LOGROS S.A. Beef Meat

Environmental Product Declaration

This EPD has been developed in conformity with ISO 14025.

From:

LOGROS S.A.
CARNES ARGENTINAS

EPD® Argentina EPD®

EPD registration number:	S-P-07356
CPC code:	2111 Meat of mammals, fresh
Program:	The International EPD® System (www.environdec.com)
Program operator:	Regional Hub EPD Argentina
Publication date:	2022 – 10 - 20
Valid until:	2027 – 10 - 20

LOGROS S.A.

CARNES ARGENTINAS

EPD Programme Information

Program:

The International EPD® System
www.environdec.com
info@environdec.com

EPD Argentina
https://epd.inti.gob.ar/

Contacts:
For additional information relative to LOGROS S.A. activities or in regard to this environmental declaration, please contact:
Gina Grimaldi
ggrimaldi@logros.com.ar

Product category rules (PCR): PCR 2012:11 Meat of mammals, version 3.11. CPC 2111, 2113.

PCR review, was conducted by: Adriana Del Borghi, Chair of The Technical Committee of the International EPD® System. The review panel may be contacted via info@environdec

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 ☐ No

EPDs within the same product category but from different programs may not be comparable.

About LOGROS S.A.

LOGROS S.A. is an Argentine meat-production company, founded by Juan Carlos Grimaldi, whose experience of 40 years combined with his entrepreneurial spirit, positioned the company as a leader in the production and sale of beef meat and its by-products. Honouring this family legacy that dates back more than three decades, is an essential part of our identity.

Our meat-packing plant is strategically located in the city of Rio Segundo, Cordoba Province. This is part of the Argentine Pampas, the largest agriculture and livestock area in Argentina. This region is known internationally for its good capacity to produce high quality meat.

Our modern industrial plant has advanced infrastructure, and our products are known worldwide for our commitment to quality, making LOGROS S.A. a highly trusted supplier of meat products to the international market.

We are a company that produces protein foods essential for human development, through sustainable processes.

Company Information

EPD Owner: LOGROS S.A.
Address: Camino San José S/N, 5960 Río Segundo, Córdoba, Argentina.
Web: www.logros.com.ar
Contact Information: Gina Grimaldi
ggrimaldi@logros.com.ar

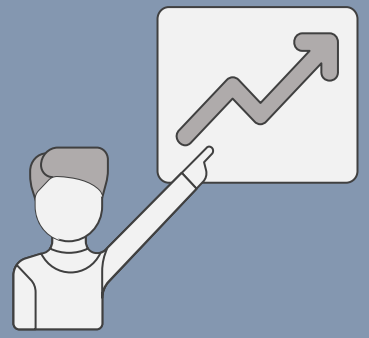
Product-related or management system-related certifications: International Certifications: British Retail Consortium V8 (by SGS), Animal Welfare (by LIAF Control); Annual Social and Corporate Responsibility audits: 4 PILARS SMETA (SEDEX), SWA for McDonald´s; LOGROS follows the guidelines of ISO 14001 and is working on the implementation of ISO 9001.

Production site: Río Segundo, Córdoba, Argentina

As a leading organization in the Argentine meat-processing industry,
we supply the main global markets with high-value added protein foods, essential for human development.

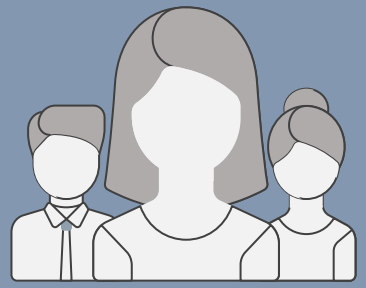
This family company has become one of the greatest exporters of beef meat, due to a combination of:

- *Quality*
- *Sustainability*
- *Integrity*
- *Respect*
- *Commitment*
- *Food Safety*



40,000
Metric Tons
processed

Sales in more
than
50 countries



650
Employees
+350 Indirect jobs

Beef Meat

This document is referred to the beef meat from adult bovine (bull or heifer) grown and slaughtered in Argentina and sold by Logros to distributors worldwide. The environmental impacts were calculated considering the entire production chain starting from the animal's birth until meat consumption as specified on reference PCR 2012:11 Meat of mammals.

Time coverage

Data are related to beef meat purchased by LOGROS S.A. during 2020 and 2021.

Declared unit

The information is related to 1 kg of fresh edible boneless beef meat from adult bovine, ready to be
bought by customers in plastic packs or sold at the store butcher's counter.

