Technical Specifications

MI5.5 - Carbon footprint of feed

Version EN: 3 March 2025

GMP+ International

gmpplus.org

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Introduction

This Market Initiative (MI) document is created in cooperation between partners in the feed chain and GMP+ International. The main goal is to provide compound feed companies the possibility for the certification for feed of which the carbon footprint (CFP) is calculated according to the 'Protocol CPF berekening Nevedi' (afterwards: Nevedi Protocol). The Nevedi Protocol is designed to clarify the CFP of the delivered feed to livestock farmers, and in addition, to clarify the methane emission factors of the delivered dairy feed to dairy farmers.

1. Scope of this document

This MI-document contains the requirements for the calculation of the CFP of feed and its communication towards customers or third parties conform the Nevedi Protocol. By complying with the standard, the company ensures the correct implementation of the Nevedi Protocol. It does not provide a statement concerning the accuracy of the CFP data used by the Nevedi Protocol or concerning the sustainability of the feed for which the CFP is calculated.

This MI-document is applicable to the compound feed company, located in the Netherlands, producing and delivering feed to the buyer.

Helpful tip:

The Nevedi Protocol is a Dutch tool to calculate the CFP of feed. Therefore the scope of this standard is limited to Dutch companies. In the coming years this standard will be further developed to an internationally applicable standard.

2. Normative references

This MI-document must always be used in combination with the Nevedi Protocol and the R5.0 *Feed Responsibility Management Systems Requirements* which ensures the implementation of a Feed Responsibility Management System (FRMS). The combined use enables a company to provide feed in accordance with the Nevedi Protocol.

This document is to be used:

1. in addition to the GMP+ FSA module;
2. in combination with an equivalent feed safety standard (see TS1.2 *Purchase*), or;
3. without additional certification.

3. Terms and Definitions

See F0.2 *Definition list*.

4. System requirements

The company must show that it has access to the Nevedi Protocol.

Helpful tip:
A company can gain access to the Nevedi Protocol through membership of Nevedi or by making a separate agreement with Nevedi for the use of the Nevedi Protocol.

The company must determine and document per animal category which feed materials, feed ingredients and/or compound feed falls within the scope of this standard.

The company must implement a procedure that describes how the company calculates CFP for feed and communicates the outcome to customers and third parties and must ensure that this procedure is continuously executed correctly.

5. Input for the CFP calculations

5.1. Composition of the feed

The company must document from which ingredients the feed is composed.

Helpful tip:
The use of the recipe management tools can be helpful in determining the composition of the feed.

The company must document the weight of each ingredient that will be processed into the feed.

5.2. CFP-data of feed ingredients

The company must select the CFP-data applicable for the ingredients of the concerning feed from the applicable Nevedi Protocol (see Annex 3a and 3b of the Nevedi Protocol).

Helpful tip:
The use of the traceability system as described in document R5.0 *Feed Management Systems Requirements*can be helpful for the selection of the correct CFP-data.

If the company uses an ingredient to produce of compound feed for which there is no CFP-data available in the database, the company must use the CFP-data for the product group where the ingredient belongs to (see Annex 1 of the Nevedi Protocol).

If the company uses an ingredient to produce compound feed for which there are multiple CFP-data specified by geographical origin available in the database, the company can use the CFP-data applicable for the specific geographical origin of the used ingredient.

Helpful tip:
Chapter 6 of the Nevedi Protocol describes how the company must handle CFP-data specified for geographical origin.

If the company has no information available about the specific geographical origin of a feed ingredient, the company must select the CFP-data for the ingredient concerned without a geographical origin-specification from the database.

5.3. Amounts of produced feed

The company that chooses to calculate a company-specific CFP-value for feed production, must document per production location which amounts (in tons) of feed are produced and extradited, distinguished to:

- Animal species: ruminant, pig, poultry, or other;
- Feed type: pellet feed (including crumbled feed) and mash feed, and;.
- Extradition type: bulk, bagged or big bag.

