

Environmental lifecycle assessment of dairy products manufactured in the Republic of Ireland

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In 2015, the milk quota system that is in place Europe is to be abolished, instigating an increase in milk production. This increase will aid in addressing the world's ever growing demand for food but will incur increased stresses on the environmental impact and sustainability of the dairy industry. In this study, an environmental lifecycle assessment will be performed in order to estimate the environmental impacts, including global warming potential (GWP), eutrophication potential, cumulative energy demand and water depletion, associated with the main dairy products manufactured in the Republic of Ireland.

Initially, a macro-scale cradle to processing factory gate study examining the greenhouse gas emissions associated with the Irish dairy industry is performed. The results of this macro study of the industry will identify the major contributors to GHG emissions within the dairy processing sector. This information will then be used when compiling a more detailed survey of the individual plants within the Irish dairy processing industry. The survey will include details of volume of raw milk processed, production statistics, raw milk transportation to the plant, electrical and thermal energy usage, water consumption, wastewater treatment, packaging materials and cleaning chemicals. Once this survey is complete, a comprehensive environmental lifecycle assessment of the Irish dairy processing industry will be performed for the manufacture of butter/milk powder, cheese and fluid milk.

The results of this study will serve as a benchmark for the Irish dairy industry as individual producers and processors can evaluate and compare their performance in comparison. The results of the current study may also be used as an international comparison for macro-scale studies. Additionally, methods used in the current study may be incorporated into similar international studies.

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