Geographical scope

This study includes animal production in the provinces of Santiago del Estero, Córdoba and Entre Ríos. The slaughterhouse, processing, cold storage and meat packing plant is located in Río Segundo, Córdoba.

Impact Evaluation Methodologies

The global scope of this study is from the cradle to the grave, which considers:

- Extraction of raw materials
- Transportation of the raw materials to the production plant
- Beef meat production process
- Packaging
- Transportation
- Storage of finished products
- Consumption
- Final waste disposal

In the Life Cycle Assessment (LCA) were taken into account different geographical locations where the meat is sold. Included United State of America, Germany (EU) and Chile, with different type of transport, freight, lorry, freight sea container ship and aircraft.

Allocation

The biophysical allocation criterion was used in the upstream process, as indicated in the PCR, to assign the impact derived from the emissions of the mother cow and the bull to the calves in the weaning stage.

On the other hand, the economic criterion was used in the core process, also according to the PCR, to distribute the environmental load between the product under study and the by-products with economic value that are obtained in the slaughterhouse and processing plant.

Introduction to the LOGROS S.A. Production Chain

We are involved throughout the entire life cycle of our animals. We control each stage of the production chain, bearing in mind the manufacturing processes, to ensure high quality foods, resource efficiency and sustainability of our products.

Our supply chain consists of a series of processes to obtain meat from adult bovine mainly born and raised in the Argentine Pampas and Central Argentina. The production chain is based on the know-how acquired during the whole production cycle, before the animal's birth to the raising phase and continues with the slaughtering phase and any subsequent processing steps, until the retail phase.

System Diagram

General System Boundaries

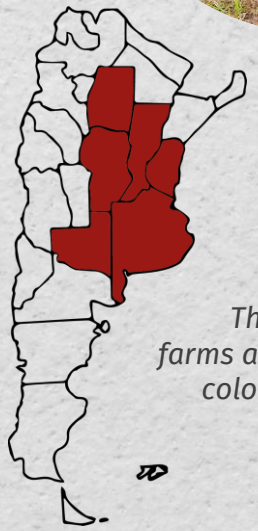
The adult cattle produced by LOGROS S.A. come from the Argentine Pampas and Central Argentina, where the calves were weaned and raised in different farms, in the provinces of Santiago del Estero, Entre Ríos and Córdoba. Once the animals reach the adult weight, they are slaughtered at the plant of LOGROS S.A., located in Río Segundo, Córdoba. The carcasses are portioned according to the different cuts, vacuum packed and sent to the stores to be sold.

UPSTREAM › CORE › DOWNSTREAM

The adult cattle produced by LOGROS S.A. comes from the Argentine Pampas and Central Argentina, where the calves were weaned and raised in three different farms, in the provinces of Santiago del Estero, Entre Ríos and Córdoba.

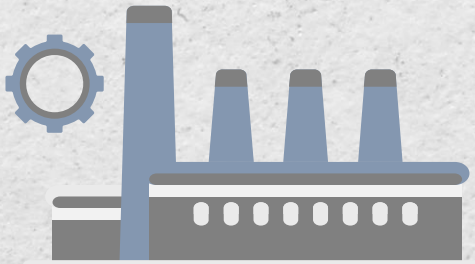
The production is based on forest-pasture systems on 87%, 58%, and 72% of the farm area, respectively. These farms also include 13%, 35% and 22% of improved perennial grassland in temperate climate, which is sustainably managed with moderate grazing pasture and receive species improvement.

The breeds analysed are Aberdeen Angus, Hereford, Braford, Brangus and crosses with continental breeds (Limousine, Limangus). The weight at birth is 30 kg and the calves finish the breeding stage with about 180 kg. The rearing lasts about 270 days and the animals reach an average of 325 kg. Finally, the adult bovines end the fattening stage with an average of 463 kg.



The analysed farms are located in red coloured regions.

- The main environmental impacts at the upstream phase, are related to enteric fermentation and effluent management.



Once the animals reach the adult weight, they are transported an average distance of 472km to the slaughterhouse of LOGROS S.A., located in Río Segundo, province of Córdoba. The carcasses are portioned according to the different cuts, vacuum packed in the same meat processing plant and sent to the distributors worldwide.

- The main environmental impacts at the core phase, are related to water scarcity and abiotic depletion of fossil fuels.

Lastly, this EPD includes the cold chain for meat preservation, as well as the logistics of the distribution to wholesalers in Chile, USA and Europe.

