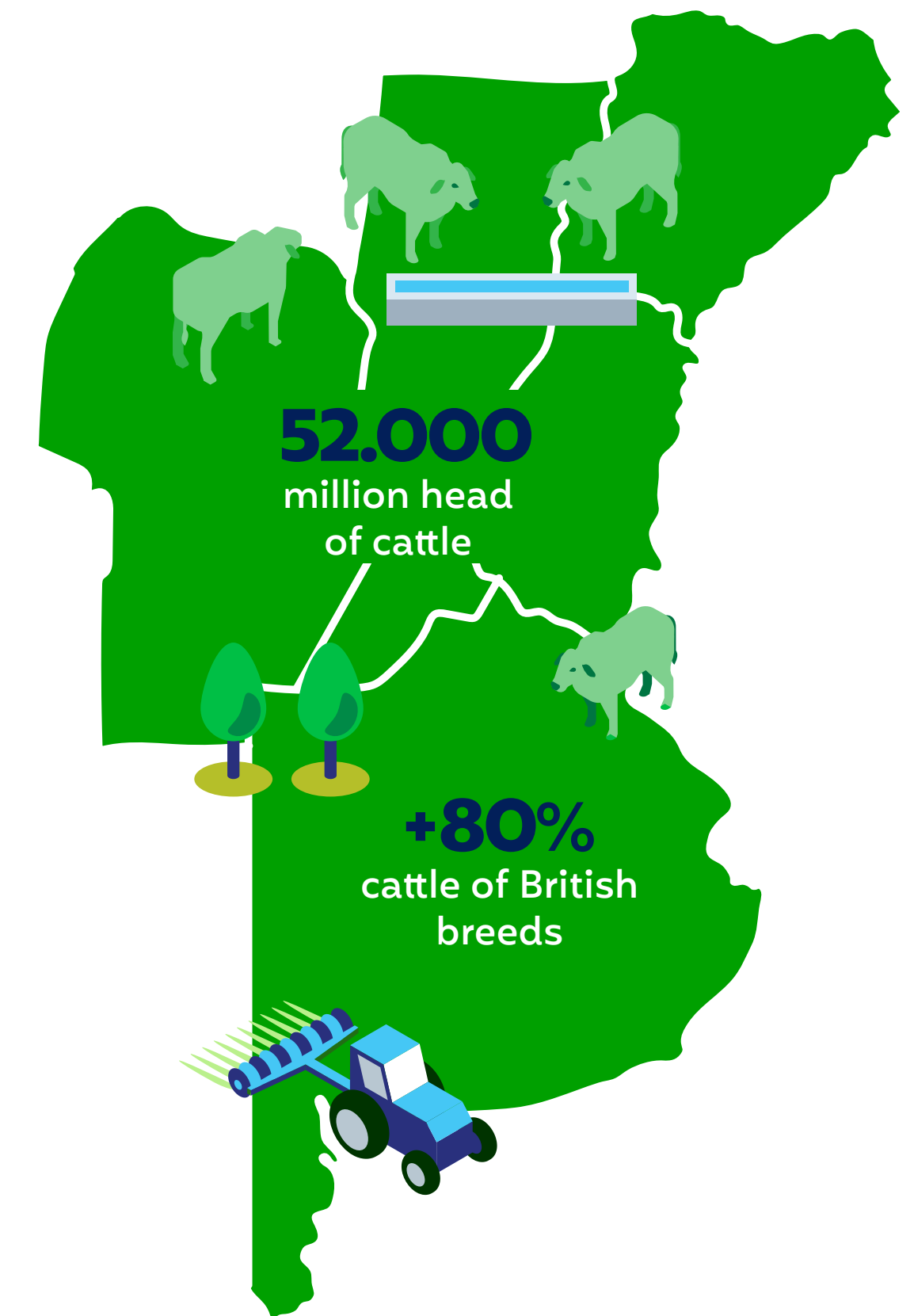
The Pampeana region, comprising the provinces of Buenos Aires, Córdoba, Santa Fe, Corrientes and Entre Ríos (center of the country), is one of the largest extensions in the world used for cattle production.



It is a national herd of 52,000 million head of cattle, distributed in 130,000 establishments, whose genetic profile is based in more than 80% on **British breeds**, such as Aberdeen Angus, and its crosses with Braford and Brangus.

Calves are raised with the mother until they are 6 months old, being weaned to continue their rearing development in pastures with high protein levels. Then they go to the finishing phase, generally on pastures associated with some energy supplementation, or they can spend a short period of time (between 70-80 days) in a feedlot, developing their muscular potential, the necessary fat deposition and the desired marbling.

Thanks to all these factors, Argentine beef is a product recognized worldwide for its palatability, tenderness and taste.

