



MEAT, MILK AND MORE:

Policy innovations to shepherd inclusive and sustainable livestock systems in Africa



The government of Uganda has been ambitious in developing policies and regulations to strengthen the livestock, meat, and dairy sectors. Agriculture overall contributes about 24.6 percent to Uganda's GDP, while the livestock sector contributes about 17 percent to agricultural GDP and 4.3 percent to overall GDP.¹ The significant contribution of livestock to agricultural GDP is largely due to policy and institutional innovations and programmatic interventions put in place by the government. Between 2000 and 2016 the average livestock stock, measured in tropical livestock units (TLU) per 100 people, is estimated at 28.33 TLU, which is above the African median of 23.44 TLU. The average growth rate of the gross production value of

livestock for this period is 4.39 percent, which is double the African median of 2.2 percent.^{2,i} Consumption of livestock products is projected to more than triple between 2012 and 2050.³

Institutional innovations

The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) oversees Uganda's policies and plans for the agriculture sector, including livestock. Specifically, it is the Directorate of Animal Resources (DAR) situated within MAAIF that is responsible for spearheading the development of the livestock sector.⁴ Headed by a State Minister for Animal Industry, the DAR is mandated to design, review, and implement policies and regula-

i The average livestock stock TLU per 100 people over the period 2000–2016 (FAO data) was chosen to assess countries' levels of animal stock. To define high and low levels of animal stock, the threshold was set at the median. The average growth rate of the gross production value (GPV) of livestock (in constant 2004–2006 international dollars) over the period 2000–2016 (FAO data) was chosen as indicator of value addition growth of the sector.



tions to improve food security and household income through improved animal health, and market-oriented animal production, food quality and safety. Correspondingly, DAR is composed of three departments: the Departments of Animal Production, Animal Health, and Entomology, overseeing all segments of the dairy and meat value chains.⁵

Focus on dairy and meat sub-sectors

The primary attention of livestock sector development in Uganda are the dairy and meat sub-sectors, as evidenced by the formation of a dedicated Division of Dairy and Meat (DDM) in the Department of Animal Production (DAP), strong linkages with a statutory body, the Dairy Development Authority (DDA), partnerships with animal product associations, and the presence of effective cooperatives. DDM is mandated to create and maintain a sustainable dairy and meat production system through policy, regulatory and legislative oversight.

Emphasis on higher food standards

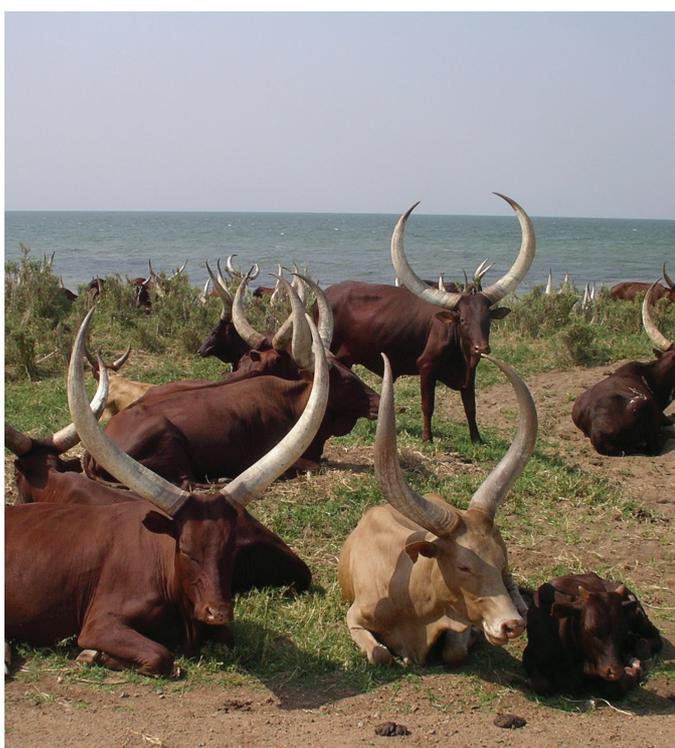
The DDA is the key institution supervising the dairy industry. It was established as a government agency in 2000 through the Dairy Industry Act of 1998 to liberalize, coordinate and regulate the industry. DDA is responsible for attaining and maintaining self-sufficiency in milk production in Uganda.⁶ The Act also empowered the DDA to enforce milk hygiene standards and quality controls.⁷ As a result, traders were licensed to meet public health and milk quality standards. The improved quality and safety of milk and dairy products facilitated

