



Transformation of the Livestock value chain for Agro-Industrialisation.

Summary

The annual Value Chain Status Report (VCSR) provides an update on the state of key selected commodities and the progress in the development and performance of value chains in Uganda. The 2020 VCSR focuses on the livestock sub-sector value chains- beef, dairy and leather with particular attention to cattle. This is premised because the cattle sub-sector contributes about 40 percent of livestock production value and about 7 percent of the value of agricultural output. Furthermore, these commodity value chains have a high potential for agro-industrialisation, employment creation, food security, import replacement, and higher export revenues.

Building on the previous studies of Public Investment Management for Agro-industry report (EPRC 2020, forthcoming) and fostering a sustainable agro-industrialisation agenda in Uganda (EPRC 2018), the 2020 VCSR adopted a value chain analysis approach to provide in-depth insights into the three essential value chains of cattle-beef, dairy and leather. Specifically, the report leveraged both secondary and primary data collected through Key Informant Interviews (KIIs) to assess the productivity, aggregation, processing and marketing aspects of the beef, leather and dairy value chains.

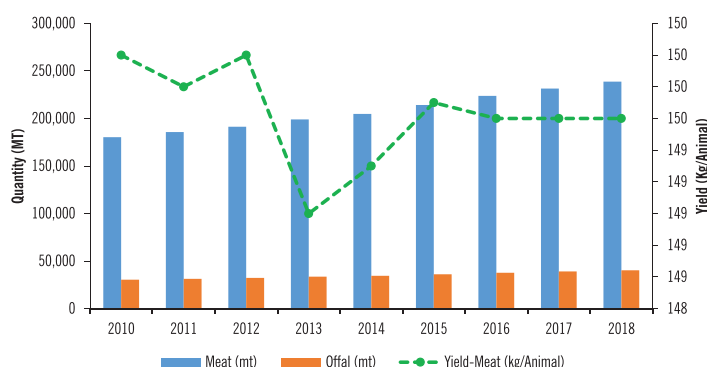
The following are the key findings of the Value Chain Status Report 2020.

Production and productivity remain a challenge across all three livestock value chains: Production and productivity of beef cattle remain low; at 238,729 MT, beef production falls short of the country's target of 360,000 MT by 2020. Productivity has stagnated at about 150 kg/animal for the past five years (**Figure 1**), which leaves a considerable gap (of about 200kg/animal) between industrial processors' requirements and producers' capacity. Therefore, the low productivity suggests that the gradual increase in the production of meat and offal is driven by an increase in the number of animals slaughtered rather than productivity.

Relatedly, the dairy sub-sector has registered tremendous growth in total milk production over the years. Milk production increased from 1.3 billion litres in 2010 to 1.7 billion litres in 2018 (Figure 2), and this has been attributed to several interventions and programmes implemented by state and non-state actors such as the promotion of feed production and conservation, training of dairy stakeholders on good farming practices and increased adaption of dairy farming as a business. However, the increase in milk production is driven by increasing milk-producing cows rather than productivity per cow.

According to KIIs, the low productivity in beef and dairy is primarily attributed to limited access to improved breeds leading to an overreliance on indigenous breeds raised under extensive farming systems with inadequate nutrition and poor animal health management. That is:

Figure 1 Production and productivity of cattle products

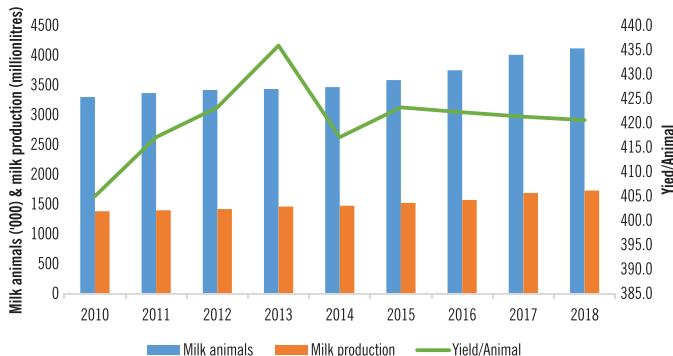


Source: EPRC's own construct using data from FAO 2020

"Farmers have limited access to high yielding breeds and other productivity-enhancing technologies. Whereas NARO disseminates some of the technologies, the channels used undermine uptake of the technologies. For instance, the private partner NARO uses to upscale technology adds a margin to the initial cost" —KIIs with UMPCU, August 2020.