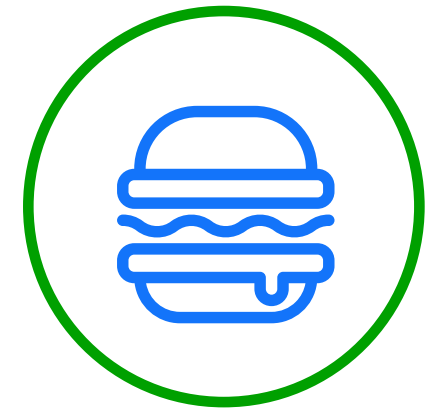


OPERATIONS IN ARGENTINA 2023



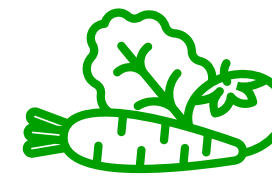
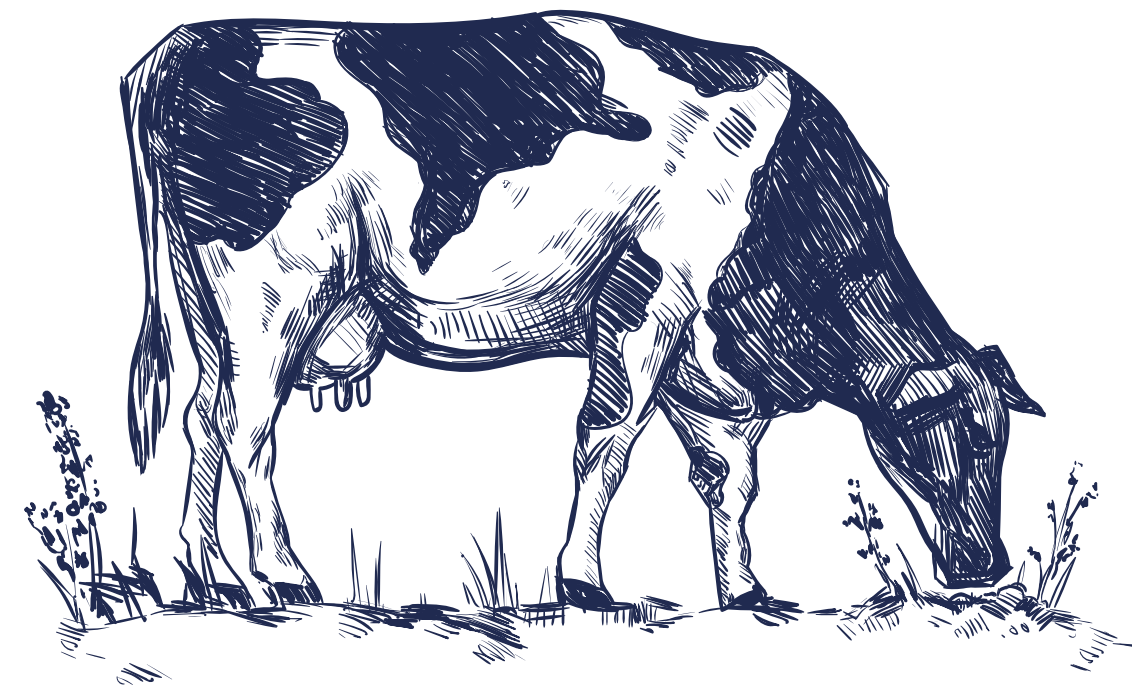
1.1 K

heads of cattle per day



52.8 K

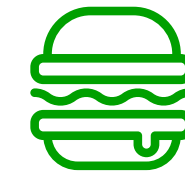
tons of hamburgers per year



1. ARROYO SECO

FROZEN VEGETABLES & FRUITS

600 t/month



3. PILAR

HAMBURGERS/FOOD SERVICE

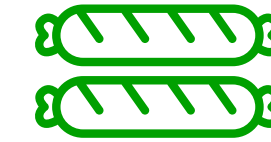
1.200 t/month

(with 3 production lines)



5. MUNRO

CORPORATE HEADQUARTERS

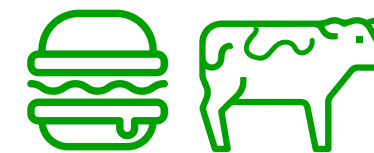


2. BARADERO

SAUSAGES/COLD CUTS

1.600 t/month of cold cuts and

400 t/month of ham



4. SAN JORGE

HAMBURGERS/SLAUGHTERING

1.1 K heads/day and 3250

t/month of hamburgers

(with 8 production lines)



HAMBURGER REPORT





OVERVIEW



This document deals with the production of bovine beef according to the complete cycle, which includes cows, calves, steers, heifers and bulls (born, raised and slaughtered in Argentina) and Argentine production of frozen beef hamburgers (Paty brand) marketed by QUICKFOOD SA.

The environmental impacts were calculated considering the whole production chain, from the birth of the animal to the consumption of meat and beef hamburgers (life cycle analysis: cradle to grave). This is specified in the reference PCR 2016:05 2118 - Flours, meals and pellets of meat or meat offal, inedible; greaves, version 2.0. CPC 2118.

Relevant Period

Cattle raising: 07/01/2020 to 06/30/2021
Production of beef and beef hamburgers in cold storage: 01/01/2021 to 12/31/2021

Geographical Scope of the EPD

Livestock rising and procesing Argentina.

Functional Unit

1 kg of frozen beef hamburgers.

CPC Code

2118 Class –Flours, meals and pellets of meat or meat offal, inedible; greaves.

Geographical Scope

Livestock rising and procesing Argentina

Locations

Slaughterhouse, processing plant, cold storage and meat packing plant:
San Jorge plant:
Av. Jorge Ortiz 2653,
San Jorge, Santa Fe,
Argentina.



Distribution and External Warehousing: Located in the provinces of Córdoba and Buenos Aires.

METHODOLOGY

The results reported below were obtained in accordance with the ISO 14044 standards for Life Cycle Assessment (LCA).

Scope of the System

The Environmental LCA includes the Impact Categories of the selected product, covering the acquisition of raw materials, energy resources and primary inputs used, the processing plant, logistics between operations; packaging, freezing and distribution to domestic consumer markets.

The impact assessment of the LCA was carried out by means of a physical allocation equivalent to 1 kilo of Paty brand frozen and packaged beef hamburgers.

Database(s) and LCA software used

Simapro:"9.4" - Ecoinvent "3.8"

