FLORA ALTERNATIVE 100% VEGETALE A LA CRÈME FLUIDE 31% LIFE CYCLE ASSESSMENT RESULTS FO

The Life Cycle Assessment ("LCA") results and claims for the above product are set out below. The LCA methodology and details of the Tool developed for Flora Food Group, the parent company of the brand above, by Quantis is set out in the Annex below.

Tool version: 2025_03_26

Date of assessment: 13.05.2025

PRODUCT SPECIFICATIONS

All data and results in this fact sheet are for the following product.

Specification	Description
Product type:	100% plant-based alternative to cream with 31% of fat content
Product brand and variant	Flora alternative 100% végétale a la crème fluide 31%
Product DU code	91310689
Market:	France
Product format (grams):	250
Functional unit	1 kg fresh product

The following results are based on a life cycle assessment, from ingredients production through to packaging end-of-life. A total of 18 indicators were assessed: 15 environmental impact indicators from the European Commission Environmental Footprint (EF) 3.0 method and three additional indicators: land occupation (m2.y), water consumption (m3) and water withdrawal (m3). In order to make comparative assertions, and specific claims on climate, land or water, the overall environmental performance of the Flora Food Group product must be favourable compared to its dairy counterpart, based on all indicators assessed.

ON-PACK CARBON LABEL

0,19 kg CO2-eq per 100 g

COMPARATIVE CLAIMS

What dairy counterpart is Flora alternative 100% végétale a la crème fluide 31% bei Dairy cream, 31% fat in France

CLIMATE IMPACTS BY LIFE CYCLE STAGE FOR 1 KG OF FRESH PRODUCT

Life cycle stage	Alternative 100% végétale à la crème	Dairy cream, 31% fat
Ingredients & product manufacturing	1,51	4,7
Packaging production & end-of-life	0,11	0,11
Distribution	0,24	0,07
Use stage	0,04	0,04
TOTAL	**1,9**	**4,9**

SUMMARY OF COMPARATIVE RESULTS FOR 1 KG OF FRESH PRODUCT

Indicator	Flora Food Group product	Dairy equivalent	Absolute savings	% savings
Climate impacts [kg CO_2-eq/kg product]*	**1,9**	**4,9**	**3,0**	**61**
*Climate impact range***	*(1,6 - 2,2)*	*(3.2 - 5.6)*	*(1 - 4)*	*(32 - 71)*
Land occupation [m^2a/kg product]	1,8	5,8	4,0	69%
Water consumption [l/kg product]	17	37	20,0	54%

**Average Climate impact values that are used for on-pack claims.*

***The Climate impact range values are provided for reference and represent the range between the minimum and maximum possible values, taking into account the error margin in the emission factors used in the assessment. The error margins are informed by a literature review of 18 studies on dairy emission factors in different countries and WFLDB verison 3.9.1, as well as the uncertainty analysis in the original study of Flora FG products published in Liao, et. al. 2020.*

NOTE: For any given indicator, to make public comparative assertions, savings must be considered significantly lower. If no savings are reported in the table above, the savings are not considered significant; in this case, and in order to be conservative claims are not recommended.

SPECIFIC STATEMENT(S) FOR CLIMATE IMPACTS

In France, Flora alternative 100% végétale a la crème fluide 31% has 61% less climate impact than dairy cream.

SPECIFIC STATEMENT FOR LAND OCCUPATION

In France, Flora alternative 100% végétale a la crème fluide 31% occupies 69% less land than dairy cream.

SPECIFIC STATEMENT FOR WATER CONSUMPTION

In France, Flora alternative 100% végétale a la crème fluide 31% uses 54% less water than dairy cream.

EQUIVALENCIES PER KG OF PRODUCT

CLIMATE EQUIVALENCIES

In France, switching from one kg of dairy cream to one kg of Flora alternative 100% végétale a la crème fluide 31% could save at least 3 kg CO2-eq, equivalent to:

- Driving a car 15 km. *Assumptions: Based on a medium-size petrol car (EURO5), considering tailpipe emissions only.*
- Charging a smartphone overnight for 15 months (457 times). *Assumptions: Based on the electricity consumption of charging a smartphone overnight (19.2 Wh/day), assuming the regional electricity mix (EU)*
- Leaving a LED light on for 975 hours (41 days). *Assumptions: Based on a 9-Watt LED lightbulb, assuming the regional electricity mix (EU)*

LAND OCCUPATION EQUIVALENCIES

In France, switching from one kg of dairy cream to one kg of Flora alternative 100% végétale a la crème fluide 31% could save at least 4 square meters of land, equivalent to:

- 1 table tennis / ping pong tables. *Assumptions: Based on the area of a standard table tennis / ping pong table (4.18 m2).*
- 64 sheets of A4 paper. *Assumptions: Based on a letter size (A4) piece of paper of 623.7 cm2, excluding the land occupation associated with paper production.*

WATER CONSUMPTION EQUIVALENCIES

In France, switching from one kg of dairy cream to one kg of Flora alternative 100% végétale a la crème fluide 31% could save at least 20 liters of water, equivalent to:

- Leaving the tap running for 2 minutes. *Assumptions: Based on a tap water flow of 12 litres per minute.*

EQUIVALENCIES PER HOUSEHOLD OVER ONE YEAR

Based on a household of 4 with an average dairy cream consumption of 2.4 kg per person per year

Source: https://www.statista.com/statistics/415230/butter-per-capita-consumption-europe-eu/