access to high-value markets, both domestically and internationally. In partnership with the Uganda National Bureau of Standards (UNBS), the DDA also develops new and updates existing standards for milk and dairy products. Moreover, in 2003, the government passed The Dairy (Marketing and Processing of Milk and Milk Products) Regulations, which constitute the framework for the implementation of quality standards and good hygiene and handling practices.⁸ Jointly, the DDA and UNBS developed the code of hygienic practice for milk and milk products, which provides guidelines for hygienic production and handling of milk and milk products at various stages of the dairy chain.

Finally, the Uganda Bureau of Statistics, established in 1998, is a semi-autonomous government agency, which, in collaboration with the MAAIF, conducts data collection and analysis for the livestock industry. Results published in 2018 are the most up-to-date official statistics on the Ugandan livestock industry.⁹

Liberalizing the dairy industry

Although economy-wide liberalization began in the 1990s, it did not apply to the livestock sector for another decade. The formation of the DDA in 2000 was a key milestone that signaled the relaxation of government control on dairy sector activities and heightened competitiveness. The private sector scaled up its activities, investing in milk collection, cold chain infrastructure, milk distribution, and marketing, leading to a rapid expansion in processing capacity, eventually propelling Uganda to become a net exporter of dairy products. Amongst the investors was Sameer Agriculture & Livestock Ltd. (SALL), a joint venture company established by the Sameer Group of Kenya in and RJ Corp. of India, which took over the state-owned dairy processing company Uganda Dairy Corporation in August 2006. By 2011, SALL owned the largest of 39 dairy processing plants, with the capacity to process about 550,000 litres of milk per day with an annual turnover of over US\$30 million.¹⁰ Exports of milk powder grew almost thirteen-fold to two million kgs over five years from 2011 to 2015, primarily supplied by SALL and a second large-scale dairy, Pearl Dairy Farms.¹¹ By June 2017, there were at least three privately-owned large-scale plants with the capacity to process over a billion liters per day¹² – compared to three government-owned plants in 1993, with a capacity to process 160,000 liters per day¹³ – as well as nearly 40 medium- and small- scale processors¹⁴. Exports of dairy products to Kenya, the Middle East and Asian markets also grew in value from almost zero in 2007 to US\$50 million in 2015.¹⁵





Effective professional associations and cooperatives

The Uganda Dairy Processors Association (UDPA), established in 2003, brings together 38 large and small dairy processors, including large dairy processing companies and small and medium-sized enterprises involved in milk processing and marketing, as well as dairy farmers' organizations and milk traders.¹⁶ It provides a collaborative platform for processors to build partnerships and drive innovation to improve efficiency and expand the range of products. The UDPA also acts as a unified voice of processors in interacting with the government.¹⁷ In addition, the Uganda National Dairy Traders Association (UNDATA) convenes small processors and other dairy traders – such as transporters, cooling operators, farmers, and vendors – to promote, manage, and upgrade operations, including the collection, transportation, and marketing of quality dairy products in Uganda and to export markets.¹⁸ UNDATA was instrumental in ensuring that the new regulations introduced by the DDA were better adapted to local conditions and not too burdensome on operators in the informal milk-marketing segment. This in turn has encouraged more informal processors to register themselves and formalize their operations. UNDATA also encouraged buyers of raw milk to boil it before consumption therefore contributing towards the overall improvement of quality standards in Uganda's dairy sector. UNDATA now has more than 1,000 members and handles more than 300,000 litres of milk per day.¹⁹ The two associations – UDPA and UNDATA – have also been key conduits through which the DDA has been able to negoti-

ate greater uptake of improved technologies, leading to an overall modernization of the whole dairy sector.²⁰

