

## ABSTRACT

Associations between feeding practices, milk yield, and composition were assessed in smallholder rural and periurban dairy cow (n = 97) and pastoral camel (n = 15) herds. A cross-sectional survey supplemented by follow-up collection of feed and milk samples for laboratory analyses was conducted. Data was analyzed using descriptive, correlation, and analysis of variance statistics. Feeding practices in rural smallholder dairy cows' herds were pastured based (87.7%) with napier grass (89.4%) and concentrates (93.9%) as forage and concentrate supplements. In smallholder peri-urban dairy cows' herds, it was napier grass based (68.4%) with concentrates (100%), oat forages (42.9%), and crop residues (28.6%). Pastoral camel herds were shrub browsing (53%), rangeland pasture grazing (20%), or *Euphorbia tirucalli* feeding (27%). Smallholder rural farmers offered more feeds (16.1 vs 15.3 kg/ day) than peri-urban farmers, hence net energy for lactation (1.4 vs 1.3 Mcal/kg), crude protein (CP) (10 vs 12%), and milk yields (12 vs 9 kg/herd/day) was higher. Milk fat was higher in smallholder peri-urban (4.3%) than that of rural (3.9%). In pastoral camels, *E. tirucalli* feeding had higher daily milk yield/herd, fat, and CP (63 kg, 4.5 and 3.6%) than shrub browsing (35 kg, 4.2 and 3.0%) and grazing (23 kg yield, 2.6 and 2.7%). Five feeding practices out of 14 in smallholder dairy cattle herds resulted in more than 10 kg milk/cow/day because of low forage-to-concentrate ratio (2.5), inclusion of legume crop residue, or processing forages. They present opportunities for improved production in smallholder herds. In pastoral camel, *E. tirucalli* feeding showed the highest potential..