PRODUCT CATEGORY RULES (PCR)
DATE 2022-10-24

MEAT OF MAMMALS (FRESH, CHILLED OR FROZEN)

PRODUCT CATEGORY CLASSIFICATION: UN CPC 2111, 2113

PCR 2012:11
VERSION 4.0.1, 2022-10-24

VALID UNTIL 2026-10-19

TABLE OF CONTENTS

1 INTRODUCTION

This document constitutes Product Category Rules (PCR) developed in the framework of the International EPD® System: a programme for type III environmental declarations[1] according to ISO 14025:2006, ISO 14040:2006, ISO 14044:2006, and product-specific standards such as EN 15804 and ISO 21930 for construction products. Environmental Product Declarations (EPD) are voluntary documents for a company or organisation to present transparent, consistent and verifiable information about the environmental performance of their products (goods or services).

The rules for the overall administration and operation of the programme are the General Programme Instructions (GPI), publicly available at www.environdec.com. A PCR complements the GPI and the normative standards by providing specific rules, requirements and guidelines for developing an EPD for one or more specific product categories (see Figure 1). A PCR should enable different practitioners using the PCR to generate consistent results when assessing products of the same product category.

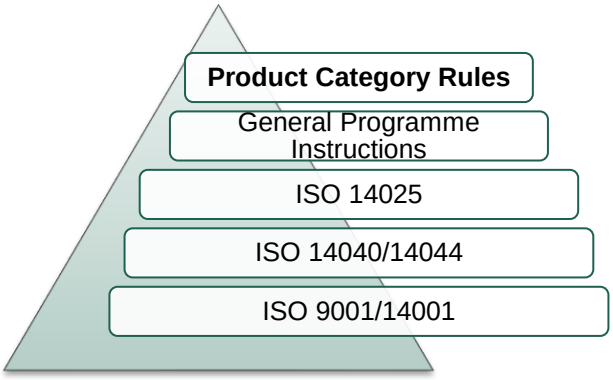


Figure 1 The hierarchy between PCRs, standards and other documents.

Within the present PCR, the following terminology is adopted:

- The term “shall” is used to indicate what is obligatory, i.e. a requirement.
- The term “should” is used to indicate a recommendation, rather than a requirement. Any deviation from a “should” requirement shall be justified in the PCR development process.
- The terms “may” or “can” is used to indicate an option that is permissible.

For definitions of further terms used in the document, see the normative standards.

A PCR is valid for a pre-determined period of time to ensure that it is updated at regular intervals. The latest version of the PCR is available at www.environdec.com. Stakeholder feedback on PCRs is very much encouraged. Any comments on this PCR may be sent directly to the PCR Moderator and/or the Secretariat during its development or during its period of validity.

Any references to this document shall include the PCR registration number, name and version.

The programme operator maintains the copyright of the document to ensure that it is possible to publish, update, and make it available to all organisations to develop and register EPDs. Stakeholders participating in PCR development should be acknowledged in the final document and on the website.

[1] Type III environmental declarations in the International EPD® System are referred to as EPDs, Environmental Product Declarations.

2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	Meat of mammals
Registration number and version:	2012:11, version 4.0.1
Programme:	The International EPD® System
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. Website: www.environdec.com E-mail: info@environdec.com
PCR Moderator:	Sonia Pignatelli, Life Cycle Engineering: pignatelli@studiolce.it
PCR Committee:	Life Cycle Engineering www.lcengineering.eu COOP Italia www.e-coop.it Inalca www.inalca.it
Date of publication and last revision:	2022-10-24 (version 4.0.1) A version history is available in Section 8.
Valid until:	2026-10-19
Schedule for renewal:	A PCR is valid for a pre-determined time period to ensure that it is updated at regular intervals. When the PCR is about to expire, the PCR Moderator shall initiate a discussion with the Secretariat how to proceed with updating the PCR and renewing its validity. A PCR may also be updated without prolonging its period of validity, provided significant and well-justified proposals for changes or amendments are presented. See www.environdec.com for the latest version of the PCR. When there has been an update of the PCR, the new version should be used to develop EPDs. The old version may however be used for 90 days after the publication date of the new version, as long as the old version has not expired.
Standards conformance:	General Programme Instructions of the International EPD® System, version 4.0, based on ISO 14025 and ISO 14040/14044
PCR language(s):	At the time of publication, this PCR was available in English. If the PCR is available in several languages, these are available at www.environdec.com. In case of translated versions, the English version takes precedence in case of any discrepancies.

2.2 SCOPE OF PCR

2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This document provides Product Category Rules (PCR) for the assessment of the environmental performance of Meat of Mammals (fresh or frozen) and the declaration of this performance by an EPD. The product category corresponds to **UN CPC 2111 Meat of mammal: fresh or chilled** and **UN CPC 2113 Meat of mammal, frozen**.

The UN CPC classification hierarchy (ver. 2.1)[2], for CPC 2111 and CPC 2113 are the following ones:

Section: 2 - Food products, beverages and tobacco; textiles, apparel and leather products

- Division: 21_- Meat, fish, fruit, vegetables, oils and fats
  - Group: 211 - Meat and meat products
    - **Class 2111 - Meat of mammals, fresh or chilled**
    - **Class: 2113 - Meat of mammals, frozen**

These Classes are divided into the following Subclasses:

Class 2111 - Meat of mammals, fresh	**Class 2113 - Meat of mammals, frozen**
21111 - Meat of cattle, fresh or chilled	21131 - Meat of cattle, frozen
21112 - Meat of buffalo, fresh or chilled	21132 - Meat of buffalo, frozen
21113 - Meat of pigs, fresh or chilled	21133 - Meat of pigs, frozen
21114 - Meat of rabbits and hares, fresh or chilled	21134 - Meat of rabbits and hares, frozen
21115 - Meat of sheep, fresh or chilled	21135 - Meat of sheep, frozen
21116 - Meat of goat, fresh or chilled	21136 - Meat of goat, frozen
21117 - Meat of camels and camelids, fresh or chilled	21137 - Meat of camels and camelids, frozen
21118 - Meat of horses and other equines, fresh or chilled	21138 - Meat of horses and other equines, frozen
21119 - Other meat of mammals, fresh or chilled	21139 - Other meat of mammals, frozen

For the purposes of this document, the terms “meat” refers to the *mammal’s animal flesh* that is used as food. In particular this means the *skeletal muscle and associated fat*, but it may not describe *other edible tissues such as organs, livers, skin, brains, bone marrow, kidneys, or lungs*.

The products belonging to the following classes (and the related subclasses) are not within the scope of this PCR:

2112_- Meat of poultry, fresh or chilled[3]

2114_- Meat of poultry, frozen

2115 - Edible offal of mammals, fresh, chilled or frozen

2116 - Edible offal of poultry, fresh, chilled or frozen

2117 - Other meat and edible offal, fresh, chilled or frozen

2118 - Preserves and preparations of meat, meat offal or blood[4]

2119 - Flours, meals and pellets of meat or meat offal, inedible

2.2.2 GEOGRAPHICAL SCOPE

This PCR may be used globally, considering that, whenever applicable by the producer, it should be specified whether the meat can be considered Halal or Kosher, i.e. if animals are slaughtered following respectively the Islamic or Hebraic principles, if it is free from prohibited components and processed using allowed machinery and procedure.

[2] https://unstats.un.org/unsd/classifications/unsdclassifications/cpcv21.pdf

[3] PCR 2010:13 of the EPD system may be used for this products within the International EPD system (http://www.environdec.com/en/PCR/Detail/pcr2010-13)

[4] PCR 2016:05 of the EPD system may be used for this products within the International EPD system (http://www.environdec.com/en/PCR/Detail/pcr2016-05)

2.2.3 EPD VALIDITY

An EPD based on this PCR shall be valid for a 5-year period starting from the date of the verification report (“approval date”), or until the EPD has been de-registered from the International EPD® System.

An EPD shall be updated and re-verified during its validity if changes in technology or other circumstances have led to:

- an increase of 10% or more of any of the declared indicators of environmental impact,
- errors in the declared information, or
- significant changes to the declared product information, content declaration, or additional environmental, social or economic information.

If such changes have occurred, but the EPD is not updated, the EPD owner shall contact the Secretariat to de-register the EPD.

3 PCR REVIEW AND BACKGROUND INFORMATION

This PCR was developed in accordance with the PCR development process described in the GPI of the International EPD® System, including open consultation and review.

3.1 OPEN CONSULTATION

3.1.1 VERSION 1.0

This PCR was available for open consultation from 2011-08-22 until 2011-10-06, during which any stakeholder was able to provide comments by posting on the PCR forum on www.environdec.com or by contacting the PCR moderator.

Stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders.

3.1.2 VERSION 1.1

This PCR was available for open consultation from 2012-06-12 until 2012-09-07, during which any stakeholder was able to provide comments by posting on the PCR forum on www.environdec.com or by contacting the PCR moderator.

Stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders.

3.1.3 VERSION 2.0

This PCR was available for open consultation from 2013-03-04 until 2013-07-04, during which any stakeholder was able to provide comments by posting on the PCR forum on www.environdec.com or by contacting the PCR moderator.

Stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders.

3.1.4 VERSION 3.0

This PCR was available for open consultation from 2017-06-15 until 2013-07-04, during which any stakeholder was able to provide comments by posting on the PCR forum on www.environdec.com or by contacting the PCR moderator.

Stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders.

3.1.5 VERSION 4.0

This PCR was available for open consultation from 2022-02-02 until 2022-04-04, during which any stakeholder was able to provide comments by contacting the PCR Moderator and/or the Secretariat.

Stakeholders were invited via e-mail or other means to take part in the open consultation and were encouraged to forward the invitation to other relevant stakeholders. The following stakeholders provided comments during the open consultation and agreed to be listed as contributors in the PCR and at www.environdec.com.

- Dr. Ing Javier Martin Echazarreta, Instituto Nacional de Tecnología Industrial.

3.2 PCR REVIEW

3.2.1 VERSION 1.0 AND 2.0

Previous versions of the PCR were reviewed by the Technical Committee of the International EPD System.

