



INITIATIVE ON
Sustainable Animal
Productivity

Beef Value Chains Situation Analysis for Uganda

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for

ILRI



Report Outline



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- 1.0. Background
- 2.0. Process
- 3.0. Consumption and Expenditure
- 4.0. Production
- 5.0. Imports and Exports
- 6.0. Inputs and Services
- 7.0. Value addition and Marketing
- 8.0. Food Safety
- 9.0. Competitiveness
- 10.0. Beef Value Chain Governance
- 11.0. Beef Sector Development Strategies and Activities
- 12.0. Current perspectives on opportunities for pro-poor beef value chain development

1.0 Background

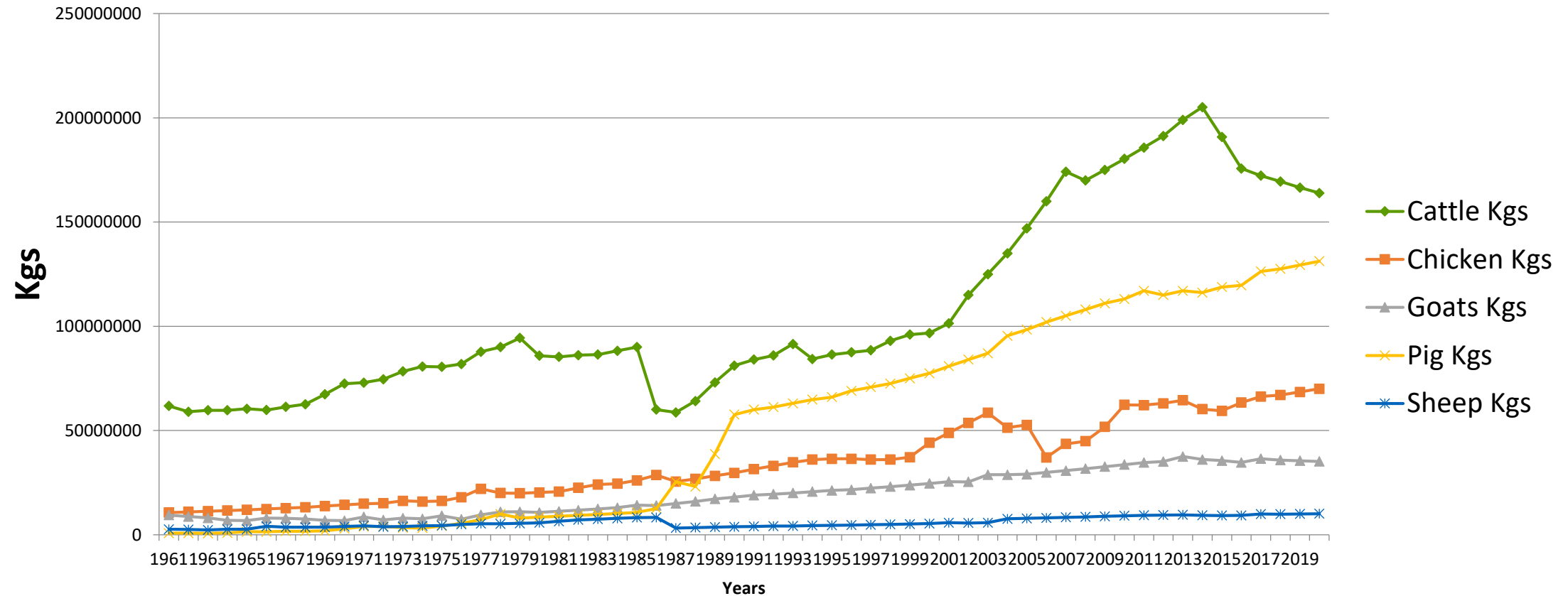
- Global beef consumption in 2021 was 70 million tonnes and estimated to rise to 72 million tonnes by 2025
- In SSA beef consumption was estimated to increase annually by 3.8 million tonnes between 2020 and 2030
- before COVID 19 disruptions, Africa produced 6.6 billion Kgs of beef with Uganda being the 13th largest producer, South Africa the largest (1 billion Kgs) and Seychelles with the lowest production (6 million Kgs)
- In Uganda beef production had highest growth rate of 6.5% between 2001 and 2010 and in 2018 was estimated at 217 million Kgs
- Clearly the sector has potential for earning opportunities and Uganda should position herself to benefit

