Environmental Product Declaration

In acordance whit ISO 14025/2006 for:

Frigorífico Entrerriano de Productores Avícolas Sociedad Anónima

Frozen chicken leg quarter

FEPASA

EPD® THE INTERNATIONAL EPD® SYSTEM

Argentina EPD

The International EPD® System, www.environdec.com
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Programme information

Programme:

The International EPD® System
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EPD Argentina
https://epd.inti.gob.ar/

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LCA conducted by: Leda Lirio, Lic. María Candela Garcia de Andina, Ing. Leticia Tuninetti

Product category rules (PCR): Meat of poultry (fresh, frozen or chilled)" versión 3.0.2

PCR review, was conducted by: Filippo Sessa

CPC: 2112, 2114, 2117

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)

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

☒ Sí ☐ No

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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.

Executive Summary

This document outlines the findings of the environmental impact analysis of chicken meat production for the domestic market carried out by the poultry firm FEPASA (Frigorífico Avícola de Productores Avícolas Sociedad Anónima) during the year 2021.

The study covers all stages of the production process, from the breeding of parents, laying of fertile eggs, hatching of baby chicks and broiler chicken raising farms that supply the company's processing plant. Additionally, it considereds the stages of distribution, preservation, cooking and packaging disposal at the end of its life cycle.

The unit analyzed in this study corresponds to "1 kilogram of frozen chicken leg quarter with packaging."

The environmental impact assessment for the climate change category reveals that the full life cycle of 1 kilogram of frozen chicken leg quarter with packaging., results in 3,39 kg CO_2. If cooking is excluded, the results show 2,11 kg CO_2.

In addition to prioritizing product quality, FEPASA is deeply committed to environmental sustainability throughout its entire value chain. This blend of operational excellence, product quality and environmental responsibility has earned the company the trust and preference of its customers, both in the domestic and export markets.

About FEPASA

The company was founded in 1964 by a group of poultry producers from Concepción del Uruguay, in the Province of Entre Ríos, Argentina, who decided to create a poultry processing plant. Since then, it has grown to become a significant player in the poultry industry, both nationally and internationally.
With breeding farms, laying farms, hatchery plants, raising farms, feed mills and slaughter and rendering plants, it vertically integrates all aspects of the poultry chain. This allows the company to maintain high-quality standards in its products while ensuring biosecurity, hygiene, health and animal welfare in all its operations.

Owner EPD:
Frigorífico Entrerriano de Productores Avícolas Sociedad Anónima (FEPASA)

Adress:
Provincial road no. 39 (s/n), Concepción del Uruguay , Entre Ríos, Argentina.

Web:
www.fepasa.com.ar

Production site:
Provincial road no. 39 (s/n), Concepción del Uruguay, Entre Ríos, Argentina.

Contact:
For additional information relative to FEPASA activities or in regard to this environmental declaration, please contact: Solange Hagedorn
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FEPASA today

Agro unit

Through the leasing of fields, the company produces raw materials for the production of balanced feed for its poultry.

Breeding farms

There are 3 breeding farms and 6 laying farms located in the districts of Federación and Uruguay in the province of Entre Ríos.

Hatchery plant “Campichuelo”

Localization: provincial road no. 39 (Ruta Provincial 39, s/n) Concepción del Uruguay. There, fertile eggs from the breeding farms are received and artificially incubated.

FEPASA today

Raising farms

It operates both its own integrated and third-party facilities across severals parts of the Entre Ríos province, which supply live chickens to the refrigeration plant.