Other challenges reported include; proliferation of fake animal drugs on the market, limited access to productivity-enhancing technologies, diseases such as Foot and Mouth Disease (FMD), inadequate feeding resources; water shortage in the cattle corridor; and deterioration of natural grazing.

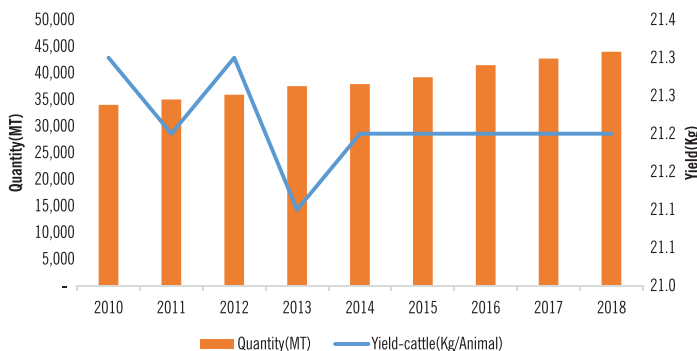
Figure 2 Trends in milk animals, milk production and productivity



Source: EPRC's own construct using data from FAO 2020

Production and productivity in the leather industry have stagnated at a lower level than earlier recorded. While existing data shows that production of hides and skins steadily increased from 35,000 MT in 2010 to 43,982 MT in 2018, registering an annual growth of 3.3 percent (Figure 3), this growth is attributed to the increase in livestock production in the review period rather than to the growth in productivity. Notably, the weight of hides/skins per animal slaughtered stagnated at 21 Kg per animal, far below the yields realised in other countries such as South Africa (41kg/animal) and Egypt (35.6 Kg/animal) (FAO 2020). This decline in productivity is primarily attributed to various factors at the production level: inferior animal breeds, free grazing that exposes animals to skin cuts and animal parasites, which affect the quality of hides of the animals on the farm (UIA, 2018). Also, the production of quality hides is affected by poor slaughtering facilities and flaying methods that increase post-harvest losses at the production stage.

Figure 3 Trends in hides and skins production and productivity in Uganda



Source: EPRC's own construct using data from FAO 2020

Poor aggregation methods continue to undermine the quality of end products:

Due to the absence of modern abattoirs along the cattle corridors, animals have to be transported long distance. However, animals

are usually overloaded on the trucks while transporting them to abattoirs. Whereas there are livestock checkpoints along different highways,

"...those operating these points are security officers who might overlook certain aspects such as how animals are transported"—KII with UMPCU, August 2020.

Worse still, they are not given enough time to rest before slaughter. According to KIIs with experts in the beef sector, such practices affect the meat's chemical composition and pH, thus undermining the meat's quality. Thus the need to regulate the transportation of animals.

Regarding the dairy value chain, various initiatives to enhance quality milk have been put in place. On behalf of the government, DDA outlawed the use of plastic equipment in the collection, transportation, and storage of raw milk. However, transportation and handling of milk are still poor. That is;

"Milk is still transported in jerry cans from farms to markets. Plastic jerry cans are preferred over aluminium cans because they are cheap. However, these are not of food-grade standard, and they are poorly cleaned, which compromises the quality of milk"—KII with DDA, August 2020.

Processing in the selected value chains is still limited and below the installed capacity:

In the dairy industry, Uganda has over 100 operating milk processing companies registered and licensed by the Dairy Development Authority (large scale, medium scale, small scale, and cottages) with a total installed capacity of over 2.7 million litres per day. This is because of increased investments in dairy cottages striving to add value (DDA 2019). However, most processors are operating below-installed capacity, with the top nine (9) processing companies utilising only 56.8 percent of the installed capacity.

