

## ABSTRACT

We studied influence of distance to urban markets on smallholder dairy farming system development. Farms were chosen from three locations that varied in distance to the urban market of Nakuru Town in the Kenyan highlands: urban location (UL,  $n = 10$ ) at less than 15 km distance, mid-rural location (MRL,  $n = 11$ ) in between 20 and 50 km west of Nakuru and extreme rural location (ERL,  $n = 9$ ) beyond 50 km west and south-west of Nakuru. In-depth interviews with farmers and focus group discussions with eight groups of stakeholders were held to collect narratives and data about market quality, production factors, farm performance and functions of dairy cattle. We applied thematic content analysis to qualitative information by clustering narratives according to predefined themes and used ANOVA to analyse farm data. In UL, markets were functional, with predominantly informal market chains, with a high milk price (US \$ 45.1/100 kg). Inputs were available in UL markets, but prices were high for inputs such as concentrates, fodder, replacement stock and hired labour. Moreover, availability of grazing land and the high opportunity costs for family labour were limiting dairy activities. In UL, milk production per cow (6.9 kg/cow/day) and per farm (20.1 kg/farm/day) were relatively low, and we concluded that farm development was constrained by scarcity of inputs and production factors. In rural locations (MRL and ERL), markets were functional with relatively low prices (average US \$ 32.8/100 kg) for milk in both formal and informal market chains. Here, concentrates were relatively cheap but also of low quality. Fodder, replacement stock and labour were more available in rural locations than in UL. In rural locations, milk production per cow (average 7.2 kg/cow/day) and per farm (average 18.5 kg/farm/day) were low, and we concluded that farm development was constrained by low quality of concentrates and low price of milk. In all locations, production for subsistence was valued since income generated was used for non-dairy expenses. A tailor-made package of interventions that targets the above constraints is recommended for farm development.

**Keywords:** Market quality, Production factors, Farm performance, Cattle functions