3.2.2 VERSION 3.0

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members is available at www.environdec.com. The review panel may be contacted via info@environdec.com. Members of the Technical Committee were requested to state any potential conflict of interest with the PCR Committee, and if there were conflicts of interest they were excused from the review.
Chair of the PCR review:	Adriana Del Borghi
Review dates:	2018-01-09 until 2018-02-19

3.2.3 VERSION 4.0

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members is available at www.environdec.com. The review panel may be contacted via info@environdec.com. Members of the Technical Committee were requested to state any potential conflict of interest with the PCR Committee, and if there were conflicts of interest they were excused from the review.
Chair of the PCR review:	Maurizio Fieschi
Review dates:	2022-09-06 until 2022-10-07

3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

As part of the development of this PCR, existing PCRs and other internationally standardized methods that could potentially act as PCRs were considered to avoid unnecessary overlaps in scope and to ensure harmonisation with established methods of relevance for the product category. The existence of such documents was checked among the following EPD programmes and international standardisation bodies:

International EPD® System. www.environdec.com.

JEMAI EcoLeaf www.ecoleaf-jemai.jp

JEMAI CFP Program www.cfp-japan.jp/english

Product Environmental Footprint (PEF) www.ec.europa.eu/environment/eussd/smgp

IBU EPD https://ibu-epd.com/en/published-epds/

EPD Italy https://www.epditaly.it/il-programma-epditaly/

There are no other existing PCR for this product category in other programmes based on ISO 14025.

3.4 REASONING FOR DEVELOPMENT OF PCR

This PCR was developed to enable publication of EPDs for this product category based on ISO 14025, ISO 14040/14044 and other relevant standards to be used in different applications and target audiences. The PCR enables different practitioners to generate consistent results when assessing the environmental impact of products of the same product category, and thereby it supports comparability of products within a product category.

This PCR has been developed to allow the development and maintenance of EPDs of Mammals' Meat and to be a reference for the PCRs on processed meat products.

3.5 UNDERLYING STUDIES USED FOR PCR DEVELOPMENT

The methodological choices made during the development of this PCR (declared/functional unit, system boundary, allocation methods, impact categories, data quality rules, etc.) were primarily based on the following underlying studies:

The document IDF, Bulletin 479/2015 has been used as reference for the definition of the biophysical allocation rules as well as the baseline methodologic approach produced by the Cattle Model Working Group (CMWG) aimed at supporting the work of the already discontinued Pilot for PEFCR for Red Meat development. IPCC Guidelines for National Greenhouse Gas Inventories has been used as reference for the definition of the methodology related to manure management and emissions.

Environmental Product Declarations published by COOP and INALCA companies

Footprint Category Rules Red Meat, version 1.1 (1/2020), Technical Secretariat for the Red Meat Pilot, developed by the European Livestock and Meat Trades Union (UECBV)

4 GOAL AND SCOPE, LIFE CYCLE INVENTORY AND LIFE CYCLE IMPACT ASSESSMENT

The goal of this section is to provide specific rules, requirements and guidelines for developing an EPD for the product category as defined in Section 2.2.1.

4.1 DECLARED UNIT

The declared unit (DU) shall be defined as 1 kg of product, including its packaging. The reference flow in the Life Cycle Assessment shall be defined at the customer gate, at the shelf or the retailer or at the marketplace.

The weight of packaging is not included in the weight of the DU but in scope of the analysis. Following details are important for the DU definition:

the declared unit is pure meat (chilled or frozen) and it does not include bones or other not edible parts;

the live weight, the carcass yield and the boning yield considered to produce edible meat shall be declared in the EPD document.

The DU shall be stated in the EPD. The environmental impact shall be given per DU. A description of the function of the product should be included in the EPD®, if relevant.

4.2 TECHNICAL SPECIFICATION, LIFESPAN AND REFERENCE SERVICE LIFE (RSL)

Not applicable for this product category.

4.3 SYSTEM BOUNDARY

The scope of this PCR and EPDs based on it is “cradle to grave”.

For intermediate products or other products for which further processing and/or the end use is unknown, the system boundary may be limited to “cradle to gate”. In such cases, it shall be specified in the EPD document.

All environmentally relevant processes from “cradle to grave” should be included, so that at minimum 99% of the total energy use, mass of product content, and environmental impact is accounted for (see Section 4.5).

4.3.1 LIFE-CYCLE STAGES

For the purpose of different data quality rules and for the presentation of results, the life cycle of the product is divided into three life cycle stages:

- Upstream processes (from cradle-to-gate)
- Core processes (from gate-to-gate)
- Downstream processes (from gate-to-grave)

In the EPD, the environmental performance associated with each of the three life-cycle stages above shall be reported separately and in aggregated form. The processes included in the scope of the PCR and belonging to each life cycle stage are described in Sections 4.3.1.1–4.3.1.3.

4.3.1.1. Upstream processes

The following unit processes are part of the product system and shall be classified as upstream processes:

- Animal breeding (including enteric fermentation and manure management),
- Feed production (e.g., cultivation, harvest and refining),
- Production of semi-products used in the core process, if applicable,

- Production of other ingredients as spices and additives used in the product, if applicable,
- Production of auxiliary products used, e.g., detergent for cleaning,
- production of distribution and consumer packaging. If part of the production of the consumer packaging (see ISO 21067-1:2016, Section 2.2.7) is part of the manufacturing process, it may be more relevant to include it as part of the core processes.
- generation of electricity and production of fuels, steam and other energy carriers used in upstream processes.

Upstream processes not listed may also be included. All elementary flows at resource extraction shall be included, except for the flows that fall under the general cut-off rule in Section 4.5.

4.3.1.2. Core processes

The following unit processes are part of the product system and shall be classified as core processes:

- transportation of the animals from farm to slaughterhouse,
- transportation of materials and components to the manufacturing of the product under study,
- slaughterhouse activities,
- preparation of the final product (e.g., transformation and milling of meat, filling and packaging of the final product)
- manufacturing of the product under study,
- end-of-life treatment of manufacturing waste, even if carried out by third parties, including transportation,
- treatment of wastewater generated during slaughterhouse process,
- generation of electricity and production of fuels, steam and other energy carriers used in core processes.

Core processes not listed may also be included. Manufacturing of a minimum of 99% of the total weight of the declared product including packaging shall be included.

The following processes shall not be included:

- manufacturing of production equipment, buildings and other capital goods,
- business travel of personnel,
- travel to and from work by personnel, and
- research and development activities.

4.3.1.3. Downstream processes

The following unit processes are part of the product system and shall be classified as downstream processes:

- transportation of the product to retailer/consumer or to a distribution platform,
- refrigeration of the product along the distribution chain,
- end-of-life processes of any wasted part of the product over the distribution chain,
- end-of-life processes of packaging waste over the distribution chain,
- refrigeration of the product at consumer home, if applicable,
- end-of-life processes of any wasted part of the product at consumer home (domestic food losses, e.g., fat, tendon, gut),
- end-of-life processes of packaging waste at consumer home,
- Cooking or heating of the product, if applicable,
- generation of electricity and production of fuels, steam and other energy carriers used in downstream processes.

4.3.2 OTHER BOUNDARY SETTING

4.3.2.1. Boundary towards nature

Boundaries to nature are defined as where the flows of material and energy resources leaves nature and enters the technical system (i.e. the product system). Emissions cross the system boundary to nature when they are emitted to air, soil or water.

4.3.2.2. Boundary towards other technical systems

Boundaries towards other technical systems define the flow of materials and components to/from the product system under study and from/to other product systems. If there is an inflow of recycled material to the product system in the production/manufacturing stage, the transport from the scrapyard/collection site to the recycling plant, the recycling process, and the transportation from the recycling plant to the site where the material is being used shall be included. If there is an outflow of material or component to recycling, the transportation of the material to the scrapyard/collection site shall be included. The material or component going to recycling is then an outflow from the product system.

See Section 4.6 for further guidance.

4.3.2.3. Temporal boundary

The temporal boundary defines the time period for which the life cycle inventory data is recorded, e.g. for how long emissions from waste deposits are accounted. As default, the time period over which inputs to and outputs from the product system is accounted for shall be 100 years from the year that the LCA model best represents, considering the representativeness of the inventory data. This year shall, as far as possible, represent the year of the publication of the EPD.

4.3.2.4. Geographical boundary

The geographical boundary defines the geographical coverage of the LCA. This shall reflect the physical reality of the product under study, accounting for the representativeness of technology, input materials and input energy.

