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Report Name: Assessment of Kenya's Dairy and Beef Sectors and Opportunities for US Investment

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Report Highlights:

The Kenyan dairy and beef sectors are important drivers of the country's economic growth, yet both sectors are unable to meet domestic demand. The challenges facing Kenya's dairy and beef sectors present opportunities for U.S. technical capacity building in research, knowledge, and technology transfer. Opportunities include enhanced trade in improved genetics, capacity building in the use of Artificial Insemination, access to high-quality feed through trade in feed and feed ingredients, and improved disease surveillance and treatment.

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Executive Summary

The Kenyan dairy and beef sectors are important drivers of the economy, contributing over eight percent to the economy. Despite this, current dairy production meets approximately half of domestic demand - estimated at eight billion litres. Similarly, while beef constitutes approximately two thirds of all meat consumed in the country, Kenya is unable to meet domestic demand for beef.

The Ministry of Agriculture in Kenya categorizes livestock production into six production systems based on agroclimatology and development targeting. These include arid and semi-arid, mixed rainfed, humid and sub-humid, tropical highlands, irrigated, and landless urban and peri-urban systems. Within these systems, a diverse array of livestock is raised, including cattle, camels, sheep, goats, pigs, chickens, and apiaries, managed by 4.7 million households. The distribution of species and breeds varies across production systems, with indigenous and meat breeds predominating in arid and semi-arid regions, while dairy and exotic breeds are more common in humid, semi-humid, and tropical highland areas. Despite facing constraints in accessing production resources, these livestock enterprises contribute significantly to domestic consumption and, to a lesser extent, exports.

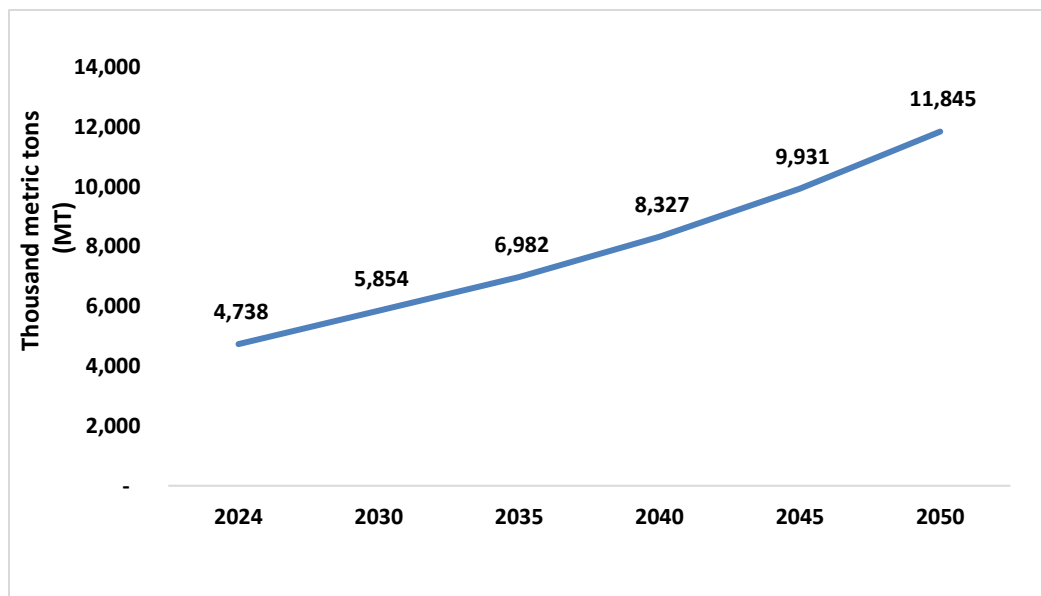
Nairobi and Mombasa serve as primary markets due to the concentration of processors, distributors, and consumers. All markets experience seasonality influenced by weather and climate patterns. The various constraints faced by value chains, include health issues, genetics, feed and nutrition challenges, inadequate research and extension services, marketing disorganization, and low public sector investment. However, numerous opportunities were identified, such as disease-free zoning, breed improvement programs, marketing and value chain organization, feed improvements, value addition, and climate change mitigation strategies. Based on economic contribution, livelihood support, and comparative advantages, the cow milk and beef value chains emerged as the highest-ranking sectors, with a recommendation to focus on the cow-milk value chain for further research

Dairy Sector Overview

The current annual production is estimated at 4.7 million metric tons (MMT) of milk annually (Kenya Dairy Board, 2024) and is projected to increase by 150 percent to reach 11.8 million metric tons by 2050 as indicated in figure 1. Most production is driven by smallholder farmers who comprise 80 percent of the producers and account for 56 percent of total dairy milk output. Despite this healthy outlook, both the current and projected milk production levels fall short of domestic demand. The current production level meets approximately half of the domestic demand, estimated at 8 billion liters.

