



Environmental Product Declaration of **Coop Beef Meat**



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CPC code: 2111 Meat of mammals, fresh

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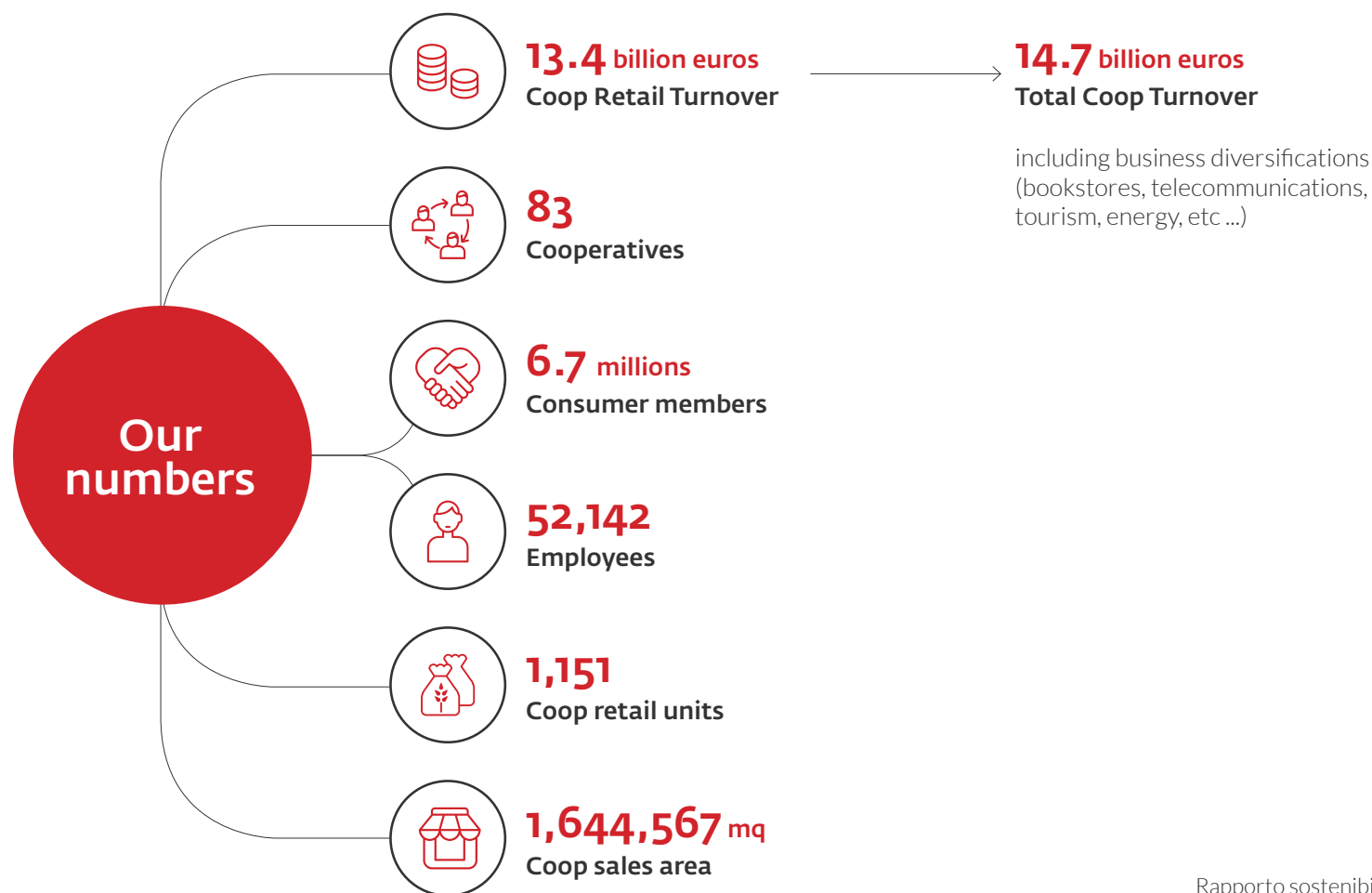
This EPD has been developed in conformity with ISO 14025.

An EPD should provide current information, and may be updated if conditions change.

The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

Coop

Coop is one of the biggest retailer in Italy, with a turnover of almost 15 billion Euros in 2018. The Coop system is based on 6.7 million consumer members and includes 1,151 retail units. Coop Italia is the Marketing and Buying central of the consumer cooperatives: it is responsible for negotiating with industries and producers, “Coop brand” products development, quality and safety policies and marketing strategy.