To meet the growing demand from higher processing capacity, more farmers have also come into the market. Uganda Crane Creameries Cooperative Union (UCCCU) has been instrumental in assisting farmers to market their milk collectively, and in facilitating the commercialization of the dairy sector. UCCCU was established in 2005 as the commercial arm of the Uganda National Dairy Farmers Association, itself formed in 2001 as the primary organizing body for dairy farmers. UCCCU's members produce over 700,000 liters of milk daily, collected at 140 collection centers across south western Uganda. UCCCU has also invested in 10 milk tankers and 120 coolers, which have significantly reduced post-harvest losses from 40 percent to 2 percent. UCCCU provides its own extension services to members on improving the quality of milk. As a result, by 2016, productivity per cow increased by 5 percent and net income for its members rose by 48 percent.²¹ UCCCU also raised funds from its members in 2012 – by issuing shares paid for in cash or live cows – to build its own processing facility.²²

Meat industry

In parallel with the dairy industry, the meat industry has also advanced, although more modestly. Liberalization saw a growth in small- and large-scale private-sector abattoirs. An US\$11 million investment by Egypt in an export abattoir in 2015 raised Uganda's slaughtering capacity by up to 1,000 cows daily. The Egypt-Uganda Food Security Company sources its cattle within Uganda and can hold a further 5,000 animals on its premises.²³ Although the company has faced some challenges in reaching optimum production, it successfully exported its first consignment of 50 mt of beef to Egypt in 2018.²⁴

Beef producers are organized through the Uganda Meat Producers Cooperative Union (UMPCU), which provides training, mentoring and peer-to-peer learning opportunities as well as access to finance. In 2019, UMPCU established two animal diagnostic laboratories, in collaboration with Zoetis – the world's largest animal health company – to provide subsidized and readily available access to tests for its members and for 2,600 farmers from surrounding areas.²⁵ UMPCU is also engaged in technology transfer (for example of dewormers) and veterinary service provision, with funding received from the EU's Farmer Led Beef Livestock Investment and Sustainability project (FALBIIS).²⁶

Poultry producers are organized through the Poultry Association of Uganda, which was established in 2004 and officially inaugurated by the Minister of Agriculture,



Animal Industry and Fisheries.²⁷ PAU brings together actors across the value chain, including poultry farmers, hatchers, feed millers, veterinary service providers, and nutritionists to transform Uganda's poultry production into a broad-based commercial activity through integrated production, marketing, and trade.

Animal nutrition and health

The Division of Animal Nutrition in DAP provides technical and regulatory oversight and support for a sustainable animal nutrition sector, through an effective animal nutrition management information system, appropriate infrastructure for feed production and promoting the use of improved pastures and rangelands. It works alongside national research institutes (see below) to develop and disseminate technologies and information that directly address animal nutritional challenges in the country.²⁸

Animal health and its overlap with human health in Uganda involve a multitude of institutions, both internal and external to the MAAIF. The Division of Veterinary Public Health (DVPH) at the DAR operates at the intersection of animal and human health. It is responsible for overseeing the implementation of veterinary public health policies, plans, and legislations. DVPH is tasked to operate an effective veterinary public health management information system and provide technical support and capacity building in local government institutions including guidance for planning, locating and construction of abattoirs and tanneries. DVPH operates alongside the Departments for Animal Health and Entomology, which aim to reduce the occurrence and spread of animal diseases in Uganda. Working in tandem with national, regional and international counterparts, the Departments for Animal Health and Entomology are mandated to monitor, investigate and control disease outbreaks through research, data collection and dissemination, infrastructure development for controlling pests and insects, certification and traceability of entomology products, and managing the availability and use of major animal disease vaccines and drugs.²⁹

