



# Nutrition & Sustainability Factsheet

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## Why dairy is important for achieving a healthy and sustainable diet.

Recent studies have shown that dairy products actually have a low climate impact when balanced against their nutritional importance in a healthy diet.

- Changes in dietary patterns and the enforcement of sustainable diets are gaining in importance in the drive towards reducing the food industries climate impacts.
- Sustainable diets need to be **protective** and **respectful of biodiversity** and **ecosystems**, **nutritionally adequate**, **culturally acceptable**, **accessible**, **economically fair** and **affordable**, while also being **safe** and **healthy** (1,2).
- Dairy products, with all their natural nutrients, **offer a resource and carbon efficient** way of achieving a balanced diet and can make key contributions to nutrient- and foodsecurity.
- The dairy industry is committed to improving its environmental footprint and is determined to do so under the **Dairy Sustainability Framework (DSF)**.

## THE IMPORTANCE OF REDUCING THE CARBON FOOTPRINT IN THE DAIRY SECTOR

There is growing evidence that argues that climate change will have tremendous impacts on human health(10) and the planet as a whole. Making the reduction of Greenhouse gas emissions (GHGE) and the overall carbon footprint imperative(10,11). The Food and Agriculture Organisation's (FAO) report, Greenhouse Gas Emissions from the Dairy Sector, assessed that the dairy industry contributes an average of 2.7% to the globally registered GHGE. This translates to a global average of 2.4kg carbon dioxide-eq./kg liquid milk (12,13) and for Europe, to 1.5kg carbon dioxide-eq./kg.(14). However, it should be noted that the climatic impact is only one amongst many indicators that are used to assess the sector's overall impact on the environment. All of these dimensions, climatic, as well as environmental ones, have been integrated in the → **Dairy Environmental Footprint Pilot ('Dairy PEF')**.

Increasingly, policy makers are concentrating on modifying the food supply chain and dietary patterns of consumers, through more environmental-friendly guidelines that help achieve a GHGE reduction(11). However, several studies have shown, that while more environmentally-friendly dietary behaviour is absolutely necessary, the food and nutritional security side of it should not be left out.(12)

## WHAT IS A SUSTAINABLE DIET? (2,3,15,16,24)

According to the FAO, sustainable diets have low environmental impacts, should contribute to food and nutrition security, while also offering a healthy life-style for present and future generations.

### Difficulties with the FAO's version of a 'sustainable diet':

1. Nutrient dense diets, which have more nutrients per calories, are not necessarily more affordable. (3,15)
2. Low-price diets tend to be energy-rich, but nutrient-poor. (15)
3. Some low-price healthy foods are not culturally accepted by the consumer. (15)
4. Diets with higher nutrient dense\* foods are linked with higher carbon footprint. (2,15,16)



Schematic representation of the key components of sustainable diets  
(Source: FAO, 2010)





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## Can a healthy and environmentally-friendly diet even be sustainable?

There is no evidence to suggest that every environmentally-friendly diet is also a healthy one and vice-versa (5,7,13,17,18,24).

**Healthy diet:** diets which guarantee the achievement of the daily nutrient requirements (10)

**Environmental-friendly diet:** consuming foods with a low environmental impact (10)

There are studies that have compared dietary models, which account for both the GHGEs and nutrient densities of foods, that have come to the conclusion that it is vital when evaluating these to include the whole diet and not just a single category of food. This is to help develop a comprehensive picture (13,17,19,23), that appreciates all possible impacts. Under these conditions it can be argued that both healthy and environmental-friendly diets can include foods with higher GHGE.

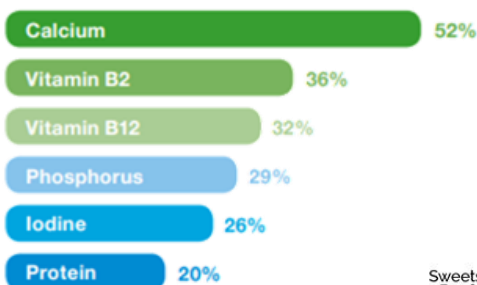
Any change in diets must withstand scientific testing, so as to avoid unintended consequences(17), such as nutritional deficiencies(8) and must take into account the consumer's dietary behaviour. Here studies have shown that **affordability** is key. Milk and other dairy products are therefore an ideal addition to such efforts, as these are both nutritious and affordable. (9,14,15)

