

Portfolio Claim- Environmental Methodology

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In collaboration with Quantis



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1. Introduction

Encouraging consumers to adopt healthy, more sustainable diets is one of the most impactful ways to drive meaningful sustainable change¹. Our product portfolio and operational scale uniquely position us to support this dietary shift toward a more sustainable food system. By offering a compelling selection of plant-based and blended products and **highlighting their environmental benefits**, we inspire the transition to healthy, sustainable eating.

This document outlines the methodology used to develop and substantiate our environmental impacts portfolio claims on climate, land and water. It explains the Product lifecycle assessment (LCA) Tool, the tool methodology including the scope of the analysis, functional unit and system boundaries, method, and data sources which Quantis, a leading environmental sustainability consultancy and life cycle assessment specialist, developed for Flora Food Group to support claims made on its branded products. It explains the calculation for the portfolio claim.

While currently there is no guidance on making category or portfolio-wide comparative claims on climate, land and water, we build on our robust, LCA analysis conducted in collaboration with Quantis, to report figures stating the impact of our products in butters and spreads, creams and cheeses across our portfolio in comparison to dairy equivalents.

Using science-based approaches, we measure and demonstrate our impact, ensuring actions align with the latest advancements in sustainability. Clear and credible environmental impact claims must be transparent as we demonstrate how our products have lower impacts than dairy equivalents.

We use different types of claims (product, portfolio and avoided pressures claims) to scientifically substantiate how our portfolio of butter and spreads, creams and cheeses are more sustainable than dairy. The figures in this document should be considered in conjunction with our Avoided Pressures results which follow [WBCSD guidance](#), along with its full methodology available on our website. For product specific claims and technical summaries, see brand specific websites.

2. Results

In 2024, analysing about 50% of our product portfolio globally found that, on average, across butters and spreads, creams and cheeses, Flora Food Group products have **70% lower climate impact, require 75% less land, and use 65% less water compared to the dairy equivalents**. As this reflects a weighted average across these three categories, some of our products may perform better or worse than the reported results.

Table 1: The results below represent a review of 289 SKUS representing c.50% of NSV of each category (butter & spreads, creams and cheeses).

¹ [Diets-for-a-Better-Future_G20_National-Dietary-Guidelines.pdf](#)

| | Butters and spreads | | | Creams | | | Cheeses | | | Flora FG Portfolio** | |
|---|---------------------|-------|--------------|----------|-------|--------------|----------|-------|--------------|----------------------|-----|
| | Flora FG | Dairy | % Difference | Flora FG | Dairy | % Difference | Flora FG | Dairy | % Difference | % Difference | |
| GHG emissions (average kg CO2-eq / kg product) | 2.1 | 10.3 | 79% | 2.0 | 3.0 | 32% | 3.4 | 8.5 | 59% | 74.2% | 70% |
| Land occupation (average m ² a / kg product) | 3.1 | 14.4 | 78% | 1.7 | 3.6 | 52% | 1.6 | 10.4 | 84% | 75.7% | 75% |
| Water Consumption (average litres / kg product) | 17.3 | 74.7 | 76% | 19.2 | 24.8 | 22%* | 51.9 | 55.9 | 7%* | 69.5% | 65% |

All values are weighted averages based on 12-month Moving Annual Total (MAT) sales volumes as reported in Sept 2024. Figure represents c.50% of NSV of each category. For communication purposes, percentages are rounded down to nearest 0% or 5%.

*No external claim for the category communicated, as result is below internal threshold.

** Flora Food Group Portfolio encompass Butter and spreads, Creams and Cheeses, excludes Liquids.

The weighted average figures were derived from an assessment covering 50% of Flora Food Group’s global sales volumes from September 2023 to August 2024. While the analysis indicates that, on average, Flora Food Group products have lower climate, land and water impacts than their dairy counterparts, this is a weighted average of the three categories and should not be interpreted as a uniform environmental benefit for all of our products. For example, while our products demonstrate over a 50% reduction in land use change across all categories, some categories may exhibit higher water consumption. For individual product claims, see the technical summaries available for certain product on brand websites.