One of the more serious animal health issues in Uganda is the high prevalence of trypanosomiasis – spread by the tsetse fly, which seriously undermines the profitability of the livestock sector, especially cattle production. To consolidate research and control of tsetse and trypanosomiasis, Uganda's parliament created the Uganda Trypanosomiasis Control Council (UTCC) in 1992 with the overall ambition to demarcate tsetse free zones and eliminate diseases caused by this vector. The UTCC operates as a parastatal and works in partnership with several ministries including health, finance,

planning and trade, as well as development partners (such as NEPAD, FAO and IAEA) to formulate and jointly implement strategies and programs to control the persistent threat of the tsetse fly.³⁰ In intervention areas, combined programs by the government and development partners have succeeded in shrinking the tsetse fly population by 75 to 95 percent.³¹ However, sustaining this success without donor support remains financially challenging. UTCC's secretariat, the Coordinating Office for Control of Trypanosomiasis in Uganda (COCTU) produces and disseminates tsetse and trypanosomiasis maps to enhance awareness and control of the vector and disease. The united efforts to minimize the threat of the tsetse fly has resulted in the identification of a 'cattle corridor' stretching diagonally across the country from the south west to the north east. More than two-thirds of the cattle population is confined to this area, which experiences a lower incidence of tsetse fly infestations.^{32,33}

Uganda's biosecurity and veterinary services were boosted immensely in 2019 when a new high-tech laboratory was opened within the National Livestock Resources Research Institute (NaLIRRI, see below). The US\$2.5 million facility was constructed by the US Department of Defense to strengthen Uganda's ability to detect, diagnose, conduct surveillance and report on emerging and re-emerging diseases of international concern. It will also support Congolese and South Sudanese diagnostic capabilities.³⁴

Genetics and breeding

At ministerial level, the Division of Dairy and Meat at DAR oversees some aspects of breeding with the aim to continuously grow the national herd. Alongside this division, the National Animal Genetic Resources Centre and Data Bank (NAGRC&DB) – created by the Animal Breeding Act of 2001 – is responsible for the breeding aspects of the animal industry, especially the commercialization and expansion of animal breeding activities. NAGRC&DB was previously situated within the Department of Animal Production and Marketing but was elevated to a parastatal of MAAIF with an independent budget.³⁵ NAGRC&DB is responsible for developing and implementing a National Animal Breeding Programme, which meets the needs and interests of actors along the livestock sub-sector value chains. It does this by selling breeding and reproduction equipment and inputs (liquid nitrogen) as well as stock of semen, ova and embryos; rearing sires to supply semen, and for sale; and operating a national data bank.³⁶ NAGRC&DB also operates a community breeding program through which it recruits breeders under a contract-mating scheme. The breeders are promoted to farm specific breeds of animals with desired performance traits and



are then mobilized outward into communities through breed societies or associations.³⁷ Through the program, farmers gain access to high-quality animal genetics that achieve a slaughter weight of over 350 kg at 18 months and production capacity of over 30 kg of milk per cow per day.³⁸ NAGRC&DB hosts the Eastern Africa Regional Gene Bank, which is one of five Regional Multi-Purpose Animal Genetics Banks established through the genetics project at AU-IBAR in 2019. The regional gene banks will protect genetic materials from indigenous breeds and serve as centres of excellence for training researchers on use of modern cryopreservation (prolonged cold storage) technologies.³⁹