Source:
AMIAMO L'AMBIENTE
Rapporto sostenibilità e valori 2018 - Coop

Eurocoop

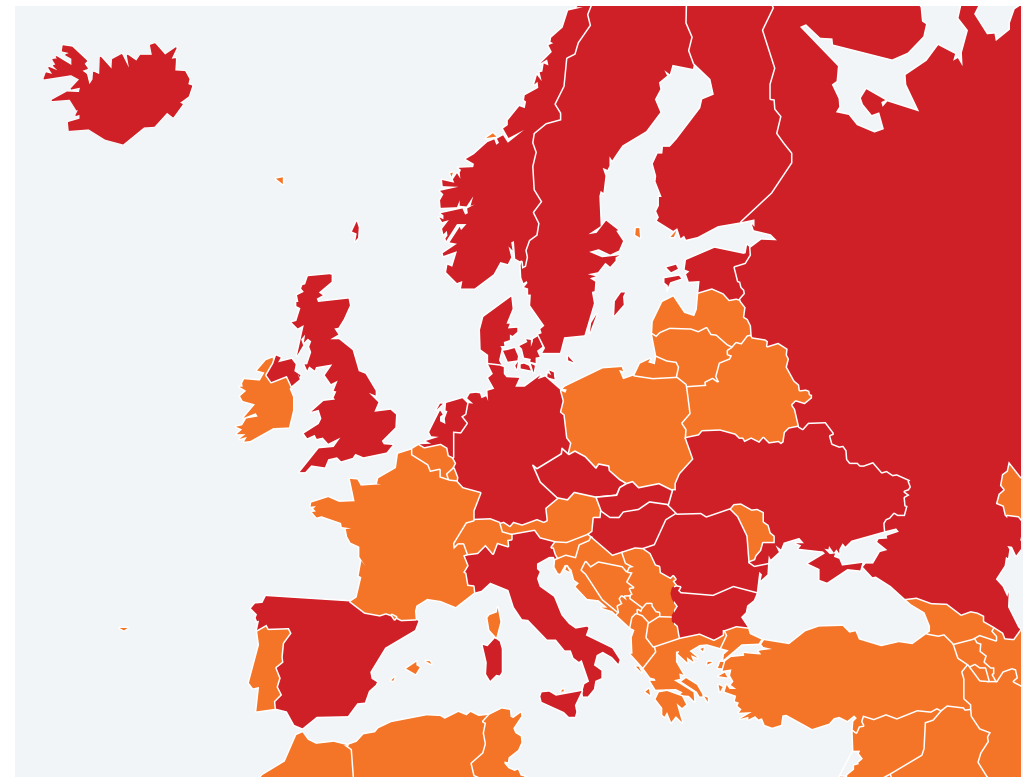


Euro Coop is the European Community of Consumer Co-operatives, whose members are the national organisations of consumer co-operatives in 20 European countries. Founded in 1957, Euro Coop represents more than 7,000 local and regional co-operatives, whose members count more than 34 million consumers all over Europe. Consumer co-operatives are companies belonging to the Consumers, which mainly operate in food distribution and trade. The total annual turnover has amounted to more than 79 billion Euro, with 76,000 retail stores and 700,000 employees. The Secretariat is based in Brussels. Coop Italy participates in all of Euro Coop's working groups, which address priorities like food and retail policy, sustainability policy and co-operative distinctiveness.

Euro Coop member countries

Bulgaria / Cyprus / Denmark / Estonia / Finland / Germany / Iceland / Israel / Italy / Norway / Netherlands / UK / Czech Republic / Romania / Russia / Slovak Republic / Spain / Sweden / Ukraine / Hungary

More info on www.eurocoop.coop



Coop branded product is:



Safe

Guarantee is based on a careful selection of suppliers, the definition of rigorous technical specifications, often more restrictive than law, as well as the implementation of audits and checks along the entire supply chain. This is also due to scientific collaborations with authoritative institutional and non-institutional third parties.

Ethical

All Coop branded products are made in compliance with people and workers fundamental rights. The suppliers of the branded products shall contractually respect Coop Italia ethical code based on the contents of the SA 8000 and ILO, also accepting inspections at all stages of their supply chain and making them responsible.

Ecological

Coop branded products respect the environment, thanks to more sustainable raw materials and production methods, packaging with the lowest environmental impact as well as important awareness actions towards its suppliers.

Good

Coop branded products are the result of effective partnerships with quality manufacturers, industrial or hand-crafted and are designed and tested to ensure high performance, approved by members.

Cheap

The large purchase volumes guarantee the best possible quality / price ratio in order to protect the purchasing power of Consumers. In the most consumed categories, Coop branded products allow you to save up to 30% compared to similar branded products, reaching up to 40% as an average saving for Coop branded medicines.

Transparent

Consumers have access to information regarding the origin of raw materials, production processes, finished products and supply chains, both through labels and dedicated sites.

Coop brand products

Coop brand products are **produced by selected suppliers** who must comply with specifications and project requirements that have been designed according to **"Coop values"**. The Coop brand product offers a complete range of products to satisfy the everyday needs of a family, including 11 different products' lines designed to meet the specific needs of consumers.



COOP brand
The mainstream supply



ORIGINE brand
Total traceability, quality chain



FIORFIORE brand
The best of gastronomic culture



VIVI VERDE brand
Nature would choose ViviVerde products



CASA brand
Cheap and functional products



BENE.SÌ brand
Delicious to eat, useful for the body's wellness



AMICI SPECIALI brand
Being friends pays off. Always



SOLIDAL brand
A world of fairness and quality.



CRESCENDO brand
Your child is in very good hands.



IO brand
Beauty and well-being



D'OSA brand
Easy cooking!

Beef meat

This document is referred to the beef meat from adult bovine (bull or heifer) grown and slaughtered in Italy and sold by Coop at its stores. Beef meat, sold by Coop, but raised and / or slaughtered abroad is excluded from the scope of this EPD. The environmental impacts were calculated taking into account 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 Coop during 2018.

