Productivity in different cattle production systems in Kenya

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Abstract

Cattle are kept as an important source of livelihood in many Kenyan farming households whilst also having cultural and social value. A review was undertaken to estimate productivity in the three main Kenyan cattle production systems: small-scale dairy and meat; small-scale dairy; and large-scale dairy and meat. Data on production parameters were collected through a systematic literature search of electronic databases for peer reviewed and grey literature. The parameters included were reproductive rates, mortality rates and yields. Prices for livestock and livestock products were estimated from markets. The data were used to estimate net output from cattle using the Livestock Productivity Efficiency Calculator (LPEC), a deterministic steady state model which measures productivity as net output per megajoule (MJ) of metabolisable energy (ME). The estimated net outputs per livestock unit year-1 were USD 146.6, USD 215.1 and USD 84.8 in the large-scale dairy and meat, small-scale dairy and meat and small-scale dairy systems, respectively. Milk production contributed significantly to net output in all systems and was 91.8% of total output in small-scale dairy. Cattle sales had the highest contribution to net output in large-scale dairy and meat system (45.1%). Sensitivity analysis indicated that output was most affected by milk yield, age and weight at maturity and parturition rate. The productivity differences between the production systems call for more detailed research on the constraints to the production systems such as diseases, and to describe the benefits that farmers and society would obtain from disease control and improved management.