5.4. Energy use feed production

For the calculation of the company-specific CFP-value for energy used in feed production, the company must document the amount of energy used in feed production per production location. This energy used must be distinguished in the following energy sources:

- Electricity (in kWh)
- Natural gas (in m^3/MJ/kWh)
- Biogas (in MJ/kWh)
- Biomass (in MJ/kWh)
- Diesel (in I/MJ/kWh)
- Propane (in I/MJ/kWh)
- Other fuels (in MJ)

For the electricity used, the company must demonstrate, via the power label of the energy supplier:

- which sources were used to produce the electricity that was purchased, and;
- the share of each source that was used. The total share of all sources used should add up to 100%.

Helpful tip:
The calculation by using default CFP value for energy use in feed production is described in article § 6.4.1 of this document.

5.5. Outbound transport of feed to the customer

For the calculation of the company-specific CFP-value for outbound transport, the company must provide documentation on the following for the entire company (for all locations) for the period between December 1 - November 30:

- the total amount of bulk feed transported
- the type of fuel (diesel, biodiesel, HVO, LNG, bio-LNG, electric)
- amount of fuel consumed
- type of transport (own, external transport, fuel consumption data unknown)

The company must demonstrate that the total volume of bulk feed transported, as entered in the outbound transport tool, represents at least 95% of the total bulk feed sold in the company's records.

Helpful tip:
The calculation by using default CFP value of outbound transport is described in article § 6.4.2 of this document.

6. Calculating the CFP of feed

6.1. General requirements for CFP calculations

The company must calculate the CFP in g CO_2-equivalents per kg feed.

The company must calculate the CFP according to the composition of the concerning feed.

The company that produces feed for dairy cows and associated young stock, must make a separate calculation for the four individual CFP indicators and for the total CFP of the feed.

Helpful tip:
The four indicators of the CFP are described in § 5.1 of the Nevedi Protocol.

6.2. Selection of calculation method for CPF of feed

The company must select from the following list, which method is used to determine the CFP for feed:

1. Calculation of CFP of feed using the default CFP-value, or;
2. Calculation of CFP of feed using the company-specific CFP-value.

The company must apply the chosen calculation method for all the feed produced.

When the company selects the first method, the company must calculate the CFP of feed in accordance with § 6.4.
When the company selects the second method, the company must calculate the CFP of feed in accordance with § 6.5.

Helpful tip:
The CFP production tool and outbound transport tool are integrated into the Nevedi Integral CFP tool. The user manual can be found on the first tab of the Nevedi Integral CFP tool. The use of the tool is described in detail in chapter 4 of the Nevedi protocol.

6.3. Requirements for company-specific CFP calculations

6.3.1. Company-specific calculation of the CFP of feed production

The company must use the Nevedi energy production tool to perform a company-specific calculation of the CFP of feed production.

The company must have data concerning the amounts of feed produced and the energy consumption for feed production for the period between December 1 - November 30.

Helpful tip:

The energy supplier can only determine afterwards with which energy sources the supplied electricity was generated. The power label obtained in a certain year contains information applicable to the electricity supplied in the previous year.

The company must calculate a specific CFP-value for each feed category, according to the following subdivision:

- Animal species: ruminant, pig, poultry, or other;
- Feed type: pellet feed (including crumbled feed) and mash feed, and;.
- Extradition type: bulk, bagged or big bag

The company must calculate the CFP-values for each feed category before the 31st of December, in accordance with the instructions of the Nevedi Protocol. The company will use these values for the CFP calculations performed in the following year. If company-specific data is used, the company must continue to use company-specific data in subsequent years.

6.3.2. Company-specific calculation of the CFP of outbound transport

The company that chooses to perform a company-specific calculation of the CFP of outbound transport, must do this with the outbound transport tool.

The tool includes the use of company specific values for transport from compound feed company to the livestock farmer (outbound transport).

If company-specific data is used, the company must continue to use company-specific data in subsequent year (see § 5.5).

For own transport, the company's recorded fuel consumption must be matched with the total fuel purchased.

Helpful tip:

For example, the records kept by the fleet show how much has been transported and how much fuel each truck has used.

For external transport, if the company does not receive information on fuel consumption and kilometers driven, default value established in the Nevedi protocol must be used for the calculations. It is not acceptable to use estimated fuel consumption or CFP values provided by external parties to calculate the outbound transport CFP value.