Declared unit

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



Energy value	547.5 kJ (131 kcal)
Proteins	21 g
Carbohydrates	0.0 g
Fats	5.2 g
Dietary fibres	0.0 g
Sodium	49 mg
Potassium	313 mg
Cholesterol	55.5 mg
Iron	1.5 mg
Phosphorus	185 mg

*Nutrition facts per 100 g of beef meat (edible portion).
Average data considering front and hind cuts – CRA NUT.*

Introduction to Coop beef production chain

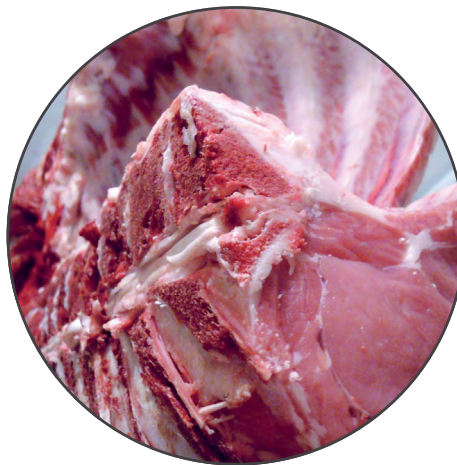
The Coop Italian beef supply chain, founded in 1990, consists of meat from adult bovine (beef and heifer) produced using animals mainly born in France and raised in Italy in conventional farms. The production chain is based on the complete knowledge acquired during the production, from the animal's birth in France to the raising phase in Italy and continues with the slaughtering phase and any subsequent processing steps, until the retail phase.

In 2018 about 144.000 adult bovine were purchased by Coop.

In 2018 Coop beef production chain is based on:



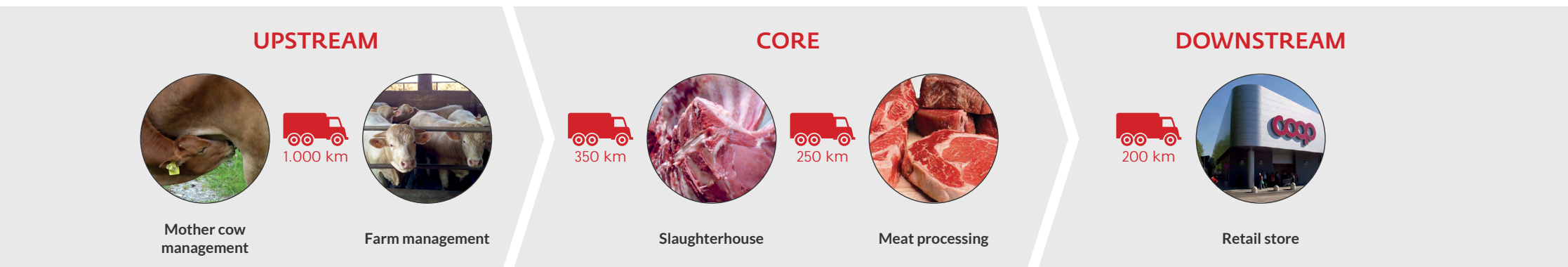
more than **150** FARMS



10 SLAUGHTERHOUSES



3 DISTRIBUTION CENTERS
2 TRANSIT POINT



General System Boundaries

Almost all of the adult cattle belonging to Coop supply chain come from France, where the calves are weaned and usually spend the first 10-12 months of their life. The information needed for the assessment of this phase was collected from 7 French farms of different sizes: **SSca de Baumont, Jardoux, Debizet, Landrieve, Gaec Bonnefont Guillot, Parrot, Debizet**.

After this period spent in France, the calves are moved to Italy and raised in Coop supplier farms for about 6 months. For the scope of this EPD, 5 different sized farms have been analysed.

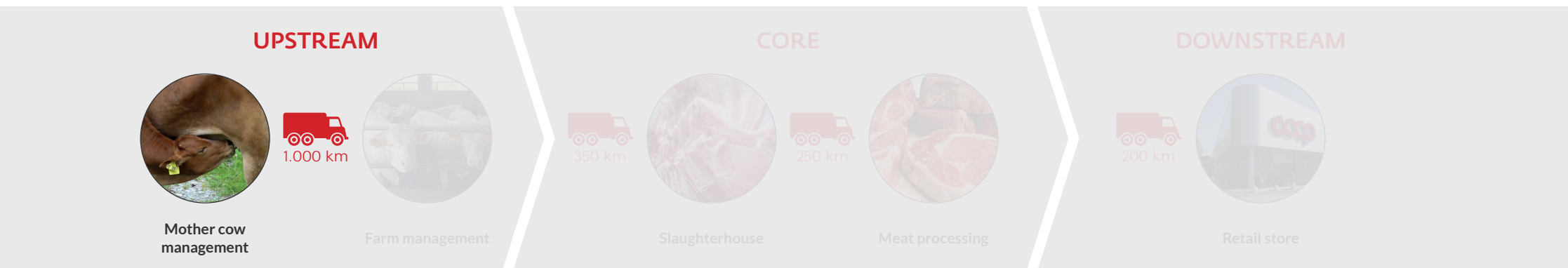
Once the animals reach the weight of about 640 kg, they are slaughtered. In order to assess the environmental impacts of this phase, data were collected from the 3 main slaughterhouse plants involved in Coop supply chain: **Inalca** in Castelvetro di Modena, **Colomberotto** in Moriago della Battaglia (Treviso)



and **Clai** in Faenza (Ravenna). The carcasses are then sent to the processing platforms where they are portioned, vacuum packed in different sizes and sent to the stores, where the meat is packaged in trays or sold at the store butcher's counter. In other cases the meat is already tray-packaged at the platform and shipped to the store, ready to be sold.

For the purpose of assessing the environmental burden connected to the meat processing phase, primary data were collected at the **Coop-Inalca** processing platform in Reggio Emilia as well as at the **IperCoop Torino Dora** store butcher's section.

Detailed information about the animals' origin, places in which they were raised and slaughtered are also available, on packaging labels, for the benefit of customers.