In the beef sub-sector, the industry is faced with a limited number of processors. The few available processors also operate below capacity, primarily due to sourcing cattle that meet industrial specification. For instance, KIIs revealed that before COVID-19, Fresh Cuts Uganda Limited—the largest meat processor in Uganda, was processing 70 tons of meat (approximately 150-200 carcasses) per week, against the installed capacity of 400 carcasses per week. More so,

"Egypt-Uganda Food Security which was established in 2016 with a daily capacity of 200 cattle, targeting the export market only managed to make one consignment of exports (about 50 tonnes) to Egypt"—KII with Egypt-Uganda Food Security August 2020.

The underutilisation of the installed capacity has been exacerbated by COVID-19 and subsequent containment measures, which led to a decline in demand. For instance, a Key Informant interview with Fresh Cuts Uganda Limited revealed that the company was operating at about 25 percent during the period of lockdown.

Uganda currently has seven (7) tanning industries with a total estimated installed capacity of 3.1 million hides and skins per year regarding the leather industry. Notably, these industries primarily operate at about 60-70 percent of the installed capacity owing to financial constraints and machine breakdown (UIA 2018). While Uganda is a net exporter of hides and skins, only one tanning company- Leather Industries Uganda Limited is involved in processing hides and skins into final leather. Other companies produce semi-processed leather (wet blue), which is exported for further processing. As a result, Uganda registers enormous losses due to limited capacity to process raw hides and skins to final leather. According to estimates, Uganda's potential earnings stand at USD 273.9 million annually; however, the country only earns USD 46 million, equivalent to 12 times less than the sector's potential earnings (Table 1). Limited value addition in the leather industry also costs Uganda of the several jobs that would otherwise be created at the value chain's final stage.

Table 1 Value addition potential and current losses in the leather industry

Stage	Potential Earnings (USD million) (A)	Current Earnings (USD million) (B)	Estimated Loss (USD million)(A-B)	Value Added Factor
Raw Hides	22.9	0	0	1 time
Wet blue	45.7	41.5	4.1	2 times
Crust	68.5	0.7	67.8	3 times
Finished leather	79.9	0.8	79.1	4 times
Finished Product	273.9	2.7	271.2	12 times

Source: MTIC 2015

Worse still, Uganda is a net importer of finished beef products. For instance, out of the 25 million pairs of shoes annually demanded in Uganda, one million are produced locally while 24 million are imported mainly from Europe, North America, and Asia. This largely attributed to limited capacity by local SMEs to meet the ever-rising demand. Therefore, limited value addition leads to loss of foreign exchange by exporting low-value products and importing high-value products.

Box 1 summarises the key constraints faced at the processing in the beef, dairy and leather value chains.

