

RESULTS AND DISCUSSION

CLIMATE CHANGE IMPACTS

Table 1 shows that Flora Plant B*tter Spreadable UK has significantly lower climate impacts than dairy butter. The climate change impact for 1 kg of Flora Plant B*tter Spreadable UK on the UK market is 5.1 kg CO₂-eq, whereas the impact for dairy butter is 18.1 kg CO₂-eq per kg of butter.

Climate change (kg CO ₂ -eq/kg product)		Calculated savings*	
Flora Plant B*tter Spreadable UK	Dairy butter	kg CO ₂ -eq / kg	%
5.1	18.1	13.0	-72%

Table 1. Climate change impacts for Flora Plant B*tter Spreadable UK and dairy butter on the UK market. Results are expressed in kg CO₂-eq per kg of product)

*Calculated savings are rounded down when making claims

Figure 2 shows that the main drivers of climate change impacts for Flora Plant B*tter Spreadable UK are ingredients (oilseed farming and the associated land use change emissions), which can vary significantly depending on the type of oilseed, its quantity and sourcing countries.



Figure 2. Climate change results per life cycle stage for 1 kg of product in the UK

LAND OCCUPATION

In terms of land occupation, Flora Plant B*tter Spreadable UK has a lower result compared to dairy butter (Table 2). Land occupation of Flora Plant B*tter Spreadable UK is 7.9 m².y per kg of product, whereas that of dairy butter is 16.9 m².y per kg of product.

Land occupation (m ² .y /kg product)		Calculated savings*	
Flora Plant B*tter Spreadable UK	Dairy butter	m ² .y /kg product	%
7.9	16.9	8.9	-53%

Table 2. Land occupation for Flora Plant B*tter Spreadable UK and dairy butter in the UK market. Results are expressed in m² per year per kg of product.

*Calculated savings are rounded down when making claims

WATER CONSUMPTION

For dairy butter, despite the uncertainty related to water consumption results, the conclusions can still be considered valid; the comparative conclusions are less sensitive to data choice, due to the higher concentration of dairy milk in butter (Table 3).

Overall, Flora Plant B*ttter Spreadable UK water consumption is driven by yield and irrigation of crops and orchards. Flora Plant B*ttter Spreadable UK has a lower water consumption than dairy butter in the UK market. The water consumption of 1 kg Flora Plant B*ttter Spreadable UK is 0.019 m³ of water per kg of product, whereas water consumption for dairy butter is 0.083 m³ of water per kg.

Water consumption (m ³ water /kg product)		Calculated savings*	
Flora Plant B*ttter Spreadable UK	Dairy butter	m ³ water /kg product	%
0.019	0.083	0.063	-77%

Table 3. Water consumption for Flora Plant B*ttter Spreadable UK and dairy butter in the UK market. Results are expressed in m³ of water per kg of product.

**Calculated savings are rounded down when making claims*

CONCLUSIONS AND OUTLOOK

This study shows that Flora Plant B*ttter Spreadable UK has lower climate impacts, water consumption and land occupation compared to dairy butter. The climate change impact for Flora Plant B*ttter Spreadable UK is dominated by vegetable oil ingredients' production. When moving towards transparency of sustainable supply chains and developing potential mitigation strategies, producers can only understand the impacts of their products and look for opportunities to reduce these impacts if they fully and accurately assess their product supply chains. Towards more sustainable plant-based margarines and spreads, a key factor would be to reduce embodied environmental impacts from oilseed ingredients through better understanding and improvements in supply chain sourcing, farm level agricultural practices, and product recipe design. The key challenges of performing regionalised LCA lies in the collection and organization of all relevant data and models, performing gap assessment and prioritization, developing missing data or improving data quality, and linking inventory data with impact assessment, to draw robust conclusions and meet requirements for data quality.

CALCULATION OF EQUIVALENCIES

Equivalencies are used to put into perspective the results of the climate impacts of Flora Plant B*ttter Spreadable UK and dairy butter to render the information more meaningful and understandable for a larger audience. The equivalencies were assessed by calculating the CO₂-eq savings between Flora Plant B*ttter Spreadable UK and dairy butter and then converting the savings amount into equivalencies of different daily activities such as CO₂-eq emissions of driving a car or charging a smartphone overnight. Table 4 shows the data sources and units used for equivalencies calculated for the UK market.

GENERAL CLAIMS ON CLIMATE CHANGE SAVINGS¹

- The climate footprint of 1 kilogram of Flora Plant B*ttter Spreadable UK is 5.1 kg CO₂-eq per kg of product. For a 250 g tub, it is 1.28 kg CO₂-eq, for 100 g it is 0.51 kg CO₂-eq and for a single serving of 10 g it is 0.051 kg CO₂-eq.
- In the UK market, Flora Plant B*ttter Spreadable UK has 70% lower climate impacts, occupies half the land and uses 75% less water when compared to the same amount of dairy butter.
- Compared to 1 kg of dairy butter, the same amount of our Flora Plant B*ttter Spreadable UK on the average UK market emits 13 kg less carbon, uses 0.063 m³ less of water and occupies 8.9 m² less land per year
- 1 kg of Flora Plant B*ttter Spreadable UK saves 13 kg of CO₂-eq emissions compared to dairy butter.
- The same amount of Flora Plant B*ttter Spreadable UK saves 70% of greenhouse gas emissions compared to dairy butter.

¹NOTE: percentages may be rounded to make them as easy to understand as possible by the general public (e.g. 72% is rounded to 70%). As approximations exist in any life cycle assessment, a conservative approach avoids misleading communication and greenwashing.

EQUIVALENCIES DATA SOURCES

Equivalency	Equivalency unit	Climate change (kg CO ₂ eq)	Source
Charging a phone over night	daily	0.008	PEFCR Retail
Driving a car (petrol car EURO 5)	1 km	0.35	ecoinvent
Plastic bottles saved	500 ml	0.017	ecoinvent
One person on a intercontinental flight	1 km	0.22	ecoinvent
Equivalency	Equivalency unit	Land occupation (m ² .y)	Source
Average size of a parking spot	m ²	17.7	Internet various sources
Premier League football pitch sizes	m ²	7'140	Internet various sources
Equivalency	Equivalency unit	Water consumption (m ³)	Source
Leaving the tap on	Per minute	0.012	Internet various sources

Table 4. Equivalencies units and data sources