



Dairy development in the Tanzanian Livestock master plan

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A number of targeted interventions could potentially increase the contribution of the dairy sector in Tanzania to gross national product by 75% over the 2017–2022 period. The investment required of nearly USD 101 million—53% from the private and 47% from the public sectors—in the areas of feed, genetics, health, value addition and complementary policy changes would result in a 77% increase in milk production, leading to 1,002 million litre surplus of supply over projected domestic consumption requirements.

This surplus of milk could then be substituted for imported milk products and used domestically for new or additional industrial uses (e.g. in the baking industry), or exported as milk powder or UHT milk to raise foreign exchange earnings. Increases in the number of crossbred dairy cows of 281%, from 782,995 to 2,984,624, and per cow milk production by 42%, economic activity, would drive economic activity in the sector and along the value chain, as well as enhance nutrition security in the country.

These prioritized interventions and strategic investments would transform cattle milk production and productivity, enabling the transition of traditional farms into more market-orientated improved family dairy farms. More specifically, underpinning rising milk production and productivity would be the introduction of more crossbred cattle into the commercial dairy system and improved forage feed production and marketing in Tanzania. Key to the success of the plan will be:

1. encouragement of private sector investment in milk processing plants and dairy farms;
2. availability of more and better feed seed, forage production and marketing, and health services in all areas, regardless of whether breeds are improved; and
3. provision of more effective extension services to support production, processing and marketing of quality milk.

Background

The dairy production system in Tanzania can be divided into three major subsystems: traditional cow meat-milk, improved family dairy (IFD) and commercial specialized dairy (CSD) (Nell et al. 2014). The traditional cow meat-milk production subsystem does not specialize in the production of a single commodity and both milk and meat are important. However, milk is a priority commodity in IFD and CSD subsystems. In the IFD subsystem, input use is generally low, depending on market opportunities for milk and the existence of milk collection centres. Cattle are kept in under semi- and zero-grazing systems with cultivated fodder, crop-residue and grass cut from communal land.

The CSD subsystem, on the other hand, is more a commercialized and specialized dairy system with higher levels of input use and outputs. Small CSD farms, starting at 2–3 cows, keep crossbred cattle. They are similar to IFD subsystems, except with respect to their greater use of inputs, particularly feed and animal health. Medium-sized

CSD farms—with more than 100 cattle and a national average of 450—are either government-owned or private farms with their own input delivery systems.

The milk produced in these farms is processed there or goes directly to processing plants. The improvement of the cow dairy system in Tanzania should seek to target the expansion of the IFD (in the coastal and lake and highland zones) and CSD subsystems (throughout the country). Many of the challenges, opportunities, interventions, improvement assumptions and investments are shared between the two subsystems.

Investment

All the production zones are expected to benefit from the USD 101 million investment to improve the cow dairy sector. Farmers benefitting from the interventions will face higher feed and veterinary service costs, and the cows in receipt of these services are expected to display improvements in parturition rates, live weight, lactation length, and daily milk production, as well as reduced mortality rates. The required investments in the dairy sector include in:

- feed improvement, including of pasture and forage, and of concentrate feed production and marketing through the construction of commercial animal feed plants; and the enhancement of existing forage seed quality control laboratories through the provision of equipment and training. Estimated cost: nearly USD 20 million.
- animal health to support the control and prevention campaigns for East Coast fever, contagious bovine pleuropneumonia, foot-and-mouth disease, Rift Valley fever and brucellosis; enhance the capacity of veterinary centres and diagnostic laboratories with respect to surveillance and diagnosis; and construct and rehabilitate dip tanks.
- cattle breed improvement aimed at strengthening existing national and zonal artificial insemination centres; establishing a new semen production centre, bull centres and crossbred heifer multiplication farms; purchasing crossbred heifers for under-resourced dairy farmers; building the capacity of 6,650 artificial insemination technicians; and acquiring new liquid nitrogen plants. Estimated cost: nearly USD 24 million.
- research centres increasing their capacity to undertake research on breed improvement, feed, health, marketing, and value chain and dairy extension services. Estimated cost: nearly USD 10 million.
- milk marketing and processing to support the construction of UHT and powder milk processing plants; establishment of dairy cooperatives in high potential areas through the provision of training, awareness raising, equipment and facilities; establishment of milk collection/ chilling centres; and strengthening of the capacities of the dairy board, milk quality and safety control laboratory, and school milk feeding programs. Estimated cost: nearly USD 48 million.

