

C-105 Environmental impact of milk production in intensive farming systems: life cycle assessment approach Alberto Tamburini, Matteo Guerchi, Chiara Penati, Luciana Bava, Maddalena Zucali, Anna Sandrucci Dipartimento di Scienze Animali, Università di Milano, Italy Corresponding author: alberto.tamburini@unimi.it Life cycle assessment (LCA) has been shown to be a valuable method for the environmental evaluation of farming systems and has been applied to several agricultural products, particularly in Europe. In LCA the potential environmental impacts of a product are assessed by quantifying the resources consumed and the emissions, at all stages of its life cycle, from the extraction of resources, through the production and transport of materials, to the production process at the farm. The aim of the study was to evaluate the environmental impacts of milk production in intensive farming systems using LCA approach on a sample of 44 dairy farms in northern Italy. Impact categories were: Land use, Non-renewable energy use, Climate change, Acidification and Eutrophication. Functional units were: 1 kg of Fat and Protein Corrected Milk (FPCM); 1 ha of farm land. Data were collected by personal interview with the farmers. Farms involved in the study reared on average 145 (± 91) cows, with a daily milk production of 28.0 (± 3.32) kg FPCM/cow. Average farm land was 49.9 (± 37) ha and stocking density 5.3 (± 2.5) LU/ha. On average, 59% of the total dry matter of cow rations consisted of feed ingredients produced on the farm. The average results for the 5 LCA categories per kg of FPCM were: 2.84 (± 1.02) m² for Land use, 4.98 (± 1.34) MJ for Energy use, 0.93 (± 0.29) kg CO₂-eq for Climate change, 18.2 (± 4.2) g SO₂-eq for Acidification and 12.0 (± 3.1) g PO₄-eq for Eutrophication. Impact indicators from this study are similar to those reported in recent European LC analyses on intensive dairy farms, although the comparison among LCA studies from different countries can be misleading because of local peculiarities and different methodologies. Within the study, LCA indicators allowed to compare environmental impacts of milk production among farms characterized by different levels of intensification (stocking density, milk production, feed self-supply).