Technical Specifications

MI5.5 – International Carbon Footprint of Feed

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GMP+ International

gmpplus.org

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Introduction

This document, developed in collaboration with OVOCOM, aims to offer a broader and globally applicable framework to determine carbon footprint of feed using the life cycle assessment (LCA) methodology based on PEFCR Feed for Food Producing Animals.

Its goal is to harmonise methodologies across markets and to create a unified, transparent, and credible reference for the entire feed industry. Designed without geographical limitations, this standard will support the companies worldwide in accurately determining and reporting the LCA value of their feed products. It builds upon existing methodologies, offering enhanced consistency, recognition, and support sustainable practices across the global supply chain.

1. Scope of this document

This document applies to the companies certified GMP+ FSA or equivalent (see TS 1.2 *Purchase)* for:

1. Production of compound feed
2. Production of premixtures
3. Trade in feed (feed ingredients)

For the scope "Trade in Feed", only following paragraphs are applicable § 2, § 3, § 4, § 5.2.2, §7 and §8.

See § 3.5 in F0.3 *Scopes for certification*.

2. Normative References

This MI-document must always be used in combination with the R5.0 *Feed Responsibility Management Systems Requirements* which ensures the implementation of a Feed Responsibility Management System (FRMS). It is intended for use in the following ways:

1) in addition to the GMP+ FSA module,
2) in combination with an equivalent feed safety standard (see TS 1.2 *Purchase*),

3. Terms and Definitions

See F0.2 *Definition list*.

4. System requirements

The company must show that it has access to one of the Recognized calculation tools listed in Appendix 1.

If a company wishes to introduce a new calculation tool, it must follow the process described in §8 for approval.

Helpful tip:

The company may choose to use tools and/or embedded CFP reporting systems (e.g., GFLI-integrated formulation software) provided that it complies the requirements set out in this standard in §8.

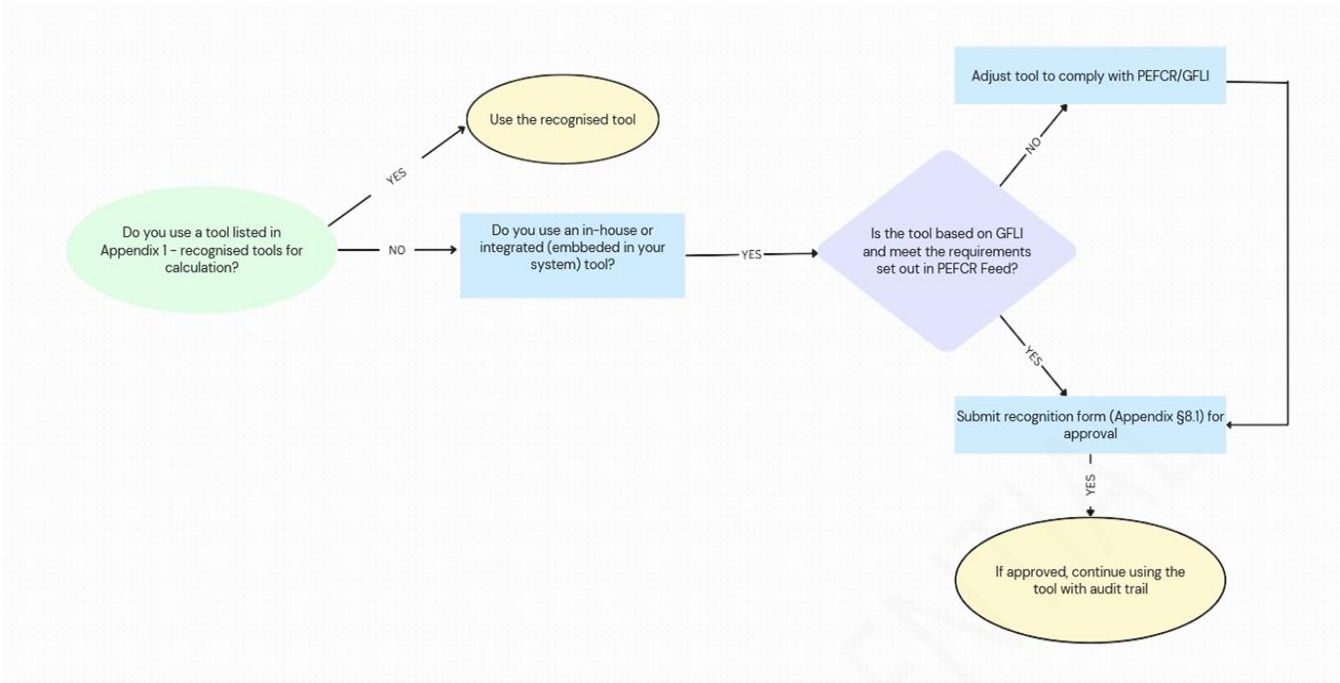

Diagram 1: Decision Tree for Selection of Tools

The company must determine and document which feed covered within the scope of this standard.