2.0 Process

This situation analysis report has resulted from a systematic process involving

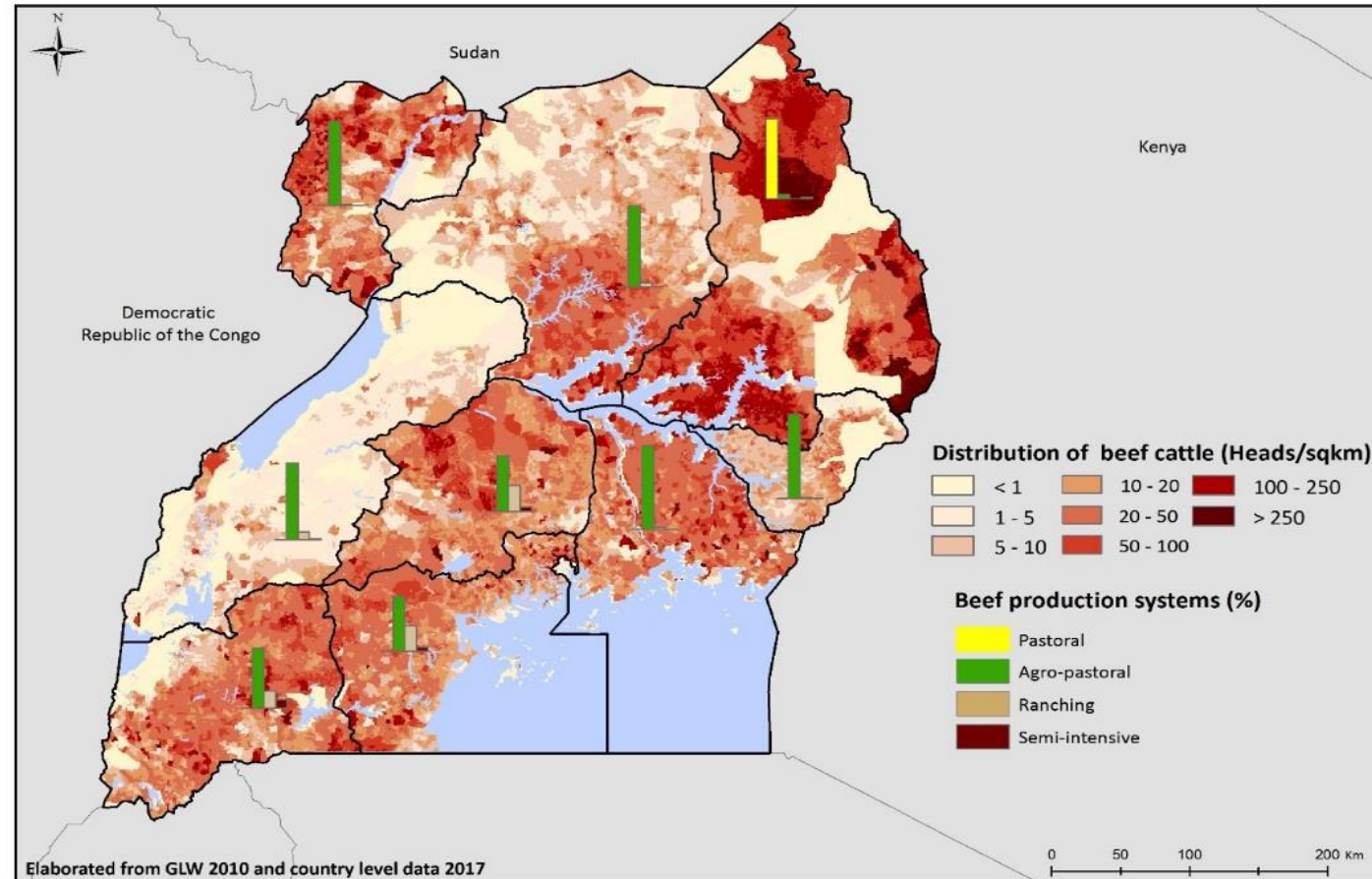
- review of secondary information
- accessing UBoS, BoU and FAO data and subjecting them to analysis that provides the relevant information about the beef sector
- synthesis of all the information into a draft report
- identification of information gaps and development of gap filling plan and tools
- carrying out the gap filling process
- synthesis of the gap filling information and integrating it into the report