Assumptions

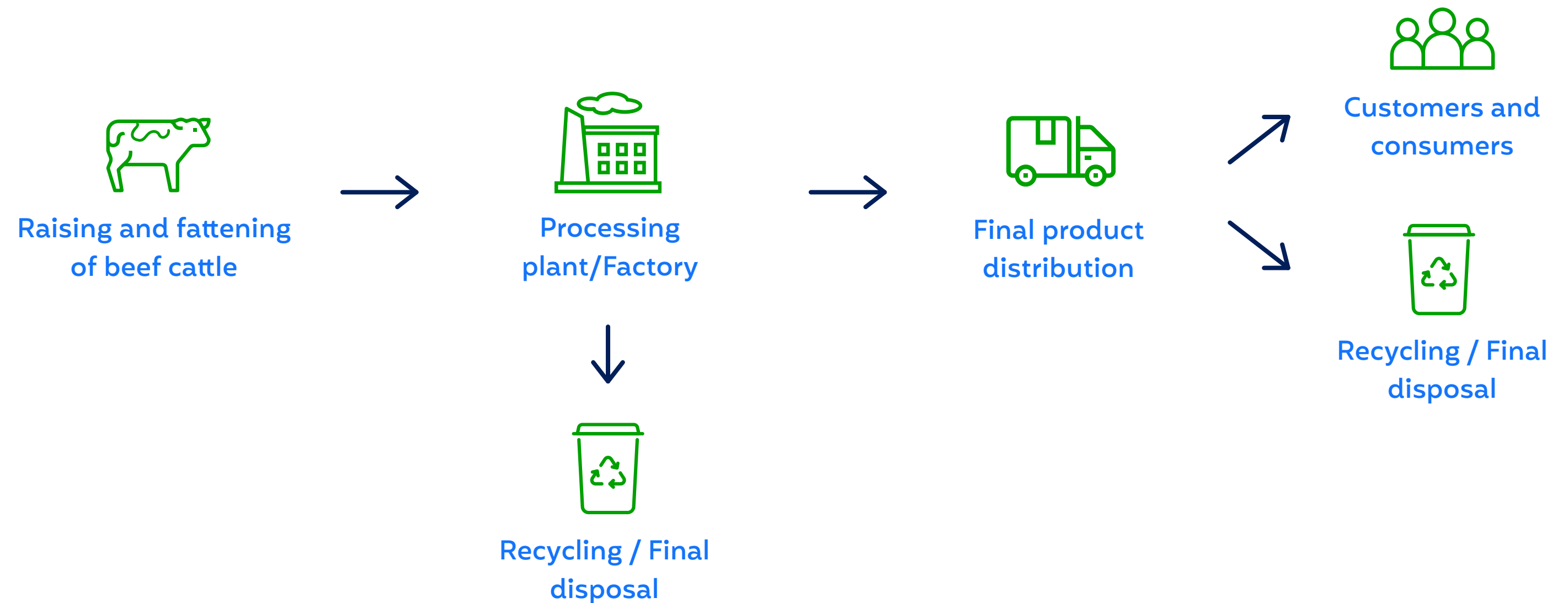
100% allocation to the assessed product.
 Transportation to the destination markets was calculated as the average distance traveled by the product through its means of land transportation (truck).

Impact Assessment Methodologies

The scope of this assessment is from cradle to grave, considering beef cattle production, transportation to the plant, beef and hamburger production process, packaging, transportation, storage of the finished product, use and final disposal.

Allocation

Physical allocation involves the partitioning of the input or output flows of a process or product system between the product system under study and one or more other product systems [ISO 14044]. This definition includes the separation of flows related to reuse and recycling.



LIFE CYCLE ASSESSMENT INFORMATION

UPSTREAM

Cattle raising	Cattle production in the 6 producers under study, in the provinces of San Luis, Santa Fe, and Córdoba.
Transportation of cattle	Transportation of cattle from each livestock production unit to the industrialization plant.
Raw material input	Refers to emissions generated during the transportation of raw materials used in the production process.
Supply input	Refers to emissions generated during the transportation of supplies used in the production process. For example: fuel oil, gasoil, additives, packaging, etc.
Slaughter	Refers to emissions generated during the slaughter of the live animal up to the production of the half-carcass.
Butchering	Refers to the emissions generated from the production of the half-carcass to the butchering.

CORE

Hamburger Production	Refers to emissions generated during the production process of beef hamburgers.
Freezing and cooling chambers	Refers to emissions generated during the storage and preservation of the finished product.

DOWNSTREAM

Logistics and storage of finished products	Refers to emissions generated by the logistics associated with the transportation and storage of finished products.
Solid, liquid and gaseous waste treatment and disposal	Refers to emissions generated by the treatment and/or disposal of solid, liquid and gaseous waste.

LIFE CYCLE ANALYSIS FOR 1 KG OF PATY® HAMBURGERS

Environmental impact for 1 kg of frozen and packaged hamburgers, produced and marketed by QUICKFOOD S.A.

PARAMETER	UNIT	UPSTREAM PROCESSES		CORE PROCESSES	DOWNSTREAM PROCESSES				TOTAL without cooking	TOTAL with cooking	
		Meat production	Packaging production	Slaughtering activities and meat processing	Product distribution	Home conservation	Cooking phase	Packaging end-of-life			
Global warming potential (GWP)	Fossil	kg CO ₂ eq.	2,23E-02	3,08E-02	3,08E-01	1,64E-01	1,69E+00	7,95E-01	5,43E-03	2,22E+00	3,01E+00
	Biogenic	kg CO ₂ eq.	2,14E-03	1,10E-04	4,81E-03	7,54E-05	4,12E-02	4,15E-03	1,99E-07	5,16E-02	5,25E-02
	Land use and land transformation	kg CO ₂ eq.	1,88E-01	6,58E-05	1,64E-01	4,15E-05	2,72E-02	2,80E-03	5,30E-05	3,80E-01	3,83E-01
	TOTAL	kg CO₂ eq.	2,13E-01	3,09E-02	4,77E-01	1,64E-01	1,76E+00	8,02E-01	5,48E-03	2,65E+00	3,45E+00
Ozone layer depletion (ODP)	kg CFC ₁₁ eq.	1,01E-09	2,89E-09	5,37E-08	3,51E-08	1,70E-07	8,13E-08	3,66E-11	2,63E-07	3,44E-07	
Acidification potential (AP)	mol H ⁺ eq.	1,21E-03	1,99E-04	1,35E-03	1,07E-03	4,44E-03	1,17E-03	3,30E-06	8,27E-03	9,44E-03	
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	4,18E-05	9,68E-06	3,46E-05	1,34E-05	6,69E-05	1,51E-05	4,08E-07	1,67E-04	1,82E-04
	Aquatic marine	kg N eq.	5,63E-04	5,59E-05	4,19E-04	4,06E-04	7,71E-04	2,19E-04	1,71E-06	2,22E-03	2,44E-03
	Aquatic terrestrial	mol N eq.	4,91E-03	5,46E-04	4,42E-03	4,43E-03	8,26E-03	2,33E-03	1,46E-05	2,26E-02	2,49E-02
Photochemical oxidant creation potential (POCP)	kg NMVOC eq.	1,14E-04	1,67E-04	1,25E-03	1,21E-03	2,81E-03	9,18E-04	3,67E-06	5,56E-03	6,47E-03	
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	1,31E-07	1,90E-07	1,24E-06	8,35E-07	6,31E-06	7,23E-07	1,10E-09	8,71E-06	9,43E-06
	Fossil resources	MJ, net calorific value	1,25E-01	4,92E-01	4,72E+00	2,41E+00	3,01E+01	1,30E+01	3,22E-03	3,78E+01	5,08E+01
Water deprivation potential (WDP)*	m ³ world eq. deprived	8,49E-03	1,76E-02	1,74E-01	8,60E-03	2,46E+00	2,49E-01	3,97E-04	2,67E+00	2,92E+00	