The company must implement a procedure that describes how the company calculates the carbon footprint of feed and communicates the results to the customers and third parties and must ensure that this procedure is continuously executed correctly.

Documents (procedures, instructions, reports, LCA register, etc.) must be kept for at least five years unless a longer period is required by legislation or specifications.

4.1. Traceability and LCA Register

The certified company must document and maintain a list of customers who require the carbon footprint value of the purchased feed material, compound feed, and/or premixture. The certified company must keep an LCA register for each customer on this list.

This LCA register must contain at least:

a. Customer name
b. Feed ingredients name (for feed traders)
c. Compound feed or premixture name (for compound feed/premixture producers)
d. Target animal species (ruminant, pig, poultry, etc.)
e. Batch number
f. Delivery date
g. Delivered tonnage
h. CFP value of the feed or feed ingredients per ton

Helpful tip:

LCA register may include livestock farmers, feed traders, or compound feed/premixture producers depending on the company's activities.

Helpful tip:

Feed materials that are only resold through the compound feed producer to a livestock farmer are not the responsibility of the compound feed producer in terms of Carbon footprint value calculation. They therefore also do not need to be included in the LCA register prepared by this producer. However, in some countries, However, in some countries, this information may still be requested, requiring the producer to share the Carbon Footprint and keep records.

Helpful tip:

For the definitions of "feed" and "feed ingredient" please refer to F0.2 Definition list.

The company must also ensure online (cloud) backups and data sharing where necessary.

5. Data Requirements for Carbon footprint Calculations

5.1. Composition of the feed

The company must keep documented records of the weight of each ingredient in the feed recipe.

Helpful tip:

Utilizing recipe management tools can assist in accurately determining the composition of the feed.

5.2. Data Entry and Handling

5.2.1. Ingredient selection and Inbound transport calculation

The origin of the raw materials must prevail over the place of processing. This requirement must be followed regardless of the materials being processed in another country.

Helpful tip:

If 100% Brazilian soybeans are crushed in the Netherlands (NL), select: *"Soybean meal, from crushing (solvent), at plant/BR (Brasil) Economic S"* (GFLI).
Or; If 100% Brazilian soybeans are heat-treated in Belgium (BE), select: *"Soybean, heat treated, at processing/BR(Brasil) Economic"*.

Where an ingredient is available in the PEFCR Compliant database used for calculations, but does not correspond to the correct origin, the following must be applied:

- The company must select a higher-level origin category for the ingredient:
  - RER (Europe) if a European origin is applicable.
  - GLO (Worldwide) if no specific regional origin is available.
- The CFP value associated with inbound transport, defined as transport from the country of origin to the production unit, are considered accordingly.
- The transport distance equals to the actual distance between the country of origin and the production unit. If specific data is not available, the default transport distances specified in Annex 6: Standard Activity Data for Transport (Distance and Mode) of the latest version of the PEFCR Feed for Food-Producing Animals must be used.

Helpful tip:

The certified company processes 'beet vinasse' from NL in a factory in BE and is delivered by truck. In the PEFCR compliant database only 'beet vinasse' from BE is provided. In that case, select 'beet vinasse' from Europe (Vinasse, wet, sugar beet, at processing/RER) as proxy for the ingredient. To enter the inbound transport distance of this ingredient, use the distance NL-BE from the PEFCR Feed (i.e. 82 km if delivered by truck).

Where no CFP values are available for an ingredient in the PEFCR compliant database used for calculation, a proxy must be selected from Appendix 2. If no suitable proxy is available in Appendix 2, the company must notify GMP+ stating the original ingredient and its origin (at least the country of production).

Until an official proxy is assigned by GMP+, the company shall provisionally allocate the most representative proxy available in the PEFCR compliant database.
This provisional proxy selection must be documented internally by the company in accordance with traceability and quality assurance requirements. Specifically:

The mapping between the original ingredient and the selected proxy must be recorded, ensuring transparency, reproducibility, and consistency across all LCA assessments.