As data accuracy improves, and emissions factors and methodologies are refined, we are able to obtain further insights into our products’ results and inform our product innovation thus providing consumers with a selection of products that offer a compelling, more sustainable choice.

3. *The Product Lifecycle Assessment (LCA) Tool*

Since 2018, we have been calculating the environmental impact of our products through peer reviewed, ISO-compliant, lifecycle assessments (LCAs), continuously learning and refining our approach as well as recognizing and addressing the limitations thereof.

In 2022, Flora Food Group commissioned Quantis to develop a LCA Tool (the “Product LCA Tool”) to enable Flora Food Group to assess the environmental impacts of its products sold in Europe, the USA and Canada and compare these to the dairy equivalent products sold in the same regions. In 2024, the Product LCA Tool was updated to maintain its relevance and alignment with the latest scientific advancements.

3.1 Life Cycle Assessment (LCA)

LCA is a metrics-based methodology used to assess environmental impacts resulting from, for example, greenhouse gas emissions, waste production, water, land, and energy use. Environmental impacts are calculated over the life cycle of a product, from extraction of raw materials to the end-of-life.

3.1.1 Methodology

The Product LCA Tool was developed following regionalized LCA methodology described by Liao et al. (2020) to compare the environmental impacts of Flora Food Group Products to the same amount (1 kg) of the dairy equivalent product sold in the same market. The Tool uses a cradle-to-grave approach requiring data collection of the product recipe, key ingredients sourcing countries, production factory, energy mixes, packaging designs, transportation, and end-of-life scenarios. Spatially differentiated agricultural life cycle inventory data is generated (archetypes), as well as land use change (“LUC”) emissions for agricultural ingredients in all markets relevant to each system’s supply chain, using an attributional approach as per PAS 2050 (BSI, 2012), aligned with the latest available international standards for dairy products, published by the International Dairy Federation (IDF, 2015) and the European Dairy Association (EDA, 2016).

3.1.2 Critical Review

The Product LCA Tool and the methodology used to perform the LCAs are aligned with PEF methodology and ISO 14040 and 14044 standards for public disclosure of results. The Tool has been peer reviewed by a panel of three independent experts on topics such as LCA, agronomy and dairy production.

The product LCA results generated by the Tool based on assessments performed by Flora Food Group are reviewed by Quantis and respect and conform with ISO 14026 standards (Environmental labels and declarations — principles, requirements, and guidelines for communication of footprint information) for making comparative claims. The results can be found in the technical summary for the respective Flora Food Group Product.

3.1.3 Function Unit

The functional unit (“FU”) is a reference unit for which all results are calculated and presented. In respect of the Flora Food Group Products, the FU is to provide the same function (cooking, baking, frying, roasting etc.) of 1 kg of the equivalent dairy product and Flora Food Group branded plant-based alternative product in a relevant country market, packaged, for the relevant consumer (domestic or professional).

3.1.4 Environmental Impact Indicators Considered

The Product LCA Tool assesses a total of 16 indicators: 14 environmental impact indicators from the European Commission Environmental Footprint (EF) 3.1 method and two

additional indicators: land occupation (m².y), which reflects the total area of land used over one year (Nemecek et al. 2011, Milà i Canals et al. 2012), and water consumption (m³), the total amount of fresh water consumed (ISO 14046), which includes, for example, evapotranspiration of irrigation water.

3.1.5 From Cradle to Grave

The LCAs performed with the Tool consider all identifiable activities across the product life cycle (cradle-to-grave) for Flora Food Group Products in the different markets (see Figure 1).