4.4 SYSTEM DIAGRAM

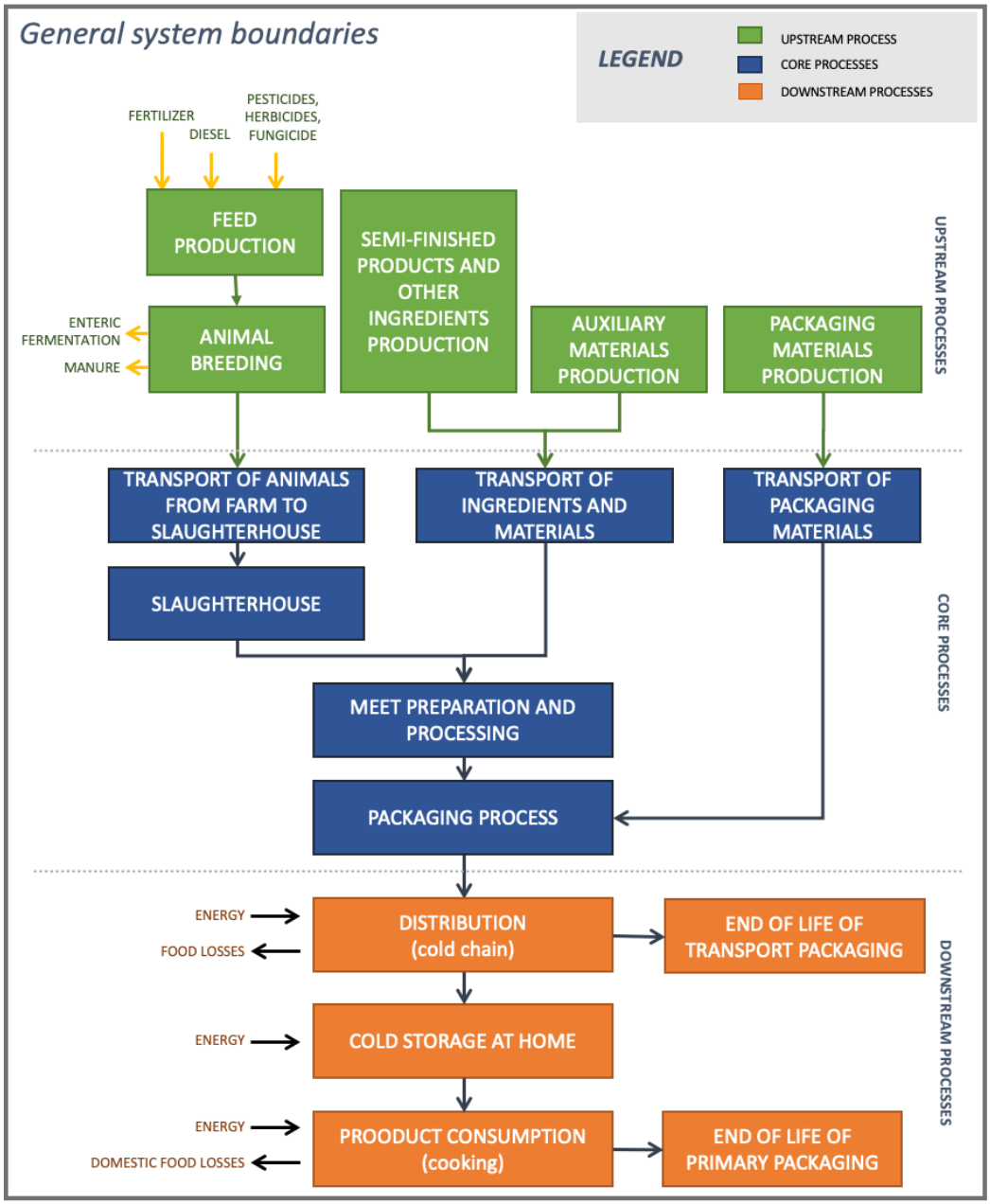


Figure 2 System diagram illustrating the processes that shall be included in the product system, divided into upstream, core and downstream processes. The illustration of processes to include may not be exhaustive. If any omissions of life cycle stages are made, it shall be indicated in order to make the EPD® cover the full cradle-to-grave perspective

4.5 CUT-OFF RULES

A cut-off rule of 1% shall be applied. In other words, the included inventory data (not including inventory data of processes that are explicitly outside the system boundary as described in Section 4.3) shall together give rise to at least 99% of the results of any of the environmental impact categories. Also, 99% of the mass of the product content and 99% of the energy use of the product life cycle shall be accounted for. The cut-off of inventory data should, however, be avoided, and all available inventory data shall be used.

The cut-off of inventory data, based on the above cut-off rule, should be an output of a sensitivity analysis, alone or in combination with expert judgment based on experience of similar product systems. Further, the cut-off shall be possible to verify in the verification process, hence the exclusion of inventory data based on the cut-off rule shall be documented in the LCA report, and the EPD developer shall provide the information the verifier considers necessary to verify the cut-off.

4.6 ALLOCATION RULES

Allocation can be divided into allocation of co-products, i.e. allocation of unit processes that generate several products, and allocation of waste, i.e. allocation of unit processes that generate materials that are, for example, landfilled recovered, recycled or reused, and which require further processing to cease being waste and become products (see criteria for end-of-waste state in Section 4.6.2).

The principles for allocation of co-products and allocation of waste are described separately in the following subsections

4.6.1 CO-PRODUCT ALLOCATION

The following hierarchy of allocation methods shall be followed for co-product allocation:

1. Allocation shall be avoided, if possible, by dividing the process to be allocated into sub-processes and collecting the inventory data for each sub-process.
2. If allocation cannot be avoided, the inventory data should be partitioned between the different co-products in a way that reflects the underlying physical relationships between them, i.e. allocation should reflect the way in which the inventory data changes if the quantities of delivered co-products change. Products not compliant to the quality requirements and other by-products (e.g., peels, seeds, crop residues) sold as pet and livestock feed shall be considered as by-products.
3. If a physical relationship between the inventory data and the delivery of co-products cannot be established, the inventory data should be allocated between the co-products in a way that reflects other relationships between them. For example, inventory data might be allocated between co-products in proportion to their economic values. If economic allocation is used, a sensitivity analysis exploring the influence of the choice of the economic value shall be included in the LCA report.

For key processes in the product system, Table 1 provides specific allocation guidance.

PROCESS	MAIN PRODUCT AND CO-PRODUCTS	ALLOCATION METHOD
Feed production	Feed products	Refer to: - 2016:03 Preparations used in animal feeding for food-producing animals - PCR 2020:07 Arabe and vegetable crop PCR 2013:04 Grain mill products
Production of meat from reproductive mammals (e.g., meat from dairy cows at end of career, etc)	See Par. 4.6.1.1	See Par. 4.6.1.1
Slaughterhouse activities	See Par. 4.6.1.2	See Par. 4.6.1.2

Table 1 Allocation method for key processes in the product system

4.6.1.1. Co-product allocation procedures for meat production

DEFINITION

Before delving further into the subject, it may be necessary to define several terms that can aide in illustrating the calculation rules. Below is a definition of the following terms for the purpose of the present PCR:

*Mammal***:** non-reproducing mammal destined to meat production (ex. calf in cow meat farming);

*Reproductive mammal***:** mammal of female gender that has reproduced and that at end of career (when no longer destined to reproduction and/or milk production) is destined to meat production (ex. reproductive cow in cow meat farming).

*Economic value***:** product (or co-product) wholesale price that is object of the allocation.

Biophysical allocation: allocation method aligned with ISO14044 that reflects the underlying use of feed energy by the (dairy) animals and the physiological feed requirements of the animal to produce milk and meat (IDF, Bulletin 479/2015, Section 6.3.3, *Allocation – Production of milk and meat*)

ALLOCATION PROCEDURES FOR FARM PRODUCTION CHAINS

Given that both *Mammals* and *Reproductive Mammals* can be destined for slaughter, it is necessary to clarify production chain cycles. Meat chain co-products may vary in relation to the type of mammal considered; and may come in the form of food products or miscellaneous goods; below is an indicative and non-comprehensive example:

MAMMAL TYPOLOGY	CO-PRODUCTS
Cow	Meat
	Milk
	Leather
Sheep	Meat
	Milk
	Wool
Pig	Meat
Goat	Meat
	Milk

In all cases, impact allocation for all products and co-products shall be done considering the allocation method proposed by the International Dairy Federation in 479/2015 Bulletin and also reported in PCR 2021:08 for Dairy products (v 1.0). All cases must contemplate that the impacts of the male breeding mammal's lifecycle are not accounted for.

Meat from dairy farm systems (e.g. Meat from cull dairy cows at end of career)

For the **dairy farm system** where the focus is milk production, the meat generated from surplus calves and cull dairy cows is an important co-product and it is one of the projects that this PCR is referred to.

When the object of the analysis is meat from cull dairy cow, the impacts that shall be considered are the following (see *Figure 3*):

impacts of the reproductive mammal's lifecycle before entering in the reproduction phase; in this case, the impact shall be allocated on the biophysical basis to all the products (i.e. reproductive mammals' meat at the end of career - milk, surplus calves) generated during the entire life cycle of the reproductive mammal. The impacts to be taken into consideration are those related to (e.g. dairy cow) meat;

the impacts of the reproductive mammal's lifecycle starting from the last breeding phase up to its slaughter.

When the object of the analysis is, instead, meat coming from veal calves, the impacts that shall be considered are:

impacts of the reproductive mammal's lifecycle before entering in the reproduction phase; in this case, the impact shall be allocated on the biophysical basis to all the products (i.e. reproductive mammals' meat at the end of career - milk, surplus calves) generated during the entire life cycle of the reproductive mammal. The impacts to be taken into consideration are those related to (e.g. surplus calves) meat;

mammal (e.g. surplus calf) lifecycle environmental impact.

For products deriving from dairy farm systems it is therefore necessary to determine total emissions and to allocate them between **milk** and **meat**.

The allocation factor for milk (AF_{milk}) shall be calculated as follows:

$$AF_{milk} = 1 - 6.04 \times \frac{M_{meat}}{M_{milk}}$$

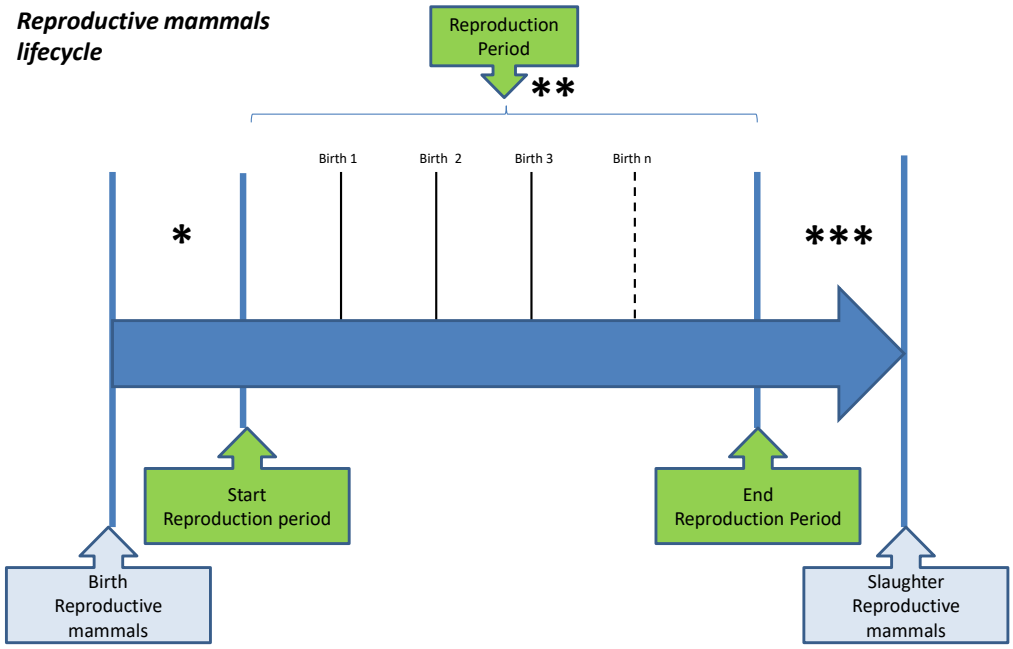
Where M_{meat} is the mass of live weight of all animals sold including bull calves and culled mature animals per year, and M_{milk} is the mass of fat and protein corrected milk sold per year (corrected to 4% at and 3,3% protein).