Research and extension

The National Agricultural Research Organisation (NARO) is a public research institution created in 2005 and mandated to coordinate, oversee, and guide all agricultural research activities in Uganda. With respect to livestock, NARO conducts research into improving local breeds and development of technologies in animal health and livestock nutrition.^{40,41} The National Livestock Resources Research Institute (NaLIRRI) is one of Uganda's 16 semi-autonomous public Agricultural Research Institutes, guided by NARO, with the aim of providing livestock research services. NaLIRRI focuses its research activities on apiculture, livestock breeding, the development of livestock vaccines and disease diagnostics, ethno-veterinary research, livestock feed and food safety, forage breeding and agronomy, the development of strategies for the control of diseases, parasites and vectors, ration formulation and evaluation and lastly, on improving the diagnostic capacities and control strategies of the brucellosis disease.⁴² Furthermore, the NaLIRRI Strategic Plan (2017-2022) is considered the Institute's transformation strategy for collaborative stakeholder participation in generating and promoting technologies, improving efficient operations and sustainable resource mobilization and utilization to deliver on NaLIRRI's objectives.⁴³

The 2005 NARS Act provides for the development of an agricultural research system for Uganda - the National Agricultural Research System (NARS) - with the purpose of improving agricultural research services delivery, financing, and management. The NARS brings together a cross section of public and private stakeholders, for example public and private universities, and private research institutions. In addition, the National Agricultural Advisory Services (NAADS) is a statutory semi-autonomous body under MAAIF, established in 2001. NAADS manages the dissemination and transfer of technologies and information for enhanced production and productivity. Under the National Agricultural Advisory Services Act of 2001, NAADS is

also responsible for delivering extension services to farmers.⁴⁴

Uganda's livestock sector, especially the dairy industry has benefitted immensely from clear and dedicated institutional development. According to FAOSTAT, Uganda's cattle herd size nearly trebled from 2000-2016 to 14.7 million heads and milk production grew to 1.6 million mt from 660,000 mt during the same period.⁴⁵ By 2017, nearly 70 percent of rural Ugandan households - particularly smallholders and pastoralists - owned livestock of some sort.⁴⁶ Continuous policy innovation further ensures that the sector thrives and contributes towards achieving its national and international development commitments.

Policy innovations

Coordinated, consistent and well-funded policy-making

The government of Uganda has been implementing various policies and strategies to enable the sustainable growth and transformation of the livestock sector.⁴⁷ The policies and strategies draw from, and build on, the overall ambition to become an upper middle-income country by 2040, as outlined in Uganda Vision 2040 in 2007. **Vision 2040** seeks to enhance Uganda's competitiveness for sustainable wealth and employment generation, and inclusive growth. It acknowledges the importance of the agricultural sector in achieving this aspiration - especially livestock farming and aquaculture - and proposes a transition of crop and livestock farmers to commercial producers to make the overall sector profitable, competitive and sustainable. Vision 2040 emphasizes the goal to unlock water resources to facilitate commercial livestock farming.⁴⁸

To achieve the ambition of Vision 2040, the government produced a series of five-year plans called the **National Development Plans** (NDPs). The first NDP (NDPI) covered the period 2010/11 to 2014/15, and the second plan (NDPII) covers 2015/16 to 2019/20. Each NDP emphasized the construction of large- and small-scale water schemes to increase cumulative storage and ease access to water for irrigation, livestock and rural industries. Such high-level attention to water provision for livestock facilitated the construction of 11 new dams and 959 small and medium valley tanks (open, excavated reservoirs) in the cattle corridor between 2006 and 2015, adding a total of nearly 18 million m³ of capacity. However, as this only provided access to water to about half of Uganda's livestock, NDPII extended the ambition to double water capacity for livestock to 55 million m³ over the duration of the plan.⁴⁹

NDPI also influenced the **2013 National Agricultural Policy** (NAP). Of six overarching objectives, the NAP



dedicated one to increasing farming households' incomes from livestock production by raising output, improving quality and more collective organization (for example through cooperatives). To facilitate these activities, the government outlined thirteen strategies, including greater access to technologies (including biotechnology) and inputs (such as vaccines), and training and skills development programs. In addition, NAP outlined strategies to promote dry season feeding through pasture preservation; upgrade financial service provision; foster a private sector-led agricultural input supply system; strengthen the certification and regulatory system; and encourage sustainable use and development of water and land resources. Although it is the prime responsibility of MAAIF to implement NAP, the policy also proposed coordination among relevant ministries including the Ministry for Water, Environment and Natural Resources, Market Infrastructure Development, and Trade and Industry.⁵⁰