Box 1 Major Constraints faced by beef, dairy and leather industries in Uganda

Beef	Dairy	Leather
<ul style="list-style-type: none"> The limited supply of animals that meet industrial specifications. For instance, Fresh Cuts Uganda Limited demands that animals supplied for slaughter are Boran breeds or crosses of Boran and Friesians, of not less than 280 Kgs (live weight) and not more than three years old, while Egypt-Uganda Food Security Company Limited required only male beef animals, less than three years old with a live weight of 300 Kgs per animal Processors face competition from roadside butchers who offer beef products at cheaper prices. Consequently, processors that invest in improving the quality of their beef products suffer high losses for their investment given that there is no price incentive for good quality products on the market Lack of sufficiently high-quality abattoirs. Currently, there are only three improved abattoirs in Uganda (Egypt-Uganda food security, Uganda meat industries, and City abattoir). However, these abattoirs are expensive. For instance, the Egypt-Uganda food security charges UGX 150,000 per animal slaughtered than UGX 30,000 for other local abattoirs. Worse still, the hygienic conditions of the slaughtering houses remain poor, which affects the quality of the meat Business environment constraints (taxes, power, water etc.) and limited price incentive continue to undermine beef processing. 	<ul style="list-style-type: none"> Most processors are operating below-installed capacity. The analysis of dairy industry processing shows that the top nine processing companies only utilise 56.8 percent of the installed capacity implying a low production of raw milk to meet their installed capacity. Most processors deal in low-end dairy products in contrast to high-value products such as butter and casein. For instance, only Amos Dairies processes casein while infant formula milk remains unexplored, yet it is highly demanded. Competition from traders/hawkers selling loose and raw milk High costs of production, such as power, taxes among others, limit the scale of production. Processing facilities are disproportionately located in the Central and Western region compared to North and Eastern regions. Notably, the 9 of the 100 processors that control 95% of the total processed milk are found in the two regions. 	<ul style="list-style-type: none"> Underutilisation of leather tanning industries. Notably, most tanneries operate at 60-70% of the installed capacity, while others like Skyfat have closed due to the COVID 19 pandemic Limited modern machinery/technology to process wet blue (semi-processed) into finished leather has affected the industry. For instance, 1 out of 7 tanneries in Uganda (Leather Industries of Uganda) processes raw hides and skins to finished leather, which reduces the export earnings from the industry Poor quality of leather inputs most of the finished leather is exported, leaving grade 3 and 4 for the domestic market. This is because the Leather Industries of Uganda fetches more prices from the export markets than in the domestic markets; however, this leaves a supply gap for finished leather among the SMEs Poor technology for leather manufacturing, as most SMEs have no modern leather finishing equipment, compromises the quality of leather products. As a result, most consumers for leather products opt for imports from China, Italy, and Ethiopia. These produce well-finished leather products such as bags, shoes, and belts. High marketing costs make it challenging to market their products both in the domestic and external markets. Most SMEs lack the financial capacity to participate in the regional and international trade fares to promote their leather products.

Source: Key informants interviews with sector stakeholders

Domestic demand for the beef, dairy, and leather products was rising and predicted to increase further:

For example, the value of beef consumption increased by 6.5 percent in real terms (from UGX 780 billion in 2012/13 to UGX 830 billion in 2016/17)¹ and 23.4 percent in nominal terms. Per capita consumption for beef in the country is estimated at 6Kgs per year (FAO 2019). Although this is below the internationally recommended figure (50kg per year), it is projected to increase steadily and reach 22Kg in 2050 (FAO 2019). Similarly, per capita consumption of milk products has increased from 25 litres/person/year in 1986 to 63 litres/person/year in 2018 (DDA 2019), although it also remains far below the international recommendation of 200 litres/person/year. Consumption of beef and dairy below global recommendations suggests room for expansion. Notably, over 89 percent of the household consume concentrated and un-concentrated milk, indicating a high market for unprocessed dairy products, which commands minimal returns.

The domestic demand for finished leather and its products has also been rising mainly over the past years. For instance, imports of leather products increased from 17.3 million in 2015 to 20.6 million in 2018, with an average annual growth rate of 6.3 percent. According to Key Informant Interviews, the increase in demand for beef, dairy, and leather products is driven by rapid population, increased urbanisation, and increased purchasing power owing to a growing middle class.

Penetration in the international markets is affected by the export of low-value products and inability to meet international standards:

In the dairy value chain, export of high-value products such as whey, butter and oils, cheese and curd has been declining gradually, in spite a general increase dairy exports (from USD 0.31 million in 2006 to USD 73 million in 2018). This suggests high reliance on the export of low value-added products that fetch low prices in international markets.

Regarding beef, the country relies on exports of live cattle—valued at about USD 1.4 million compared to processed beef (frozen beef and fresh or chilled beef)—valued at less than USD 1 million as of 2018 (Table 2). While Uganda dominates destination markets for live cattle, the country serves a minimal share of beef's destination markets. Thus, suggesting room for expanding export shares for processed beef products. However, Key Informant Interviews revealed that penetration into these markets is still hampered by; inability to meet sanitary and phytosanitary requirements, lack of traceability for Uganda's beef products, limited enforcement of standards. This explains the high reliance on live cattle exportation since it's easier to meet their standards. That is:

“Penetration of high-value international markets requires stringent enforcement of quality and hygiene standards right from the farm to processing since international orders require samples to test for antibiotics”—KII with Fresh Cuts, August 2020.