Liquid milk is collected from farmers by 770 dairy cooperatives, marketing groups and individual merchants and delivered to 36 processing factories owned either by dairy cooperatives or by individual investors.

Figure 1 - Kenya Liquid Milk Production



Source: Kenya Dairy Board

Beef Sector Overview

The beef industry is a major contributor to the Kenyan economy. The beef cattle industry is the second largest agricultural subsector by value at around 21 percent of market value of the agricultural subsector (Mbae et al, 2020; Ministry of Agriculture, Livestock, Fisheries, and Irrigation, 2019). Production is anchored in indigenous breeds (comprising 95.8 percent) with limited coordinated efforts to upgrade breeds. An estimated 2.4 million households keep beef cattle (KNBS 2019) and more than 75 percent of cattle are under pastoralist system, which accounts for an estimated 60-65 percent of meat consumed in the country (Farmer & Mwika 2012).

These livestock enterprises face constraints but managed to produce 244,000 MT of beef in 2020; 250,000 MT in 2021 and 268,000 MT in 2022 (FAOSTAT, 2022; 2024). Beef is a key source of animal protein in Kenya and constitutes approximately two thirds of all meat consumed in the country (Kenya Meat Trust, 2019). An estimated 77 percent of Kenya’s ruminant off-take for slaughter comes from cattle, making it the most important source of red meat in the country (Farmer & Mwika 2012). Kenya is a meat deficit country and is currently unable to meet its domestic demand for beef without imports from other countries.

Challenges facing the Dairy and Beef Sectors

The dairy and beef value chains in Kenya are integral to the country’s agricultural sector, playing a vital role in food security, employment, and economic growth. However, these subsectors face a range of interconnected challenges that impact their overall performance and efficiency. Understanding these

challenges is critical to improving the efficiency of the sectors, strengthening market access, and fostering long-term resilience. The following are nine thematic challenges affecting the subsectors.

- (1) feed and nutrition,
- (2) breeding and genetics,
- (3) seasonality,
- (4) infrastructure and equipment,
- (5) disease control and health,
- (6) capital and financial challenges,
- (7) knowledge, extension, and veterinary service constraints,
- (8) marketing and prices, and
- (9) climate change challenges.

1. Feed and Nutrition - Inadequate nutrition was identified as being responsible for low livestock performance in beef and dairy compared to the genetic potential of the breeds. Poor nutrition was partly a result of seasonality in the availability of quality fodder and forage and low water availability during dry periods. Inadequate knowledge by the farmers on the nutrition requirements of the breeds kept, and high cost of commercial feed, premixes, and additives were likewise identified as causes of poor nutrition.
2. Breeding and Genetics - The reported production limitations due to low genetic potential of dairy and beef animals was attributed to poor breeding practices and inadequate adoption of artificial insemination (AI), partly due to high cost. Low resistance of exotic breeds to local diseases was also identified as a bottleneck. Poor disease control and animal health management had its roots in inadequate health care provided by the farmers.
3. Seasonality – Production systems remain rain-fed and therefore heavily affected by seasonal variation. The impact of seasonality – in both milk and beef production contributed to livestock under-feeding during dry season and was a contributor to climate-driven conflicts on pastures and water sources. A National Dairy Strategy has yet to be formally adopted and a milk powder reserve has not yet been fully rolled out.
4. Infrastructure and Equipment - Inadequate infrastructure and equipment had impact on high transport costs, inadequate facilities, and hygienic infrastructure leading to high risk of meat contamination and inadequate refrigerated transportation leading to high risk of meat spoilage during delivery.
5. Disease Control and Health - Challenges related to disease control and health of animals were observed to contribute to low sanitary status of the beef value chain, a state which is sustained by inadequate veterinary and extension services.
6. Capital and Financial Challenges – The overall high cost of farm inputs, lack of affordable loans, and limited access to affordable capital without collateral result in the sector cyclically underperforming. There is also a need to invest in forage production.

7. Knowledge, Extension, and Veterinary Service Constraints - Inadequate farmer knowledge, extension and veterinary service constraints were observed to have overarching impact on the performance of the dairy and beef value chain. These contributed to fodder wastage, suboptimal management of pasture areas, high milk post-harvest losses and wastage due to poor hygiene and handling, and inadequate knowledge by the farmers on the nutrition requirements of the breeds kept.
8. Marketing and Prices – Market constraints were more prominent in the beef sector resulting from weak organization of the value chain leading to poor competitiveness. This has a direct contribution to low and fluctuating prices of cattle, lack of good markets for well-finished cattle, and low access to high-value markets due to low sanitary status.
9. Climate Change - The above challenges are often made worse due to the unpredictability of rainfall patterns due to climate change, with prolonged dry periods being a common phenomenon.