In order to achieve the international climate change goals it is said that GHGEs will have to be reduced by 30% and dietary adjustments will be elemental to this.(3) Clearly, current efforts to adopt sustainable diets focus more on the environmental aspects, while leaving health related ones insufficiently addressed. (6)

There is no consensus on the exact balance of a sustainable diet. Vieux et al, claims, for example, that the necessary measures to reduce GHGE based on dietary consumption would require unrealistic changes in dietary patterns.(6,16) While others claim that in order to reduce the carbon footprint people would ultimately just have to eat less. (15)

## DAIRY AND SUSTAINABLE DIETS – Dairy and its essential nutrients are imperative to a sustainable diet

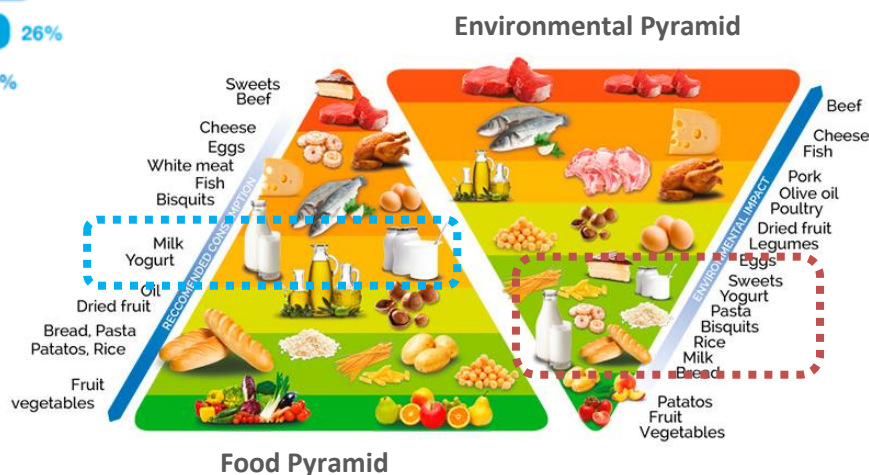
### Average contribution (%) of dairy foods to nutrient intakes in adults in European countries (Based on a survey of eight Member States)



Not only does dairy continue to be part of many dietary guidelines(20), which usually advise 2-3 servings per day and more for children(12,18), but it is often even considered to be a 'basic food group'.(12)

Animal products, including dairy, are nutrient-rich and provide essential nutrients(12), such as protein, calcium, magnesium, phosphorus, potassium, zinc, selenium, vitamin A, B2, B12 and choline. These nutritional compounds make them important for special groups, such as adolescence and elderly people. Many studies fail to mention in their analysis the quality and bioavailability of the protein found in dairy, just as its high mineral and vitamin content.(11)

The Double Food Pyramid recommends 2-3 daily servings of milk and dairy products (1,19).



According to the Barilla Centre for Food & Nutrition's nutritional-environment pyramid Milk and dairy have a central role in healthy sustainable diets



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## Why should the nutrient density and carbon footprint be jointly analysed?

While sustainable diets usually concentrate on the environmental impacts (4,11,17,24) of the foods that are consumed (20), no dietary guidelines should promote a reduction of GHGE at the cost of nutritional sustenance.(4,20) Some studies have shown that dairy could be the key to achieving this much needed balance between the environmental benefits and nutritional value in a sustainable diet (20,21).

The Nutrient Density to Climate Impact (NDCI) Index compares the nutritional values of products to their climate impacts. Smedman et al., finds in his index that milk has not only the highest nutrient density\*, but also the highest nutrient density in relation to climate impact (NDCI).(11)

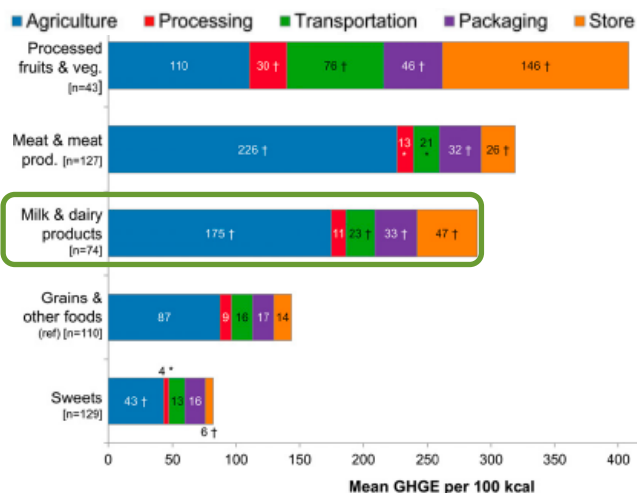
Milk, in comparison to other beverages, has a better benefit-cost ratio, when compared to nutrient density value and GHGE.(11,20) (see below table (11))