Table 2 Trend in foreign demand (exports by-products) and imports (USD '000)

	2014	2015	2016	2017	2018
Live cattle					
Exports	1,410	1,240	627	1,562	1,366
Imports	168	122	94	122	443
Frozen beef products					
Exports	140	33	88	301	814
Imports	0	4	30	67	15
Fresh/ Chilled beef products					
Exports	32	27	205	81	-
Imports	0	0	1	4	2

Source: EPRC's own computation using data from ITC Trade Map 2020

Similar to beef and dairy, Uganda's leather exports are predominantly in raw and semi-processed leather products (Table 3). Notably, trade data shows that semi-processed leather (wet blue) is by far the most critical leather export and accounts for 99 percent of the total leather exports compared to finished leather products and rawhides. These are mainly exported to leather manufacturing countries such as China, Italy and United Kingdom. This points to the earlier mentioned challenge of limited processing of hides and skins due to limited technology to manufacture finished leather. Worth noting also is that although Uganda is a net exporter of leather exports, the country has exhibited a declining trend in leather products from USD 64 million in 2015 to USD 46 million in 2018 equivalent to a 28 percent decline (Trade Map, 2019). This is due primarily to the reduction in processing capacity by the tanning industries. With the onset of the COVID-19 pandemic, this decline is likely to worsen owing to containment measures such as the closure of borders, airports and other related public transport means.

¹ To compute real values, we use (CPI 2009/10=100, CPI 2012/13=141.65 and CPI 2016/17=164.13)

Table 3 Trends in foreign demand and imports of leather products (USD '000)

Products	2015	2016	2017	2018
Tanned hides and skins (wet blue)				
Exports	62,929	51,370	53,118	46,246
Imports	125	130	1	24
Raw hides and skins				
Exports	0	0	103	22
Imports	5,662	2,534	3,519	4,751
Finished leather products				
Exports	1,314	803	418	301
Imports	11,504	13,938	14,636	15,864
Total exports	64,243	52,173	53,536	46,547

Source: EPRI's compilation from Trade Map, 2020.

Transforming the beef, dairy, and leather value chains can spur several industries through backward and forward linkages:

Besides being inter-linked, the three value chains are independently linked to other industries. Regarding forward linkages, the beef value chain other than supply hides for leather is also linked to ornamental industry where cattle horns are used to make crafts such as saltshakers, fruit bowls, trays, and glasses, cereal bowls and key holders. Note that demand for these products is increasing owing to expanding tourism industry. Also, cattle horns provide inputs for items such as buttons, necklaces, ladles, and bangles, among others for the textile industry. Dairy forms forward linkages with the pharmaceuticals and cosmetics industries where casein extracted from milk is used to manufacture medicines and cosmetics. For leather, the by-products from tanneries can be used in the processing of animal feeds and fertiliser that are important in the agricultural sector.

Regarding backward linkages, the beef and dairy value chains provide a market for the animal feeds industry. Also, the two value chains form strong backward linkages with veterinary shops and other inputs. However, to strengthen this linkage;

“there is a need to enhance enforcement of standards by UNBS to curb the proliferation of fake acaricides on the market, there is a big gap in terms of investment in animal feeds industry, and there is a lack of a policy on pasture”- KII with DDA and UMPCU August 2020.

The dairy sub-sector also provides a market for the machinery industry, especially for equipment such as milking machines, milk tankers, milk coolers and processing machinery that are very important in production and value addition.

The leather value chain exhibits backward linkages with the chemical industry and machinery and equipment industry. The leather tanning

industry heavily relies on using many chemicals and water to convert the raw material into a finished product. Furthermore, the raw hides and skins' tanning process is a highly capital-intensive process and relies on heavy machinery for tanning procedures and effluent treatment. Other machinery used include moisture metres and other testing equipment in industries.