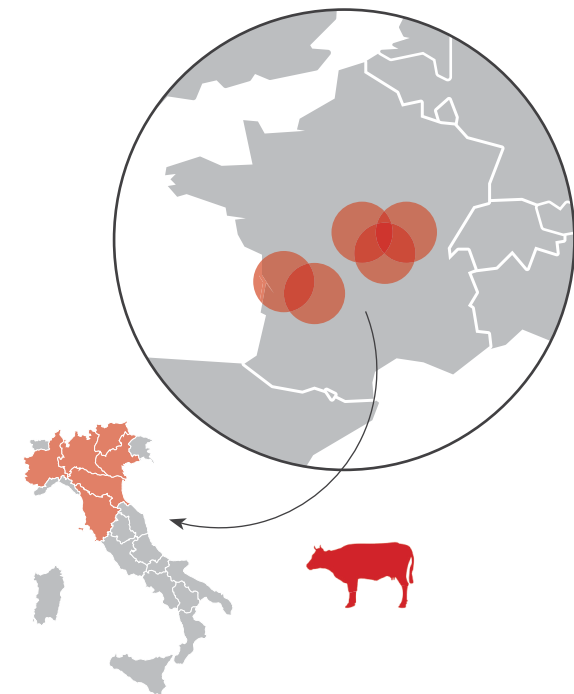
Calves birth and weaning

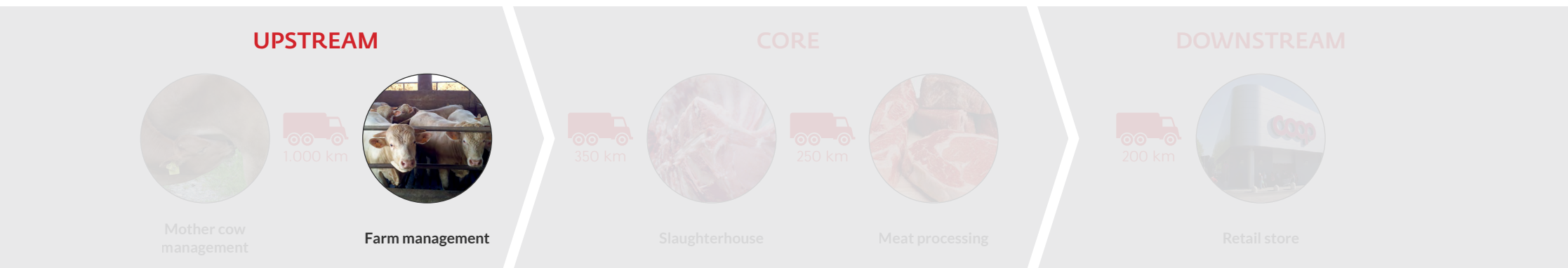
Beef calves come mainly from France. They are usually born in farms located in the central regions of France where they stay about a year, reaching the weight of approximately 350 kg. During this phase, the calves stay grazing apart from a brief period in which they stay inside the stable due to winter temperatures.

As regards the calculation of impacts during this phase, the main hypothesis are about the food given to the animals and in particular: **when the animals are grazing** they are fed exclusively grass (10 kg/day for the calf and 20 kg/day for the mother cow).

During the winter period, **spent in the stable**, the feed given to the cow is mainly composed of hay (80%), barley and soy bean while the calf is fed only with cow's milk.

Data collected from the involved farms, concern stables' energy and water consumption, waste production, amount of feed given to the mother cow and the quantity of manure produced (by both the cow and the calf). At the end of the weaning period, the calves are moved to Italy: the impacts associated with transportation has been estimated assuming a distance equal to 1,000 km.





Cattle breeding

After weaning, cattle are raised according to the contract agreement between Coop and the farmers. Coop regularly checks its application with strict verification procedures. In order to develop the calculation model, data from 5 different sized farms have been collected.

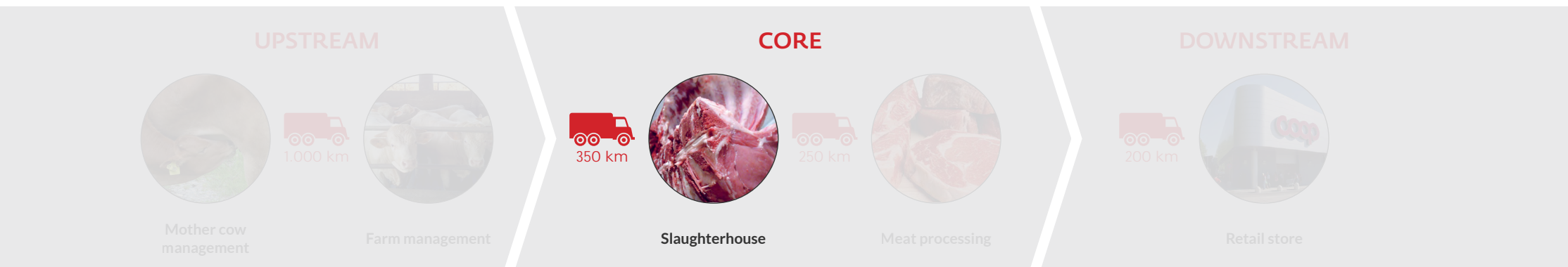
The whole fattening period takes place inside the stable and feed is made of different types of food including corn in various forms, which is considered to be the most important, along with various other cereals.

Farmers could independently manage feed as long as they respected the specifications laid down by Coop.

In order to evaluate the impacts of this phase, the whole farm management process was considered, including the cultivation of food, energy and water consumption, manure management and enteric fermentation produced by cattle.

The impact of bovine transportation to the slaughterhouse plants was calculated on a 350 km-distance basis.