3.0. Consumption and expenditures

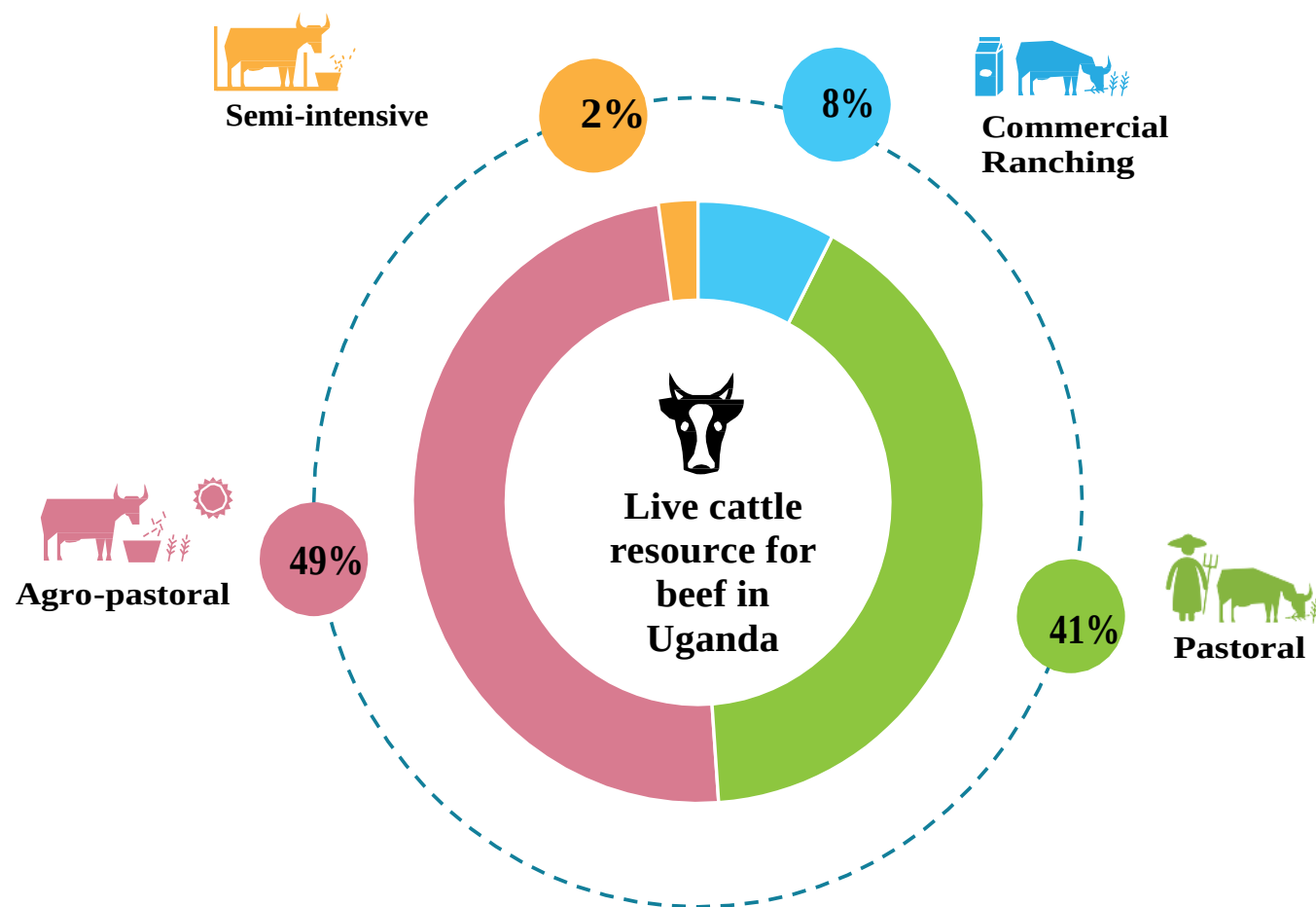


Growth in Kgs of cattle, goats, chicken, pig and sheep meat produced in Uganda for consumption from 1961 to 2020 (*Source: Data from FAO STAT*)

4.0. Production



Distribution of beef cattle in Uganda by region and production system
Source: FAO, 2018 (ASL2050 – Production Systems)



Beef production systems in Uganda and proportion of beef cattle reared under each system (*Adapted from FAO-ASL, 2019 – opportunities and challenges*)

