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"Towards shifting paradigms in agriculture for a healthy and sustainable future"

Environmental Footprint of Livestock Farming in Sub-saharan Africa – Local Evidence

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Abstract

Livestock are essential to livelihoods and nutrition security of millions of people in sub-Saharan Africa (SSA). At the same time, livestock farming creates environmental challenges such as greenhouse gas (GHG) emissions. The magnitude of these challenges in SSA is not well understood due to a lack of reliable *in situ* data. Here, we present three examples of studies conducted at ILRI's Mazingira Centre for Environmental Research that address this knowledge gap and contribute to an informed discussion about the environmental footprint of livestock.

The first study quantified farm-level GHG emissions intensities (EIs) for cattle using primary data on animal productivity from smallholder farms in Western Kenya. Data from individual animals demonstrated an extremely heterogenous EI status amongst ostensibly similar farms and provides indicators on how low EIs may be achieved in these environments. Contrary to common belief, our data show that industrial-style intensification is not always required to achieve a low EI.

The second study assessed the indirect effects of the COVID-19 pandemic on GHG emissions from livestock systems in Northern Kenya using proxy data and a framework based on changes in herd size, feed availability, and livestock movement. We found that overall livestock GHG emissions in Northern Kenya have decreased due to the pandemic because of reductions in herd size and decreased livestock movement during the lockdown.

The third study investigated GHG emissions from cattle manure in Kenya. We found that GHG emissions were lower than the IPCC default emission factors because of lower N concentration and higher C:N ratio of the manure due to poor feed quality.

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