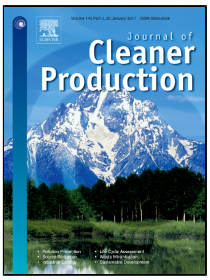
Accepted Manuscript



Environmental impact assessment of an Italian vertically integrated broiler system through a Life Cycle approach

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PII:	S0959-6526(16)32085-6
DOI:	10.1016/j.jclepro.2016.12.030
Reference:	JCLP 8605
To appear in:	*Journal of Cleaner Production*
Received Date:	01 August 2016
Revised Date:	05 December 2016
Accepted Date:	07 December 2016

Please cite this article as: V. Cesari, M. Zucali, A. Sandrucci, A. Tamburini, L. Bava, I. Toschi, Environmental impact assessment of an Italian vertically integrated broiler system through a Life Cycle approach, *Journal of Cleaner Production* (2016), doi: 10.1016/j.jclepro.2016.12.030

Environmental impact assessment of an Italian vertically integrated ~~intensive~~ broiler ~~production~~ system through a Life Cycle approach

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Abstract

Poultry meat represents one of the most popular meat products in the world and its production is expected to increase significantly in the next decades. ~~In this perspective it is important to carefully assess the environmental impact of poultry meat production and investigate the possible mitigation strategies~~ The Italian broiler sector is characterized by a vertically integrated intensive production system and a high final weight of broilers in comparison to the other European countries. ~~The present study involved~~ The Life Cycle Assessment method was used to estimate environmental impacts (Global Warming Potential; Acidification; Eutrophication; Terrestrial ecotoxicity; Non-renewable fossil energy) of 1 kg of broiler carcass weight at slaughterhouse gate in an Italian integrated broiler group. Moreover, the effects of final live weight and stocking density on the impacts were studied. Broiler fattening resulted the most impactful phase for all the impact categories, contributing on average for 87% of impacts. Conversely, the hatchery, breeder rearing and slaughtering phases moderately concurred to impact categories ~~whereas hatchery load was negligible~~. Heavy broilers (roasters) showed the higher impacts per kg live weight compared to light and medium live weight broilers mainly due to the higher feed conversion ratio. The main contribution to environmental impacts in the fattening phase was feed production and processing; in particular purchased protein feeds, ~~represented~~ mainly ~~by~~ soybean meal, were the greatest single contributor to all impact categories. ~~For soybean meal land use change impacts were included in the~~