Estimation of proportion of beef cattle reared in different areas of Uganda under the different and production systems

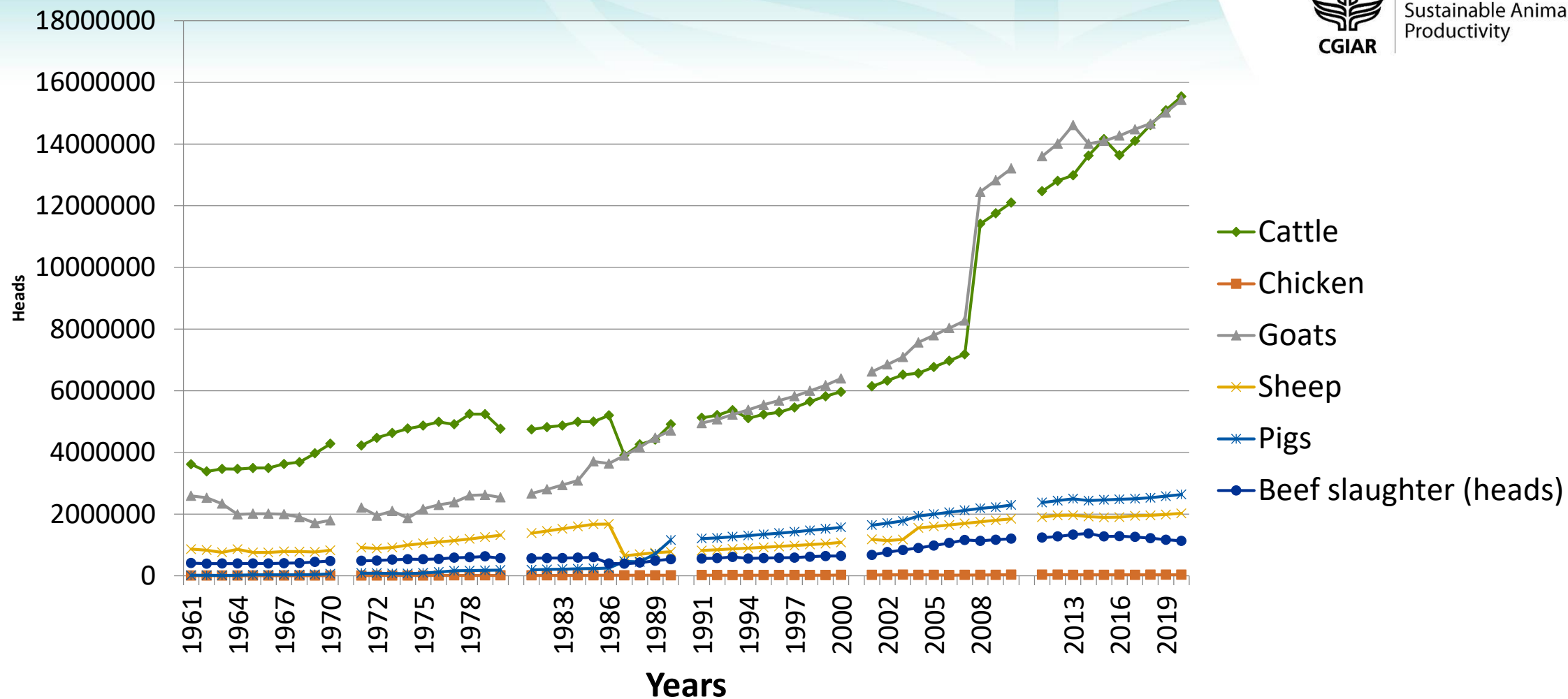
Region	Agro-pastoral	Ranching	Semi-intensive	Pastoral
Central 1	65%	30%	5%	0%
Central 2	65%	30%	5%	0%
East-Central	98%	2%	0%	0%
Mid-Central	99%	1%	0%	0%
Mid-Northern	95%	5%	0%	0%
Mid-Western	90%	9%	1%	0%
North East	5%	0%	1%	94%
South west	70%	20%	10%	0%
West Nile	99%	1%	0%	0%

4.0. Production: Trends in beef production

- The gap between the cattle reared and those slaughtered has been growing wider over the years reaching over 14 million in 2020.
- This could indicate that
 - (i) numbers of dairy cattle reared are increasing at a high rate and/or
 - (ii) number of cattle reared both for dairy and beef are growing and hence the live resource for beef is growing in stocks.