**\*Nutrient Density:** Foods with a greater concentration in nutrients, such as proteins, minerals and vitamins (micronutrients)

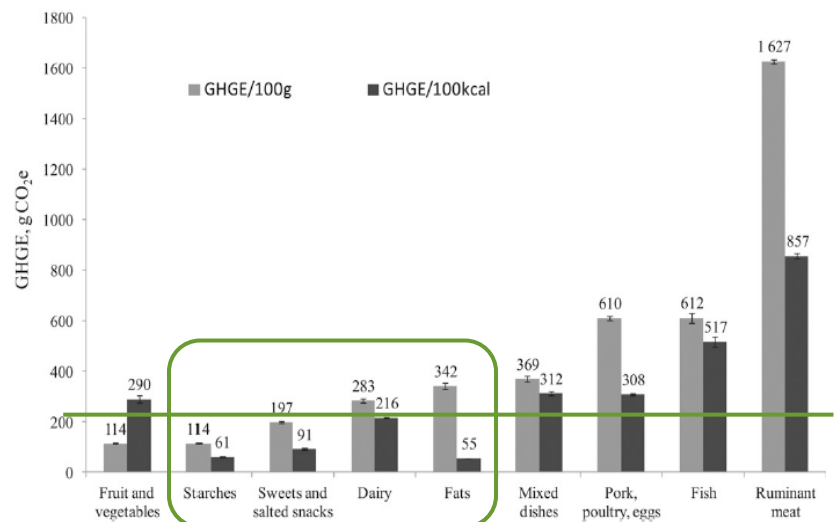
Table 2. Nutrient density, in relation to climate impact

Food item	Percentage of NNR in 100 g product	Number of nutrients $\geq 5\%$ of NNR	Nutrient density	GHG emission	NDCI index
Milk	126	9	53.8	99	0.54
Soft drink	7	0	0	109	0
Orange juice	90	4	17.2	61	0.28
Beer	18	0	0	101	0
Red wine	24	1	1.2	204	0.01
Mineral water	2	0	0	10	0
Soy drink	53	3	7.6	30	0.25
Oat drink	32	1	1.5	21	0.07

Note: NNR, Nordic Nutrition Recommendations; NDCI index, Nutrient Density to Climate Impact index ( $NDCI = \text{nutrient density} / \text{GHG emission}$ ); GHG emission, greenhouse gas emission (grams of CO<sub>2</sub> equivalents per 100 g of product). Nutrient density = Percentage of NNR in 100 g of product  $\times$  Number of nutrients  $\geq 5\%$  of NNR/21.



Mean GHGEs for broad food groups by GHGE origin. GHGE values are expressed per 100 kcal (B)



Mean GHGEs related to the consumption, of 100 g (gray bars) or of 100 kcal (black bars), of each food group by adults (n = 1918) participating in INCA2. Vertical lines represent 95% CIs. CO<sub>2</sub> e, carbon dioxide equivalent; GHGEs, greenhouse gas emissions; INCA2, Individual and National Survey on Food Consumption.

Some products with lower GHGE have low nutrient densities and some with higher GHGE have higher nutrient densities, as is the case with dairy products. (2,15,16) (see above graphs (2,16))



## THE DAIRY INDUSTRY IS COMMITTED TO GREATER SUSTAINABILITY

The 'Dairy Sustainability Framework' is the global partnership of the dairy industries and is the main sustainability instrument of the sector. The framework is categorised into 11 distinct areas, in which it seeks improvement: **Greenhouse gas emissions, soil nutrients, waste, water, soil, biodiversity, market development, rural economies, working conditions, product safety & quality** and **animal care**. (9) Moreover, the recent signature of the → **Dairy Declaration**, between the FAO and the International Dairy Federation (IDF), as well as the supplementary → **FAO Global Dairy Factsheet**, further underline the sectors strive to achieve greater sustainability and the critical position this industry still maintains in today's society.

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