M_{milk} is calculated by multiplying milk production (per farm) by the ratio of the energy content to the energy content of standard milk 4% fat and 3.3% true protein content, using the following formula:

$$\text{Mmilk} = \ Milk\ production\ \times [0.1226 \times Fat\% + 0{,}0776 \times True\ Protein\% + 0.2534]$$

Then it is possible to calculate the allocation factor for meat AF_{meat}:

$$AF_{meat} = 1 - AF_{milk}$$



•Phase contemplated for the impact calculations of Mammals Meat and Reproductive Mammal meat (contemplating allocating with any products and co-products)
**Phase attributed to meat from mammals produced (contemplating allocating with any co-products)
*** Phase contemplated only impact calculations of Reproductive Mammal meat

Figure 3 Reproductive mammal lifecycle

Meat from mammals – coming from systems devoted to meat production only (e.g. cattle meat)

In this case, the mammal is the object of meat transformation processing and the impacts that shall be considered are (see *Figure 4*):

part of impacts of the reproductive mammal's lifecycle before entering in the reproduction phase; in this case, the impact shall be allocated on the biophysical basis to the meat products generated during the entire life cycle of the reproductive mammal products (i.e. generated mammals' meat and reproductive mammal's meat);

impact of the reproductive mammal lifecycle phase dedicated to the reproduction and nurturing of mammals, considering the total amount of produced meat (from the generated mammals and the reproductive mammal itself) following the biophysical allocation approach;

mammal lifecycle environmental impact.

Below there is a couple of examples of calculations about meat from dairy cows and calves that may serve as reference.

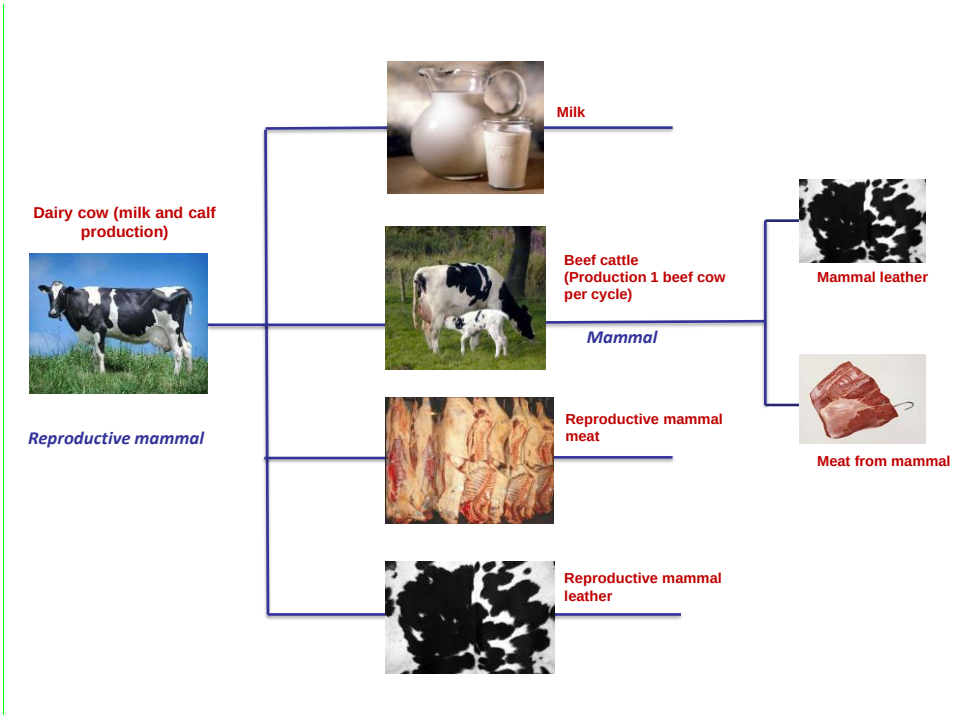


Figure 4 Example of product and co-product related to Dairy cow

Calculation examples (Data are purely indicative)

As support to using the allocation rules proposed, this PCR provides a sample calculation below that uses estimates intended to support this illustration of calculation method (Figure 4).

Before going into details of calculation, base hypotheses are made regarding the overall impacts associated with the life of the animal (data per head and for entire life), as well as the amount of useful products in terms of bulk.

The two calculation examples respectively regard:

the production of meat from the cull dairy cow (reproductive mammal)

the production of veal meat from surplus calves (mammal)

	TYPE OF MAMMAL		ACRONYM	KG CO_2 EQUIVALENT PER HEAD
IMPACT FOR ENTIRE LIFE CYCLE DATA PER HEAD)	Cow (mammal)		ML	1 350
	Milk and reproduction cow (reproductive animal)	Impact since birth → start reproduction phase	RL1	2 000
		Impact of Reproduction Phase (5 parts)	RL2	15 000
		Impact End of Reproduction phase → Slaughter	RL3	1 000

	TYPE OF MAMMAL	PRODUCT	ACRONYM	MASS VALUE
PRODUCTION QUANTITY (DATA PER HEAD)		NO. CALVES BORN	NB	3 CALVES DURING REPRODUCTION PERIOD

	Milk cow that produces calves (reproductive mammals)			(1 CALF PER CYCLE)
		VEAL SOLD	RB	50 KG LIVE WEIGHT (AS NEW BORN CALVES)
		MEAT FROM SLAUGHTER OF END-OF-LIFE DAIRY COW	RMM	650 KG LIVE WEIGHT
		MILK PRODUCED	RMK	25 000 LITRES/COW LIFE CYCLE

The environmental impact shall be evaluated using the IDF methodology described above and calculating factors AF_{milk} and AF_{meat} reported in the table below.

Calculation of allocation factor $AF_{milk\,1}$ and $AF_{meat\,1}$ for the phase RL1 (impact since birth → start reproduction phase)	*Calculation of allocation factor $AF_{milk\,2}$ and $AF_{meat\,2}$ for the phase RL2 (impact of reproduction phase)*
$M_{milk} = 24\,997\ liters$	$M_{milk} = 24\,997\ liters$
$M_{meat\,1} = 650 + 50\ \times\ 4 = 850\ kg$ (dairy cow + calves)	$M_{meat\,2} = 50\ \times\ 4 = 200\ kg$ (calves)
$AF_{milk\,1} = 1 - 6.04\ \times \frac{M_{meat}}{M_{milk}}$ = $1 - 6.04\ \times \frac{850}{24{,}997}$= 80%	$AF_{milk\,2} = 1 - 6.04\ \times \frac{M_{meat\,2}}{M_{milk\,2}}$ = $1 - 6.04\ \times \frac{200}{24{,}997}$= 95%
$AF_{meat\,1} = 1 - 0{,}8$ = 20%	$AF_{meat\,2} = 1 - 0{,}95$ = 5%

Culled dairy cow meat:

$RL1 * AF_{meat\,1} + RL3$ = 2 000 x 0,2 + 1 000 = 1 400 kg CO_2 eq

Total impact (1 400 kg CO_2 eq) shall be divided by total weight of meat produced from the slaughtering of cull dairy cow (290 kg carcass weight): 4.8 kg CO_2 eq

Surplus calf (veal) meat:

ML + RL1 x $AF_{meat\,1}$ + $\frac{RL2 \times AF_{meat\,2}}{NB}$ = 1 350 + 2 000 x 0,2 + (15 000 x 0,05) / 3 = 2 000 kg CO_2 eq

Total impact (2 000 kg CO_2 eq) shall be divided by weight of meat produced from one calf (150 kg carcass weight): 13,3 kg CO_2 eq

4.6.1.2. Co-product allocation procedures for slaughterhouse activities

The possible co-products of slaughterhouse activities are quite different in meat production systems (e.g., meat, leather, fat, etc.) and may vary from one considered species to another; mass allocation is problematic as the outputs (in terms of mass) aren't linearly related to the mass of inputs.

The chosen allocation method for this PCR is the economic allocation[5]. The impact for each meat product and sub-product that exit the slaughterhouse shall be evaluated considering their average economic value. The latter shall be calculated considering the economic values over the last 3 years, with annual verification of updates; these values shall be available in the LCA Report during EPD verification, along with a description of sources and main hypotheses done for the calculation.

[5] Economic allocation is also suggested by the CMWG Guidelines, Appendix 8 Meat Processing (See Section 0 for further details)

The following breakdown list represent the main considered products and by-products[6] exiting the slaughterhouse plant:

a. Fresh meat and products suitable for human consumption
b. Hides and skins, sold to leather industry
c. Products sold for rendering (e.g., fat)
d. Specified risk material (e.g., skull, spinal cord, etc. considered category I by-products, sent to incineration)
e. Products not suitable for human consumption (category II by- products sent to recovery/energy plants)
f. Products for animal feed applications, such as pet food or feed or to compost (category III by- products sent to recovery)

Below there is an example of indicative and non-comprehensive list that may serve as reference for allocation procedure in bovine slaughterhouse plants.

Data on slaughterhouse activities shall be specific for the animal species under study. Key assumptions shall be documented.

#	Product/Co-products (example for bovine slaughterhouse)	Note
a	Meat and edible products suitable to human consumption	-
b	Hides and skins	-
c	Fat	-
d	By-products – cat. I (incineration)	The incineration impact of this residues is wholly attributed to the studied system
e	By-products – cat. II (to recovery)	Recycled by-products *no environmental burdens attributed to the studied system deriving from their recovery*
f	By-products – cat. III (to recovery)	

Table 2 - Breakdown list of animal products and by-product for bovine meat

4.6.2 ALLOCATION OF WASTE TREATMENT PROCESSES

Allocation of waste shall follow the polluter pays principle and its interpretation in EN 15804: “processes of waste processing shall be assigned to the product system that generates the waste until the end-of-waste state is reached.” The end-of-waste state is reached when all the following criteria for the end-of-waste state are fulfilled (adapted from EN 15804):

- the recovered material, component or product is commonly used for specific purposes;
- a market or demand, identified e.g. by a positive economic value, exists for such a recovered material, component or product;
- the recovered material, component or product fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and
- the use of the recovered material, product or construction element will not lead to overall adverse environmental or human health impacts.