Fuel consumption corrections are permitted for the transportation of other products during the same journey(s). This correction also applies to products transported on return journeys (e.g., raw materials delivered to the factory). The correction must be based on the mass of the transported products.

Helpful tip:

For products (e.g., raw materials back to the factory) that are transported during the same trip or on

return trips, it is possible to adjust the fuel consumption. This is based on weight.
For example, if a truck delivers 40,000 tons of feed annually to farmers and simultaneously transports 10,000 tons of raw materials on return trips, then 80% (40,000 / 50,000) of the total diesel consumption is allocated to feed and 20% to raw materials.

When a company produces feed under contract for a third party that organizes transport to the livestock farmer, explicit agreements must be established regarding the sharing, calculation, and reporting of CFP data related to production and transport. These agreements must be documented to ensure accurate CFP values are reported to the end customer.

Helpful tip:

The total volume of bulk feed can be adjusted for feed produced under contract for a third party that organises transport to the livestock farmer.
For example, if the total bulk feed produced is 300,000 tons, at least 95% of 300,000 = 285,000 tons must have complete transport data. If 20,000 tons are produced under contract, at least 95% of (300,000 - 20,000) = 266,000 tons must have complete transport data.

6.4. CFP calculation using the default CFP-value

6.4.1. CFP calculation using the default CFP-value for energy of feed production

The company must use the following calculation method for the CFP of the feed:

Step 1: Calculating the CFP of the total of the produced feed:

Ingredients (kg)		**CFP-data (g CO_2-eq/kg)**		**Outcome**
Weight $_{\text{ingredient A}}$	x	CFP-data $_{\text{ingredient A}}$	=	CFP $_{\text{ingredient A}}$
Weight $_{\text{ingredient B}}$	x	CFP-data $_{\text{ingredient B}}$	=	CFP $_{\text{ingredient B}}$
Weight $_{\text{ingredient C}}$	x	CFP-data $_{\text{ingredient C}}$	=	CFP $_{\text{ingredient C}}$
...				+
Weight $_{\text{total feed}}$			=	CFP $_{\text{total feed}}$

Step 2: Calculation the CFP per kg feed:

CFP $_{\text{total feed}}$ / Weight $_{\text{total feed}}$ = CFP $_{\text{feed (g CO2-eq/kg)}}$

6.4.2. CFP calculation using the default CFP-value for outbound transport of feed

When there is no data available for fuel consumption, the company must use the section 'Fuel consumption data unknown' in outbound transport tool to calculate the default CFP value for outbound transport.

Helpful tip:

In Nevedi CFP database, the default CFP value of outbound transport is already part of column 'L' but are shown separately in column 'R' because of the possibility to enter a company-specific value here instead of a default value.

6.5. CFP calculation using the company-specific CFP-value

6.5.1. CFP calculation using the company-specific CFP-value for energy of feed production

The company must use the following calculation method for the CFP of the feed:

Step 1: Calculate the company-specific CPF of feed production

The company calculates the company-specific value for each relevant feed category using the applicable Nevedi CPF feed production tool.

Step 2: Specifying the CFP-data in the Nevedi Protocol

Column 'Q' of the Nevedi CFP database shows the default CFP-value for energy of feed production. The company must replace the default CFP-value for feed production with the company-specific CFP-value for energy of feed production that applies to the relevant feed category, as described in § 4.1, § 4.2, § 4.3 and § 4.4 of the Nevedi Protocol.

Step 3: Calculating the CFP of the total of the produced feed:

Ingredients (kg)		**CFP-data (g CO2 eq/kg)**		**Outcome**
Weight $_{\text{ingredient A}}$	x	CFP-data $_{\text{ingredient A after step 2}}$	=	CFP $_{\text{ingredient A}}$
Weight $_{\text{ingredient B}}$	x	CFP-data $_{\text{ingredient B after step 2}}$	=	CFP $_{\text{ingredient B}}$
Weight $_{\text{ingredient C}}$	x	CFP-data $_{\text{ingredient C after step 2}}$	=	CFP $_{\text{ingredient C}}$
...				+
Weight $_{\text{total feed}}$			=	CFP $_{\text{total feed}}$

Step 4: Calculation the CFP per kg feed:

CFP $_{\text{total feed}}$ / Weight $_{\text{total feed}}$ = CFP $_{\text{feed (g CO2-eq/kg)}}$

6.5.2. CFP calculation using the company-specific CFP-value for outbound transport of feed

Step 1: Calculate the company-specific CPF of outbound transport of feed
The company must put the following data into the related columns of outbound transport tool.