Funding for a more detailed delivery program mirroring the policy recommendations in the NAP was outlined in the **Agricultural Sector Strategic Plan (ASSP) 2015/16 to 2019/20**, which prioritizes investments in beef, dairy cattle, poultry, and goats.⁵¹ The ASSP was initiated following a 2015 review of the Agriculture Sector Development Strategy and Investment Plan, which developed the first-generation National Agriculture Investment Plan for Uganda for 2010/11 to 2014/15. The ASSP is designed to deliver on Uganda's commitments under CAADP and the Malabo Declaration.⁵² It also builds on aspirations set by the **NDPII (2015-2020)**, which identified 12 strategic commodities that would form the basis of agricultural growth and receive priority in investment allocations to increase productivity, ease access to inputs such as machinery and water and markets. Livestock, particularly dairy and beef cattle, was included as one of the 12 strategic commodities. In addition, NDPII highlighted that improvements in maize and cotton value chains, specifically processing and milling would also contribute towards an increase in the availability of animal feed.⁵³

ASSP defined various investments for enhancing the livestock sector, to be implemented through a multisectoral approach involving different government institutions, development partners, civil society organizations, and the private sector. Investments include, for instance, provision of one cow (heifer) per household; support to dairy extension services; increased dairy regulation and inspection; establishment of a national dairy herd information system as well as mobile and regional laboratories; control of vectors and diseases through vaccinations and disease surveillance and construction of infrastructure for disease control; and pasture development.⁵⁴ By 2020, the ASSP seeks to increase milk production to 3.35 billion liters

annually, supporting annual exports of milk and related products; and to increase beef production to 360,000 mt, pork production to 139,185 mt, mutton and goat meat production to 39,775 mt, and poultry production to 63,647 mt. A budget of UGX 200 billion (US\$60 million) was allocated to dairy sector interventions while UGX 794 billion (US\$241 million) was allocated to meat and other livestock products. Programs on water and agricultural mechanization were allocated a further UGX 548 billion (US\$165 million).⁵⁵

Sub-sector policies

Dairy & meat

The Dairy Master Plan, which was implemented in 1993 is the key document guiding the development of Uganda's dairy industry.⁵⁶ Some of the main recommendations of the Dairy Master Plan that have been adopted include the liberalization of the dairy industry, restructuring and privatization of the state-owned dairy processing company (Uganda Dairy Corporation), and creation of a Dairy Board (the DDA). The Master Plan was updated to the National Dairy Strategy 2011-2015, to spearhead increases in production, productivity, value addition and marketing of milk and milk products, with an investment budget of US\$150 million. Although about half of this investment budget was expected to come from the public sector, the National Dairy Strategy stood for prioritizing private sector investments (29 percent) in the dairy sector, with the balance being invested by development partners. Further demonstrating a maturing sub-sector, investments were also primarily directed to market access and value addition, rather than production.⁵⁷

Value chain policies

Animal health

Clinical veterinary services, support for breeding and spraying for tick control were among the government-provided facilities that were decentralized and privatized during the economic liberalization of the 1980s and 1990s. On the other hand, vaccination against epidemic diseases, quarantine facilities and tsetse fly management continued to be supported by MAAIF. In place of government provided services, many actors of varying capacities and specialties entered the market to provide veterinarian services and inputs.⁵⁸ However, this meant that the government lost some oversight of disease development thus reacting to outbreaks rather than proactively managing diseases. Nevertheless, the **2001 National Policy for the Delivery of Veterinary Services** was introduced to ensure that the delivery of veterinary services remained i) inclusive such that remote areas were also served, ii) cost-effective and efficient, iii) clearly delineated, especially for public