The above outlined principle means that the generator of the waste shall carry the full environmental impact until the point in the product life cycle in which the end-of-waste criteria are fulfilled. Waste may have a negative economic market value, and then the end-of-waste stage is typically reached after (part of) the waste processing and further refinement, at the point at which the waste no

[6] The management of animal by-products not intended for human consumption in European slaughterhouses is regulated by: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32002R1774. It could be considered as representative as the global average management situation: high-risk wastes potentially infected with BSE require high-temperature incineration, whilst other low-risk materials can be rendered to produce fuel or recycled as animal feeds and pet food (World Bank study, 2009, see Section 0 for further details)

longer has a negative market value. This allocation method is (in most cases) in line with a waste generator's juridical and financial responsibilities. See the GPI for further information and examples.

4.7 DATA QUALITY REQUIREMENTS AND SELECTION OF DATA

Life cycle inventory data are classified into specific data and generic data, where the latter can be selected generic data or proxy data. The data categories are defined as follows:

- specific data (also referred to as "primary data" or "site-specific data"):
  - data gathered from the actual manufacturing plant where product-specific processes are carried out;
  - actual data from other parts of the life cycle traced to the product under study, for example site-specific data on the production of materials or generation of electricity provided by contracted suppliers, and transportation data on distances, means of transportation, load factor, fuel consumption, etc., of contracted transportation providers; and
  - LCI data from databases on transportation and energyware that is combined with actual transportation and energy parameters as listed above.
- generic data (sometimes referred to as "secondary data"), divided into:
  - selected generic data: data (e.g. commercial databases and free databases) that fulfil prescribed data quality requirements for precision, completeness, and representativeness (see below Section 4.7.1),
  - proxy data: data (e.g. commercial databases and free databases) that do not fulfil all of the data quality requirements of "selected generic data".

Specific data shall be used for the core processes. Specific data shall be used for upstream and downstream processes, when available, otherwise generic data may be used. Generic data should be used in cases in which they are representative for the purpose of the EPD, e.g. for bulk and raw materials on a spot market, if there is a lack of specific data on the final product or if a product consists of many components.

4.7.1 RULES FOR USING GENERIC DATA

For generic data to be classified as "selected generic data", the following requirements apply:

- datasets shall be based on attributional LCA modelling (e.g., not be based on marginal data and not include credits from system expansion),
- the reference year shall be as current as possible and should be representative for the validity period of the EPD,
- the 1% cut-off rule (as described in Section A.3.3) shall be met on the level of the product system,
- datasets shall represent average values for a specific reference year; however, how data are generated could vary, e.g. over time, and then they should have the form of a representative annual average value for a specified reference period (such deviations shall be justified and declared in the EPD), and
- the representativeness of the data shall be assessed to be better than ±5%, in terms of the environmental impact calculated on the basis of the data, of data that is fully representative for the given temporal, technological and geographical context.

If selected generic data that meets the above data quality requirements are not available, proxy data may be used. The environmental impacts associated with proxy data shall not exceed 10% of the overall environmental impact of the product system.

The EPD may include a data quality declaration to demonstrate the share of specific data, selected generic data and proxy data contributing to the results of the environmental impact indicators.

4.7.2 EXAMPLES OF DATABASES FOR GENERIC DATA

Table 3 lists examples of databases and datasets to be used for generic data. Please note that a data quality assessment shall be performed also for data listed in the table, and that other data that fulfil the data quality requirements may also be used. The geographical scope of data should be taken into consideration.

PROCESS	GEOGRAPHICAL SCOPE	DATASET	DATABASE

Ingredients and farming stage	Several (including global)		Agrifootprint 5.0, Ecoinvent 3. 6, Wold Food LCA Database (or latest versions)
Other raw materials	Several (including global)		Ecoinvent 3. 6(or latest versions)
Energy	Several (including global)		Ecoinvent 3.6 (or latest version)
Aluminium	Europe		EAA (European Aluminium Association)
Steel	Several (including global)		Worldsteel
Plastic materials (packaging)	Several (including global)		Industry data/ Plastics Europe, Ecoinvent 3.6 (or latest version)

Table 3 Examples of databases and datasets to use for generic data.

4.7.3 DATA QUALITY REQUIREMENTS AND OTHER MODELLING GUIDANCE PER LIFE-CYCLE STAGE

Below are further data quality requirement per life-cycle stage. Exceptions to the requirements may be accepted, if justified in the EPD; such exceptions are subject to the approval by the verifier on a case-to-case basis.

4.7.3.1. Upstream processes

- Data referring to processes and activities upstream in a supply chain over which the EPD owner direct management control shall be specific and collected on site. The main important phases are the following:
  - **Cultivation**. This phase includes e.g. air and water emissions and emissions from energy wares used in the agriculture as well as emissions related to fertilization activities -both production and use- (i.e. N_2O and NH3). If primary data are available, for the modelling of feed production at farm, refer to the PCR 2013:05 *Arable crops*[7] of the International EPD system.
  - **Feed product preparation**. If primary data are available for this phase, refer to the PCRs 2013:04 *Grain mill products*[8] and 2016:03 *Preparations used in animal feeding for food producing animals*[9] of the International EPD system.
  - **Animal breeding including the farm management** (i.e. energy consumption, waste production, water consumption), enteric fermentation and the manure management.
  - **Manufacturing of packaging** (primary, secondary and tertiary); quantities lower than 1 g per DU could be excluded from the system.
- Data referring to contractors that supply main parts, packaging, or main auxiliaries should be requested from the contractor as specific data, as well as infrastructure, where relevant.
- Data on transport of main parts and components along the supply chain to a distribution point (e.g. a stockroom or warehouse) where the final delivery to the manufacturer can take place, should be specific and based on the actual transportation mode, distance from the supplier, and vehicle load.
- In case specific data is lacking, selected generic data may be used. If this is also lacking, proxy data may be used (see Section 4.7).
- For upstream processes modelled with specific data, generation of electricity used shall be accounted for in this priority:

[7] http://www.environdec.com/en/PCR/Detail/?Pcr=8804

[8] http://www.environdec.com/en/PCR/Detail/pcr2013-04

[9] http://www.environdec.com/en/PCR/Detail/pcr2016-03

1. Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a Guarantee of Origin or similar as provided by the electricity supplier.
2. Residual electricity mix of the electricity supplier on the market.
3. Residual electricity mix on the market.
4. Electricity consumption mix on the market.
5. National electricity production mix.

The residual electricity mix is the mix when all contract-specific electricity that has been sold to other customers has been subtracted from the total consumption mix.

"The market" in the above hierarchy may correspond a national electricity market, if this can be justified.

The mix of electricity used in upstream processes shall be documented in the EPD, where relevant.

- Packaging: specific data shall be used for the consumer packaging production if it is under the direct control of the organization or if the environmental impact related to the consumer packaging production is more than 10% of the total product environmental indicators. In other cases, generic data may be used. When consumer packaging shows the organization's logo, the LCA report should report the exerted/non-exerted direct control on the production of consumer packaging by the organization. The PCR 2019:13 for packaging should be considered for the assessment of this phase.

ANIMAL BREEDING

The phase of animal breeding represents another relevant environmental aspect of the meat production system.

- The animal breeding phase includes:
- Energy consumption related to farm management (e.g. electricity consumption and fuel used);
- Consumption of raw materials (detergent consumption and any other auxiliary materials used for farm management)
- Water consumption;
- Generation of waste divided according to its destination (landfill, recycling or any other destination)
- Emissions associated to enteric fermentation
- Emission related to manure management.

ENTERIC FERMENTATION

- Enteric fermentation is a digestive process by which carbohydrates are broken down by micro-organisms into simple molecules for absorption into the bloodstream; the process generates methane as a by-product.
- The amount of methane that is released depends on the type of digestive tract, age and weight of the animal, and quality and quantity of the feed consumed.
- If site-specific data are not available, data could be evaluated considering literature references or referring to the emission factors reported in the last available version of IPCC Guidelines for National Greenhouse Gas Inventories10 (Tier 2 methodology -instead of Tier 1 - shall be preferably used to evaluate the specific enteric fermentation value).
- The specific value referred to the emission from the enteric fermentation of animals used for the study shall be declared in the EPD® document. A description of data sources as well as the main hypotheses done for the evaluation of the enteric fermentation shall be available in the LCA Report.

MANURE, SLURRY MANAGEMENT

- At farm level, the manure/slurry management represents a key issue that must be deeply analysed in order to evaluate the environmental impact of meat production system.
- It is usually associated with the emission of greenhouse gases, with particular regard to methane (CH4) and nitrous oxide (N2O).

[10] In 2021 the latest guidelines are the following: 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Chapter 10 and Chapter 11 (available at https://www.ipcc-nggip.iges.or.jp/public/2019rf/vol4.html).

- If specific data are not available, data could be evaluated considering the methodology reported in the last version of the IPCC Guidelines for National Greenhouse Gas Inventories11. The Guidelines provides guidance on estimating the quantities of greenhouse gases which are emitted in function of the specific manure management system.
- As regard the emission of ammonia (NH3) if specific inventory national data are not available, data could be evaluated considering the methodology reported in the EMEP/EEA air pollutant emission inventory Guidebook11. The Guidelines provides guidance on estimating the quantities of ammonia which are emitted for animal husbandry and manure management.
- One of the following scenarios shall be taken into account for manure management:
- If it is used within the farm, both emissions related to manure management and emissions due to manure field spreading shall be accounted within the system boundaries,
- if it is used outside the farm, only manure management emissions inside the farm shall be considered, and
- if it is considered as waste, impacts related to landfill (and possibly incineration) shall be accounted for.
- These values shall be available in the LCA Report during EPD verification, along with a description of sources and main hypotheses done for the calculation.