Upon completion of the evaluation process, GMP+ will officially designate a proxy for the ingredient. The updated proxy will be added to Appendix 2 and communicated to the company.

Following this notification, the use of the GMP+ assigned proxy becomes mandatory for all subsequent LCA calculations involving the relevant ingredient.

To choose the appropriate proxy, the company must follow these steps:

a. Amino acids
   - The proxy selected for an amino acid must have the same origin as the actual amino acid. The origin takes precedence over the physical form (dry or liquid).
   - The general product category *"Total minerals, additives, vitamins, at plant/RER Economic"* from the GFLI database must not be used as a proxy for an amino acid.
   - When using a liquid amino acid as a proxy for a solid amino acid, the concentration of the amino acid in the liquid formulation must be considered.

b. Premixtures
   - The company must request the premixture supplier to provide an CFP value calculated based on the requirements set in 5.2.2.
   - If the impact calculation is unavailable, the percentage of the amino acid in the premixture must be obtained. The premixture must then be calculated using the following formula:
     [1kg premixture= %amino acids * 1kg Lysine + (1-%amino acids)* 1 kg Total minerals, additives, vitamins]

5.2.2. Use of Supplier-Specific or Self-Determined Data in Carbon footprint Calculations

If the company wants to use individual carbon footprint value for an ingredient (self-determined or provided by a supplier), the values must be:

1. verified by an independent third party accredited for LCA verification according to ISO 14044, ISO 14040, ISO 14064-3 and EN15804, and confirmed with a statement linked to the ingredient, and
2. in accordance with LCA reporting according to the requirements of the GFLI methodology and the "PEFCR feed for food producing animals" methodology.

5.2.3. Calculation of Energy used in Feed production

The company must calculate the impact of production using its own energy consumption data. Energy consumption related to office operations must be reduced from this calculation.

The minimum required level of accuracy is the one-year average of energy consumption data from the feed mill.

The company must maintain records of both the quantity of feed produced and the corresponding energy consumption from the previous calendar year, as this data will be used in the following year.

If the company uses an alternative methodology, it must demonstrate its accuracy and justify its application.

5.2.4. Outbound Transport calculation

The company must use the default transport distances specified in Annex 6: Standard Activity Data for Transport (Distance and Mode) of the latest version of the PEFCR Feed for Food-Producing Animals to determine the impact of outbound transport.

Helpful tip:
Where actual transport data is available, the company may use this specific data instead of the default transport distances provided in the PEFCR.

6. Determination of carbon footprint

The carbon footprint is determined using only one of the recognised calculation tools listed in Appendix 1.

The carbon footprint value of animal feed is calculated per recipe, based on the individual carbon footprint values of each ingredient.

Helpful tip:

The same ingredient may have different carbon footprint values depending on factors such as production process and origin (local, neighbouring country, another continent, etc.).

If an ingredient's origin varies throughout the year, a weighted annual average based on the different quantities and origins from the previous year (Year X-1) must be used. When the origin is unknown for a given delivery, a global value should be used.

If an ingredient has multiple origins, the weighted annual average must be calculated by the compound feed or premixture producer using one of the following three approaches:

a. Annual Average per Compound Feed or Premixture

The annual average is calculated based on the exact tonnage of the ingredient in the recipe. If the recipe contains only one origin for a given ingredient, the carbon footprint value determined for this origin is used for this ingredient. If there are multiple origins of the same ingredient in the recipe, the average for that ingredient is calculated based on the percentage of processing of each origin in the recipe.

Helpful tip:

The recipe for a compound feed contains 5% rapeseed flakes (Canadian origin) and 10% rapeseed flakes (French origin).
The calculated annual average for the rapeseed flakes used in this compound feed is then [CFP 'Canada' x 5 + CFP 'France' x 10]/15.

b. Annual Average per Production Site

The weighted average for the ingredient is calculated in proportion to the tonnages of each origin used at the production site in year X-1. This is a value that applies in year X to each recipe produced at that site containing this ingredient (regardless of origin).