Scenario (ii) would be a positive sign for the beef sector as it would build a herd:slaughter ratio that ensures a sustainable resource for the growing beef demand.

- A sustainable herd:slaughter ratio is dependent on numerous (a) genetics, (b) management and (c) resource related factors and this would be a researchable area that would provide mechanisms delivering sustainable increased beef production
- Uganda's Kg per head slaughtered for cattle of about 150 Kg and can be greatly improved



Numbers of livestock reared in Uganda and cattle slaughtered by decades from 1961-2020 (*Data Source: FAO STAT*)

5.0. Imports and Exports

5.1. Imports

Uganda has been substantially below the world average for importation of frozen beef and fresh or chilled meat but has been increasing steadily for commodities in the hides and skins category

When compared to either SSA low-income economies Uganda conditional demand for hides and skins in 2019 was higher (Conron *et al.*, 2022).

Main beef imports into Uganda are

- (i) beef and veal preparations
- (ii) hides (wet-salted)
- (iii) beef- boneless (fresh or chilled) and (iv) beef the bone (fresh or chilled) Table 7.

Data from the Uganda Revenue Authority (URA) shows that beef imports of edible beef products for 2021 amounted to 1,000 Kg with imports mainly from France, Lebanon, USA and South Africa.

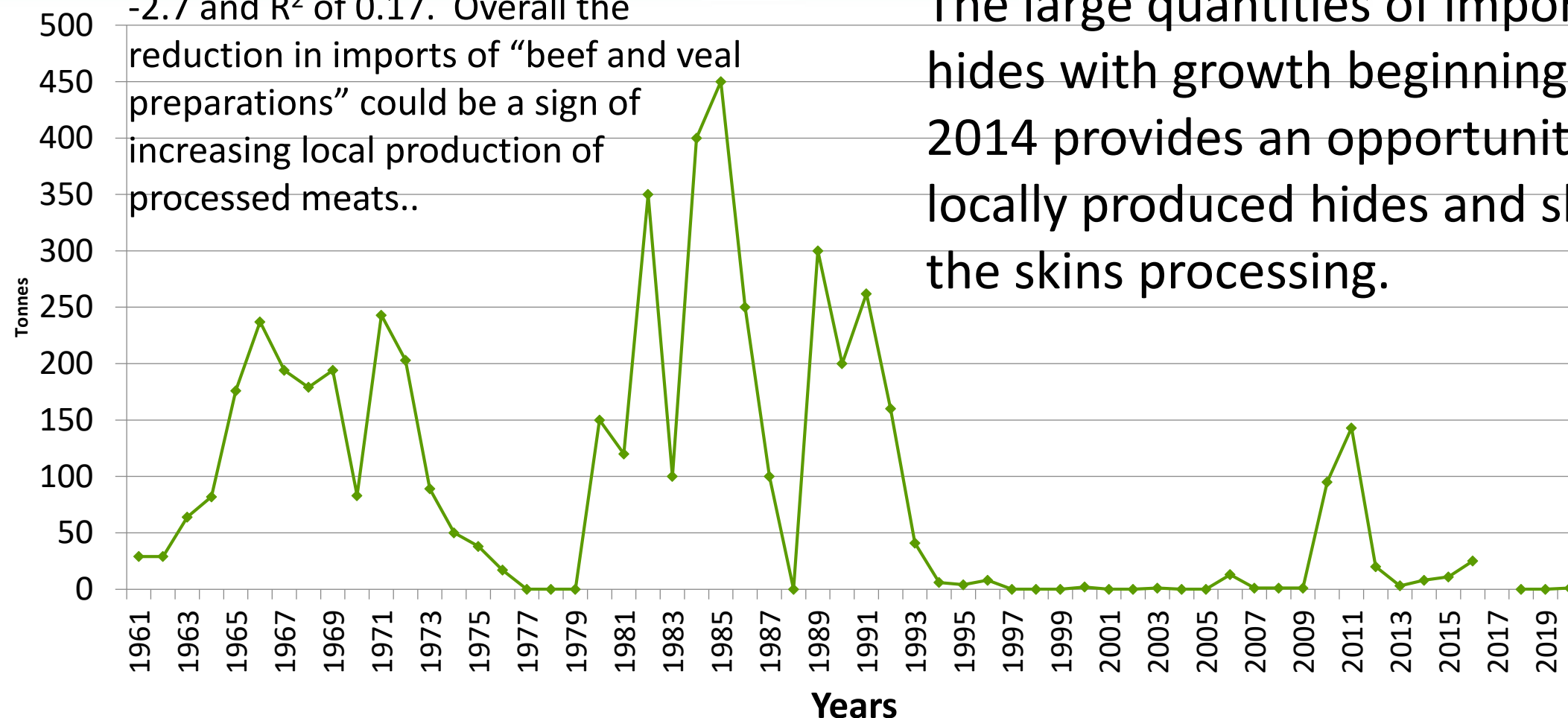
Average imports (tonnes/year), USD value and USD value per tonne for imports sourced from the beef industry into Uganda from 1961 - 2020