Any deviations from these rules must be declared in the LCA and in the EPD.

4.7.3.2. Core processes

- Transport from the final delivery point of raw materials, chemicals, main parts, and components (see above regarding upstream processes) to the manufacturing plant/place of service provision should be based on the actual transportation mode, distance from the supplier, and vehicle load, if available.
- Specific data shall be used for the assembly of the product and for the manufacture of main parts as well as for on-site generation of steam, heat, electricity, etc., where relevant, including the refrigeration of the product and/or the semi-finished product at storage stage, if applicable.
- For electricity used in the core processes, generation of electricity used shall be accounted for in this priority:
    1. Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a Guarantee of Origin or similar as provided by the electricity supplier.
    2. Residual electricity mix of the electricity supplier on the market.
    3. Residual electricity mix on the market.
    4. Electricity consumption mix on the market. This option shall not be used for electricity used in processes over which the manufacturer (EPD owner) has direct control[12].
    5. National electricity production mix

  The residual electricity mix is the mix when all contract-specific electricity that has been sold to other customers has been subtracted from the total consumption mix.

  “The market” in the above hierarchy may correspond a national electricity market, if this can be justified.

  The mix of electricity used in the core processes shall be documented in the EPD, where relevant.
- Waste treatment processes of manufacturing waste should be based on specific data, if available.

4.7.3.3. Downstream processes

The downstream module shall be based on relevant scenarios for the geographical area in which the EPD® is valid.

[11] Environmental European Agency - EMEP/EEA air pollutant emission inventory guidebook (2009) - Technical report No 9/2009 – Chapter 4.B. Manure Management. http://www.eea.europa.eu/publications/emep-eea-emission-inventory-guidebook-2009

[12] For electricity markets without trade of Guarantees of Origin (or similar), the residual mix will, however, be identical to the consumption mix.

- The use of electricity in the region/country where the product is stored (as specified in the geographical scope of the EPD) shall be accounted for in the following priority:

    1. Residual electricity mix on the market.
    2. Electricity consumption mix on the market.
    3. National electricity production mix.

  The residual electricity mix is the mix when all contract-specific electricity that has been sold to other customers has been subtracted from the total production mix.

  "The market" in the above hierarchy may correspond a national electricity market, if this can be justified.

  The mix of electricity used in the downstream processes shall be documented in the EPD, where relevant.

DISTRIBUTION

- Transport: the transport of the product to the customer shall be described in the EPD, where relevant, and be accounted for in this priority:

    1. Actual transportation modes and distances to specific a customer or market, representing the geographical scope of the EPD.
    2. A weighted average of transportation modes and distances, based on transportation to several customers or markets, representing the geographical scope of the EPD.
    3. Calculated as a fixed long transport, according to product type, with the following hypothesis:
        a. Local supply chain: 1'200 km by truck
        - Refrigerated: 28-32 t, cooled, EURO 5;

        b. Intracontinental supply chain: 3'500 km by truck
        - Refrigerated: 28-32 t, cooled, EURO 5;

- Distribution losses: default loss rates during distribution (due to broken product, not returning to the manufacturer) can be assumed to be 5%; the raw material input quantity in the manufacturing stage shall be increased considering this.
- Cold or Frozen Storage: If the product needs a cold storage for preserving its shelf life, the environmental impacts related to this process shall be estimated. Since the impacts could be quite variables, the following expression shall be adopted to calculate the values in a "comparable" way. This expression comes from www.lcafood.dk.

  Electric energy due to the cold storage shall be evaluated by the following formula:

$$E_p = E_s \times \frac{100}{u} \times V_p \times t$$

  Where:

  - E_s is the specific energy consumption of the cooling room (kWh per m^3 per day)
  - u is the degree of utilisation of the storage room (%)
  - V_p is the volume of the considered product (declared unit = 1 kg).
  - t is the time of the storage (days).

  Values have to be set as follow:

  - E_s = 0,59 kWh per m^3 per day in the product is stored in a **cold place** (**5°C**);
    = 0,63 kWh per m^3 per day in the product is stored in a **frozen place (-20°C**);
  - u = 50%
  - Vp = 0,001 m^3 (if more specific data are available, the hypotheses shall be included in the EPD).
  - t = shelf life of the product (days).

  The time of cold or frozen storage used for the study must be declared in the EPD.

  Different default value could be used but they have to be presented in the EPD.

USE STAGE

Data for the use stage are usually based on scenarios, but specific data should be used when available and relevant.

- Data on the emissions from the use stage should be based on documented tests, verified studies in conjunction with average or typical product use, or recommendations concerning suitable product use. Whenever applicable, test methods shall be internationally recognised.
- Scenarios for the end-of-life stage shall be technically and economically practicable and compliant with current regulations in the relevant geographical region based on the geographical scope of the EPD. Key assumptions regarding the end-of-life stage scenario shall be documented in the LCA report.
- Domestic food losses: if no specific data is available (e.g., country based), default meat product loss rates at consumer can be assumed as 5% (since this is downstream to the declared unit defined at the gate of the retailer, production in upstream shall not be increased by 5% to compensate for this loss). The product loss at home is assumed to be 50% trashed (i.e., incinerated and landfilled), 25% composted and 25% methanized. In the loss rate definition, the meat characteristics shall also be taken into account (i.e., considering the amount of fat, tendon, gut present).
- Domestic product conservation: for the estimation of energy consumption of the product conservation in the domestic refrigerator of the final user the following hypothesis shall be used:
  - Annual energy consumption of the refrigerator (A class3): 300 kWh
  - Average mass of products stored in refrigerator: 10 kg
  - Estimated consumption of energy per kg of product according to the described hypothesis: =300 kWh * (365 days)-1 * (10 kg) -1 = 0,082 kWh*day-1 * kg-1
  - Average permanence of the product in the refrigerator: half of the declared shelf life.

Cooking: Meat often needs a cooking before eating. This process could be assessed using generic and qualitative information, such as indications/suggestions that are provided to consumers. Since these could be quite variable, the following data about the energy consumption shall be adopted to estimates the indicators in a “comparable” way[13]:

- Cooking in the pan on stove: 5.5 kW per hour of operation;
- Boiling in the pot on stove: 3 kW per hour of operation;
- Cooking in the oven (with 15 minutes of pre-heating): 2.2 kW per hour of operation;
- Cooking in microwave oven: 1.4 kW per hour of operation

Different default value could be used but they shall be presented in the EPD. The cooking time considered in the study must be declared in the EPD.

4.7.4 DATA QUALITY DECLARATION

EPDs may include a declaration of the quality of data used in the LCA calculations.

4.8 ENVIRONMENTAL PERFORMANCE INDICATORS

The EPD shall declare the default environmental performance indicators and their methods as described at the website (www.environdec.com/resources/indicators), which includes both inventory indicators and indicators of potential environmental impact. The source and version of the impact assessment methods and characterisations factors used shall be reported in the EPD. Alternative regional impact assessment methods and characterisation factors may be calculated and displayed in addition to the default list. If so, the EPD shall contain an explanation of the difference between the different sets of indicators, as they may appear to the reader to display duplicate information.

If the default list of environmental performance indicators and methods at the website is updated, the previous version of the list is valid in parallel to the new version during a transition period of 90 days, as described at the website.

[13] Supporting Technical Paper of Double Pyramid 11/10/2016 • Version: 7; www.barillacfn.com

Apart from the required inventory indicators, other inventory data may also be declared in the EPD, if relevant and useful for EPD users. Such data shall not be declared in the main body of the EPD, but in an annex.

4.9 INCLUDING MULTIPLE PRODUCTS IN THE SAME EPD

4.9.1 PRODUCTS FROM THE SAME COMPANY

Similar products from a single or several manufacturing sites covered by the same PCR and manufactured by the same company with the same major steps in the core processes may be grouped and thereby included in the same EPD. For such an EPD, there are three options:

- For each indicator, declare the average results of the included products. This average shall be weighted according to the production volumes of the included products, if relevant. In this option, the average content shall be declared in the content declaration.
- Declare the results of one of the included products – a representative product. The choice of the representative product shall be justified in the EPD, using, where applicable, statistical parameters. For example, the choice may be based on production volumes. In this option, the content of the representative product shall be declared in the content declaration.
- For each indicator, declare the highest result of the included products (i.e., the results of a “worst-case product”, which may be the results of one or several of the included products). In this option, the content declaration shall include the lowest amounts of recycled and biogenic content of the included products and their packaging, respectively, and the information on environmental and hazardous properties of substances shall reflect the highest share and most hazardous such substances contained in the any of the included products.

The first two options are only possible if none of the declared environmental impact indicator results differ by more than 10% between any of the included products. The third option is possible also if variations are larger than 10%.

The option chosen shall be clearly described in the EPD.

4.9.2 SECTOR EPDS

The International EPD® System allows for an industry association to develop an EPD in the form of a Sector EPD. A Sector EPD declares the average product of multiple companies in a clearly defined sector in a clearly defined geographical area. Products covered in a sector EPD shall follow the same PCR and the same declared unit shall be applied.

Any communication of the results from a Sector EPD should contain the information that the results are based on averages obtained from the sector as defined in the EPD. The communication shall not claim that the sector EPD results are representative for a certain manufacturer or its product.

The following information shall also be included a Sector EPD:

a list of the contributing manufacturers that the Sector EPD covers,

a description of how the selection of the sites/products has been done and how the average has been determined, and

a statement that the document covers average values for an entire or partial product category (specifying the percentage of representativeness) and, hence, the declared product is an average that is not available for purchase on the market.

5 CONTENT AND FORMAT OF EPD

EPDs based on this PCR shall contain the information described in this section. Flexibility is allowed in the formatting and layout provided that the EPD still includes the prescribed information. A generic template for EPDs is available at www.environdec.com.

The EPD content shall:

- be in line with the requirements and guidelines in ISO 14020 (Environmental labels and declarations – General principles),
- be verifiable, accurate, relevant and not misleading, and
- not include rating, judgements or direct comparison with other products[14].

An EPD should be made with a reasonable number of pages for the intended audience and use.

The content of EPDs published in machine-readable format shall correspond with the content of the underlying EPD.

