

A Comparative Analysis of Transport-Related GHG Emissions between Organic and Conventional Dairy Production

Vivianne Aggestam¹ and Jon Buick²

¹ Institute of Systems Sciences, Innovation and Sustainability Research, University of Graz, Austria; AIT Austrian Institute of Technology GmbH, Wien, Austria

² Graduate School of the Environment Centre for Alternative Technologies, University of East London, United Kingdom

*Correspondence: Vivianne Aggestam
Institute of Systems Sciences, Innovation and Sustainability Research,
University of Graz
Merangasse 18/1
A-8010, Austria
+4369911319179
Email: vivianne.aggestam@edu.uni-graz.at

Abstract

Agricultural industrialisation and globalisation have steadily increased transportation of food across the world. This research paper examines the carbon footprint of vehicle and transport-related emissions in organic and conventional milk production using data collected from 40 conventional and organic milk producers in Sweden. It aims to assess the global warming impact made by vehicle- transport emissions, and make recommendations on measures that could be taken to reduce them. The findings show organic and conventional production differences have different emission outputs that vary according to a reliance on road transportation or increased farmyard vehicle use. Mechanical weeding is more fuel demanding than conventional agrichemical sprayers. However, artificial fertilising is one of the highest farmyard vehicle-related emitters. In an effort to tackle road transport emissions organic milk producers are required to have a higher level of on-farm feed production. The general findings show organic milk production emits higher levels of farm vehicle related emissions which fails to be offset by reduced international transport emissions. Whilst this paper does not consider the farmyard related emissions occurring internationally it does demonstrate that legal requirement for organic producers to reduce transport emissions have brought emissions back within Swedish boundaries without a strategy to address them. For Swedish conditions, organic dairy production is a way to reduce road-transport emissions but requires higher levels of farmyard vehicle-emissions, in comparison to conventional production. Measures of mechanical efficiencies and planning farm transport-related inputs to tackle increasing emissions should be considered in both organic and conventional farm-level.