service provision, and iv) of high quality.⁵⁹ In doing so, the country would maintain effective control of notifiable and emerging diseases and minimize potential losses occurring from outbreaks. The policy demanded that the government conducted regular testing to detect diseases, implemented surveillance and monitoring of diseases (including zoonoses), and that outbreaks were promptly reported. The policy set responsibility for setting standards, inspection, licensing, registration and monitoring of all diagnostic laboratories with MAAIF.⁶⁰ The **2002 National Veterinary Drug Policy** was implemented in parallel with the 2001 National Policy for the Delivery of Veterinary Services which addressed the supply (manufacture, procurement, storage, distribution) of quality drugs, legislation and inspection of veterinary drugs, and supervise the licensing of veterinary drug outlets.⁶¹ Despite teething issues, MAAIF has successfully implemented quarantines at the national and local levels by communicating, coordinating and cooperating with relevant agencies and, when necessary, enforcing legal and security measures, such as the police.⁶²

In 2018, the government introduced the Antimicrobial Resistance National Action Plan (AMRNAP) (2018–2023).⁶³ This serves as a guideline for Ugandan stakeholders contributing to efforts to control antimicrobial resistance (AMR) in the livestock sector. The AMRNAP is associated with the WHO Global Action Plan's strategic objectives and recommends actions for governments and partners to raise awareness of AMR and containment options, improving the use of antimicrobial medicines, and research and innovation. Furthermore, the government's 2018–2022 One Health Strategic Plan was developed to strengthen the prevention, preparedness, and response to zoonotic diseases, AMR, and biosecurity threats. The One Health Platform involves stakeholders from the Ministry of Health, MAAIF, Ministry of Water and Environment, and the Uganda Wildlife Authority of the Ministry of Tourism, Wildlife and Antiquities with support from the USAID-funded Preparedness and Response (P&R) Project. The Platform requires both public and private sector actors to contribute to capacity building efforts and to focus on cross-sectoral collaboration, with the aim of decreasing the prevalence of zoonotic diseases and AMR by 50 percent by 2022.⁶⁴ With different priorities, timeframes, and perspectives, all these policies, which are still in effect, aim to support sustainable development of the livestock sector.

Animal feed

In 2005, MAAIF implemented the National Animal Feeds Policy that targets a private sector-led increase in the availability of high-quality animal feeds, lower production costs, and capacity development for private

and public sector actors by providing better access to research, raw materials and finance.⁶⁵ The policy offers a framework to manage and regulate the animal feeds industry. In combination with fiscal incentives such as duty-free importation and VAT exemption on machinery for agricultural processing there has been proliferation of informal and formal actors in the feed industry. In 2017 there were 112 small and large commercial feed producers in Uganda. However, they are unable to satiate domestic demand. In 2015, Uganda's feed deficit was the largest in the region at 4.2 million mt.⁶⁶ An Animal Feeds Bill was passed in 2019 to regulate feed producers and importers to ensure that they uphold high quality standards.⁶⁷

Programmatic interventions

Over the past 20 years, the private sector, cooperative societies, and local and international NGOs have played a major role in enhancing Uganda's livestock sector in collaboration with the government. Interventions have focused primarily on the dairy value chain and included support to increase milk production and productivity, farm management, milk processing, market access, disease control, and livestock genetic improvement.⁶⁸

Heifer International (HI) has been operating in Uganda since 1982, providing dairy cows to poor households, particularly women. Between 1986 and 2007, over 15,000 households directly benefited from HI's support through placement of various livestock species. In addition, HI's East Africa Dairy Development (EADD) program was implemented in Uganda in 2008 to support the commercialization and processing of milk products.⁶⁹ The EADD is a network of milk collection hubs seeking to increase milk yields and thereby the incomes of small-scale farmers through the creation of producer organizations. During phase one (2008–2013), 82 farmer-owned dairy enterprises were created, comprising of 200,000 farmers in Kenya, Rwanda, and Uganda. The amount of milk supplied to the hubs in Uganda increased from 529,000 liters to 3 million liters per month, while income per household increased by 164 percent. For the second phase of the program HI received a US\$25.5 million grant from the Bill & Melinda Gates Foundation to expand the EADD to support more than 136,000 farm families in Uganda.⁷⁰

