SDP Policy Brief 10

The Uncertainty of Cattle Numbers in Kenya

Key points

■ There are concerns about the reliability of the official cattle figures for Kenya; no recent livestock census has been conducted and the methods used to estimate cattle numbers are imprecise.

■ A conservative estimate of the size of the national dairy herd using detailed Smallholder Dairy Project (SDP) survey data suggests that it could be more than twice the officially reported figure of 3 million dairy cattle. These cattle are mostly owned by approximately 2 million rural smallholder farms.

■ The apparent discrepancy between cattle population figures and actual numbers on the ground has important implications for estimates of national milk production, marketing and consumption, and for the economic role of the livestock industry in Kenya.

■ There is a need for a detailed cattle census to generate accurate information on the actual size of the national herd.

■ A cattle population projection methodology used in this study and detailed in an SDP manual can be used by ministry field officers to validate livestock populations and thus enable them to provide more accurate figures.

Introduction

The official cattle population statistics in Kenya come from the Ministry of Livestock and Fisheries Development (MoLFD), through its field reports. The data are compiled by extension officials, who use diverse and sometimes rather imprecise methods to estimate livestock numbers in their assigned areas. Concerns have been expressed as to the reliability of these estimates, particularly as no national cattle census has been carried out to provide base figures. The Smallholder Dairy Project (SDP) has used a variety of statistical methods in an attempt to validate the official cattle numbers in Kenya (box 1). The results indicate that official figures may greatly underestimate the size of the national dairy herd.
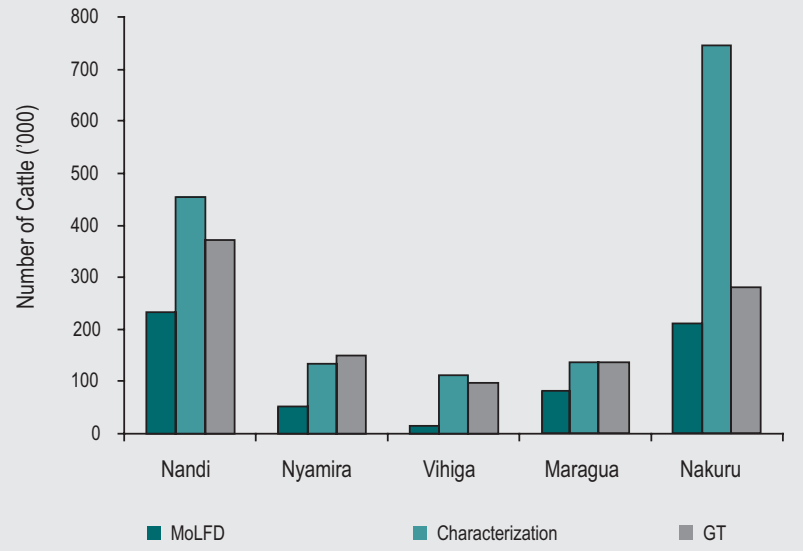
Box 1.
Data sources and methods

Validation of the official figures took place in several stages:[1]

1. Data comparison: Official cattle population figures from 1995–1997 division-level reports were compared with data obtained during SDP farm household surveys conducted during 1997–2001 to characterize the dairy systems in Kenya. These characterization surveys yielded much higher estimates of cattle populations than the official data.

2. 'Ground-truthing' survey of sample farms: A farm survey was conducted to assess the reliability of the official figures using a larger sample of farms. In this cattle population 'ground-truthing' (GT) survey, a random sample of about 1,000 farms was drawn from each of the five study districts in which the SDP characterization surveys took place: Nandi, Nyamira, Vihiga, Maragua and Nakuru. The numbers of cattle were projected by calculating the product of the total number of farm households in a district, the estimated proportion of farm households owning cattle, and the mean number of cattle in cattle-owning households.

3. Milk availability and consumption survey: The continued disparity between official and SDP estimates of cattle populations was further investigated by projecting, for the five study districts, levels of milk availability (for both official and GT figures) and comparing these with levels of milk consumption. Milk availability was computed using a formula that applied various parameters – proportion of cows in herds, level of milk yields in different breeds – to the cattle population figures. Milk consumption was estimated using data from the SDP characterization surveys.
    Further, the balance of availability and consumption indicated by these methods was compared to district-level direction of flow of milk trade (data from SDP characterization surveys).

4. Cattle census: An actual cattle census was also conducted in three sublocations where the GT survey had been conducted, and a comparison made between the actual cattle numbers on the one hand, and GT projections and MoLFD estimates on the other hand.

Figure 1.
Comparison of MoLFD data on dairy cattle numbers and projections based on SDP characterization and GT surveys in five districts.

Results

Cattle population 'ground-truthing' (GT) survey

Figure 1 compares the SDP dairy cattle population projections based on the characterization surveys and the GT survey with the official (MoLFD) figures (see box 1 for methodology). The two survey-based sets of dairy cattle populations were at least 60 percent higher than the official figures in all the districts except Nakuru, which suggests that the official figures often understate actual cattle numbers[3]. Also, the close correlation between the pairs of survey figures in all districts (except Nakuru) supports their reliability[4].

Figure 2.
Comparison of per capita milk availability (based on projections of GT and MoLFD data on cattle numbers) and levels of milk consumption in five districts