Dairy development challenges and strategies

Feed: The supply of animal feed, including concentrate feed and roughage, is erratic, both in terms of quality and quantity. Much of the feed in Tanzania is mineral deficient, in part due to the lack of quality control and standards, and enforcement mechanisms. In addition, the price of available seed is high. These challenges are coupled with the limited access to land for grazing and forage and forage seed production, the latter partly due to cumbersome procedures for acquiring land for commercial forage production. The strategies proposed to mitigate these challenges include the:

- strengthening of the agricultural extension services and training provided on forage production, conservation and feeding.
- introduction of policy to make land available for investors in forage seed and production;
- enforcement of forage, concentrate feed and forage seed quality standards, and the monitoring and control of their implementation;
- creation of a conducive environment for the production and marketing of feeds and feed seeds;
- Use of appropriate fertilizers in forage production.
- promotion and enforcement of outsourcing contracts to produce forage for specialized dairy systems; and
- promotion of the establishment of flour mills and oil processing plants, increasing the available supply of concentrate feed ingredients, i.e. wheat bran, wheat short and seed cakes.

Genetics: Cattle in Tanzania are characterized by the low genetic potential of indigenous animals and the limited availability of quality efficient artificial insemination services. The strategies proposed to mitigate these challenges include the:

- provision of financial incentives, training and support to livestock farmers to work as artificial insemination technicians, as well as continuous training and refreshment courses to existing technicians;
- development and delivery of extensive crossbreeding/ breeding schemes in selected areas using artificial insemination, artificial insemination with synchronization services and/or bull crossbreeding/ breeding services;
- strengthening of the extension services and training provided to cattle owners in dairy cattle husbandry and milk and milk product handling;
- establishment and strengthening of dairy heifer multiplication farms through private, public and private-public joint ventures; and
- promotion, expansion and strengthening of private artificial insemination, and artificial insemination with synchronization services and/or bull crossbreeding/ breeding services.

Animal health: High levels of calf mortality and morbidity in Tanzania are aggravated by inefficient veterinary services, shortages of medicines, poor quality control of medicines and other supplies; and a high prevalence of transboundary diseases and trypanosomiasis. The strategies proposed to mitigate these challenges include the:

- rationalization and strengthening of the animal health regulatory capacity at national and local levels under the coordination of the Ministry of Agriculture, Livestock and Fisheries; and
- improvement of the supply and quality control of vaccines, medicines and medical equipment, facilitating, among other things, the establishment and growth of private health service providers.

Marketing and processing: Tanzania is characterized by a poor transportation system hindering the delivery of goods to markets. The low price and poor marketing of milk, including limited promotion of dairy-product consumption and a shortage of dairy technologists, hinders the development of the formal sector. The consequent thriving informal trade in raw milk, coupled poor milk quality control and enforcement mechanisms, increases the risk of zoonotic disease outbreaks. The absence of quality-based pricing incentives is reflected in the limited supply of dairy products on the market, overwhelmingly those with a short shelf life, rather than a consumer-driven demand market. The strategies proposed to mitigate these challenges include the:

- promotion of investment in long-shelf life milk products, such as UHT and powdered milk production, and other value-added products like yogurt, ice cream, cheese, etc.;
- introduction of quality-based standards and pricing to encourage increases in the supply of high quality milk;

- strengthening of the enforcement of milk and milk products quality standards;
- formalization of milk trade through the training and licensing of milk traders;
- upscaling of the on-going school milk feeding programs to promote consumption; and
- building of the capacity of the dairy technology training institute(s).

Policy: The dairy sector in Tanzania is hampered by policies producing disincentives to investment in milk processing businesses. Instead of regulation mechanisms designed to effectively control and enforce milk quality standards, the industry is burdened by multiple layers of taxation. This is one of the reasons why there is a dearth of commercial specialized dairy farms and milk processing plants in the country. The strategies proposed to mitigate these challenges include the:

- introduction of protective trade policy including higher import tariffs or bans and/or subsidies for domestically-produced milk products;
- reduction in bureaucracy and promotion of investment in the dairy industry;
- introduction of effective measures for the control and enforcement of milk-quality standards, as well as comprehensive grading and pricing policies;
- development and implementation of an effective land acquisition policy for dairy investments (preferential treatment for accessing land for specialized dairy production, milk processing and feed production); and
- provision of incentives for investors to establish dairy processing plants and commercial specialized dairy farms.



Background to the LMP

The Tanzania livestock master plan was developed by a joint team from the Tanzanian Ministry of Agriculture, Livestock and Fisheries (MALF) and the International Livestock Research Institute (ILRI). Its development was overseen by a high-level technical advisory committee (TAC) convened under the auspices of the MALF Livestock Permanent Secretary, Maria Mashingo, and chaired by Catherine Dangat, the director for Policy and Planning. The TAC comprised the directors of key MALF livestock-related departments and other government agencies, and representatives from the private sector, civil society organizations and development partner agencies.

Data collection and quantitative diagnostics were supported by the ongoing involvement of key national livestock experts and consultation with a wide range of key stakeholders. The quantitative sector analysis was undertaken using the Livestock Sector Investment and Policy Toolkit developed by the World Bank, the Agricultural Research Centre for International Development (CIRAD) and the Food and Agriculture Organization of the United Nations working under the auspices of the African Union Interafrican Bureau for Animal Resources.

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