Milk availability and consumption survey

This survey sought to compare milk availability in the five study districts, assuming either the official (MoLFD) or GT estimates of dairy cattle numbers, with rates of per capita consumption, based on the SDP characterization surveys (see box 1 for methodology). The following points arise from a study of figure 2:

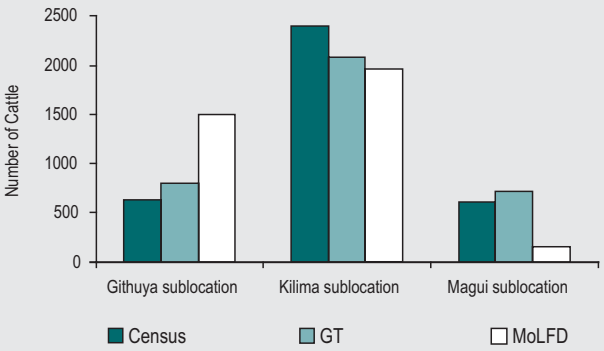
- For Nandi, Maragua and Nakuru, the GT excess of availability over consumption is in keeping with their status as milk surplus areas. The MoLFD figures, however, are lower than expected, indicating self-sufficiency or (in the case of Nandi) deficit.
- For Nyamira, the parity of consumption and GT availability figures is again in keeping with its self-sufficient status, whereas the official figure suggests a deficit.
- For Vihiga, in contrast, the MoLFD figure, showing lower availability than consumption, is more consistent with its status as a milk deficit area.

In four out of five districts, therefore, the GT estimates of dairy cattle numbers are more consistent with observed availability and market characteristics, while official figures are lower than expected and may understate actual numbers.

Actual cattle census in three sublocations

In a further validation exercise, an actual cattle census was undertaken in three sublocations (Githuya, Maragua District; Kilima, Nakuru District; Magui, Vihiga District). Figure 3 compares actual dairy cattle populations from the census with the GT survey projections and official MoLFD figures. In each case the GT projections compare well with actual census figures, indicating that the GT random sampling methodology could, in equivalent circumstances, give reasonably reliable estimations of actual cattle populations.

Figure 3.
Comparison of SDP census data on dairy cattle numbers, GT projections and MoLFD data in three sublocations



National cattle projections and rates of milk availability

An important implication of this study is that there are probably far more cattle in Kenya than is officially reported. Using a methodology whereby rural sublocations in Kenya were clustered into similar groups, and a formula then applied to the estimation of cattle numbers within each cluster, it was projected that there are about 6.7 million dairy cattle (2.7 million high grade and 4 million crosses) owned by 1.8 million rural smallholder farms mainly in the Kenyan Highlands. This projected cattle population is more than twice the officially reported figure of 3 million for the national herd[5].

Based on these projections, total milk production in the rural highlands is estimated at about 4 billion litres per annum. The rural areas have an estimated population of about 14.5 million people. Assuming that the estimated 9.6 million people living in the urban areas mainly depend on milk from the high potential areas, and that 13 percent of production goes to calf feed or spoilage loss, milk availability from the highlands was estimated to be about 145 litres per person per year.

Previously, milk consumption in Central and Rift Valley provinces, which are important milk production areas, has been estimated to be between 144 and 152 litres per person per year[6]. Assuming rough parity between availability and consumption over this large area, these figures provide further confirmation of the applicability of the SDP methodology for estimating cattle populations.

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The Smallholder Dairy Project (SDP) carries out research and development activities to support sustainable improvements to the livelihoods of poor Kenyans through their participation in the dairy sub-sector. SDP is jointly implemented by the Ministry of Livestock and Fisheries Development, the Kenya Agricultural Research Institute, and the International Livestock Research Institute, and is funded by DFID.

Estimating cattle populations: A methodology

In view of the apparent need for a more accurate methodology for estimating cattle populations in Kenya, the SDP has developed a manual outlining a step-by-step procedure for this purpose[7]. The SDP manual for estimating cattle populations is designed for use in the high-potential areas of Kenya, characterized by sedentary mixed farming systems. It presents a simple and inexpensive method by which investigators can use cattle counts from sample farms in selected sublocations to derive cattle population estimates for a much larger area. The manual describes how to select the sample sublocations and cluster them according to agroclimatic conditions, human population density and market accessibility; how to select the sample farms, considering such factors as expected variations in herd size; how to collect the actual data; and how to use the data to estimate cattle populations. It concludes with a worked example. It is hoped that the manual will be of particular use to government officials aiming to collect accurate cattle population statistics as an important tool for decision making.

Conclusions and recommendations

Several conclusions can be drawn from this study:

- Current methods of estimating cattle numbers may be inaccurate and based on inadequate base data.
- Improved methodologies for estimating cattle populations are available.
- A combination of validation methods shows that the actual numbers of dairy cattle and dairy farm households in Kenya may be more than twice what is officially stated.
- This apparent discrepancy has important implications for estimates of national milk production, milk marketing and consumption, which are key indicators of the role of the livestock industry in rural and national development in Kenya.

The following recommendations may therefore be considered:

- There is an urgent need for a detailed cattle census to generate accurate information on the actual national herd size.
- The cattle population projection methodology used in this study can be used by ministry field officers to validate livestock populations and thus enable them to provide more accurate figures.

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1 A full description of the methodology is contained in 'The Kenyan Cattle Population: The Need for Better Methods of Estimation.' SDP Collaborative Research Report (draft), 2005.

2 Based on the 1999 human census survey by the Central Bureau of Statistics.

3 Nakuru is a large district with marked variability in agroclimatic potential and systems of farming. All the diverse regions of the district were not equitably represented during sampling, leading to uncertainty about the reliability of cattle population projections for the district.

4 For zebu (beef) cattle populations, the sets of survey-based figures were also frequently higher than the official figures, and suggested that there are at least 40–50 percent more zebu cattle in three of the five sample districts. The GT and characterization survey estimates compared well in Nandi, Nyamira and Vihiga districts.

5 The size of the zebu cattle population was estimated at about 3.7 million.

6 Estimated per capita milk consumption in other provinces is much lower, mostly ranging between 38 and 54 litres per year.

7 Nyangaga, J., Wanyoike, F., Mwangi, D.M., Wokabi, A., Kembe, M. and Staal, S. 2005. A manual for estimating cattle populations: Designed for the highlands and high potential districts of Kenya. SDP (Smallholder Dairy Project), Nairobi, Kenya, MoLFD (Ministry of Livestock and Fisheries Development), Nairobi, Kenya, KARI (Kenya Agricultural Research Institute), Nairobi, Kenya, DFID (Department for International Development), London, UK, and ILRI (International Livestock Research Institute), Nairobi, Kenya.

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