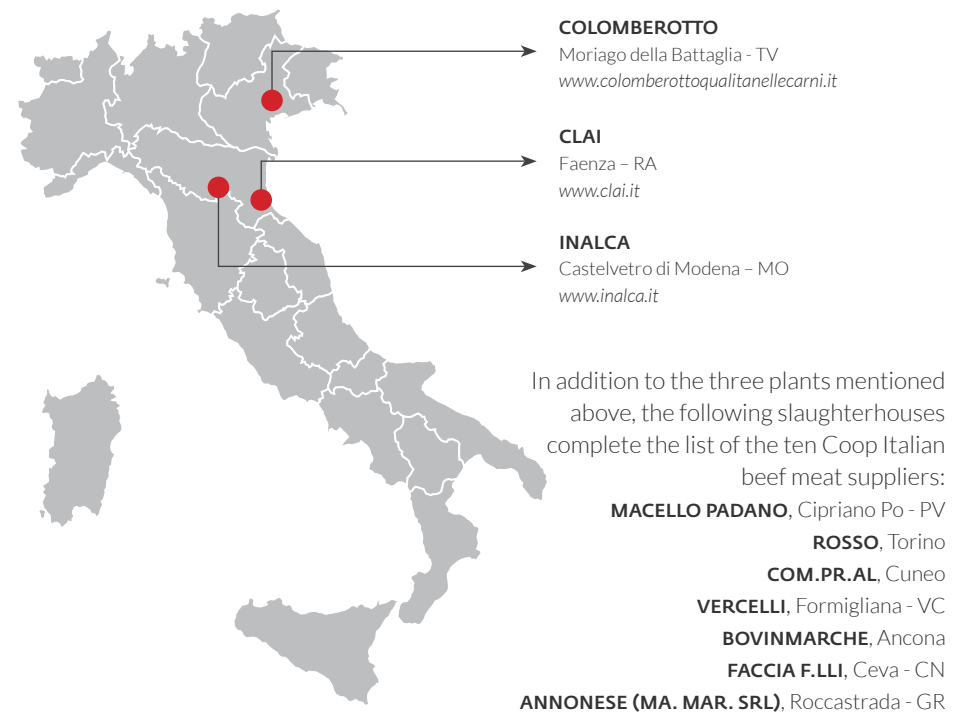
Slaughterhouse

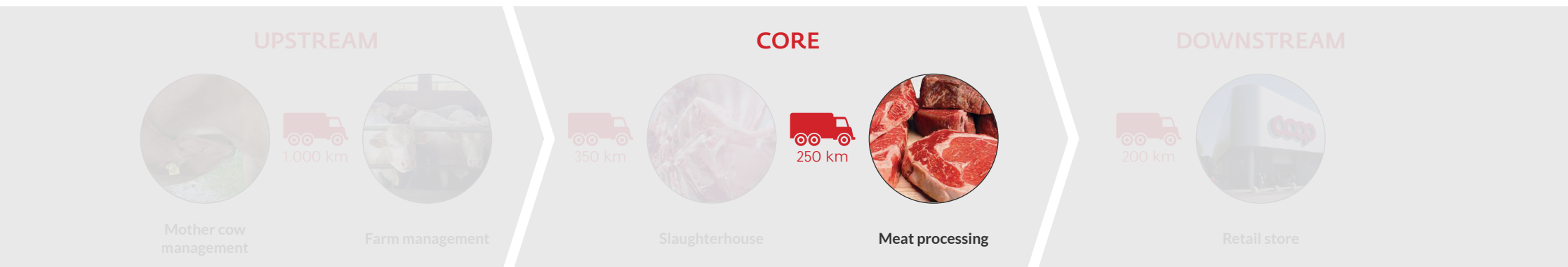
The impacts of this phase were calculated using information derived from 3 plants chosen between the main coop suppliers; these ones slaughtered 78% of adult cattle sold by Coop in 2018. The main environmental impacts are related to energy and water consumption, in addition to the management of slaughtering residues.

An important hypothesis is meat production efficiency (yield). In particular, in 2018 the average slaughtering weight and yields were updated and the following data were considered:

- **Adult bovine weight:** 634 kg;
- **Dressed yield:** 60%;
- **Boneless meat yield:** 83%.

The economic values used to calculate the allocation factors related to the co-products come from confidential information of the involved companies and refer to the year 2018.





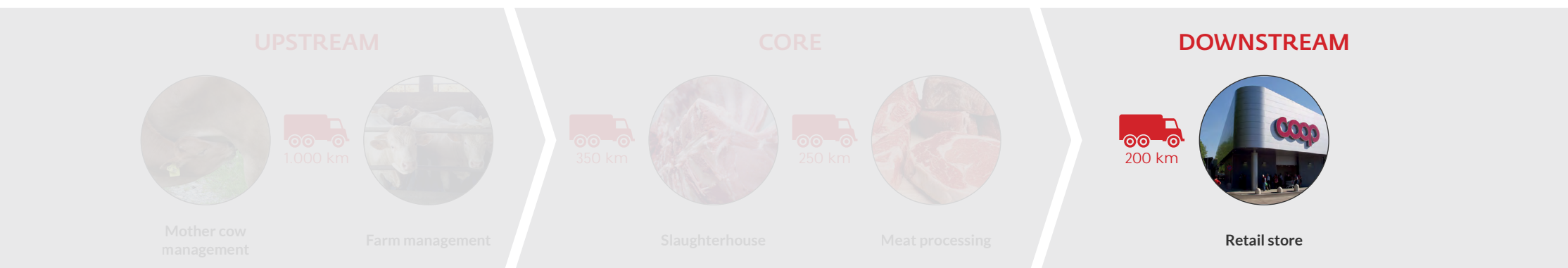
Transformation and preparation

After the slaughtering phase, half-carasses were moved to processing platforms where the meat was packaged in two different ways:

- **Vacuum packaged** (in PE bags) and then dispatched to the retail stores equipped with butcher's counters, where the beef cuts are further portioned and packaged in ATP or SKIN trays (made in PET or PE) or sold over the counter;
- **In ATP trays:** in this case the packaged product is distributed to retail stores ready to be sold to the final customer.