The assessments include impacts from:

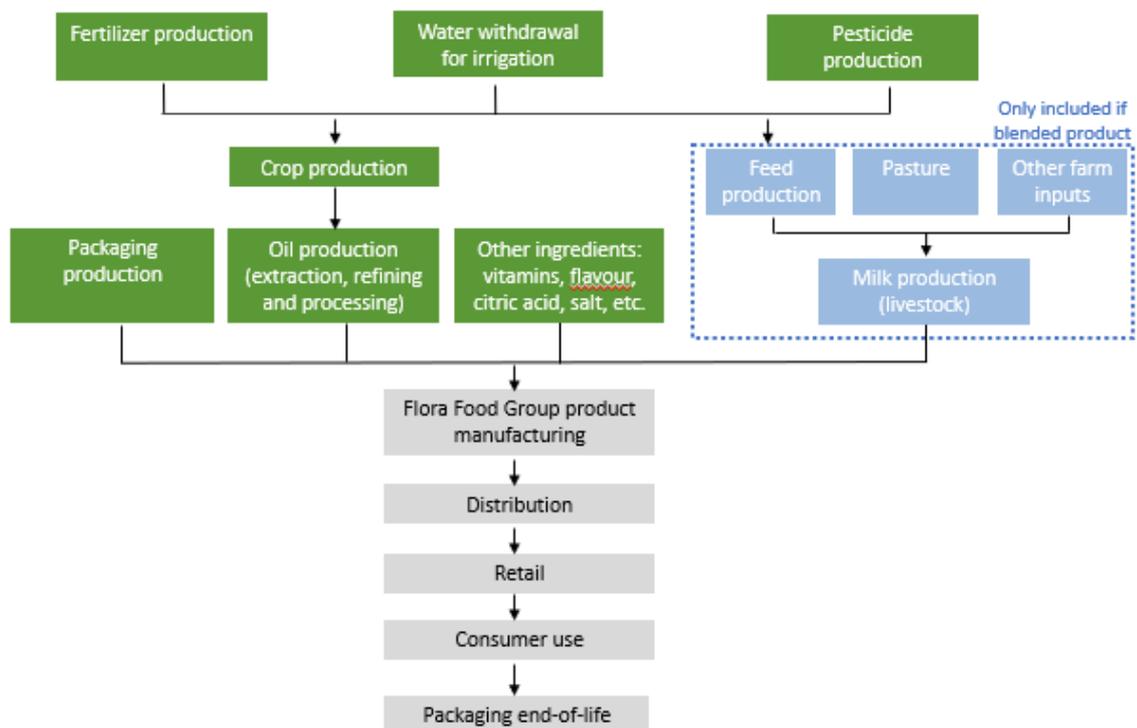
- Farming (crop production or milk production)
- Packaging manufacturing of Flora Food Group Products
- Distribution
- Retail
- Consumer use
- Packaging end-of-life

Figure 1. Schematic of the Systems Evaluated

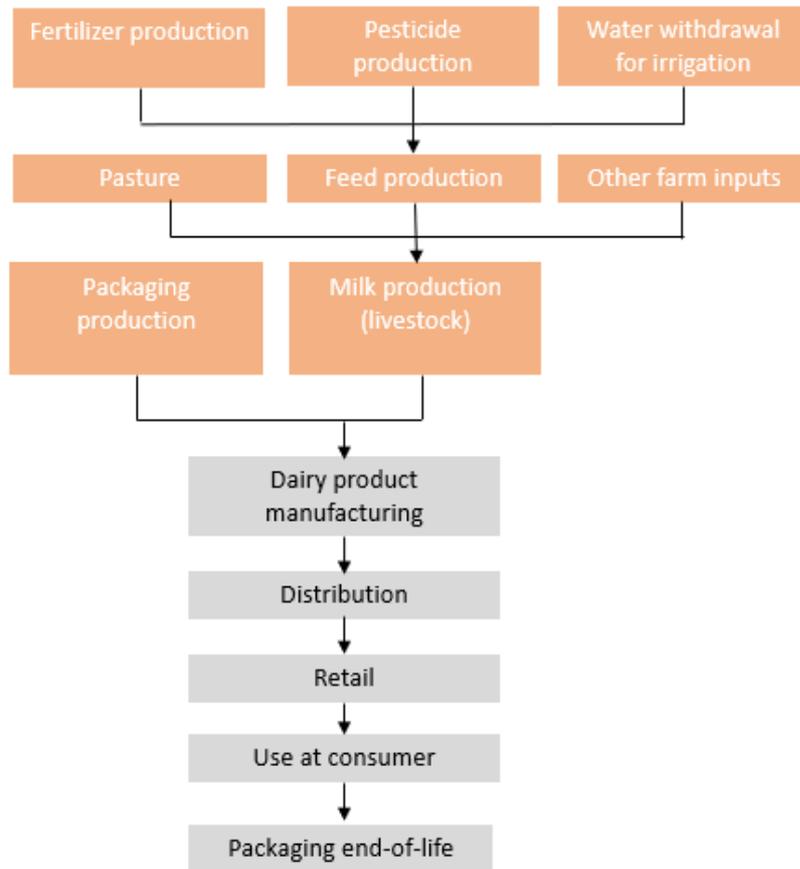
The studies do not include impacts from:

