

A Comparative Analysis of Conventional and Organic Dairy Supply Chain: Assessing Transport Costs and External Effects in Southern Sweden

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Abstract : Purpose: Organic dairy products have steadily increased with consumer popularity in recent years in Sweden, permitting more transport activities. The main aim of this study was to compare the transport costs and the environmental emissions made by the organic and conventional dairy production in Sweden. The objective was to evaluate differences and environmental impacts of transport between the two different production systems, allowing a more transparent understanding of the real impact of transport within the supply chain. Methods: A partial attributional Life Cycle Assessment has been conducted based on a comprehensive survey of Swedish farmers, dairies and consumers regarding their transport needs and costs. Interviews addressed the farmers and dairies. Consumers were targeted through an online survey. Results: Higher transport inputs from conventional dairy transportation are mainly via feed and soil management on farm level. The regional organic milk brand illustrate less initial transport burdens on farm level, however, after leaving the farm, it had equal or higher transportation requirements. This was mainly due to the location of the dairy farm and shorter product expiry dates, which requires more frequent retail deliveries. Organic consumers tend to use public transport more than private vehicles. Consumers using private vehicles for shopping trips primarily bought conventional products for which price was the main deciding factor. Conclusions: Organic dairy products that emphasise its regional attributes do not ensure less transportation and may therefore not be a more "climate smart" option for the consumer. This suggests that the idea of localism needs to be analysed from a more systemic perspective. Fuel and regional feed efficiency can be further implemented, mainly via fuel type and the types of vehicles used for transport.

Keywords : supply chains, distribution, transportation, organic food productions, conventional food production, agricultural fossil fuel use

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