For EPD purposes, Reggio Emilia's logistical-processing platform was chosen because it is one of the main platforms that works and sorts products for Coop. Data about Reggio Emilia's platform are primary refer to the year 2018.





Retail store



* Photo of Antonella Di Girolamo for Coop.

After beef meat processing at platforms, the product is sent to retail stores, ready for being sold (packaged in trays made in PET or PE) or, if necessary, subsequently processed.

In retail stores equipped with butcher's counters, as the one analysed for this EPD (**NovaCoop Torino Dora**), the product comes more than half vacuum-packaged from logistical platforms and then it is further processed and portioned in trays or sold over the counter, on customer requirements' basis.

In order to assess the environmental aspects related to this phase, energy, water and packaging material consumption were collected. Cold chain electricity consumption - i.e. for cold storage and department's temperature maintaining - were also included.

Transports' impacts have been calculated on 200 km distance basis that is an average value between platforms and retail stores.

Use phase: packaging end-of-life, home cold storage and cooking

Phases subsequent to slaughter and meat processing require an increase in the number of hypotheses to obtain precise results. This consideration is even more important for phases such as home cold storage and cooking. The environmental impacts estimation associated with these two phases follows what is suggested in the PCR reference document.

Packaging end-of-life

The primary packaging is mainly a PET or PE tray or the wrapping used at the store butcher's counter (paper bag, coated paper and PE film). In order to develop an end of life scenario, public data based on the Italian average scenario were used.

Home cold storage

It was estimated that beef meat, after being purchased by the customer, may be stored in the refrigerator for 3 days; energy consumption has been evaluated following the PCR instructions.

Cooking

Data regarding this phase is approximate, because it entirely depends on consumer tastes and habits. For hypothesis, raw consumption and two different cooking types were taken into account: cooking a steak in a pan for 5 minutes (the GWP is 1.3 kg CO₂ eq per kilogram of beef) and a roast in a pot, for two hours (whose GWP is equal to 4.2 kg CO₂ eq per kg of beef).



Results, part I

1 kg of adult bovine boneless meat

PRIMARY ENERGY RESOURCES DATA REFERRED TO 1 KG OF ADULT BOVINE BONELESS MEAT		UPSTREAM					CORE		DOWNSTREAM		TOTAL
		MOTHER COW MANAGEMENT	FEED	MANURE AND ENTERIC FERMENTATION	FARM MANAGEMENT	PACKAGING PRODUCTION	SLAUGHTERING ACTIVITIES	MEAT PROCESSING AND PACKAGING ACTIVITIES	HOME CONSERVATION	PACKAGING END-OF-LIFE	
RENEWABLE (MJ)	Used as energy carrier	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E+00	2.8E+00	2.5E-01	1.3E-01	3.8E-04	4.2E+00
	Used as raw materials	0.0E+00	0.0E+00	0.0E+00	9.7E+01	2.8E-01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.7E+01
	TOTAL	0.0E+00	0.0E+00	0.0E+00	9.7E+01	1.3E+00	2.8E+00	2.5E-01	1.3E-01	3.8E-04	1.0E+02
NON-RENEWABLE (MJ)	Used as energy carrier	1.5E+01	3.2E+01	0.0E+00	1.1E+01	2.4E+00	2.9E+01	9.2E+00	4.7E+00	1.0E-02	1.0E+02
	Used as raw materials	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E+00
	TOTAL	1.5E+01	3.2E+01	0.0E+00	1.1E+01	3.8E+00	2.9E+01	9.2E+00	4.7E+00	1.0E-02	1.0E+02
Secondary material (g)		0	0	0	0	0	0	0	0	0	0
Renewable secondary fuels (MJ. net calorific value)		0	0	0	0	0	0	0	0	0	0
Non-renewable secondary fuels (MJ. net calorific value)		0	0	0	0	0	0	0	0	0	0
Net use of fresh water (litres)		1.1E+02	8.3E+02	0.0E+00	2.7E+01	1.7E+00	4.4E+01	2.9E+01	1.1E+00	5.1E-02	1.1E+03

NOTE – The numbers reported in the table above and those in the next pages, are the outcome of rounding. For this reason total results could slightly differ from the sum of contributions of the different phases.

Results, part II

1 kg of adult bovine boneless meat

WASTE DATA REFERRED TO 1 KG OF ADULT BOVINE BONELESS MEAT	UPSTREAM					CORE		DOWNSTREAM		TOTAL
	MOTHER COW MANAGEMENT	FEED	MANURE AND ENTERIC FERMENTATION	FARM MANAGEMENT	PACKAGING PRODUCTION	SLAUGHTERING ACTIVITIES	MEAT PROCESSING AND PACKAGING ACTIVITIES	HOME CONSERVATION	PACKAGING END-OF-LIFE	
Hazardous waste disposed – IN GRAMS	3.3E-01	5.3E-03	0.0E+00	0.0E+00	6.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-01
Non-hazardous waste disposed – IN GRAMS	3.1E-02	6.7E+01	0.0E+00	6.0E+00	1.9E+01	9.1E+02	1.0E+02	0.0E+00	2.5E+01	1.1E+03
Radioactive waste disposed – IN GRAMS	1.2E-05	5.4E-05	0.0E+00	2.0E-05	1.0E-04	6.2E-05	1.8E-05	1.3E-20	3.2E-07	2.7E-04