- Capital goods at the distribution centre and at the point of retail.
- Labour, commuting of workers, administrative work, cattle insemination, and disease control processes.
- Food loss and food waste during distribution, at retail point and at the consumer's home

A. Flora Food Group Product Manufacturing



B. Dairy Equivalent Manufacturing



3.2 LCA Data Collection and Modelling

- Flora Food Group Products: primary data for the recipes and ingredient sourcing were provided by Flora Food Group based on its supply chain and manufacturing operations
- Dairy products for European countries: Default dairy data (WFLDB) used to model dairy production, processing, packaging, and distribution and representative of country averages in Europe is based on guidelines published by the European Dairy Association and the European Commission (see Note 1 and 2 below)
- For those European countries for which no direct national dairy datasets were available, the country with the lowest dairy climate impacts in Europe (in this case, Finland) was chosen for the comparison to ensure a conservative approach.

3.2.1 LCA database of Emission Factors (EFs) used:

WFLDB v3.9; ecoinvent v3.9

These database versions were the latest available at the time of the last tool update.

3.2.2 Choice of dataset based on data quality criteria

To enhance the robustness of the study and ensure that decisions made within the scope of the LCA are well-informed, the collected data are assessed based on the following set of data quality criteria as much as possible, as prescribed in ISO 14044:

- Technological representativeness: ensure that the EFs for packaging used by Flora Food Group are modelled based on the information provided by Flora Food Group in 2022 and the relevant EFs updated to ecoinvent v3.9
- Geographical representativeness: align modelling datasets with product sourcing regions specific to Flora Food Group
- Time-related representativeness: ensure data is current and based on the latest database versions available at the time of the update
- Precision: apply the most fitting and relevant dataset to the Flora Food Group products, using proxies when the exact match is not available
- Completeness: include all relative data defined within the system boundaries.

3.2.3 Quantitative parameter uncertainty assessment

The pedigree matrix is used to quantitatively assess the time-related coverage, geographical coverage, technology coverage, completeness, and reliability for foreground processes and data sources by the practitioner. The description of the pedigree matrix can be found in Weidema et al. (2013), with a score of one being most favourable and five being least favourable. The analytical uncertainty assessment is used to propagate the uncertainty to the functional unit, and Monte Carlo simulation is used to quantify the parameter uncertainty related to dairy products in SimaPro. Based on this approach, for Flora Food Group products, the error factor is 14 %, whereas for dairy butter, the error factor related to parameter uncertainty is 15 % based on a 95 % confidence level (Liao et al., 2020).

3.2.4 Meta-analysis of dairy emission factor

In addition to the quantitative parameter uncertainty, a meta-analysis was performed. The error factor for dairy products was calculated based on the minimum value reported from 18 studies compared to the baseline value from the WFLDB v3.9.1 database. In this study, we use 36 % from the USA as the default global error factor to be conservative.

