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Farmers’ and academia’s views”

Emission intensity of livestock production in the periphery of Ouagadougou, Burkina Faso

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Abstract

Up to one-third of livestock production in the Global South is now happening in and around emerging megacities because infrastructures to transport and process animal products are lacking in rural areas. Increasing urbanisation in the Global South leads to a growing demand for animal products and pressure on production means, e.g., agricultural lands. Combined, these two factors lead to intensification and specialisation of production. Intensification of production is considered the main pathway to reducing the emissions intensity of low-yielding livestock production systems often found in the Global South. However, the impact of the intensification strategy chosen by livestock producers on emission intensity is not well researched. Our study thus aims to understand and assess the relationship between emission intensity and chosen intensification strategies, taking urban and peri-urban livestock production in Ouagadougou, Burkina Faso, as case study. Feeding practices, weight gain, and milk production of cattle (n records = 617 of which 330 lactating cows) were monitored on 18 farms in 10 visits between October 2014 and January 2016 within the UrbanFoodPlus project (www.urbanfoodplus.org). Methane and nitrous oxide emissions due to enteric fermentation and manure were computed per kg of livestock product. Local Zebus were mostly kept for meat production and thus barely produced any milk (on average 1.7 liters d⁻¹; n = 153). Sahelian Zebus produced on average 8.2 liters d⁻¹ (n = 55) and exotic crossbreeds 9.0 liters d⁻¹ (n = 122). On average, the diet of Sahelian Zebus had, however, a higher digestibility (64.2%) than that of exotic crossbreeds (62.9%). Sahelian Zebu thus potentially had a higher resource use efficiency and lower emission intensity per unit of milk. Our study contributes to the documentation of the global environmental impact of low-yielding yet intensifying livestock production systems in the Global South. It also highlights the complex links between livestock production systems, urbanisation in the Global South and emission intensity of animal products.

Keywords: Cattle, dairy, Global South, intensification, urbanisation