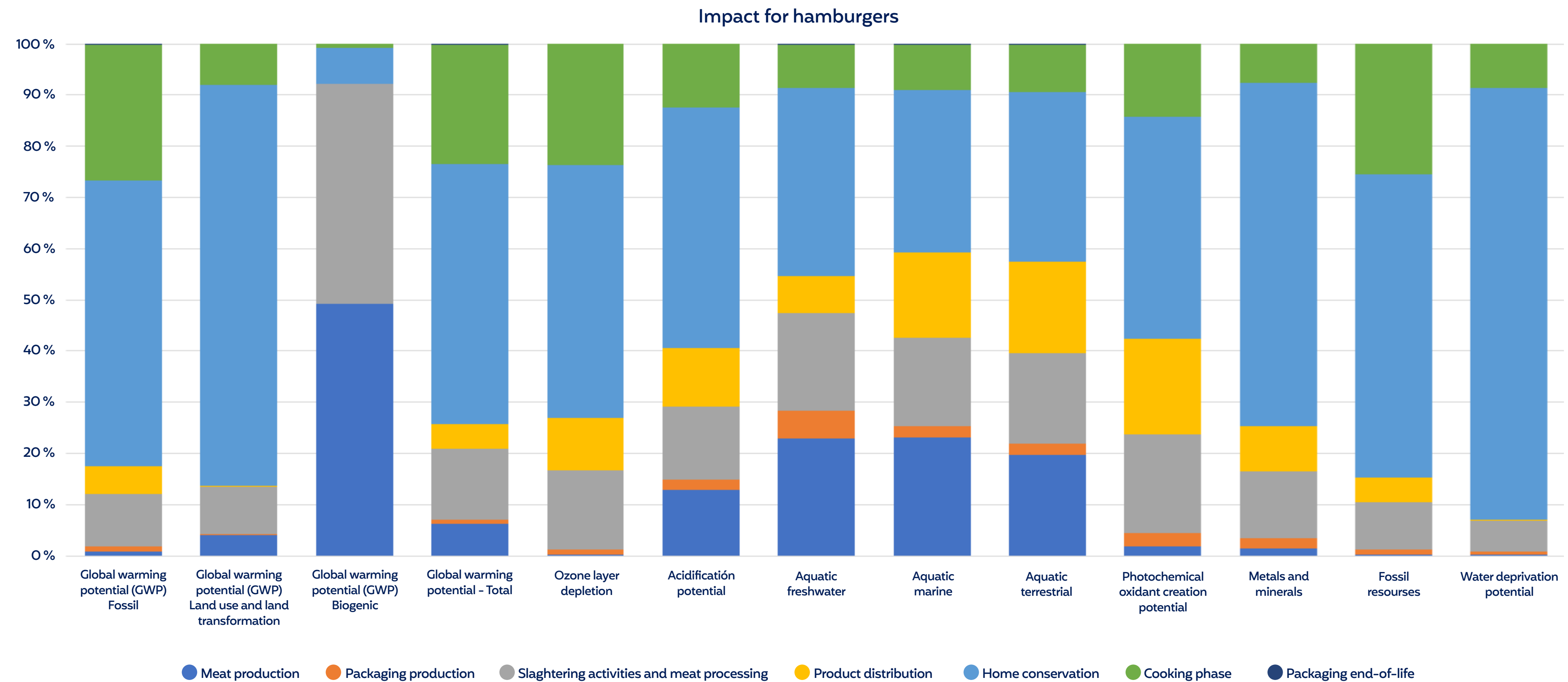
* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

LIFE CYCLE ANALYSIS FOR 1 KG OF PATY® HAMBURGERS

Energy resources used in the production of frozen and packaged PATY® hamburgers.
Produced and marketed by QUICKFOOD S.A. Results for FU 1 kg.