3.2.5 Additional criteria to make general claims based on the uncertainty level of the ingredient datasets

The quality of the data was assessed based on the uncertainty of the dataset selected to match with the Flora Food Group sourced ingredient. The data uncertainty scale goes from 1 to 3, with the score of “1” being a perfect or close-to-perfect match (e.g., refined rapeseed oil is sourced in Canada so it is matched with the WFLDB dataset “rapeseed oil, refined /CA”) and “3” attributed to general proxy matching (e.g., all flavourings are matched with the ecoinvent v3.9 dataset “Chemical, organic {GLO}”).

To account for this uncertainty in the proxy used, the model requires a maximum of 3 % of the product weight to be of datasets with uncertainty level 3. If this requirement is not fulfilled, general climate, land and/or water claims comparing the Flora Group product to its dairy equivalent are not possible.

| Uncertainty threshold | Definition | Example dataset |
|-----------------------|--|--|
| 1 | Exact or Close match of the product | “Rapeseed oil, refined, EU” is matched with “Rapeseed oil, refined /DE U” |
| 2 | Proxy is similar to the product but with uncertainty on parameters (p.ex. Concentration) | “FABA BEAN Dextrose Mix” is matched with “Faba bean protein, 60% protein /GLO” |
| 3 | Proxy is generic | All flavourings are matched with “Chemical organic {GLO}” |

The total mass of ingredients with high uncertainty must be less than 3% for the general claims criterion to be satisfied.

NOTE 1: EDA (2018) Product Environmental Footprint Category Rules for Dairy Products. Version 1.0 (April 2018). The European Dairy Association. Brussels, Belgium

NOTE 2: Raw milk datasets are based on the World Food Life Cycle Assessment Database (WFLDB), Nemecek et al. 2015

4. Portfolio Claim

To assess the environmental performance of our portfolio of products compared to dairy we used results from the following

4.1 Flora Food Group Product LCA Tool

The Product LCA Tool was used to evaluate the impacts of Flora Food Group alternatives to dairy butter and spreads and creams compared to dairy butter and spread and creams.

4.2 The Violife LCA Study (updated in 2024)

To compare plant-based cheese to dairy cheese in operating markets, the Violife Study was utilized. This study and its methodology adhere to the Product Environmental Footprint (PEF) methodology and ISO 14040/14044 standards for transparent public disclosure. Additionally, the study and the underlying tool underwent independent peer review to ensure methodological robustness and credibility.

4.3 Scope

The scope aligns with Flora Food Group’s 2024 carbon corporate footprint.

Reporting Period: For 2024 calendar year (based on 12-month Moving Annual Total as reported in Sept 2024).

Product Categories:

The product categories and representative Stock Keeping Unit (SKUs) are outlined in Table 2 below. The geographies covered align with the regions where Flora Food Group holds market share.

Table 2: Product categories covered in the assessment (Numbers are rounded down to nearest 0 or 5)

| Product category | SKU coverage |
|---------------------|--|
| Butters and spreads | Over 75 SKUs, representing ~50% of category sales and volume |
| Creams | Over 45 SKUs, representing ~50% of sales revenue / ~45% of sales volume |
| Cheeses | Over 160 SKUs, representing ~45% % of sales revenue and ~35% of sales volume |

The portfolio comparative claim represents a weighted average of the results of 289 SKUs covering c.50% of Flora Food Group’s global sales volumes from September 2023 to August 2024.

4.4 The Calculation

The Product LCA Tool generated the emission factors for products in our categories of butters and spreads, and creams. For the emission factors of cheeses, a dedicated ISO-compliant study was used (see above).

The emission factors for dairy products come from the [World Food LCA Database](#) (WFLDB), with the latest version of the Product LCA Tool using WFLDB version 3.9.

The % difference used in comparative claims across GHG emissions, land occupation and water consumption is calculated as follows:

$$\% \text{ difference} = (\text{Dairy product EF} - \text{Flora Food Group EF}) / \text{Dairy product EF}$$

5. External Communications

In order to make comparative assertions, and specific claims (e.g., climate impact comparisons), the overall environmental performance of the Flora Food Group Product must be favourable, overall, compared to its dairy counterpart in each country, based on the 18 indicators assessed. Climate change, land occupation, and water consumption have a high relevance for Flora Food Group product categories and the food industry and therefore are recommended to be used in product footprint environmental communications.