“Santa Rosa” Feed Mill

Localization: Concepción del Uruguay, Entre Ríos.
Capacity: 10,000 tons/balanced feed/month

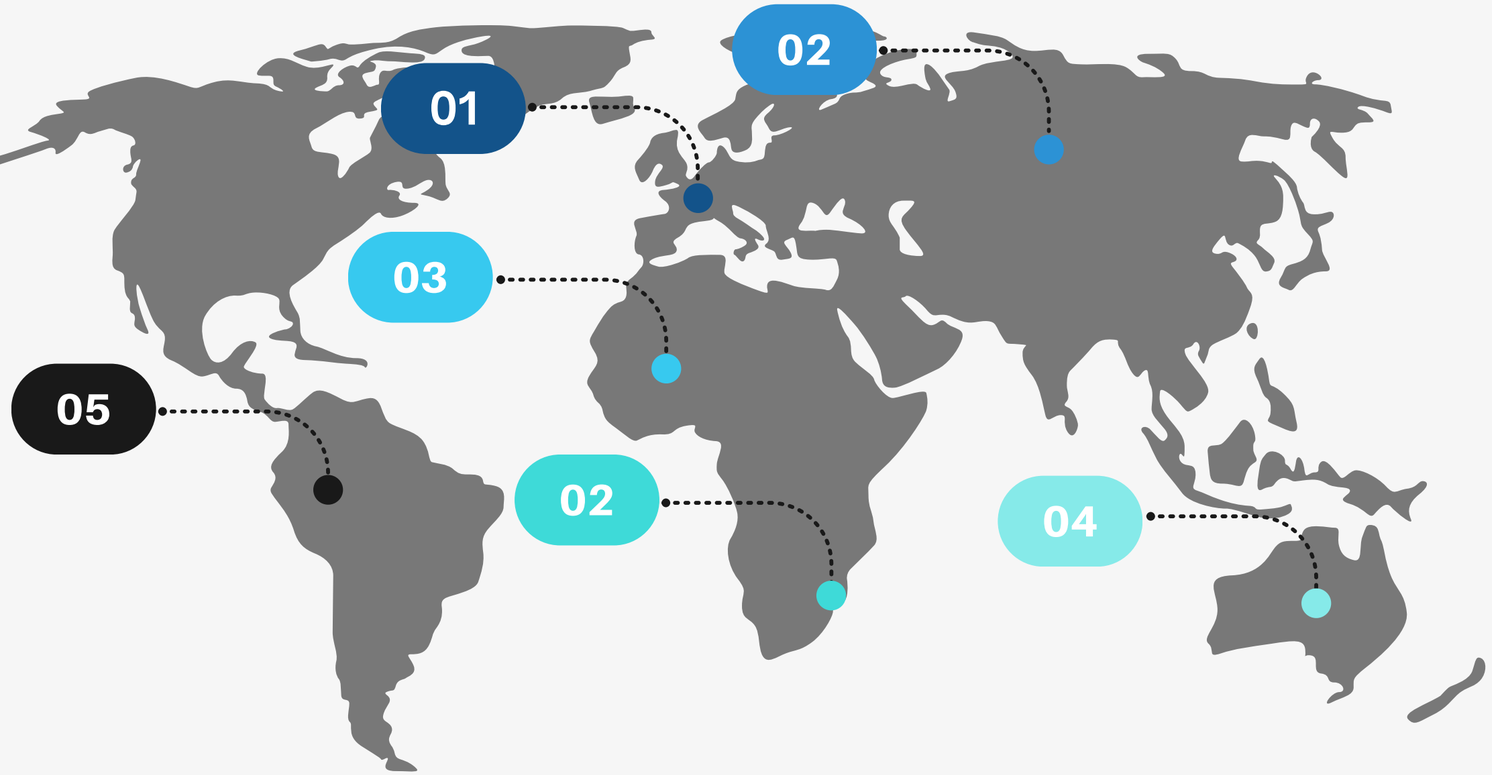
Slaughter Plant

Localization: Concepción del Uruguay, Entre Ríos.
Production: 80,000 birds/day.
The Rendering Plant, which was not included in the study, is located on the same premises.

From Argentina to the world

FEPASA currently exports 22% of its total production to Europe, Asia, Australia, Africa and other countries in the Americas. It is recognized for its quality, transparency, commitment to the welfare of people and animals and dedication to respecting and protecting the environment.