The energy required for cooking the meat was also considered, selecting the oven cooking option, with preheating for 15 minutes. For both storage and cooking, the use of electrical energy is assumed, with proportions of the American, German and Chilean energy matrices, respectively.

The packaging of the refrigerated meat is disposed of in a sanitary landfill at the end of their useful life.

- The main environmental impacts at the downstream phase, are related to the energy used for cooking, followed by logistics and transportation.

Environmental performance

Potential environmental impact

Environmental impacts of fresh, boneless, bovine beef, produced and marketed by LOGROS S.A.
Declared Unit: 1 kg of adult bovine meat.

PARAMETER		UNIT	UPSTREAM				CORE	DOWNSTREAM				TOTAL
			Packaging Production	Enteric Fermentation and Manure Management	Feed Production	Farm Management	Slaughterhouse	Transport and Logistics	Cold Storage	Meat Cooking	Final Disposal	
Global Warming Potential (GWP)	Fossil	kg CO_2 eq.	5,2E-02	1,8E+00	1,8E+00	1,8E-01	6,7E-01	1,2E+00	4,9E-01	1,3E+00	2,4E-04	7,4E+00
	Biogenic	kg CO_2 eq.	3,9E-05	2,3E+01	1,1E-03	3,7E-04	3,6E-03	1,1E-04	0,0E+00	0,0E+00	3,5E-08	2,3E+01
	Land use and land transformation	kg CO_2 eq.	1,8E-04	0,0E+00	8,8E-04	7,8E-05	3,5E-03	1,7E-04	3,0E-04	7,9E-04	2,4E-09	5,8E-03
	TOTAL	kg CO_2 eq.	5,3E-02	2,5E+01	1,8E+00	1,8E-01	6,7E-01	1,2E+00	4,9E-01	1,3E+00	2,4E-04	3,0E+01
Acidification potential (AP)		kg SO_2 eq.	2,3E-04	1,4E-01	1,3E-02	1,1E-03	5,2E-03	6,7E-03	2,0E-03	5,4E-03	1,8E-06	1,7E-01
Eutrophication potential (EP)		kg PO_4^{3-} eq.	3,6E-05	5,5E-03	2,8E-01	1,8E-04	1,3E-03	9,8E-04	1,7E-03	4,6E-03	3,0E-07	2,9E-01
Formation potential of tropospheric ozone (POFP)		kg NMVOC.	2,5E-04	1,0E-02	5,6E-03	1,4E-03	3,0E-03	7,6E-03	1,3E-03	3,4E-03	2,9E-06	3,3E-02
Abiotic depletion potential - Elements		kg Sb eq.	6,6E-07	0,0E+00	2,7E-05	1,1E-05	8,9E-06	8,6E-06	1,2E-06	3,2E-06	2,6E-10	6,0E-05
Abiotic depletion potential - Fossil fuels		MJ, net calorific value	1,1E+00	0,0E+00	1,5E+01	2,4E+00	7,7E+00	1,6E+01	5,3E+00	1,4E+01	6,1E-03	6,2E+01
Water scarcity potential		m^3 eq.	2,9E-02	0,0E+00	1,0E+00	7,3E-03	1,9E+00	2,0E-02	4,1E-02	1,1E-01	1,2E-02	3,1E+00

Waste production, by-products and output flows

Waste, by-products and output flows of fresh, boneless, bovine beef, produced and marketed by LOGROS S.A.
Declared Unit: 1 kg of adult bovine meat.

Waste production and by-products

PARAMETER	UNIT	UPSTREAM			CORE		DOWNSTREAM				TOTAL
		Packaging Production	Enteric Fermentation and Manure Management	Feed Production	Farm Management	Slaughterhouse	Transport and Logistics	Cold Storage	Meat Cooking	Final Disposal	
Hazardous waste disposed kg	kg	0,000	0,000	1,635	0,000	0,000	0,000	0,000	0,000	0,000	1,635
Non-hazardous waste disposed kg	kg	0,000	0,000	0,001	0,000	0,000	0,000	0,000	0,000	0,000	0,001
Radioactive waste disposed	kg	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

Output flows

PARAMETER	UNIT	UPSTREAM			CORE		DOWNSTREAM				TOTAL
		Packaging production	Enteric fermentation and manure management	Feed production	Farm management	Slaughterhouse	Transport and logistics	Cold storage	Meat cooking	Final disposal	
Components for reuse	kg	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Material for recycling	kg	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Materials for energy recovery	kg	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Exported energy, electricity	MJ	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Exported energy, thermal	MJ	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