- the amount of feed transported in bulk

- the amount of fuel consumed depending on the type of fuel
- type of transport (own, external)

The tool calculates the result automatically by using the background data from CO2emissiefactoren.nl.
Step 2: Calculate the company-specific CPF of outbound transport of feed

Column 'R' of the Nevedi database shows the default CFP-value for outbound transport of feed from compound feed company to the livestock farmer. The company must replace the default CFP-value for outbound transport with the company-specific CFP-value of outbound transport of feed.

7. Additional calculation of emission factors for methane production of feed

The company that produces feed for dairy cows and associated young stock, must make an additional calculation of the emission factors of methane production of the feed, according to the specifications described in *Appendix 1* of this document.

Helpful tip:

The Nevedi Protocol contains separate methane emission factors for feed ingredients for this additional calculation.

8. Compensating the CPF-LUC indicator

8.1. The use of Satellite-based Land Use Change (SBLC) credits

The company can only compensate the CFP-LUC indicator of soy originating from South America.

Helpful tip:

The Nevedi Protocol allows a compound feed company to exclude the CFP-LUC indicator from the CFP calculation of the feed, when the company can prove that the CPF-LUC indicator of the soy(product) that is processed in the feed, is compensated via a SBLC verification statement. This is described in Annex 3 of the Nevedi Protocol.

The company that wishes to compensate the CFP-LUC indicator, must show that the SBLC verification statement that the company uses, states the following:

- The **name of the party X** that sells the SBLC credits to the compound feed company.
- The **name of end-user Y** (the compound feed company) as buyer of the SBLC credits.
- The **volume of SBLC credits** covered by the SBLC verification statement.
- The **country** where the SBLC verified soy was cultivated.
- The statement of the verifying party that:
  - The party that sells the SBLC credits, has obtained these credits from a soy farm certified by a **FEFAC Soy Sourcing Guideline (FSSG) accepted soy scheme**.
  - The same **"geofenced area"** of SBLC credits is used as the underlying FSSG.
  - The SBLC credits represents soy for which **was verified by satellite data assessment that it was cultivated on land not converted nor deforested in the last 20 years.**
  - The verifying party keeps a balance of:
    - the **amount of soy harvested** from non-converted/non-deforested land;
    - the **amount of SBLC credits issued** for this soy to the soy farmer;
    - the **amount of SBLC credits transferred through the chain from the soy farmer to End-user Y**.
- The verifying party has verified and confirms that all credits transferred to End-user Y are covered by soy cultivated on agricultural lands that was non-converted/non-deforested for 20 years and are transferred within the period of validity of the SBLC credits.
- The date of issuance of the SBLC verification statement
- The identification of the party issuing the SBLC verification statement
- When the SBLC verification statement is accompanied by annexes, both the verification statement and the Annexes are provided with a unique code showing that the documents belong together.

A format for a SBLC verification statement is shown in *Appendix 2*.

The following requirements apply to the use of SBLC credits by the company:

- The company must show that only the CPF-LUC indicator of the CFP of feed, is compensated through SBLC credits.

- The company must show that the amount of SLBC credits that were purchased is equal to the amount of soy for which the CFP-LUC indicator is compensated.
- The company must show that for feed, produced with soy(products) not covered by SBLC verification statements, the CFP-LUC indicator is included in the CFP-calculation.
- The company must show that the SBLC credits where purchased and used to compensate the CFP-LUC indicator within in the same year, with two exceptions:
  - Credits purchased in year X, but not used in year X, can be carried over to year X+1.
  - When an insufficient amount of SBLC credits is purchased in year X, it is allowed to replenish this deficit in year X+1, provided that these extra SBLC credits were purchased before the 31st of January of year X+1.
- The company must communicate the use of SBLC-credits to the customer and make it clear that this means that the CFP of the feed does not contain the CFP-LUC indicator for the compensated soy(product).