- Europe
- Asia
- Africa
- Oceania
- America



The commitment towards environment

FEPASA integrates its production objectives with a strong sense of awareness and responsibility, ensuring that all activities and operations prioritize environmental protection and values while minimizing or even avoiding associated risks. Our commitment lies in continually enhancing our environmental performance across all our value chain through strict adherence to the principles outlined in their Environmental Policy.
Additionally, we actively promote investment projects focused on environmental issues, thereby demonstrating our tangible commitment to sustainability and environmental protection.

Effluent treatment pools for liquid waste – Slaughter Plant

Product

Frozen chicken leg quarter

IMPACT EVALUATION METHODOLOGIES

The environmental impacts of the chicken meat produced by FEPASA were calculated, considering all stages of the production process as well as distribution, storage, cooking, and end of life of the packaging.

GEOGRAPHICAL SCOPE: Argentina - domestic market.

DESCRIPTION OF SYSTEM BOUNDARIES: Cradle to grave.

CPC: 2112

FUNCTIONAL UNIT

1 kilogram of frozen chicken leg quarter with packaging.

TIME REPRESENTATIVENESS: January to December 2021

DATABASE(S) AND LCA SOFWARE USED: Agri-footprint Ecoinvent V 3.8 | Software: SIMAPRO® 9.4

Frozen chicken leg quarter

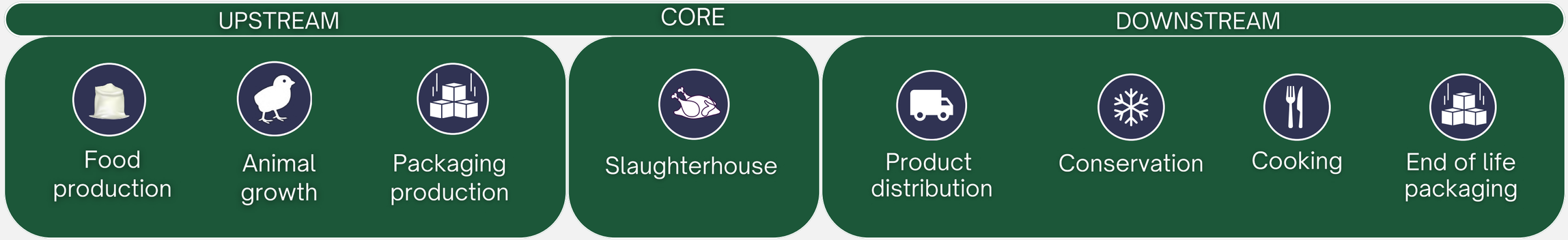
NUTRITIONAL TABLE

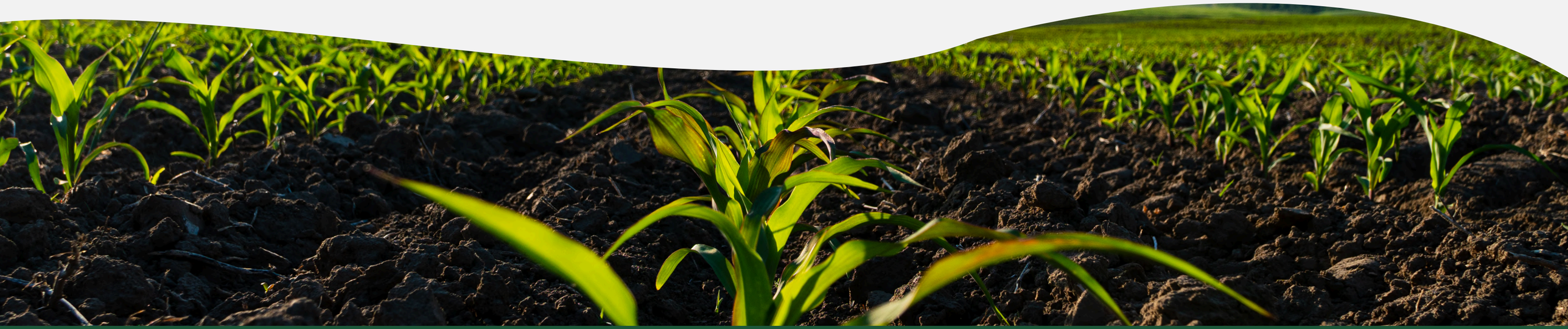
per 100 grams of product - Homemade measure: 1/3 unit