Opportunities for Overcoming Identified Challenges

Addressing these challenges and enhancing productivity requires a multipronged approach through investment in technical collaboration.

Improving the nutrition standards at the smallholder level requires interventions to develop and use high-quality varieties of forage crops, promotion of high-quality alternatives to maize, and reduction of raw material costs used to manufacture feed and feed supplements. Availability of high-quality varieties of forage crops could be achieved through introduction by Kenya Agricultural and Livestock Research Organization (KALRO) or through trade in improved seed varieties by the private sector. Government interventions could be necessary to facilitate trade in high-quality alternatives to domestic maize, including agricultural biotechnology.

Improved adaptability of the livestock breeds to local conditions could be achieved through breeding for local adaptation and through trade in appropriate genetics. With respect to breeding for enhanced adaptability, it is necessary to establish collaboration between Kenyan institutions and other U.S.-based institutions involved in dairy cattle breeding. This collaboration could foster transfer of technologies that would accelerate advances in genetic potential. In the short to medium term, adaptable breeds should be accessed through trade in appropriate genetics. It is recommended that existing policies be streamlined to remove any elements of market distortion thus facilitating better trade. More specifically, the difficulties that U.S. genetics industry faces in greater market access for U.S. cattle genetics to Kenya could be overcome through a roundtable or one-on-one discussion between Kenya Animal Genetic Resources Centre (KAGRC), Department of Veterinary Services (DVS), and the U.S. genetics industry. The roundtable could be facilitated through the Cabinet Secretary of the Ministry of Investment, Trade, and Industry.

Improving the knowledge and skills of livestock farmers. Enhanced surveillance and control of diseases at the national level and enhanced fodder and water availability throughout the year could be strengthened through the establishment of feed reserves at national and county levels and on-farm by farmers. The top diseases identified through the study were Foot-and-Mouth-Disease (FMD), Anthrax,

Brucellosis, and Bovine Tuberculosis. The assessment identified a need to develop the hay value chain, including trade. Farmer capacity could be achieved through better extension services and development of scaled down modern dairy demonstration farms possibly through public-private partnerships, establishment of strategic feed and fodder reserves through government intervention, support from development partners, and strengthening the fodder value chain through trade.

Feedlots were identified as an important avenue for increasing productivity and quality of beef. Feedlot production is limited mainly due to the high cost of feed and feed supplements and insufficient grain supply - particularly maize. Overcoming this barrier would require increased access to grain substitutes and reduced cost of feed and feed supplement ingredients. Increased access to maize substitutes could be achieved through enhanced trade and reduced cost of ingredients in the manufacture of feed and feed supplements could be achieved through supportive government policies.

Opportunities for Private Sector Investment and USDA Technical Collaboration

The challenges facing Kenya's dairy and beef sectors present opportunities for U.S. technical capacity building in research, knowledge, and technology transfer. This could include embryo-transfer, genomic testing and sexed semen, modernization of research and development infrastructure such as equipment and smart mechanization and instrumentation.

Regarding access to and use of appropriate genetics by the farmers, the assessment recommends enhanced trade in improved genetics facilitated through supportive government policies and capacity building in the use of AI. Trade in feed and feed ingredients, including alternatives to corn, in feed manufacturing are recommended for improving access to affordable, high-quality feed and overcoming seasonality in feed supply.

To improve food safety in milk and beef, collaboration in the eradication of major cattle diseases such as FMD, Bovine Tuberculosis and Brucellosis and the establishment of certification systems is recommended. Opportunities for strengthening farmer capacity include establishing scaled-down modern dairy demonstration farms, improved access to farm credit and financing, organizing the value chains, and establishing market information systems.

Prioritizing Investment Opportunities

The assessment prioritized the interventions into seven potential investment options based on the *Prioritizing SPS Investments for Market Access* (P-IMA) methodology (STDF, 2016). The methodology used the following decision criteria: cost of intervention, contribution to value chain resilience, contribution to value chain productivity, contribution to value in the industry, and contribution to funds attraction. The prioritized investible options are as follows, ranked from the highest priority.

1. Enhanced productivity in dairy through appropriate feeding, breeding, and animal health management (**score 79.00**)
2. Enhance competitiveness and profitability of milk and beef products through organized markets and adherence to standards (**score 59.92**)

3. Strengthening breeding using superior genetics (**score 54.67**)
4. Improve access to and use of quality, safe and affordable feeds and feed supplements and rehabilitation of rangelands (**score 46.67**)
5. Improvement in sanitary status of the beef industry (**score 42.17**)
6. Strengthening access to suitable livestock financing schemes (**score 34.42**)
7. Enhancing milk quality and safety through improved hygiene practices and use of appropriate technologies (**score 33.17**)

Attachments:

No Attachments.