Pearl Dairy Farms Limited, established in 2012 and part of the Midland Group, is the largest of seven dairy processing companies in Uganda, sourcing raw milk from more than 10,000 smallholder farmers. The company has the capacity to process 800,000 liters of raw milk per day⁷¹, and under the brand name Lato Milk produces powdered and liquid milk, flavored milk, yogurt, ghee, butter and butter oil. The products are sold in Uganda and exported to other countries,



including Burundi, DRC, Egypt, Kenya and Tanzania.^{72,73} In 2017, the International Finance Corporation (IFC) collaborated with Pearl Dairy Farms to introduce the Dairy Development Programme. The program facilitated the training of 50 dairy development executives, who are now providing guidance to 500 farmers on techniques to enhance productivity and implement good agricultural practices.⁷⁴ The objective is to generate a stable supply base of 1,000 dairy farmers supplying high-quality raw milk, provide a further 5,000 farmers with advice, and help them transform into competitive commercial dairy farmers.

Additionally, the NGO Send a Cow Uganda (SACU) has contributed substantially to the development of Uganda's dairy industry. Established in 1988, SACU provides support to various farmer groups through training, animal placement, and livestock breeding. SACU projects have emphasized organizing farmers into producer groups and training them on leadership and managerial skills, strengthening their capacity to enhance their living conditions (sanitation, cooking stoves, housing), and assisting them with agricultural inputs, such as high-yielding crop seeds and animal types. In 2012, SACU conducted an evaluation of its operations, which found that just over three-quarters of farming households were now able to have at least two meals a day year-round. Furthermore, by selling surplus farm produce, families' income increased up to six-fold, allowing them to reinvest in their farming businesses and purchase tools, for instance wheelbarrows (289 percent increase) and bicycles (76 percent increase). In addition, more households were able to save money, thereby increasing their resilience to future shocks. The evaluation also found that most of the farmers targeted by SACU were women. As a result of the project, about 74 percent of participants reported that women and men were equal partners in making decisions on how to use the family's land and how to share workloads.⁷⁵

In 2016, another program, The Inclusive Dairy Enterprise (TIDE), was created in collaboration with the Dutch government to improve the quality and quantity of milk production. The enterprise aimed to increase dairy farming productivity and reduce poverty for 20,000 dairy farmers in six districts across Uganda. TIDE worked closely with local dairy cooperatives and achieved a significant improvement in the quality of milk delivered. Furthermore, staff at collection centers were trained on quality testing, recordkeeping, postharvest milk handling, and farm management – knowledge, which was then transferred to farmers, leading to overall higher production volumes. To date, 640 farmers have been trained at three Practical Dairy Training Farms, of whom approximately a third were young people and

19 percent women. As a result, suppliers benefited from improved bargaining power as well as increased competitiveness in the market, thereby increasing their overall profits.⁷⁶ In addition, TIDE provided a new market and income for dairy farmers, with 1.5 million liters of milk sold through a school milk program. This led to an increase in revenue from milk sales totaling US\$395,000, which contributed to the creation of milking parlors, water reservoirs, hay bunkers, pasture development, and purchase of machinery. Lastly, milk production per cow in the dry season increased by 103 percent (and 56 percent in the wet season), resulting in an increase in income.⁷⁷

Uganda has shown strong commitment to improving its livestock sector through institutional and policy innovations, especially the dairy industry. However, it faces several challenges such as increased risks of emergence and spread of zoonotic diseases and AMR. Therefore, more emphasis needs to be put on strengthening the prevention, preparedness, and response to zoonotic diseases and AMR to enable and sustain the growth of the Ugandan livestock sector. There is also significant opportunity to raise the productivity of its beef sector through focused interventions on feed and nutrition. This will allow it to gain a foothold in export markets on the continent and further.





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