

Abstract

Climate change influences dairy productivity in East Africa through impacts on fodder production and supply, livestock disease outbreak and water availability for livestock. This study assessed the influence of climate change on smallholder dairy farming in Kosirai, Nandi District of Kenya and Namayumba in Wakiso District of Uganda, in support of climate-smart agricultural practices. Observed (1973-2009) and model output (1950-2100) climate data comprising rainfall, minimum and maximum temperature and household survey were used. A simple random sampling technique, time series analysis, and descriptive statistics were used to achieve the objectives of the study. Mean rainfall in the two sites had progressively decreased over the last ten years. Conversely, there was a systematic rise in both the minimum and maximum temperature, both in historical and projected period in the two sites. The weather variables namely rainfall, maximum and the minimum temperature had a positive correlation with fodder production and supply. Likewise, milk production that mainly depended on rainfed forages also correlated with the supply of feeds. There was increased milk production and supply during the wet season as compared to the dry spells. Climate change was linked to the emergence and rise of both the vector born and viral diseases in the two sites. There was a significant rise in outbreaks of foot and mouth disease and tick-borne diseases in Namayumba area. In Kosirai, there was an increase in outbreaks of tick-borne. The study recommended that dairy farmers be empowered to prepare effectively to climate change through adaptation and mitigation of the effect of extreme climate change. Farmers should also invest in the production and conservation of fodder for their dairy production.