BY-PRODUCTS DATA REFERRED TO 1 KG OF ADULT BOVINE BONELESS MEAT	UPSTREAM					CORE		DOWNSTREAM		TOTAL
	MOTHER COW MANAGEMENT	FEED	MANURE AND ENTERIC FERMENTATION	FARM MANAGEMENT	PACKAGING PRODUCTION	SLAUGHTERING ACTIVITIES	MEAT PROCESSING AND PACKAGING ACTIVITIES	HOME CONSERVATION	PACKAGING END-OF-LIFE	
Slaughterhouse by-products: Categories I - II - III TOTAL – IN GRAMS	0	0	0	0	0	911.4	80.0	0	0	991.4
>>> of which to RECOVER Categories II e III – IN GRAMS	0	0	0	0	0	753.6	80.0	0	0	833.6
>>> of which to MANDATORY INCINERATION Category I – IN GRAMS	0	0	0	0	0	157.7	0	0	0	157.7

OUTPUT FLOWS DATA REFERRED TO 1 KG OF ADULT BOVINE BONELESS MEAT	UPSTREAM					CORE		DOWNSTREAM		TOTAL
	MOTHER COW MANAGEMENT	FEED	MANURE AND ENTERIC FERMENTATION	FARM MANAGEMENT	PACKAGING PRODUCTION	SLAUGHTERING ACTIVITIES	MEAT PROCESSING AND PACKAGING ACTIVITIES	HOME CONSERVATION	PACKAGING END-OF-LIFE	
Components for reuse – IN GRAMS	0	0	0	0	0	0	0	0	0	0
Material for recycling – IN GRAMS	1.4	0	0	12.5	0	245.3	46.5	0	4.3	310.0
Materials for energy recovery – IN GRAMS	0	0	0	0	0	0	0	0	25.4	25.4
Exported energy, electricity – IN MJ	0	0	0	0	0	0	0	0	0.4	0.4
Exported energy, thermal – IN MJ	0	0	0	0	0	0	0	0	0.01	0.01