Throughout the development of the Product LCA Tool, conservative assumptions in favour of dairy have been used for comparisons. For example, the packaging chosen for the dairy comparison is a common format with lowest climate impacts (i.e., for butter, the packaging chosen for retail consumption is 250 g paper parchment wrapper). These conservative approaches ensure further robustness when making comparative claims.

For communication purposes Flora Food Group uses “climate impacts” to communicate the impacts of their products on climate change. Globally, terms like “climate impacts”, “carbon emissions”, “carbon footprint” or “greenhouse gas emissions” are used interchangeably for communication purposes when communicating about the impact on climate change of products, although there are some technical nuances and differences.

For any given indicator, in order to make public comparative assertions, savings must be considered significantly lower. For some assessments and for some indicators (e.g., water consumption), results may appear favourable, however, as the Product LCA Tool considers the level of uncertainty for individual metrics, unless there is a significant difference, a reliable comparative conclusion cannot be drawn to support external communications.

Annex 1: Understanding the Type of Claims

We rely on different types of assessments to have robust, scientific evidence to support the statement that our products are ‘More Sustainable’:

1. Product-level comparative claims
2. Category or portfolio comparative claims
3. Avoided pressure claims.

A **product-level comparative claim** guides the consumer choice between two products following externally reviewed methodology (ISO compliant and peer reviewed), supports portfolio assessment, and **serves as the basis for category claims**, with each product assessed individually under clear guidance following the EU Green Claims Directive. Product comparative claims are not representative of the market; they only represent individual products.

A **category or a portfolio comparative claim**, building on individual product claims, provides a corporate-level perspective, enabling scaled sustainability claims by comparing a company’s product category with selected equivalent comparative products.

An **avoided pressures claim** positions the company within market dynamics, evaluating its role in the environmental transition while considering broader consumption patterns. Our avoided pressures assessment follows WBSCD draft guidance for climate and is expanded for land and water.

| | Product Claim | Comparative Category or Portfolio Claim | Avoided Pressures Portfolio Claim |
|---------------------------|--|---|--|
| What it tells | Guides consumer choice between two products following externally reviewed methodology (ISO compliant and peer reviewed), supports portfolio assessment, and serves as the basis for category claims, with each product assessed individually under clear guidance following EU green claims directive. | Provides a corporate-level perspective, enabling scaled sustainability claims by comparing a company’s product category with selected equivalent comparative products. | Positions the company within market dynamics, evaluating its role in the environmental transition while considering broader consumption patterns. Assessment follows WBSCD guidance for climate and expanded for land and water. |
| What it does not tell | Does not allow extrapolation or provide insights at the category level. Technical summaries support product (SKU) level results; posted on brand websites. | SKU selection and extrapolation have limitations, as the lack of global guidance or standards creates uncertainty about the accuracy of the reference scenario in representing market and consumption patterns. | Focuses on market-level impact rather than direct product comparisons. |
| Market representativeness | Not representative of the market; only assesses individual products. | Market representativeness has limitations, as it depends on the chosen comparative products and reference scenario, which may not fully reflect broader trends. | Better reflects market dynamics and consumption patterns. |
| Indicators assessed | GHG emissions | | GHG emissions |
| | Land occupation | | Land occupation |
| | Water consumption | | Water withdrawal |

Annex 2: About Quantis

Quantis, a BCG company, is a leading sustainability consultancy pioneering approaches to solve critical environmental challenges. We partner with leading consumer goods and financial services organizations who are serious about reducing their environmental impacts to future-proof their businesses and prosper in a new planetary economy. Our unique approach combines deep environmental expertise, strategic business knowledge, and enterprise transformation skills to help organizations shape policies, practices and business models that align with the planet's capacity while building resilience, unlocking innovation, and optimizing performance.

Our dynamic and visionary team of environmental, business and communications experts will guide you on the journey from business as usual to business at its best.

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