

## ABSTRACT

This dataset describes the performance of cattle in smallholder livestock systems of Bomet county in western Kenya. Information on live weight, milk production and quality, herd dynamics, and other production parameters were collected from field visits. Animals were weighed on scales; milk yield was recorded using a Mazzican® milk collection and transport vessel provided to each farm and milk was analyzed for butterfat content (%). Pasture biomass yield was determined, and feed samples collected for each agro-ecological zone and nutrient composition was determined for nitrogen (N) using the Kjeldahl method and gross energy (GE) using a bomb calorimeter. Distance covered while grazing was determined using GPS collars fitted to several animals for three consecutive days per area. Enteric methane (CH<sub>4</sub>) emissions factors (EF) were estimated for five animal classes to develop site-specific EFs as per the Intergovernmental panel on climate change (IPCC) protocol. This dataset has the potential to be used, amongst other purposes, for animal-scale life cycle assessment (LCA) to evaluate the efficacy of various greenhouse gas (GHG) mitigation options.

**Keywords:** Agro-ecological zone; Emission factor; Feed-basket; Metabolizable energy requirement; Mitigation; Seasonal live-weight change.