5.1 EPD LANGUAGES

EPDs should be published in English but may also be published in additional languages. If the EPD is not available in English, it shall contain an executive summary in English including the main content of the EPD. This summary is part of the EPD and, thus, also subject to the verification process.

5.2 UNITS AND QUANTITIES

The following requirements apply for units and quantities:

- The International System of Units (SI units) shall be used where available, e.g., kilograms (kg), Joules (J) and metres (m). Reasonable multiples of SI units may be decided in the PCR to improve readability, e.g., grams (g) or megajoules (MJ). The following exceptions apply:
  - Resources used for energy input (primary energy) should be expressed as kilowatt-hours (kWh) or megajoules (MJ), including renewable energy sources, e.g., hydropower, wind power and geothermal power.
  - Water use should be expressed in cubic metres (m^3)
  - Temperature should be expressed in degrees Celsius (°C),
  - Time should be expressed in the units most practical, e.g., seconds, minutes, hours, days or years.
  - Results of the environmental performance indicators shall be expressed in the units prescribed by the impact assessment methods, e.g. kg CO_2 equivalents.
- Three significant figures15 should be adopted for all results. The number of significant digits shall be appropriate and consistent.
- Scientific notation may be used, e.g. 1.2E+2 for 120, or 1.2E-2 for 0.012.
- The thousand separator and decimal mark in the EPD shall follow one of the following styles (a number with six significant figures shown for illustration):
  - SI style (French version): 1 234,56
  - SI style (English version): 1 234.56

  In case of potential confusion or intended use of the EPD in markets where different symbols are used, the EPD shall state what symbols are used for thousand separator and decimal mark.
- Dates and times presented in the EPD should follow the format in ISO 8601. For years, the prescribed format is YYYY-MM-DD, e.g., 2017-03-26 for March 26th, 2017.

[14] Therefore, results of normalization are not allowed to be reported in the EPD.

[15] Significant figures are those digits that carry meaning contributing to its precision. For example with two significant digits, the result of 123.45 shall be displayed as 120, and 0.12345 shall be displayed as 0.12. In scientific notation, these two examples would be displayed as $1.2*10^2$ and $1.2*10^{-2}$.

- The result tables shall:
  - Only contain values or the letters “ND” (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.[16]
  - Contain no blank cells, hyphens, less than or greater than signs or letters (except “ND”).
  - Use the value “0” only for parameters that have been calculated to be zero.
  - Footnotes shall be used to explain any limitation to the result value.

5.3 USE OF IMAGES IN EPD

Images used in the EPD, especially pictures featured on the cover page, may in themselves be interpreted as an environmental claim. Images such as trees, mountains, wildlife that are not related to the declared product shall therefore be used with caution and in compliance with national legislation and best available practices in the markets in which the EPD is intended to be used.

5.4 EPD REPORTING FORMAT

The reporting format of the EPD shall include the following sections:

- Cover page (see Section 5.4.1)
- Programme information (see Section 5.4.2)
- Product information (see Section 5.4.3)
- Content declaration (see Section □)
- Environmental performance (see Section 5.4.5)
- References (see Section 5.4.9)

The following sections may be included

- Additional environmental information (see Section 5.4.6)
- Additional social and economic information (see Section 5.4.7)

The following sections shall be included, if relevant:

- Differences versus previous versions (see Section 5.4.8)
- Executive summary in English (see Section 5.4.10)

5.4.1 COVER PAGE

The cover page shall include:

- Product name and image
- Name and logotype of EPD owner
- The text “Environmental Product Declaration” and/or “EPD”
- Programme: The International EPD® System, www.environdec.com
- Programme operator: EPD International AB
- Logotype of the International EPD® System
- EPD registration number as issued by the programme operator[17]

[16] This requirement does not intend to give guidance on what indicators are mandated (“shall”) or voluntary.

[17] The EPD shall not include a “registration number” if such is provided by the certification body, as this may be confused with the registration number issued by the programme operator.

- Date of publication (issue): 20XX-YY-ZZ
- Date of revision: 20XX-YY-ZZ, when applicable
- Date of validity; 20XX-YY-ZZ
- A note that “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.”
- A statement of conformity with ISO 14025.
- For EPDs covering multiple products: a statement that the EPD covers multiple products and a list of all products covered by the EPD.
- For Sector EPDs: a statement that the EPD is a Sector EPD.
- For construction product EPDs:

In the case of EPDs registered through a regional hub (a regional or national programme based on and fully aligned with the International EPD® System through an agreement with the programme operator), “Programme”, “Programme operator”, and “Logotype” shall be expanded to include a reference to the regional programme and the organisation responsible for it.

Where applicable, the cover page shall also include the following information:

- Information about dual registration of EPD in another programme, such as registration number and logotype.
- A statement of conformity with other standards and methodological guides.

5.4.2 PROGRAMME INFORMATION

The programme information section of the EPD shall include:

Address of programme operator: *EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, E-mail: info@environdec.com*

The following statement on the requirements for comparability of EPDs, adapted from ISO 14025: *“EPDs within the same product category but from different 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 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.”*

A statement that the EPD owner has the sole ownership, liability and responsibility of the EPD

Information about verification[18] and the PCR in a table with the following format and contents:

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
PCR: *<name, registration number, version and UN CPC code(s)>*
PCR review was conducted by: *<name and organisation of the review chair, and information on how to contact the chair through the programme operator>*
Life cycle assessment (LCA)
LCA accountability: *<name, organization>*
Third-party verification

[18] If the EPD has been verified by an approved individual verifier who has received contractual assistance from a certification body that is not accredited, this certification body shall not be included in this table.

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☐ EPD verification by individual verifier Third-party verifier: *<name, organisation, and signature of the third-party verifier>* Approved by: The International EPD® System
OR
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☐ EPD verification by accredited certification body Third-party verification: *<name, organisation>* is an approved certification body accountable for the third-party verification The certification body is accredited by: *<name of accreditation body & accreditation number, where applicable>*
OR
Independent third-party verification of the declaration and data, according to ISO 14025:2006 via: ☐ EPD verification by EPD Process Certification* Internal auditor: *<name, organisation>* Third-party verification: *<name, organisation>* is an approved certification body accountable for third-party verification Third-party verifier is accredited by: *<name of accreditation body & accreditation number, where applicable>* *For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI v4, Section 7.5.
Procedure for follow-up of data during EPD validity involves third-party verifier[19]: ☐ Yes ☐ No

5.4.3 PRODUCT INFORMATION

The product information section of the EPD shall include:

- address and contact information to EPD owner,
- description of the organisation. This may include information on products- or management system-related certifications (e.g., ISO 14024 Type I environmental labels, ISO 9001- and 14001-certificates and EMAS-registrations) and other relevant work the organisation wants to communicate (e.g. SA 8000, supply-chain management and social responsibility),
- name and location of production site,

[19] Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period (see Sections 7.3.2 and 7.4.9 of the GPI). The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update (see Section 6.5 of the GPI) is identified, the EPD shall be re-verified by a verifier.

- product identification by name, and an unambiguous identification of the product by standards, concessions or other means,
- identification of the product according to the UN CPC scheme system. Other relevant codes for product classification may also be included, e.g.
  - Common Procurement Vocabulary (CPV),
  - United Nations Standard Products and Services Code® (UNSPSC),
  - Classification of Products by Activity (NACE/CPA),
  - Australian and New Zealand Standard Industrial Classification (ANZSIC), or
  - Global Trade Item Number (GTIN).
- a description of the product,
- a description of the technical purpose of the product, including its application/intended use,
- a description of the background system, including the main technological aspects,
- for EPDs covering multiple products: a description of the selection of products/sites, a list of contributing manufacturers (if Sector EPD), etc. (see Section 4.9),
- geographical scope of the EPD, i.e., for which geographical location(s) of use and end-of-life the product's performance has been calculated,
- declared unit,
- reference service life (RSL) and/or technical/actual lifespan, if relevant,
- declaration of the year(s) covered by the data used for the LCA calculation and other relevant reference years,
- reference to the main database(s) for generic data and LCA software used, if relevant,
- system diagram of the processes included in the LCA, divided into the life cycle stages,
- description if the EPD system boundary is "cradle-to-gate", "cradle-to-gate with options" or "cradle-to-grave",
- information on which life-cycle stages are not considered (if any), with a justification of the omission,
- references to any relevant websites for more information or explanatory materials,
- production system (i.e., conventional or organic)
- species and variety of the mammals which meat the EPD® is referred to,
- specification whether the meat is fresh, chilled or frozen,
- nutritional value of the product.

This section may also include:

- name and contact information of organisation carrying out the underlying LCA study,
- any additional information about the underlying LCA-based information, such as cut-off rules, data quality, allocation methods, and other methodological choices and assumptions,
- a description of the material properties of the product with a declaration of relevant physical or chemical product properties, such as density, etc., and
- if end-of-life treatment is not included, the EPD shall contain a statement that it shall not be used for communicating environmental information to consumers/end users of the product.

5.4.4 CONTENT DECLARATION

The content declaration section shall declare the weight of one unit of product, as purchased, and contain information about the content of the product in the form of a list of materials and chemical substances including information on their environmental and hazardous properties. The gross weight of each material/substance shall be declared, including a minimum of 99% of the materials/substances in one unit of product.

The content declaration does not apply to proprietary materials and substances covered by exclusive legal rights including patent and trademarks. In general, an indication that a product is “free” of a specific hazardous material or substance should be done with caution and only when relevant, following the rules in ISO 14021 on self-declared environmental claims.

Information on the hazardous properties of materials and chemical substances should follow the requirements given in the latest revision of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS),[20] issued by the United Nations or national or regional applications of the GHS. As an example, the following regulations should be used for EPDs intended to be used in the European Union:

- Regulation (EC) No 1907/2006 of the European parliament and of the council of 18 December 2006 concerning the Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH); and
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling, and packaging of substances and mixtures.

5.4.4.1. Information about recycled materials

Not relevant for the present product category.

5.4.4.2. Information about packaging

As packaging is strongly connected with the product, the producer shall provide information about packaging in the EPD, when applicable. Packaging may be classified as:

- Distribution Packaging: packaging designed to contain one or more articles or packages, or bulk materials, for the purposes of transport, handling and/or distribution (ISO 21067-1:2016, Section 2.2.6)
- Consumer Packaging: packaging constituting, with its content, a sales unit for the final user or consumer at the point of retail (ISO 21067-1:2016, Section 2.2.7).

