

## Nutritional Analysis of Milk and Milk Analogues: A Determinant of Nutritional Sustainability

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### Abstract

**Introduction:** Malnutrition is a pressing issue in South Africa, exacerbated by a lack of data on the nutritional profiles of local milk and milk analogues. This knowledge gap hampers informed decision-making by policymakers, producers, and the food production industry, as well as the efforts to address emissions reduction pressures. This study aims to measure and report on the nutritional profiles of milk and milk analogues, serving as a foundation for developing a sustainability model for local dairy producers and consumers.

**Methodology:** The study analysed almond milk (AM), soy-milk (SM), oat milk (OM), fresh full cream milk (FFCM), and long-life full cream milk (LLFCM), the most prevalent milk analogues in South Africa. Samples from two local manufacturers underwent macronutrient and micronutrient analysis.

**Results and Discussion:** Significant differences emerged between milk and milk analogues. Dairy milk exhibited a higher amino acid score, superior protein quantity, quality, and micronutrient content, especially vitamin B. Soy-milk demonstrated a more favourable fatty acid profile. Considering the dairy matrix effect, dairy milk contributed more to combatting malnutrition than milk analogues. Without considering this effect dairy milk intake should be limited to 800-1,200 ml per day to avoid exceeding the recommended limit of saturated fatty acids (20-30 g), Marginal differences were observed between LLFCM and FFCM, except for vitamin B12 presence in FFCM.

**Conclusions:** This study provides groundbreaking results on the nutritional profiles of milk and milk analogues in South Africa. The findings underscore the superior protein and micronutrient content of dairy milk, while acknowledging the favourable fatty acid profile of milk analogues, particularly soy-milk. These insights lay a foundation for further research and informative future dietary recommendations, addressing the current knowledge gap primarily relying on international data sources. Moreover, this data can now aid in the development of a sustainability model which includes the environmental, economic and nutritional profiles of milk and milk analogues, giving consumers and producers the correct tools in sustainable decision-making.

### PRESENTER BIOGRAPHY: ENRIKE MAREE

Enrike Maree is an Agricultural Sustainability specialist and works as a research and communications officer at GOALSciences. She holds an Honors degree in Animal Sciences from the University of Pretoria and is currently finalising her MScAgric in Sustainable Agriculture. With her strong involvement in the academic sector and experience with consulting farmers in the field, she gathers and curates relevant research on the livestock industry and works to expand the reach and efficiency of GOALSciences' messages to policy makers and the public. She is further engaged in consumer education on agriculture and sustainable consumption and aims toward bridging the information gaps between farm and fork.