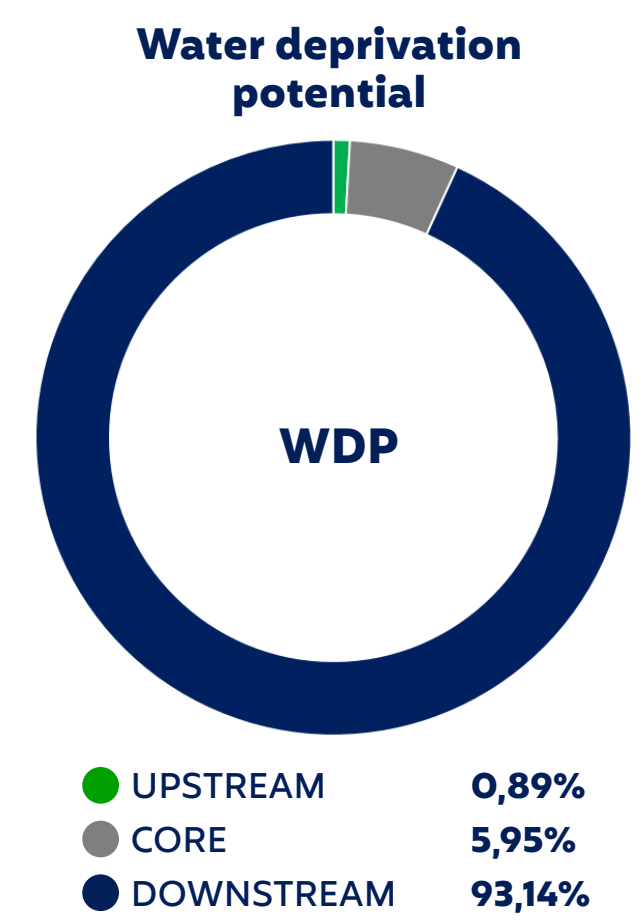
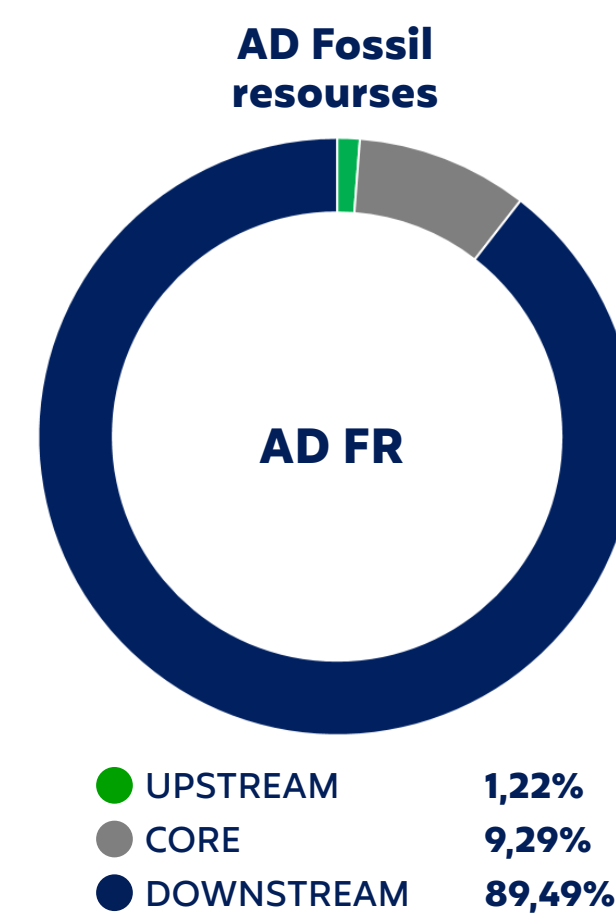
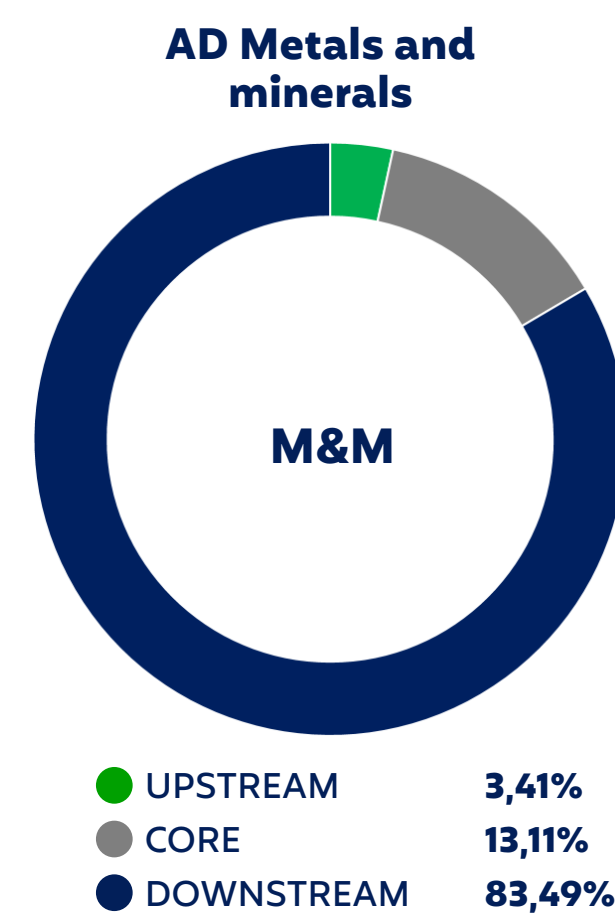
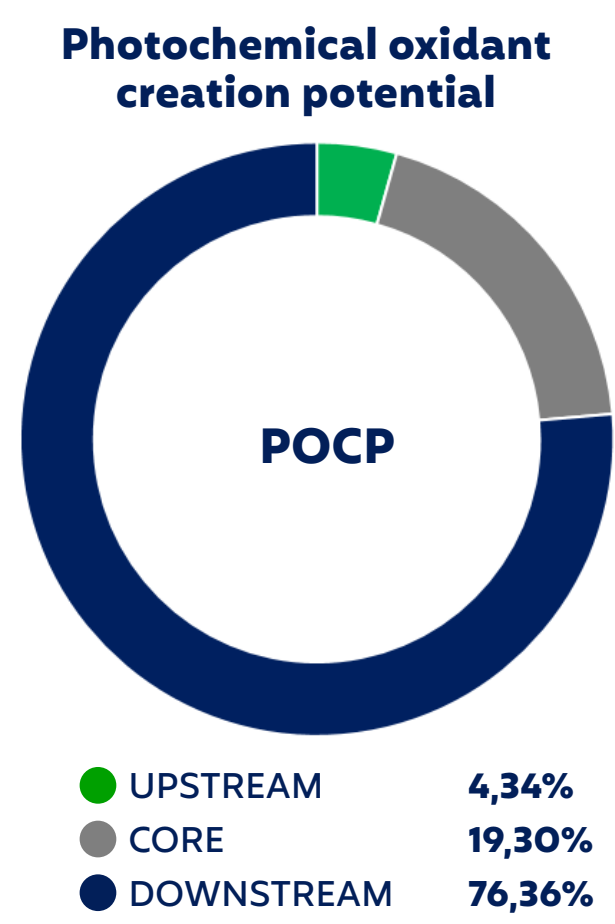
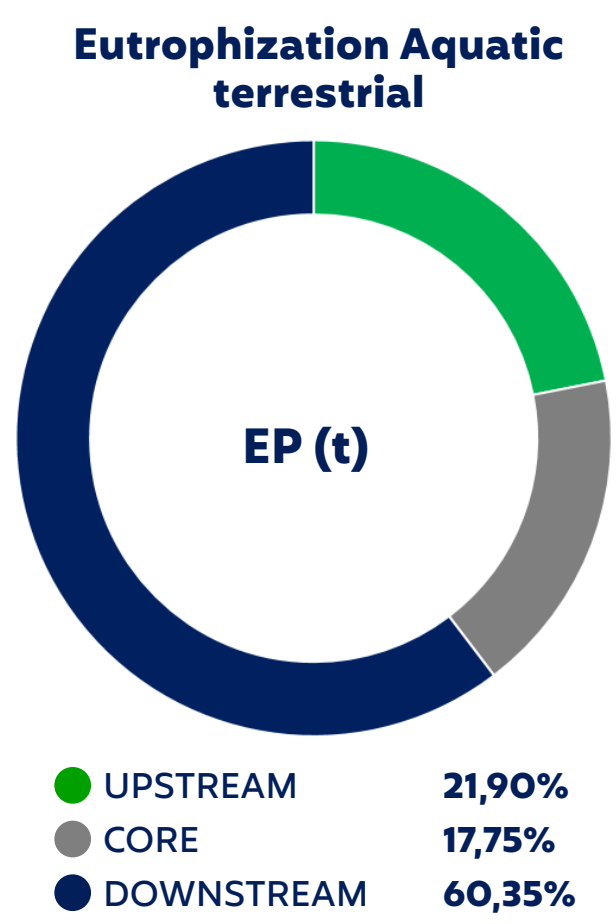
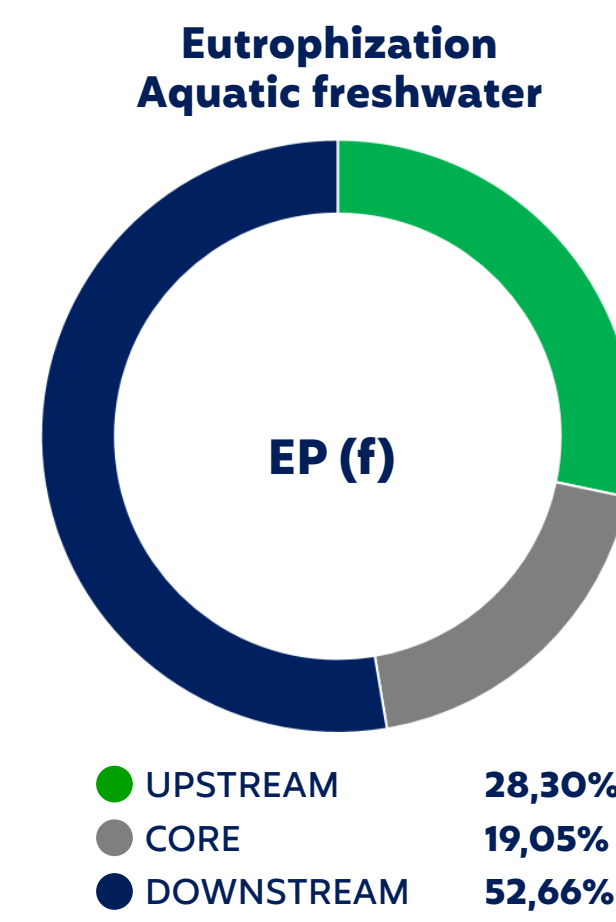
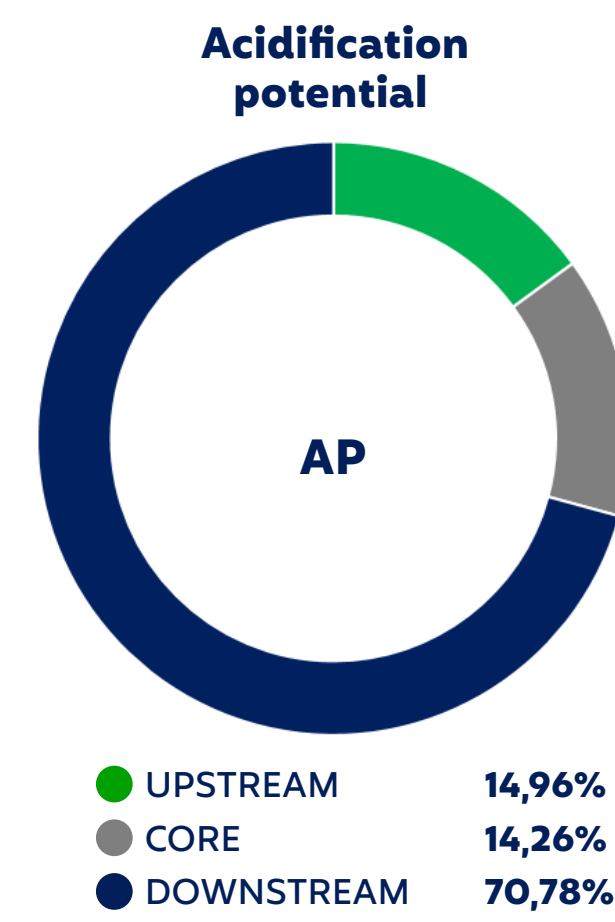
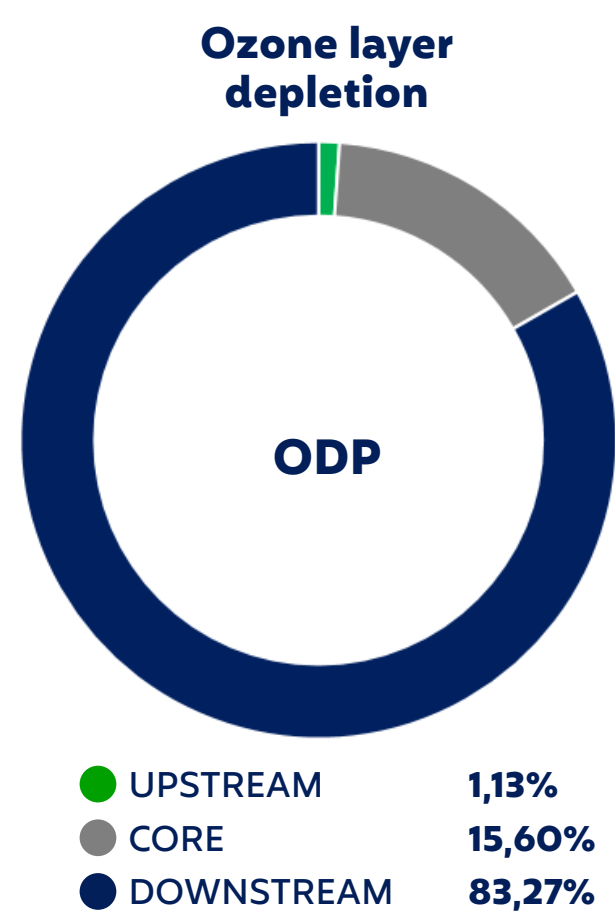
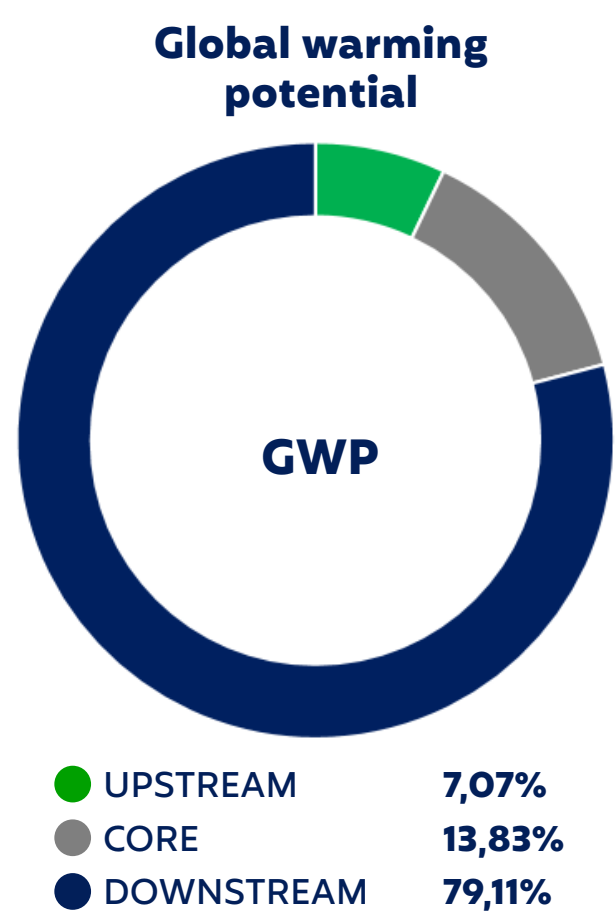
PARAMETER	UNIT	UPSTREAM PROCESSES		CORE PROCESSES	DOWNSTREAM PROCESSES				TOTAL without cooking	TOTAL with cooking	
		Meat production	Packaging production	Slaughtering activities and meat processing	Product distribution	Home conservation	Cooking phase	Packaging end-of-life			
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	4,19E-03	1,90E-02	3,92E-01	2,18E-02	5,93E+00	6,11E-01	7,08E-05	6,37E+00	6,98E+00
	Used as raw materials	MJ, net calorific value	2,04E-02	1,32E+00	7,91E-02	9,23E-03	1,92E-02	5,92E-03	3,49E-05	1,45E+00	1,46E+00
	TOTAL	MJ, net calorific value	2,46E-02	1,34E+00	4,71E-01	3,10E-02	5,95E+00	6,17E-01	1,06E-04	7,82E+00	8,43E+00
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,69E-02	0,00E+00	2,37E+00	1,62E+00	9,97E+00	9,97E+00	0,00E+00	1,40E+01	2,40E+01
	Used as raw materials	MJ, net calorific value	1,24E-03	2,49E-04	2,86E-03	1,03E-04	1,38E-04	6,13E-05	6,84E-07	4,59E-03	4,65E-03
	TOTAL	MJ, net calorific value	1,82E-02	2,49E-04	2,37E+00	1,62E+00	9,97E+00	9,97E+00	6,84E-07	1,40E+01	2,40E+01