Use of resources

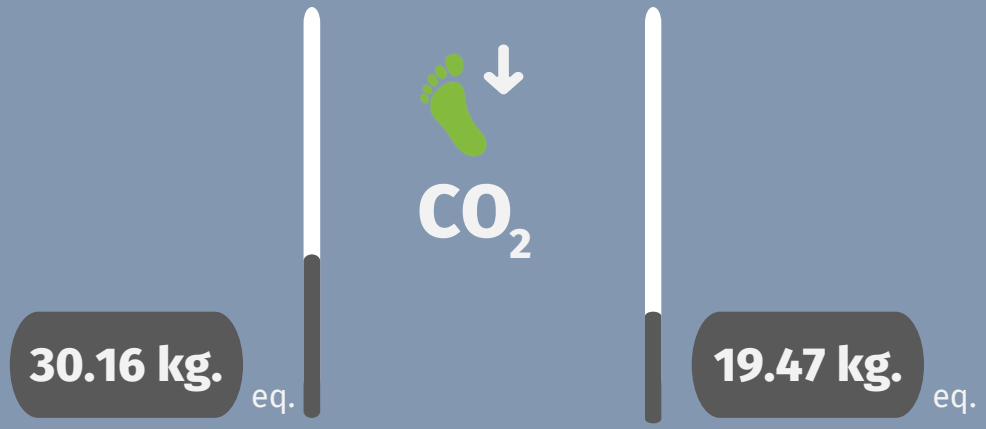
Energy resources derived from fresh, boneless, bovine beef, produced and marketed by LOGROS S.A.
Declared Unit: 1 kg of adult bovine meat.

PARAMETER		UNIT	UPSTREAM			CORE		DOWNSTREAM				TOTAL
			Packaging production	Enteric fermentation and manure management	Feed production	Farm management	Slaughterhouse	Transport and logistic	Cold storage	Maet cooking	Final disposal	
Primary energy resources – renewable	Use as energy carrier	MJ	0,000	0,000	0,089	0,000	0,000	0,000	0,000	0,000	0,000	0,089
	Used as raw materials	MJ	0,821	0,000	0,819	0,007	0,008	0,021	0,138	0,369	0,000	2,183
	TOTAL	MJ	0,821	0,000	0,907	0,007	0,008	0,021	0,138	0,369	0,000	2,272
Primary energy resources – Non renewable	Use as energy carrier	MJ	0,000	0,000	4,730	0,000	0,000	0,000	0,000	0,000	0,000	4,730
	Used as raw materials	MJ	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
	TOTAL	MJ	0,000	0,000	4,730	0,000	0,000	0,000	0,000	0,000	0,000	4,730
Secondary material		kg	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Renewable secondary fuels		MJ	0,028	0,000	0,313	0,019	0,470	0,059	0,780	2,078	0,000	3,747
Non-renewable secondary fuels		MJ	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Net use of fresh water		m^3	0,001	0,000	0,308	0,000	0,031	0,002	0,002	0,006	0,000	0,351

Analysis of the Results

Global Warming Potential (GWP) of LOGROS S.A. labelled beef meat

CO_2 **-10.69 kg.** eq.



A sensitivity analysis of the results, including carbon sequestration due to improved grassland management results in a total reduction of -10.69 kg. CO2 equivalent, for each kilogram of boneless meat produced by LOGROS S.A.

This value determines that the carbon footprint of the meat produced by LOGROS S.A., considering the carbon removals according to Tier 1 of the IPCC methods, is reduced from 30.16 kg. kg. CO2 equivalent to 19.47 kg. CO2 equivalent, i.e., a -34.4% decrease.

References

General Program Instructions of the International EPD® System. Version 3.01 and 4.0.

PCR 2012:11 Meat of mammals, version 3.11.

CPC 2111, 2113.

Other references

EcoInvent. (2022). EcoInvent Database.

General Program Instructions (GPI) of the International EPD® System, version 3.01

ISO 14025: 2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.

ISO 14040: 2006 Environmental management - Life cycle assessment – Principles and Framework.

ISO 14044: 2006 Environmental management - Life cycle assessment - Requirements and guidelines.

ISO 14046:2014 Environmental management - Water footprint - Principles, requirements and guidelines.

ISO 14067:2003 Carbon footprint of products - Requirements and guidelines for quantification and communication.

IPCC (2019). Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

PCR Meat of mammal's product. Version 3.11.

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