Consumer packaging is generally the outcome of eco-design processes, or other activities, under direct control of the organisation. Many critical categories with strict legal requirements belong to consumer packaging category like food contact packaging and pharmaceutical packaging.

The weight of the packaging per product, and the type and function of the packaging, shall be reported in the EPD.

A statement of the source of the materials (pre-consumer or post-consumer) shall be presented in the EPD when the packaging is made in whole or in part by recycled materials.

5.4.5 ENVIRONMENTAL PERFORMANCE

5.4.5.1. Environmental impacts

The EPD shall declare the environmental impact indicators, per declared unit, per life-cycle stage and in aggregated form, using the default impact categories, impact assessments methods and characterisation factors available at www.environdec.com/indicators. The source and version of the impact assessment methods and characterisation factors used shall be reported in the EPD.

Alternative regional life cycle impact assessment methods and characterisation factors may be calculated and displayed in addition to the default list. If so, the EPD shall contain an explanation of the difference between the different sets of indicators, as they may appear to the reader to display duplicate information.

A specification shall be made for the indicator Global Warming Potential (GWP) – Biogenic: as explained on the dedicated page of the International EPD System website[21], for human food and animal feed, emissions and removals arising from biogenic sources that become an ingested part of the product shall not be included. Greenhouse gas emissions (except carbon dioxide, CO_2) arising from the degradation of waste food and feed and enteric fermentation shall be included.

[20] The GHS document is available at www.unece.org.

[21] https://www.environdec.com/resources/indicators

5.4.5.2. Use of resources

The EPD shall declare the indicators for resource use listed at www.environdec.com/indicators per declared unit, per life-cycle stage and in aggregated form.

As explained on the website, the energy content of biomass used for feed or food purposes shall not be considered.

5.4.5.3. Waste production and output flows

Waste generated along the whole life cycle production chains shall be treated following the technical specifications described in the GPI. The EPD shall declare the indicators for waste production and output flows as listed at www.environdec.com/indicators per declared unit, per life-cycle stage and in aggregated form.

5.4.5.4. Additional environmental indicators (optional)

Whereas breeding phase happens mostly outside (grazing systems), the variations of carbon stocks in soils where animals are raised could be an additional indicator to be added separately in the EPD. In case, the most updated version of IPCC guidelines[22] (Vol. 4, Chapter 2: Generic Methodologies Applicable to Multiple Land-Use Categories and related Chapters 6 to 9 for each land-use category), should be used as reference for calculation.

5.4.6 ADDITIONAL ENVIRONMENTAL INFORMATION

- An EPD may declare additional environmentally relevant information not derived from the LCA-based calculations, such as:
- Environmental improvement made at farm level or other parts of the production chain (e.g., some progresses made at the farm level to decrease environmental burdens),
- instructions for proper storage and consumption of the product, e.g., to minimise energy or water consumption or to improve the durability of the product,
- information on recycling of the primary packaging including, e.g., suitable procedures for recycling the materials and the potential environmental benefits gained,
- a more detailed description of an organisation's overall environmental work, in addition to the information listed under Section 5.4.3, such as:
  - the existence of any type of organised environmental activity, and
  - information on where interested parties may find more details about the organisation's environmental work.

Any additional environmental information declared shall be substantiated and verifiable, and be derived using appropriate methods and be specific, accurate, not misleading, and relevant to the specific product. Quantitative information is preferred over qualitative information.

5.4.7 ADDITIONAL SOCIAL AND ECONOMIC INFORMATION

The EPD may also include other relevant social and economic information as additional and voluntary information. This may be product information or a description of an organisation's overall work on social or economic sustainability, such as activities related to supply chain management or social responsibility.

Any additional social and economic information declared shall be substantiated and verifiable, and be derived using appropriate methods and be specific, accurate, not misleading, and relevant to the specific product. Quantitative information is preferred over qualitative information.

5.4.8 DIFFERENCES VERSUS PREVIOUS VERSIONS

For EPDs that have been updated, the following information shall be included:

- a description of the differences versus previously published versions, and

[22] 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (current version, Jan 2022)

- a revision date on the cover page.

5.4.9 REFERENCES

A reference section shall be included, including a list of all sources referred to in the EPD, including the GPI (including version number), and PCR (registration number, name, and version) used to develop the EPD. The following elements may also be included:

underlying LCA studies,

other documents that verify and complement the EPD,

source of the instructions for packaging recycling, if relevant,

the source and version of the characterization models and the factors used.

5.4.10 EXECUTIVE SUMMARY IN ENGLISH

The executive summary, if included (see Section 5.1), shall contain relevant summarised information related to the programme, product, environmental performance, information related to pre-certified EPDs, and information related to sector EPDs. Besides this, further information may be added such as additional environmental, social or economic information, references as well as differences versus previous EPD versions.

6 LIST OF ABBREVIATIONS

ANZSIC	Australian and New Zealand Standard Industrial Classification
CPC	Central product classification
CPV	Common procurement vocabulary
EPD	Environmental product declaration
GPI	General Programme Instructions
GTIN	Global trade item number
ISO	International Organization for Standardization
LCA	Life cycle assessment
LCI	Life cycle inventory
NACE/CPA	Classification of products by activity
ND	Not declared
PCR	Product category rules
REACH	Restriction of chemicals
RSL	Reference service life
SI	The International System of Units
UN	United Nations
UNSPSC	United Nations standard products and services code

7 REFERENCES

EPD International (2021) General Programme Instructions for the International EPD® System. Version 4.0, dated 2021-03-29. www.environdec.com.

ISO (2000) ISO 14020:2000, Environmental labels and declarations – General principles.

ISO (2004) ISO 8601:2004 Data elements and interchange formats – Information interchange – Representation of dates and times.

ISO (2006a) ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO (2006b) ISO 14040:2006, Environmental management – Life cycle assessment – Principles and framework.

ISO (2006c) ISO 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines.

ISO (2013) ISO/TS 14067:2013, Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication.

ISO (2014) ISO 14046:2014, Environmental management – Water footprint – Principles, requirements and guidelines.

ISO (2015a) ISO 14001:2015, Environmental management systems – Requirements with guidance for use.

ISO (2015b) ISO 9001:2015, Quality management systems – Requirements.

ISO (2016a) ISO 21067-1:2016, Packaging – Vocabulary – Part 1: General terms.

ISO (2016b) ISO 14021:2016, Environmental labels and declarations - Self-declared environmental claim (Type II environmental labelling).

ISO (2017) ISO 21930:2017, Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.

ISO (2018) ISO 14024:2018, Environmental labels and declaration – Type I environmental labelling – Principles and procedures.

IPCC, 2019. 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 “Agriculture, Forestry and Other Land Use”, available at: https://www.ipcc-nggip.iges.or.jp/public/2019rf/vol4.html

Footprint Category Rules Red Meat, version 1.1 (1/2020), Technical Secretariat for the Red Meat Pilot, developed by the European Livestock and Meat Trades Union (UECBV)

Cattle Model Working Group (CMWG), Baseline Approaches for the Cross-Cutting Issues of the Cattle Related Product Environmental Footprint Pilots in the Context of the Pilot Phase 2013-2016

Environmental European Agency - EMEP/EEA air pollutant emission inventory guidebook (2009) - Technical report No 9/2009 – Chapter 4.B. Manure Management. http://www.eea.europa.eu/publications/emep-eea-emission-inventory-guidebook-2009

IDF, 2015. Bulletin of the Internation Dairy Federation n.479/2015. A common carbon footprint approach for the dairy sector. The IDF guide to standard life cycle assessment methodology. Available at: https://www.fil-idf.org/wp-content/uploads/2016/09/Bulletin479-2015_A-common-carbon-footprint-approach-for-the-dairy-sector.CAT.pdf

International EPD System, PCR 2021:08 Dairy products, version 1.0 (2021-10-15)

World Bank study, 2009, Global study of livestock markets, slaughterhouses, and related waste management systems, http://siteresources.worldbank.org/INTUSWM/Resources/463617-1205264154387/Cointreau_SWMStudyFinalReportFeb2009.pdf

8 VERSION HISTORY OF PCR

VERSION 1.0, 2012-09-11

Original version.

VERSION 2.0, 2013-07-22

Compliance with General Programme Instructions 2.0

Sustainability indicators

Editorial changes

Transportation from farm to slaughterhouse was moved from upstream system to core processes

Scenario for cooking of meat added

VERSION 2.0, 2013-07-22

Editorial changes made by the Secretariat:

- Updated introduction
- Added information in General information
- Added information about thousands separator and decimal mark
- Added general rules about EPD contents

VERSION 3.0, 2018-02-22

Minor editorial changes

Compliance with General Programme Instructions version 3.0, being updated and revised

Compliance with the PCR Basic Module for CPC Division 21 Meat, fish, fruit, vegetables, oils and fats (Version 2.5)

Section 4.4: Modified allocation rules, shifting from the economic allocation in farming phase to biophysical as suggested in other sector guidelines (IDF, 2015)

Section 4.4.3: More details and specifications added for slaughterhouse phase on the allocation to be chosen (economic)

Section 3.2-3.3: added some specifications in core and upstream processes to be taken into account specifying that in system diagram at section 3.3 the main phases are cited.

Ecological and water footprint removed (use of aggregated indicators could be misleading) and introducing of water scarcity potential among mandatory indicators.

Sustainability declaration (economic and social) indicators removed (indicators never used)

VERSION 3.1, 2019-02-15

Updated in accordance with GPI 3.0 and new basic PCR.

VERSION 3.11, 2019-09-06

Clarified terms of use.

Editorial changes.

VERSION 4.0, 2022-10-19

Updated in accordance with GPI 4.0 and new basic PCR.

Clarified use of “declared unit” as unit or reference in alignment with the other PCRs for the meat sector

Inclusion of distribution losses and domestic food losses

Additional environmental indicator (optional) added

Editorial changes

VERSION 4.0.1, 2022-10-24

Changes in this update are editorial.

MEAT OF MAMMALS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 2111, 2113