	Amount per proportion	%DV*
Energetic value	166 kcal - 690	8
Carbohydrates	0 g	0
Proteíns	13,9 g	19
Total fats	12,3 g	22
Saturated fats	6 g	27
Trans fats	0, 0 g	0
Dietary fiber	0, 0 g	0
Sodium	125 g	5

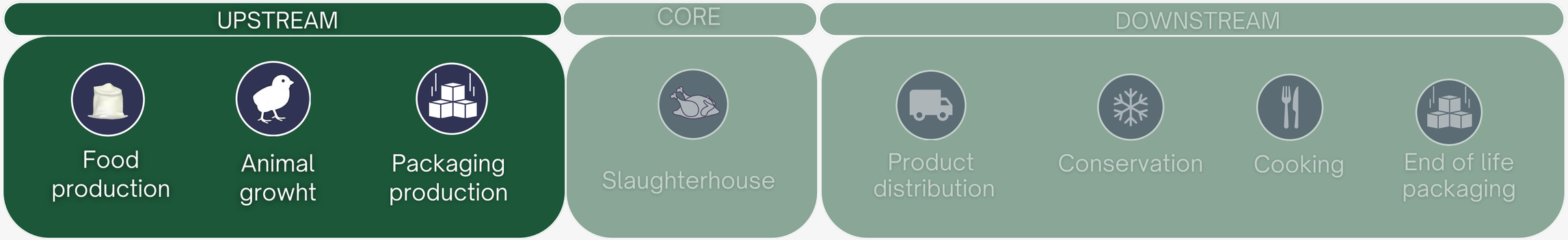
(*) % Daily values based on a diet of 2000 Kcal or 8400 kj. Your daily values may be higher or lower depending on your energy needs

System Diagram





System Diagram

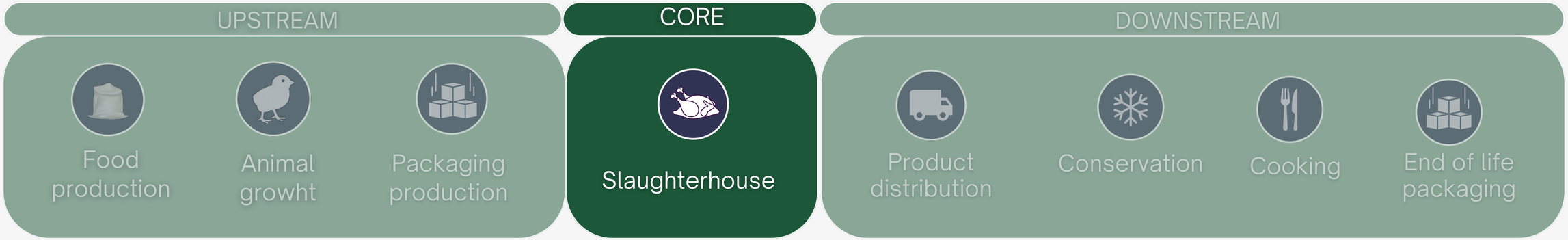


Food production
The production of balanced feed begins with the reception of grains at the “Santa Rosa” plant located in Concepción del Uruguay. Equipped with laboratories, this facility plays a crucial role in ensuring the quality of the raw materials entering the production process and the final balanced feed delivered to the breeding and raising farms.

Animal growht
The process starts in the breeding farms, where both male and female birds receive nutrition tailored to their specific needs for optimal development and productive performance in the laying farms. On-day-old chicks from the Hatchery Plant are then transferred to the raising farms, where they undergo careful supervision by specialized personnel to ensure the production of a final product that meets the quality standards demanded by consumers.

Packaging production
The product is packed interleaved or individually packaged, then placed inside a bag in a corrugated cardboard box containing fifteen kilograms of product identified with a label. Subsequently, the box is protected with shrink film

System Diagram



Slaughterhouse

Once reaching the desired weight in the raising farms, the birds are transported to the slaughter plant in Concepción del Uruguay. Here, processing adheres to strict quality standards, food safety, hygiene and animal welfare guidelines, all audited by both national and international bodies.

