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Sustainability metrics of the UK diet using myfood24

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Promotion of sustainable healthy diets requires comprehensive metrics to assess environmental impact of foods consumed[1]. Existing food systems are failing to meet the needs of current and future generations, by operating outside several planetary boundaries. Promoting healthy diets from sustainable food systems is central to realizing the 2030 Sustainable Development Goals. Standard food composition tables do not include sustainability metrics. The aim of this work was to add UK focussed sustainability metrics to the food composition table used in myfood24.

Greenhouse gas emissions (GHGE), land and water use were added to each food item in the myfood24 UK generic and branded databases. This is recorded as per 100g of product. The values for GHGE[2] takes account of factors including production method, land use management, feed used, soil and climate, processing and transport of both the product and aspects of its production e.g., fertiliser and feed. Values were weighted for UK trade statistics to reflect values for the UK food supply. Land use and freshwater withdrawals were also added.

Exploration of the sustainability metrics in the myfood24 database by food category show, as expected, that meat (1.5 kg CO2eq, SD 1.4), fish (1.8 kg CO2eq, SD 1.0) and dairy (1.3 kg CO2eq, SD 0.8) plus dried herbs/spices (1.4 kg CO2eq, SD 1.2) have the highest GHGE per 100g. In the meat category, beef and lamb had GHGE ~3.8 kg CO2eq with pork and chicken having lower values ~1.0 kg CO2eq. Plant based protein sources had much lower GHGE per 100g, with pulses at 0.3 CO2eq (SD 0.2) and nuts at 0.2 CO2eq (SD 0.2). Land use was by far the highest per 100g for lamb (63 m^2year/day, SD 18) with beef next at 8 m^2year/day (SD 4). Chocolate (5 m^2year/day, SD 2) was the sixth highest food category for land use. Drinks, vegetables, fruit and potatoes had the lowest land use values. Regarding water use, seafood per 100g had high values at 484l/day (SD 167), followed by nuts (218l/day, SD 172), lamb (171l/day, SD 36) and rice (164l/day SD 42). Drinks, potatoes and breads had the lowest land use values per 100g.

Through addition of sustainability metrics to food and nutrient composition databases we can measure the impact of food intake in relation to both nutrients and sustainability. This linked data will help us to understand how to adapt our diets to be healthier and better for the planet.

References

1. Machado P, McNaughton SA, Livingstone KM *et al.* (2023) *Adv Nutr* **14**(1), 147–60. doi: 10.1016/j.advnut.2022.11.006 [published Online First: 2023/02/23].
2. Poore J, Nemecek T. (2018) *Science* **360**(6392), 987–92. doi: 10.1126/science.aaq0216 [published Online First: 2018/06/02].