Results, part III

1 kg of adult bovine boneless meat

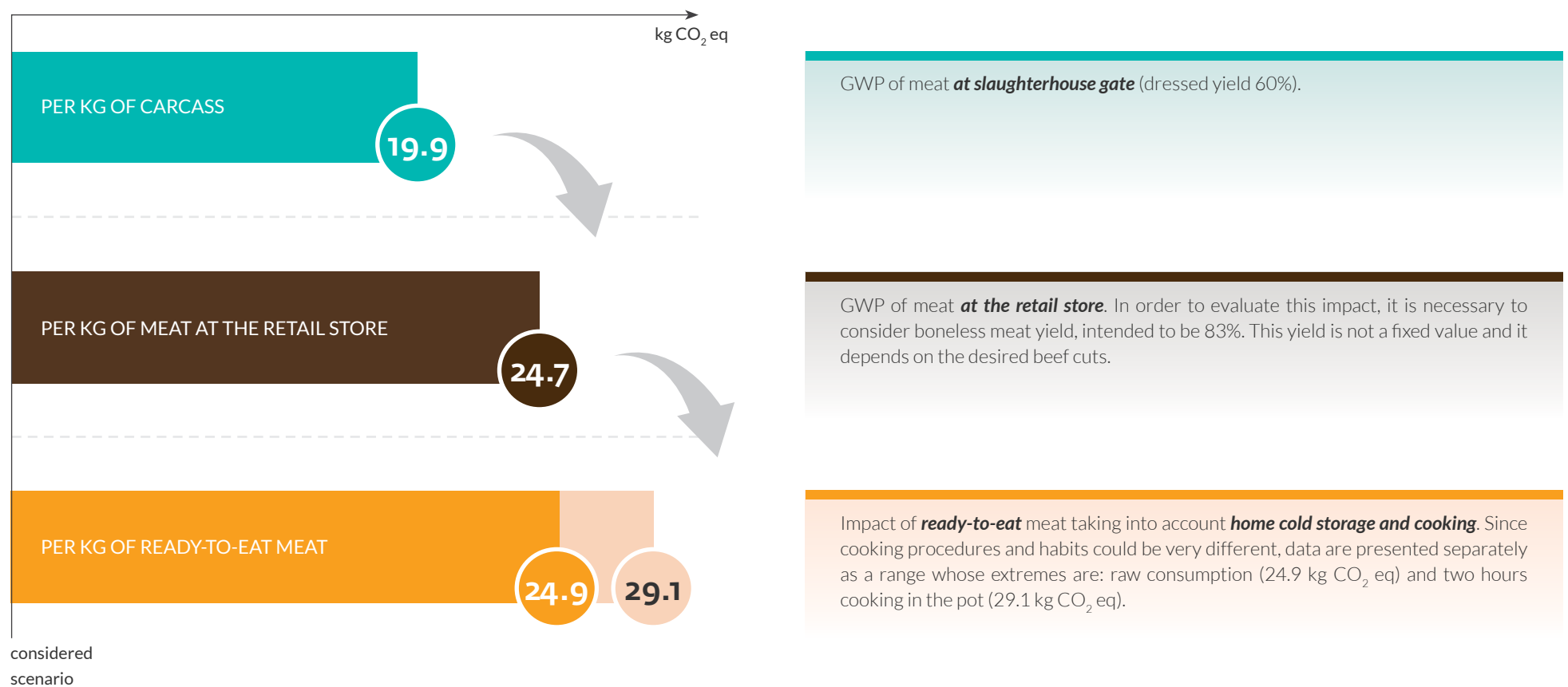
ENVIRONMENTAL IMPACT INDICATORS DATA REFERRED TO 1 KG OF ADULT BOVINE BONELESS MEAT	UPSTREAM					CORE		DOWNSTREAM		TOTAL
	MOTHER COW MANAGEMENT	FEED	MANURE AND ENTERIC FERMENTATION	FARM MANAGEMENT	PACKAGING PRODUCTION	SLAUGHTERING ACTIVITIES	MEAT PROCESSING AND PACKAGING ACTIVITIES	HOME CONSERVATION	PACKAGING END-OF-LIFE	
Global Warming Potential GWP fossil data in kg CO ₂ equivalent	5.8E+00	3.5E+00	6.8E-01	8.2E-01	1.4E-01	2.0E+00	5.3E-01	2.5E-01	2.3E-02	1.4E+01
Global Warming Potential GWP biogenic data in kg CO ₂ equivalent	5.7E+00	4.6E-02	3.9E+00	5.6E-03	3.5E-04	1.4E-01	2.2E-02	8.2E-05	1.1E-02	9.8E+00
Global Warming Potential GWP land use & land transformation data in kg CO ₂ equivalent	2.3E-03	1.4E+00	0.0E+00	1.1E-04	9.5E-05	1.6E-01	2.5E-03	1.4E-07	3.6E-07	1.5E+00
Global Warming Potential GWP TOTAL data in kg CO ₂ equivalent	1.1E+01	4.9E+00	4.6E+00	8.3E-01	1.4E-01	2.2E+00	5.6E-01	2.5E-01	3.4E-02	2.5E+01
Acidification Potential AP data in g SO ₂ equivalent	6.5E+02	4.0E+01	2.1E+02	2.8E+00	5.3E-01	4.5E+00	1.7E+00	7.2E-01	9.7E-03	9.1E+02
Eutrophication Potential EP data in g PO ₄ equivalent	1.8E+02	3.3E+01	4.8E+01	4.0E+00	9.1E-02	1.3E+00	4.5E-01	8.5E-02	1.4E-02	2.6E+02
Formation potential of tropospheric ozone POFP data in g NMVOC equivalent	7.2E+01	1.1E+01	3.7E+01	3.5E+00	4.9E-01	3.2E+00	1.4E+00	4.3E-01	1.5E-02	1.2E+02
Abiotic depletion potential – Elements data in g Sb equivalent	3.4E-04	2.1E-02	0.0E+00	3.5E-06	1.2E-05	1.0E-04	5.8E-06	1.7E-06	1.2E-07	2.2E-02
Abiotic depletion potential – Fossil fuels data in MJ, net calorific value	1.3E+01	2.9E+01	0.0E+00	1.0E+01	3.4E+00	2.7E+01	8.3E+00	4.1E+00	9.4E-03	9.5E+01
Water scarcity potential data in m ³ equivalent	5.0E+01	4.5E+01	0.0E+00	2.3E+00	1.8E-01	5.5E+00	3.1E+00	8.4E-01	1.6E-03	1.1E+02

Results interpretation

Global Warming Potential (GWP) of Coop labelled beef meat

Environmental impact data have been rigorously calculated up to the slaughterhouse phase included.

After this phase, many factors may affect the final result making non-unique impact attribution per kg of meat.



Differences versus previous version of the EPD

Compared to the previous version (2015) of the EPD document, beyond the updating of the number of cattle purchased by Coop in 2018 and data about the 3 main slaughterhouses involved as suppliers, data relating to French and Italian farms were updated, too. Data collection involved 7 French farms where the calves are born and weaned and a sample of 5 Italian farms, among Coop suppliers, where data regarding the finishing phase were collected such as feed quantity and typology, energy consumption, the average amount of

manure per head and the type of management.

Following the revision, in 2018, of the reference PCR 2012:11, impacts allocation at the farm stage has been updated as suggested by the International Dairy Federation IDF (switching from economic to biophysical allocation).

Finally, data relating to the Reggio Emilia platform, where the carcasses from the slaughtering plants are processed and data relating to a sample sales point (IperCoop Torino Dora) were updated.



EPD Programme Information

Programme operator: EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, Email: info@environdec.com

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

PCR review, was conducted by: Technical Committee of the International EPD® System. Review chair: Adriana Del Borghi.
Contact via info@environdec.com.

Coop Italia has the sole ownership, liability and responsibility of the EPD.

This declaration and further information are available at the web-page: www.environdec.com

Independent verification of the declaration and data, according to ISO 14025:2006:

☐ EPD process certification ☒ EPD verification

Third party verifier: CCPB Srl (accreditation number: 043B)

Accredited or approved by: Accredia

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

☒ Yes ☐ No

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

Technical report

Coop Italia Life Cycle Assessment of Beef and Veal Meat, detailed hypothesis, rev.3.

Technical support and graphic design

Life Cycle Engineering srl – Italy
www.lcengineering.eu

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Glossary

MALE CATTLE	<i>Male cattle aged over 12 and under 24 months, raised for meat production. For Coop, the age range is between 16 and 22 months.</i>
FEMALE CATTLE	<i>Female cattle aged over 12 and under 24 months, who has not given birth yet. For Coop, the age range is between 13 and 22 months.</i>
ADULT BOVINE	<i>It generically means the beef cattle, both male and female, more than 12 months old.</i>

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