9. Informing the customer

In addition to § 4.5.1. of the document R5.0 Feed Management Systems Requirements, the company must document the calculated CFP of the feed delivered to the customer and communicate it to the customer or third party, in accordance with the procedure the company has made.

For the positive declaration of the feed delivered to the customer, the scope 'Carbon footprint of feed' must be used.

When the company calculated the CFP of the feed with the use of Satellite-based Land Use Change (SBLC) verification statements, the company must communicate this to the customer.

Appendix I. Emission factors for methane production

If the company produces feed for dairy cows and associated young stock, in addition to the CFP calculation, the company must also calculate the following emission factors for methane production per kg of ingested product:

- The methane production per kg ingested product at 0% silage maize in the feed regime, expressed in grams of methane per kg product (EF_CH4_0)
- The methane production per kg ingested product at 40% silage maize in the feed regime, expressed in grams of methane per kg product (EF_CH4_40)
- The methane production per kg ingested product at 80% silage maize in the feed regime, expressed in grams of methane per kg product (EF_CH4_80)

The company must implement a procedure that describes how the company performs the calculation of these emission factors and communicates the outcome to customers and third parties. The company must ensure that this procedure is continuously executed correctly.

1. **Selection of the data**

The company must select the methane emission factors for the ingredients of the concerning feed from the Nevedi Protocol (see Annex 3a of the Nevedi Protocol).

If the company uses an ingredient for the production of the feed for which there is no methane emission factor available in the Nevedi Protocol, the company must use the methane emission factor for the product group where the ingredient belongs to (see Annex 1 of the Nevedi Protocol).

2. **Calculating the methane production per kg feed intake**

The company must use the following calculation method:

Step 1: Calculation methane production per kg ingested product:

Ingredients (kg)		**Methane emission factor ($g\ CO_2$-eq/kg)**		**Outcome**
Weight $_{ingredient\ A}$	x	EF_CH4 $_{ingredient\ A}$	=	Methane production $_{ingredient\ A}$
Weight $_{ingredient\ B}$	x	EF_CH4 $_{ingredient\ B}$	=	Methane production $_{ingredient\ B}$
Weight $_{ingredient\ C}$	x	EF_CH4 $_{ingredient\ C}$	=	Methane production $_{ingredient\ C}$
…				+
Weight $_{total\ feed}$			=	Methane production $_{total\ feed}$

Step 2: Calculation methane production per kg feed:
Methane production $_{total\ feed}$ / Weight $_{total\ feed}$ = Methane production (g/kg)

Appendix II. Format for SBLC verification statement

Verification statement
Statement number:
xxxxxxxxxxxxxxxxx

[**Name of verifying party**]

Confirms that

[**Party X**]

Has obtained SBLC credits representing a verification of 20 Years non conversion / non-deforestation from a soy farm certified by [a **FSSG accepted soy scheme**], using for the SBLC analysis the same Geofenced area has been used for the underlying FSSG compliant certification in [**country**].

[**Name of verifying party**] has verified in conformity with the minumum requirements indicated in tghe Nevedi SBLC guidelines 2025 - annex 3 that these SBLC credits represent soy cultivated on land that was not converted nor deforested in the last 20 years. This was verified through analysis of satellite data. This means that the land used on these farms was already farmed land in [**month year**]

Volume sold covered by this statement:
Xxxxxxx [**FSSG accepted soy scheme**] credits*
(* 1 credit is equivalent to …)

To be delivered to:
[**End-user Y**]

For these SBLC credits, [**Name of verifying party**] keeps a balance of: the amounts of soy harvested from non-converted/non-deforested land, the amount of SBLC credits issued for this soy and the transfer of SBLC credits through the chain from the soy farmer to [**End-user Y**].

[**Name of verifying party**] confirms that all SBLC credits covered by this verification statement and transferred to [**End-user Y**] are covered by soy harvested from agricultural land non-converted/non-deforested in the last 20 years.

[Name/logo/address of verifying party]

Date of issue:
xx/xx/20xx

Manager

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

We enable every company in the feed chain to take responsibility for safe and sustainable feed.

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