MAIN RESULTS OBTAINED FOR THE FUNCTIONAL UNIT OF ONE KILOGRAM OF PATY® HAMBURGERS, FROZEN AND PACKAGED, PRESENTED BY ENVIRONMENTAL IMPACT PARAMETER EVALUATED.



Environmental impacts in the complete life cycle of frozen and packaged PATY® brand hamburgers. Produced and marketed by the company QUICKFOOD S.A.

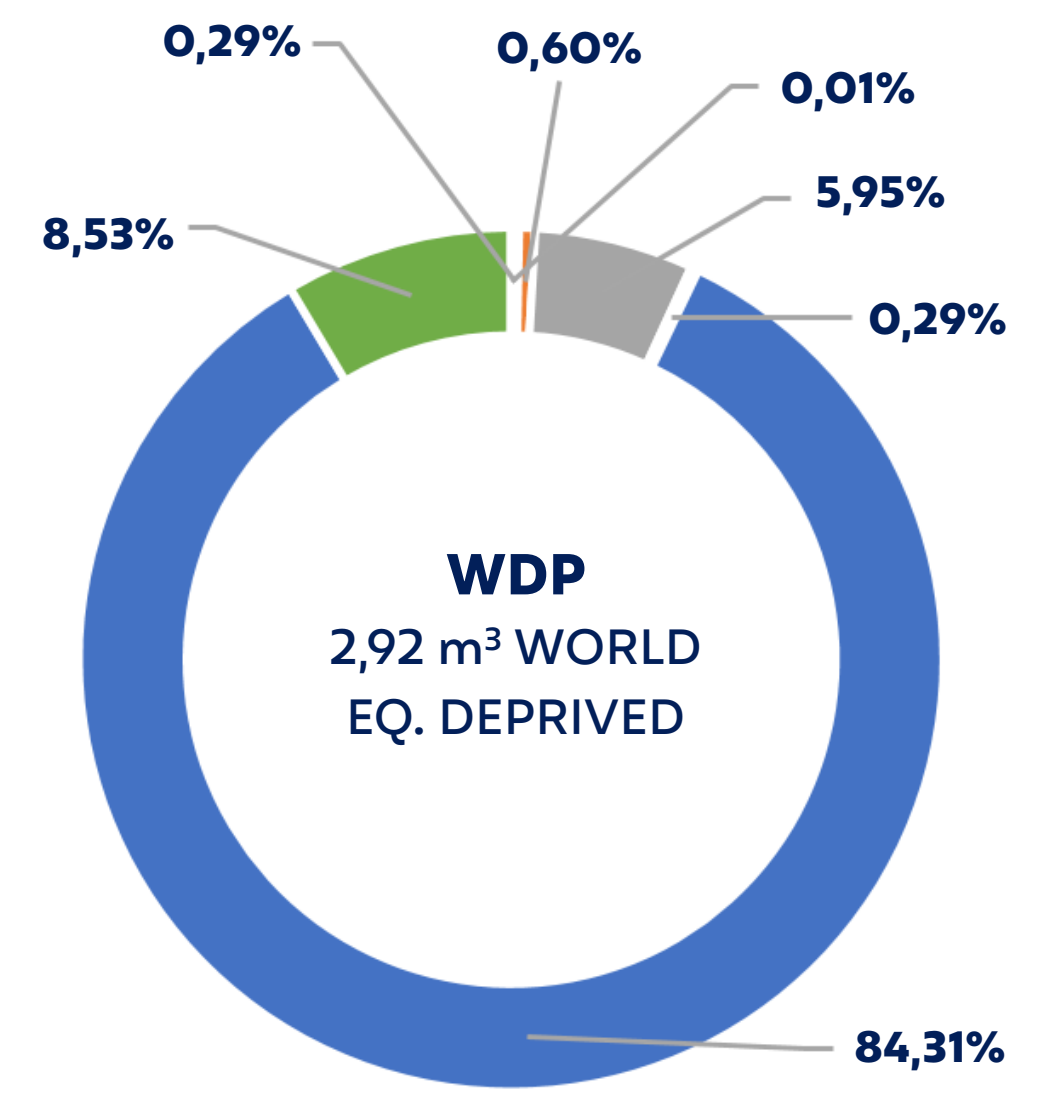
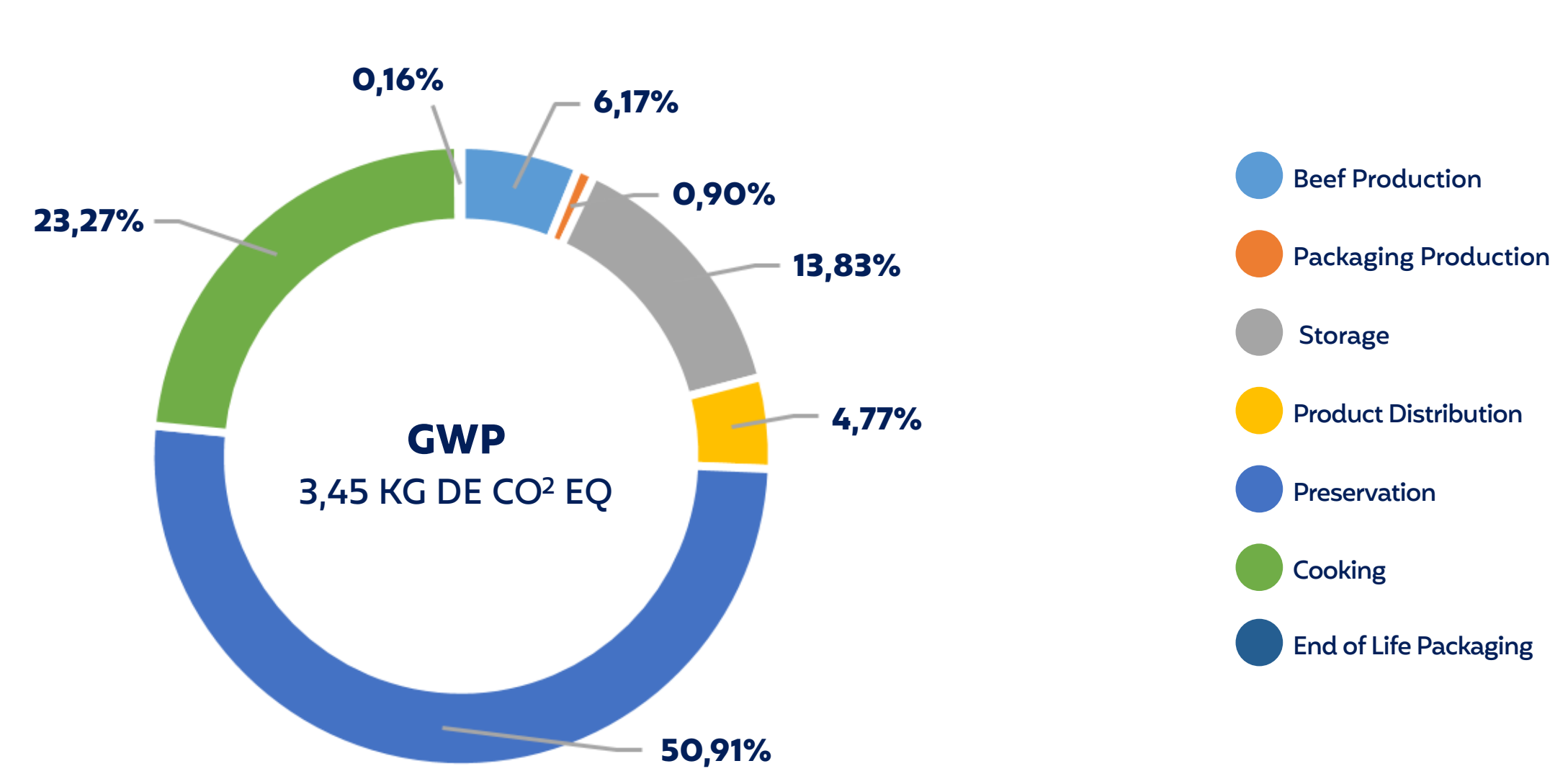
ENVIRONMENTAL PERFORMANCE INDICATORS

















RESULT ANALYSIS OF QUICKFOOD SA:

Data for 1 KG of hamburgers by

Percentage distribution of the Global Warming Potential (GWP) and Water Deprivation Potential (WDP) indicator for the different phases in the life cycle analysis.



HAMBURGERS							
Global warming potential	6,17%	0,90%	13,83%	4,77%	50,91%	23,27%	0,16%

HAMBURGERS							
Water deprivation potential	0,29%	0,60%	5,95%	0,29%	84,31%	8,53%	0,01%

References

- General Program Instructions (GPI) of the International EPD® System, versión 4.0
- PCR 2016:05 Conservas y Preparación de Carne (incluye carne, menudencias o sangre) versión — 2.0. CPC 2118
- ISO 14040: 2006 Environmental management — Life cycle assessment – Principles and Framework.
- ISO 14044: 2006 Environmental management — Life cycle assessment — Requirements and guidelines.
- ISO 14025: 2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

The holder of the EPD has sole ownership and responsibility for the EPD.

EPDs that are within the same product category, but registered in different EPD programs, may not be comparable.

For two EPDs to be comparable they must be based on the same PCR (including the same version number) or be based on fully aligned PCRs or versions of PCRs covering products with identical functions, technical performance and uses. For example: identical declared/functional units, equivalent system boundaries and data descriptions, application of equivalent data quality requirements, data collection methods and allocation methods, application of identical cut-off rules and impact assessment methods (including the same version of characterization factors), equivalent content claims and validity at the time of comparison.

For more information on comparability, refer to ISO 14025.



