Smallholder dairy production in high altitude Nyandarua milk-shed in Kenya: Status, challenges and opportunities

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Abstract

A stratified sampling method was used to select 156 dairying households from representative Divisions in Nyandarua County. The stratification was based on cattle grazing systems (CGS) and agro-ecological zones (AEZs) across the Divisions. The objectives of the study were to assess status of smallholder dairy cattle production in relationship to CGS and AEZ, major challenges facing smallholder dairy production, and the opportunities for improvement. Data collected included the characteristics of the farm, family, farmer, feeds and feeding, dairy cattle and their performance, milk uses and markets, and the dairy production services. The information on the challenges facing dairy production and the opportunities for improvement was obtained from discussions with livestock extension workers, dairy co-operatives, milk processors, and from secondary sources. The present results indicated that the average farm size was 3.5 Ha and 41, 38, and 44% of the households fed dairy stock with improved fodders, grass hay, and concentrate supplements, respectively. Among the households, about 44, 38 and 32% had access to artificial insemination (AI), extension, and all weather roads services, respectively. Households keeping crosses of the dairy breeds were 59% while the average herd size was 5.3 heads consisting of 40% cows in milk. The average calf live-weight gain was 322g/ day and milk yield per cow was 8.4kg/day. About 65% of the milk was marketed at an average price of 15.00 KES/kg, equivalent to 0.205 US$/kg. As the levels of dairy intensification increased, there were significant increase in milk production per hectare and decrease in calf live-weight gains ($P<0.05$). On the other hand, as the level of agricultural potential increased, there were significant decreases in milk production and marketed milk per farm ($P<0.05$). It was concluded that smallholder dairy cattle production was below the potential for Nyandarua County and was influenced by the CGS and AEZs. The major challenges in smallholder dairy production included poor road network and milk marketing, high costs and inaccessibility of dairy production inputs and support services, inappropriate dairy production technologies, and limited value addition of milk.