Helpful tip:

In year X-1, the production site used a quantity of rapeseed flakes in the following proportion 30% from Canada and 70% from France. The calculated annual average for the rapeseed flakes used in year X in all the recipes of the production site is then equal to ["CFP Canada" x 30 + "CFP France" x 70]/100.
This value should be used for all formulations containing this ingredient, even if a given formulation contains only one of these two origins.

c. Annual Average for Centralized Purchasing

The weighted average of the ingredient is calculated in proportion to the tonnages of each origin, purchased centrally (e.g. for different production sites). This is a value that applies during year X to all recipes produced at all production sites, purchased through this central buying service and containing this ingredient (regardless of origin).

Helpful tip:

In year X-1, all production sites belonging to the same central purchasing service used a quantity of rapeseed flakes in the following ratio: 45% from Canada and 55% from France. The calculated annual average for rapeseed flakes used in all recipes at all production sites in year X is then equal to ['CFP Canada' x 45 + 'CFP France' x 55]/100. This value should be used at all production sites for all recipes containing this ingredient, even if a recipe at one of these sites contains only one of these two origins.

The company must only use one approach for all their compound feeds and premixtures. The company must describe which procedure they implement.

7. Communication to the customer

7.1 Communication of LCA Register

By 31 January each year at the latest, the certified company must provide the LCA register for the previous calendar year to:

- the livestock farmer, or
- the producer of compound feed and/or premixtures.

7.2 Communication of Carbon Footprint values of feed

The producer or trader of premixtures provides, upon request, the carbon footprint values of the product in question with each delivery. The preferred method of communication is to be agreed by the relevant parties.

The producer of compound feed and/or premixtures provides the livestock farmer or the trader in compound feed and/or premixtures with the carbon footprint value of the feed upon request. The producer is not required to calculate or provide the carbon footprint values for all feed types by default.

The trader in feed materials provides the livestock farmer or the producer of compound feed and/or premixes with the carbon footprint value of the feed material upon request. The trader is not required to provide the carbon footprint value for all type of feed materials by default.

Communication regarding the carbon footprint value on the label or on the invoice:

a. The carbon footprint value must not appear on the label and/or invoice of the relevant feed

b. The carbon footprint value of an animal feed must only be provided to the customer to the customer concerned (if applicable livestock farmer or trader in compound feed and/or premixtures or producer of compound feed and/or premixtures) and must be communicated only through the LCA register dedicated to them.

8. Approval criteria and process for Calculation tools

To ensure consistency, accuracy, and credibility in the calculation of the CFP of feed, only recognised calculation tools are used. The following requirements apply to the approval of these tools.

8.1. Application process

Companies wishing to introduce a new calculation tool must:

a. Submit a Request for approval
   - Applications must be submitted to GMP+ International.

b. Provide a Detailed Methodology Report
   - The company must submit a full methodology report, including:
     - Data sources
     - Calculation approach
     - Software validation methods

c. Pass Independent Verification
   - The tool must undergo an independent review by a recognized LCA verification body
   - The tool will be reviewed based on the following requirements:
     - Correct LCA impact calculations based on ISO 14040, ISO 14044
     - Use of PEFCR Feed methodology and GFLI-aligned data
     - Transparency and traceability of results

d. Gain Approval and Listing on Appendix 1 Recognised calculation tool list.
   - Approved tools will be listed on the GMP+ website.

The recognition is valid:

- until the next Feed PEFCR update (current version is 5), and
- when GFLI updates its database and the recognised tools perform the update within 6 months of its publication (The last GFLIv2.2 was published on 3/10/2024).

Risk Management tools

That was a lot of information to digest and one might ask, what is the next step? Luckily we can offer support for the GMP+ Community when doing this. We provide support by means of various tools and guidances but as each company has a shared responsibility to feed safety, and therefor tailor-made solutions cannot be offered. However, we do help by explaining requirements and provide background information about the requirements.

We have developed various supporting materials for the GMP+ Community. These include various tools, ranging from Frequently Asked Questions (FAQ) lists to webinars and events.

Supporting materials related to this document (Guidelines and FAQ's)
We have made documents available which give guidance to the GMP+ requirements as laid down in the module GMP+ FSA and GMP+ FRA. These documents give examples, answers to frequently asked questions or background information.

Where to find more about the GMP+ International Risk Management tools?

Fact sheets
More information: GMP+ Platform

Product list
More information: Product list

Risk Assessments
More information: GMP+ Platform

GMP+ Monitoring database
More information: GMP+ Monitoring database

Support documents
More information: Support documents

At GMP+ International, we believe everybody, no matter who they are or where they live, should have access to safe food.

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