CLIMATE EQUIVALENCIES

In France, if an average household of 4 people switched from dairy cream to Flora alternative 100% végétale a la crème fluide 31% for a year, it could save at least 29 kg CO2-eq, equivalent

- Driving a car 150 km. *Assumptions: Based on a medium-size petrol car (EURO5), considering tailpipe emissions only (201 g CO2eq/km).*
- Traveling 81 km by plane. *Assumptions: Based on a short-haul economy flight (364 g CO2eq/km), based on My climate tool*
  Source: https://co2.myclimate.org/en/flight_calculators/new
- The electricity consumption of 134 washing machine cycles. *Assumptions: Based on a washing machine cycle of 0.64 kWh/cycle (temperature 40°C, 50 litres of water use), assuming the regional electricity mix (EU)*
  Source: https://green-business.ec.europa.eu/environmental-footprint-methods_en
- The electricity consumption of putting on an electric kettle 688 times. *Assumptions: Based on a kettle consuming 0.125 kWh to boil 1 litre of water, assuming the regional electricity mix (EU)*

LAND OCCUPATION EQUIVALENCIES

In France, if an average household of 4 people switched from dairy cream to Flora alternative 100% végétale a la crème fluide 31% for a year, it could save at least 39 square meters of land

- 2 parking spots. *Assumptions: Based on a 17.7 square meter parking spot.*
- 0,2 tennis courts. *Assumptions: Based on a standard size tennis court of 260 square meters.*

WATER CONSUMPTION EQUIVALENCIES

In France, if an average household of 4 people switched from dairy cream to Flora alternative 100% végétale a la crème fluide 31% for a year, it could save at least 195 litres of water, equiv

- Leaving the tap running for 16 minutes. *Assumptions: Based on a tap water flow of 12 litres per minute.*
- Taking 3 showers. *Assumptions: Based on one shower using 65 litres.*
- 4 washing machine cycles. *Assumptions: Based on 50 litres of water use per washing machine cycle.*
- Filling up 1 bathtubs. *Assumptions: Based on bathtub capacity of 180 litres.*

ANNEX 1 - LCA TECHNICAL SUMMARY

FLORA FOOD GROUP PRODUCTS VS DAIRY EQUIVALENT

Flora Food Group is a world leading food company which owns a wide range of well-known plant-based and vegan brands (including Country Crock, Flora, Becel, Rama, Tulipan, 'I Can't Believe It's Not Butter', Violife and many, many more). Flora Food Group, through the sale of its branded goods, offers a range of versatile food products in the margarine/spreads, cheeses and creams categories which provide functional alternatives to equivalent dairy products.

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

This Technical Summary presents the Tool methodology including the scope of the analysis, functional unit and system boundaries, method, and data sources which Quantis developed for Flora Food Group to support claims made on its branded products.

The Product LCA Results above are generated by Flora Food Group and include the results of defined products assessed, including the specifications of the assessment for each Flora Food Group Product reviewed and the results used for the relevant comparative claims.

LIFE CYCLE ASSESSMENT

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.

METHOD

The 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 international standards for dairy products, published by the International Dairy Federation (IDF, 2015) and the European Dairy Association (EDA, 2016).

CRITICAL REVIEW

The 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 above for the respective Flora Food Group Products.

FUNCTIONAL 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).

ENVIRONMENTAL IMPACT INDICATORS CONSIDERED

The Tool assesses a total of 18 indicators: 15 environmental impact indicators from the European Commission Environmental Footprint (EF) 3.1 method and three 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), water consumption (m3), the total amount of fresh water consumed (ISO 14046), which includes, for example, evapotranspiration of irrigation water, and water withdrawal (m3), the amount of water that enters a system, from any water body.

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

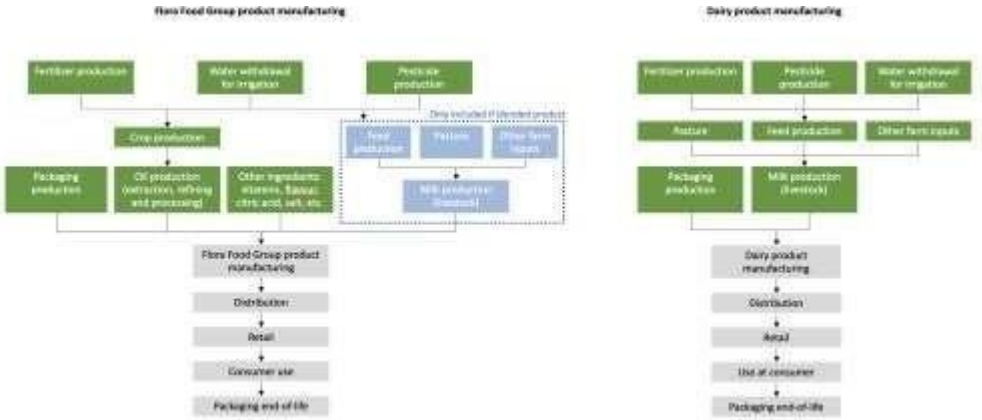

Figure 1. Schematic of the systems evaluated

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.

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.

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.

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 modeled based on the information provided by Flora Food Group in 2022 and the relevant EFs updated to ecoinvent v3.9
- Geographical representativeness: align modeling 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.

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 favorable and five being least favorable. 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).

Meta-anaylsis 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.

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 flavorings 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 claims that the Flora Group product is better than 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)*

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 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 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.

For further information, please contact ESGenquiries@florafg.com

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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