System Diagram

Product distribution

Transportation plays a crucial role in the supply chain, with technical and operational specifications of vehicles tailored to the specific requirements of the material being transported (balanced feed, fertile eggs, baby chicks). The finished product is transported from the slaughter plant in refrigerated trucks that maintained the cold chain, ensuring product quality and safety until delivery to various points of sale.

Conservation

5 days at distributors and 2 days at customers' homes are considered, making a total of 7 days of storage and distribution during which maintaining the frozen chain is crucial.

Cooking

Cooking of the product was estimated using an electric oven with a cooking time of one hour for 15%, and a natural gas oven with a cooking time of one and a half hour for 85%.

End of life packaging

The company implements comprehensive waste management strategies focused on valorization, reuse and recycling of materials, and encourages the same practices among consumers.

Results of the Environment performance indicators

Functional Unit: 1 kilogram of frozen chicken leg quarter with packaging.

Parameter		Unit	Upstream			Core	Downstream				Total	
			Food production	Animal growth	Packaging production	Slaughterhouse	Product distribution	Conservation	Cooking	End of life packaging	Without cooking	With cooking
Global warming potential (GWP)	Fossil	kg CO_2 eq.	6,01E-01	5,31E-01	4,91E-02	3,07E-01	1,31E-01	3,91E-01	1,27E+00	1,56E-04	2,01E+00	3,28E+00
	Biogenic	kg CO_2 eq.	7,39E-03	1,92E-02	3,89E-02	7,95E-03	9,17E-04	8,22E-03	6,45E-03	1,69E-07	8,26E-02	8,90E-02
	Land use and land transformation	kg CO_2 eq.	1,20E-03	1,19E-03	2,35E-04	5,68E-03	5,80E-05	9,37E-03	7,04E-03	1,47E-07	1,77E-02	2,48E-02
TOTAL			**6,10E-01**	**5,51E-01**	**8,83E-02**	**3,21E-01**	**1,32E-01**	**4,08E-01**	**1,28E+00**	**1,56E-04**	**2,11E+00**	**3,39E+00**
Ozone layer depletion (ODP)		kg CFC_{11} eq.	1,44E-07	4,14E-08	4,37E-09	3,07E-08	2,77E-08	3,87E-08	1,27E-07	6,31E-11	2,87E-07	4,14E-07
Acidification potential (AP)		mol H+ eq.	3,36E-03	1,73E-03	2,76E-04	6,94E-04	8,48E-04	1,04E-03	1,86E-03	1,47E-06	7,96E-03	9,82E-03
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	8,56E-04	2,91E-05	2,98E-05	2,20E-05	2,10E-05	1,81E-05	2,63E-05	1,43E-08	9,76E-04	1,00E-03
	Aquatic marine	kg N eq.	9,80E-04	5,87E-04	1,02E-04	1,67E-04	3,21E-04	1,77E-04	3,37E-04	5,10E-07	2,33E-03	2,67E-03
	Aquatic terrestrial	mol N eq.	9,79E-03	6,25E-03	8,08E-04	1,67E-03	3,50E-03	1,90E-03	3,59E-03	5,58E-06	2,39E-02	2,75E-02
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	3,10E-03	1,71E-03	2,29E-04	5,49E-04	9,64E-04	6,47E-04	1,42E-03	1,62E-06	7,20E-03	8,62E-03
Abiotic depletion potential (ADP)	Metals and minerals	kg Sb eq.	2,15E-06	1,13E-06	2,64E-07	7,90E-07	5,81E-07	2,29E-06	1,85E-06	3,56E-10	7,21E-06	9,06E-06
	Fossil resources	MJ, net calorific value	7,01E+00	5,67E+00	8,05E-01	4,37E+00	1,91E+00	6,48E+00	2,03E+01	4,36E-03	2,66E+01	4,694E+01
Water deprivation potential (WDP)*		m^3 world eq. deprived	7,21E-02	1,46E-01	2,24E-02	2,42E-01	6,79E-03	5,59E-01	4,23E-01	1,96E-04	1,05E+00	1,47E+00

