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“Filling gaps and removing traps
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Year Round Feed and Fodder Availability in Smallholder Dairy Farms Across High and Low Altitude Areas in Eastern Africa

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Abstract

An understanding of seasonal variation in availability of feeds and fodder resources is important in future planning and development of appropriate technologies to ensure resilience of smallholder dairy systems to seasonality driven milk fluctuations. It is against this context that this study was carried out to: 1) evaluate the current pattern of seasonal variation in feed and fodder availability in smallholder dairy farms across high and low altitude areas of Kenya and Tanzania in Eastern Africa; and 2) assess seasonal variation in year-round feeds and fodder based feeding strategies in smallholder dairy farms across the high and low altitude areas of Kenya and Tanzania in Eastern Africa. Data was collected from a purposive representative sample of 400 smallholder dairy farmers using the Feed Assessment Tool (FEAST) through cross sectional survey and observational study from 2016-2018 to capture the season's effect (wet and dry). Data was analyzed using the general linear model procedure of SPSS version 21.0 and FEAST Version 2.21. Results showed that location (country), agro-ecological zone and season were significant ($p \leq 0.05$) on rainfall variability throughout the year. Further, country, agro-ecology, seasons, production systems and their interaction were significant ($p \leq 0.05$) on year-round availability and utilization of concentrate feeds, green and dry crop residues, improved fodder, natural grass and legume forage. Rainfall variability was crucial in determining year-round variation in availability and utilization of feeds and fodder. Correlation between the feeds and fodder resources revealed highly significant ($p \leq 0.001$) positive relationships across the two countries, pointing further to the dynamics of seasonality change effects. In conclusion, different seasonality driven site/region/country specific year-round feeding/supplementation strategies could be applied depending upon the type, availability of feeds and fodder to overcome seasonal milk fluctuations in smallholder dairy farms in Eastern Africa.

Keywords: Agro-ecology, feeds and fodder, seasonal variation, utilisation, year-round