

# Why Dairy has a significant place in Sustainable Diets



An initiative by the  
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## What is a sustainable healthy diet?

Sustainable healthy diets have a favourable effect on both the environment and the well-being of the population. Sustainable healthy diets consist mostly of wholesome plant-based foods with moderate amounts of animal sourced foods.<sup>1</sup> Shifts to plant-based diets will improve environmental sustainability as the environmental impact of producing plant-based foods is generally low compared with animal-source foods, particularly meat.<sup>2</sup> Sustainable diets should be nutritionally adequate, optimise health and prevent disease. Furthermore, sustainable diets must be safe, equitable and culturally acceptable, and individuals must have access to enough affordable nutritious food of appropriate quality.<sup>1</sup>

Analysis of data for 80 countries across all continents showed that a diet with higher amounts of fruit, vegetables, nuts, legumes, fish and full-cream dairy is associated with lower cardiovascular disease and mortality, with the association being strongest in lower-income countries where consumption of these foods is generally low.<sup>3</sup> Furthermore, according to a recent systematic review and meta-analysis, adherence to sustainable healthy diets is associated with lower risk of overweight and obesity.<sup>4</sup> Shifts to plant-based diets can therefore have significant health benefits.

Plant-based diets that include small amounts of animal-source foods may, however, be deficient in multiple micronutrients, particularly vitamin B12, iron, calcium and zinc. Animal-source foods are rich in these nutrients and their bioavailability is higher than in plant-based foods.<sup>5</sup>

## The role of dairy in healthy sustainable diets

Calcium intake is low across all age groups in South Africa, largely owing to low intake of milk and milk products.<sup>6</sup> It has been argued that the high nutrient density of milk and milk products outweighs the environmental impact,<sup>7</sup> and that dairy consumption should be encouraged in low- and middle-income countries where intake of dairy is low.<sup>8</sup> The South African food-based dietary guidelines recommend daily consumption of milk and maas.<sup>9</sup>

In the United Kingdom, diets with higher dairy content were shown to have higher nutrient content and better overall diet quality than those with lower dairy content.<sup>10</sup> The multinational PURE prospective cohort study found higher dairy consumption to be associated with lower risk of mortality and major cardiovascular disease,<sup>9</sup> and higher intake of full-cream (but not low-fat) dairy with lower prevalence of metabolic syndrome and lower incidence of hypertension and diabetes.<sup>11</sup> Furthermore, increased milk consumption has been shown to be associated with a reduction in the prevalence of stunting overtime.<sup>12</sup>

## Context-specific sustainable healthy diets

The impact of dietary shifts is context specific owing to diverse food systems and differences in food security and nutritional status across and within countries.<sup>13</sup> In high-income countries with high intakes of energy and animal-source foods, shifts towards a more plant-based diet are needed to reduce environmental impact and health risks. In contrast, in low- and middle-income countries with high rates of food insecurity and nutrient deficiencies, diversifying the diets and increasing the intake of animal-source foods may be needed to meet dietary requirements and nutrition targets.<sup>13</sup> Other factors to consider include potential impact of dietary shifts on the income and livelihoods of smallholder farmers,<sup>13</sup> higher cost of healthy diets in low- and middle-income countries, limited variety of nutrient-rich foods available in remote areas,<sup>14</sup> and differences in cultural practices and social norms across countries and regions.<sup>14</sup> Implementing sustainable healthy diets can therefore not be based solely on environmental impact.<sup>7</sup>

Modelling studies have shown the importance of considering the context-specific and interconnected dimensions of sustainable diets. According to Aido et al.,<sup>15</sup> nutritional

quality, environmental impact and the trade-offs between the two should be considered within the context of the total diet, rather than focussing on individual food items. Using data from 150 countries, Springmann et al.<sup>16</sup> illustrated that a public health strategy that is focused on healthy eating guidelines and energy balance is likely to be more effective for implementing sustainable diets than strategies that focus solely on substituting animal-source foods with plant-based foods. Reynolds et al.<sup>17</sup> reported that the extent of possible dietary changes varied across income groups in the United Kingdom, highlighting the need to consider social and income constraints. Also, it may be challenging to change dietary practices related to core foods, which are those that are universally, regularly and consistently consumed, as people are usually emotionally invested in these foods. It may be easier to modify consumption of non-core foods.<sup>18</sup> There are, therefore, large differences in the impact of dietary changes across different regions and approaches to dietary change.

South Africa is a culturally diverse country with various cuisines, religions and dietary practices, and carries a triple burden of malnutrition. Strategies to achieve dietary shifts must therefore consider the different forms of malnutrition and be sensitive to the social and cultural factors that influence food consumption patterns.

## Nutrient density, environmental impact, and cost per portion of different food items

Figure 1 illustrates the calculated nutrient density, environmental impact and cost per portion for specific foods. According to Figure 1A, animal products, legumes and fortified brown bread have the highest nutrient density per portion. Foods with lower nutrient density, indicated in the yellow box in Figure 1A, are enlarged in Figure 1B (the size of the bubbles cannot be compared between Figure 1A and Figure 1B).