There is well established legal, policy, and institutional framework to support the livestock subsector: For instance, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) are mandated to coordinate interventions and oversee

various laws, policies and plans that directly affect the sector. Under the jurisdiction of MAAIF are laws such as; Animal Diseases Act (2000), Animal Breeding Act (2002), Cattle Traders Act (1943), Dairy Industry Act (2000) etc., and policies such as; National Leather and Leather Products Policy; National Animal Feeds Policy (2005), National Animal Breeding Policy (1997), National Meat Policy (2003), National Agricultural Extension Policy (2016). Regarding dairy specifically, the Ministry is supported by Dairy Development Authority—a semi-autonomous body mandated with regulating the dairy industry. The sector is also given adequate attention in the national planning framework. Under NDP III, the livestock is identified as a strategic sector for agribusiness development in Teso, Karamoja, and Bunyoro and West Nile sub-regions, under the agro-industrialisation programme.

Existing laws and policies fall short of sufficiently supporting the livestock sector:

First, the current laws and policies do not adequately address traceability, yet this is crucial for guaranteeing quality, transparency, value chain sustainability and penetration of external markets. Secondly, some of the existing national policies and laws are outdated. For example, the Cattle Trading Act [1943] and the Hides and Skins Act [1962] remain in force despite new cattle sub-sector developments. Furthermore, information from key informant interviews shows that effective implementation of some policy interventions, plans and laws is hampered by poor coordination among actors. The quality of the laws, policies, plans and strategies is also undermined by a lack of current and more disaggregated data on the livestock sector.

Also, there is limited awareness of and weak enforcement of some legal provisions (e.g. Animal Registration Policy, Cattle Movement Regulations etc.). Evidence also shows that the regulation of the agro-inputs market for animal feeds and veterinary drugs also remains weak, as evidenced by the prevalence of adulterated agro-inputs. Lastly, there is no single livestock policy. The available policies cover the entire sector (National Agriculture Policy) or specific sub-sectors (National leather and leather products policy), thus leaving specific value chain segments unregulated. For instance;

“...there is no specific policy to guide the handling of dairy products along the value chain, no policy on pasture”—KIIs with DDA.

Emerging policy Actions

1. Promote an integrated model for Agro-Industrialisation:

Through Public-Private Partnerships (PPP), the recommendations in EPRC (2018) and EPRC and MoFPED (2020) studies on the need of an anchor investor (referred to as the *game changer*) to drive both production and markets need to be followed through such that UDC can invest in less attractive notches of the value to crowd in the private sector.

2. Strengthen data availability in the livestock sector:

There is a need to close data gaps in the livestock sector to support effective traceability and adherence to the quality standards. This is particularly important for Uganda's penetration in the export markets where livestock products' quality is highly considered.

3. Leverage on Research and Development

To produce high yielding breeds for both beef and dairy cattle which are suitable for commercial and industrial production: The National Animal Genetic Resources Centre and Databank (NAGRC & DB) should be adequately facilitated to continuously invest in breeding technologies that can improve the indigenous cattle breeds to enhance their productivity while maintaining the parent stock of local breeds.

4. Institute traceability mechanisms to foster competitiveness:

To promote the competitiveness of livestock products in the export markets, the government needs to establish a strong traceability mechanism across the livestock value chain, i.e. from the farm to the market. This requires the registration of farmers and livestock in line with international best practices.

5. Strengthen the livestock sector's business environment:

MAAIF and other responsible MDAs in the livestock sector should update the necessary legal and regulatory frameworks important for livestock value chains. For instance, farmers and animal registration policy and bill.

6. Strengthen enforcement of standards and supporting compliance:

To penetrate high-end international markets, there is a need to enhance compliance with international standards and quality by firms engaged in exportation. This calls for strengthening the capacity of UNBS to undertake laboratory test and leverage PPPs to support compliance by export-oriented factories.



APPENDIX

I. Leather tanning companies in Uganda²

Tanneries	Location	Annual Capacity
Leather industries Uganda Limited	Jinja	192000 hides and skins
Hoope Trading company	Lugazi	640,000 hides and skins
Novelty Tanneries	Masaka	192,000 hides and skins
Sky Fat Ltd	Jinja	1,280,000 hides and skins
SWT	Jinja	320,000 hides and skins
Leatherland	Jinja	168,000 hides and skins
Jambo	Mbarara	88,000 hides and skins

² The list does include Royal Tanneries in Jinja whose capacity is very small and the proposed construction of the Kawumu leather tannery in Luweero



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