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# Contribution of milk production to total greenhouse gas emissions in Bangladesh

Mohammad Mohi Uddin[1], Amrin Akter[1], Mst. Nadira Sultana[1], Moon Afroj Raka[1], Oghaiki Asaah Ndambi[2], A B M Kheledzzaman[3], Bernhard Brümmer[4]

[1] *Bangladesh Agricultural University (BAU), Dept. of Animal Nutrition, Bangladesh*
[2] *Wageningen University & Research, Animal Science Group, The Netherlands*
[3] *Department of Livestock Services (DLS), Livestock Production, Bangladesh*
[4] *University of Göttingen, Dept. Agric. Econ. & Rural Dev., Germany*

**Abstract**

The objective of this study was to quantify the contribution of milk production to total greenhouse gas (GHG) emissions in Bangladesh. This study applied the Typical Farm Approach (TFA) of the International Farm Comparison Network (IFCN), which is calibrated through the Integrated Dairy Research Network (IDRN) methodology and data. Data from 1930 dairy farms with a major focus on dairy herd structure, feeds and feeding management, milk yield, factors of production (land, labour, capital) and allocation of farm resources between dairy and beef were analysed for regional profiling, and a panel study was performed to construct and validate the typical farms. Two typical farms, BD-2 (Bangladesh 2 cow farm, a household farm that is also called a small farm) and BD-14 (Bangladesh 14 cow farm, a family farm that is also called a large farm), representing 2 and 14 cows, respectively, were selected, and the total GHG emissions expressed as $CO_2e$ were estimated. A system boundary considering both off-farm and on-farm activities where milk is considered until the farmgate delivery (Partial Life Cycle Assessment) was established, and estimation of the GHG was performed via both Tier 1 and Tier 2 approaches according to the Intergovernmental Panel for Climate Change (IPCC). In addition, GHG emissions are corrected for beef production, as dairy farms in Bangladesh consist of dairy but also some beef cattle. Utilizing the total milk production data, total national GHG emissions was 44.57 million ton (using IDRN milk production data) and 62.58 million tons $CO_2e\,year^{-1}$ (using DLS milk production data). On the basis of the total number of dairy farms, a total of 58.7 million ton of $CO_2e$ was estimated. The variations on total GHG emission were mainly attributed due to the differences of the milk production which implies that the IFCN approach is a good tool for farm simulation for GHG emission at national level but needs a reliable database. These results are expected to contribute to policy decisions to identify measures for reducing greenhouse gas emissions at the farm level.

**Contact Address:** Mohammad Mohi Uddin, Bangladesh Agricultural University (BAU), Dept. of Animal Nutrition, Mymensingh, Bangladesh, e-mail: muddin_bau@yahoo.com