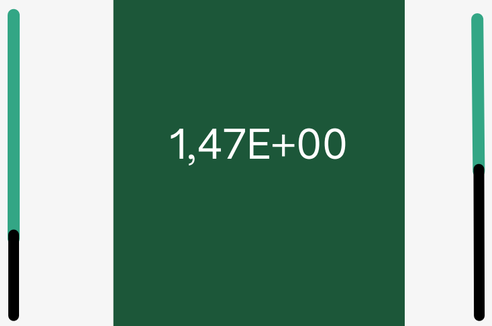
* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Resource use indicators for the production of Frozen bone-in, skin-on chopped chicken, produced and marketed by FEPASA, results per 1 kg

Parameter		Unit	Upstream			Core	Downstream				Total	
			Food production	Animal growth	Packaging production	Slaughterhouse	Product distribution	Conservation	Cooking	End of life packaging	Without cooking	With cooking
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	2,51E-01	1,96E-01	2,09E-02	5,66E-01	1,71E-02	1,36E+00	1,05E+00	3,79E-05	2,41E+00	3,46E+00
	Used as raw materials	MJ, net calorific value	1,00E-01	1,73E-01	1,06E-00	6,01E-02	7,26E-03	1,35E+00	1,04E+00	2,52E-05	2,75E+00	3,79E+00
	TOTAL	MJ, net calorific value	**3,51E-01**	**3,69E-01**	**1,08E-00**	**6,26E-01**	**2,44E-02**	**2,71E+00**	**2,09E+00**	**6,31E-05**	**5,16E+00**	**7,25E+00**
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	0,00E+00	2,28E+00	0,00E+00	1,98E+00	0,00E+00	3,29E-05	9,71E-05	7,62E-07	4,26E+00	4,26E+00
	Used as raw materials	MJ, net calorific value	2,69E-03	1,90E-04	1,84E-04	2,25E-03	8,14E-05	1,99E+00	1,53E+01	0,00E+00	2,00E+00	1,73E+01
	TOTAL	MJ, net calorific value	**2,69E-03**	**2,28E+00**	**1,84E-04**	**1,98E+00**	**8,14E-05**	**1,99E+00**	**1,53E+01**	**7,62E-07**	**6,26E+00**	**2,16E+01**

Analysis of the results

1 kilogram of frozen chicken leg quarter with packaging	Unit	Total Without cooking	Total With cooking
Global Warming Potential (GWP)	Kg CO_2 eq	2,11E+00	3,39E+00
Water deprivation potential (WDP)	m^3 world eq. deprived	1,05E+00	1,47E+00



Additional environmental information

Part of the wastewater generated during processing is reused in auxiliary services, while the company's treatment system purifies the liquid effluents generated before discharge, safeguarding water resources.

Effluent treatment pools for liquid waste – Hatchery plant

Chicken litter undergoes composting at the breeding and raising farms, transforming it into organic fertilizer to ensure proper final disposal.

To ensure that all employees actively contribute to resource conservation, the company conducts internal campaigns to raise awareness on the responsible use of water and energy across all its facilities.

Through the implementation of specific actions and waste management programs that emphasize segregation in origin, promote recycling initiatives and foster circular economy practices, the company demonstrates its proactive approach to environmental sustainability and economic benefits.

Final packaging disposition

The product is interleaved or individually packaged, and then placed inside a bag in a corrugated cardboard box.

To ensure proper handling and disposal, consumers are encouraged to keep the packaging and dispose of it appropriately in the containers provided by their city council for selective collection. This practice not only contributes to the preservation and care of the environment but also aids to comply with local regulations.

References

General Programme Instructions of the International EPD® System. Version 4.0
PCR Meat of poultry (fresh, frozen or chilled),Version 3.0.2
CPC 2112 y CPC 2114

Other references

EcoInvent (2022). EcoInvent Database.
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.

Website EPD International System
https://www.environdec.com

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