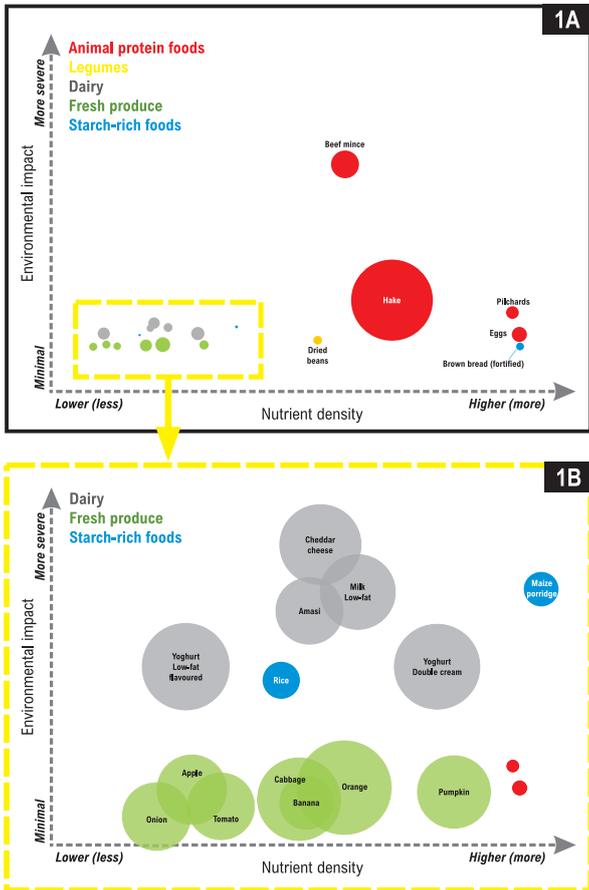
The intricacy of dietary shifts is evident in Figure 1A. For example, fish (hake and pilchards) has a lower environmental impact and slightly higher nutrient density than beef mince. Substituting meat with fish may therefore have favourable environment outcomes. However, a 135 g portion of hake costs nearly three times more than a 100 g portion of beef mince and may therefore not be an affordable substitute for beef mince.

## Dietary transition to healthy sustainable diets

The EAT-Lancet Commission's planetary health diet, which is predominantly plant-based with small amounts of animal-source foods, was described in 2019 as a global reference diet to improve health and reduce the environmental impact of food production.<sup>19</sup> Several concerns have been raised on the limitations of the EAT-Lancet reference diet, highlighting the importance of considering all aspects of sustainability and the need for specific local and regional recommendations.<sup>20</sup>

Transitioning to the EAT-Lancet Commission's planetary diet will require major dietary changes, which may not be feasible at the population level. Small, targeted, food-level substitutions,<sup>21,22</sup> and partially replacing meat with legumes and improving dietary quality and energy balance may be more feasible and sustainable.<sup>15</sup> The South African food-based dietary guidelines recommend regular consumption of legumes and pulses as they are rich in high-quality plant protein, and have a lower cost per serving and longer shelf life than most animal-source foods.<sup>23</sup>

Consuming a diet that exceeds a person's energy requirement is considered an avoidable environmental burden. Reducing overconsumption and consuming less energy-dense, highly processed discretionary foods will improve the diet's energy balance and have health benefits, and reduce the use of environmental resources.<sup>24</sup> At the consumer end, environmental impact will be reduced not only by shifting to plant-based diets with less meat and processed food, but also by reducing household food waste.



**Figure 1:** Nutrient density (x-axis), environmental impact (y-axis) and cost per portion (bubble size) for selected foods  
In South Africa, fortification of maize meal and wheat flour (used to make bread) with eight micronutrients is mandatory as part of the National Food Fortification Programme.

## Household food waste

Dietary shifts to plant-based diets may result in more household food waste, as vegetables and fruits are highly perishable and prone to spoilage.<sup>25</sup> A large part of household food waste is, however, avoidable<sup>26,27</sup> (see box 1).

### Box 1. Practices to reduce household food waste

#### Avoid unnecessary and excessive food purchases, which may go to waste:

- ✘ Plan meals and write a shopping list, taking into account food items already stored at home
- ✘ Buy only the items on the shopping list, in the amount needed.
- ✘ Buy a package size appropriate for the household size.
- ✘ Minimise stockpiling food for unexpected occasions.
- ✘ Buy local food products and fruit and vegetables that are in season.
- ✘ Grow vegetables and fruit at home.

#### Keep perishable items fresh for longer through proper and organised storage:

- ✘ Stack newer items behind older ones.
- ✘ Store food at the correct temperature.
- ✘ Freeze certain foods and leftovers to extend their shelf life.

#### Avoid food waste during food preparation and eating:

- ✘ Prepare only the amount of food needed.
- ✘ Reduce portion sizes and adjust the plate size accordingly.
- ✘ Prepare planned meals for which ingredients have already been bought.
- ✘ Prepare meals with unused ingredients left in the fridge or cupboards.

#### Avoid leftovers going to waste:

- ✘ Store leftovers in appropriate containers, kept in a fridge, or frozen to extend their shelf life.
- ✘ Use leftovers in other dishes.
- ✘ Give leftover food to others (this may not be acceptable to some).

#### Use date labels to assess edibility:

- ✘ The sell-by date refers to a product's shelf life in store – the recommended time in which it should be sold to retain marketed quality.
- ✘ The best-before date is the suggested date before which the full quality of the product, as marketed, can be enjoyed.
- ✘ The use-by/expiry date is the date after which food will perish and no longer retain the marketed quality.

Sources: Lisciani et al., 2024,<sup>26</sup> Schanes et al., 2018<sup>27</sup>

## Conclusion

Consumers are becoming more aware of the climate change impacts of their food choices and are looking for practical ways to shift towards a more sustainable diet. Although including more vegetables and fruit, whole-grains and legumes in the diet meals can be more environmentally friendly, sustainable diets must also be healthy diets and, because of their unmatched nutritional quality, animal-based foods such as dairy play a vital role in sustainable diets. Context specific and realistic dietary shifts together with a reduction in household food waste are needed to reduce environmental impact and improve health.

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