Import category	Tonnes	'000' USD	'000' USD/Tonne
Beef and veal preparations	87.0	171	1.96
Hides, wet-salted of cattle	1162.4	919	10.6
Meat of cattle boneless, fresh or chilled	5.1	12	0.13
Meat of cattle with the bone, fresh or chilled	33.3	22	0.25

(Source: FAO STAT Data)

Linear regression shows significance ($p < 0.05$) with a regression coefficient of -2.7 and R^2 of 0.17. Overall the reduction in imports of “beef and veal preparations” could be a sign of increasing local production of processed meats..

The large quantities of imported hides with growth beginning in 2014 provides an opportunity for locally produced hides and skins the skins processing.



Trend in importation of “beef and veal preparations” into Uganda from 1961 to 2020. (Source: FAO STAT data)

5.0. Imports and Exports

5.2. Exports

Destinations, market shares and competitors of Uganda's beef related exports in 2018

Destinations	Uganda's Export value (US\$ 000)	Share in the destination market (%)	Main competitors in export destination
Live cattle			
Burundi	1,080	99.8	Tanzania (0.2%)
Rwanda	603	94.6	Ireland (4.1%); Kenya (0.9%);
Kenya	4	0.5	Tanzania (99.4%)
Frozen beef			
DRC	200	3.2	Botswana (27.3%), India (24.1%), Kenya (17.5%)
Viet Nam	421	0.2	India (36.9%), USA (30.3%) Australia (25.4%)
Sudan	16	0.7	South Africa (50.1%), Tekalau (18.3%), UAE (17.9%)
Egypt	177	0.02	Brazil (87.3%), India (9.8%), Australia (0.9%)
Fresh/ Chilled beef			
DRC	3	5.2	South Africa (65.8%), Namibia (13.5%), Botswana (11.6%)
Viet Nam	45	0.3	Australia (83.6%) New Zealand (6.2%), USA (9.1%)

In 2021 Uganda exported 192,156 Kg of edible beef products to Hong Kong and Vietnam (URA, 2021).

6.0. Inputs and Services

6..1. Herd health

Cattle health challenges and diagnostic Capacity

- Major diseases are East Coast fever (ECF), anaplasmosis, babesiosis, trypanosomosis, Foot and mouth disease (FMD), contagious bovine pleuropneumonia (CBPP), brucellosis, helminth infections, and blackquarter
- Anti-microbial resistance is an additional challenge

Laboratories

- Major challenge: laboratory capacity in terms of labs, equipment, reagents and human resource

Interventions

- Strengthening of the Disease Free ones (DFZ) approach recognized by OIE and WTO to grow the export of Ugandan beef
- The DFZ strategy has been successfully used in other beef exporting countries including Botswana, Namibia and Brazil
- Persistence sensitization towards control of anti-microbial resistance

6.0. Inputs and Services

6..2. Genetics I

The National Animal Genetic Resources Centre and Data Bank (NAGRC & DB) has a bull stud located in Entebbe where bull semen and liquid nitrogen are produced for breed improvement.

In 2020 liquid nitrogen plants were also installed in Mbarara in SW Uganda and in Njeru in Eastern Uganda

NAGRC & DB was one of the implementers of the EU funded project on Developing a Market-Oriented and Environmentally Sustainable Beef Meat Industry in Uganda specifically implementing the component on Support to Sustainable Brood Stock in Uganda”

Achievements against targets for beef related activities at NAGRC & DB in Uganda for the financial year 2020-21



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Output	Target	Achieved	%
Conservation and utilization of indigenous Animal Genetic resources. (no. of breeds)	5	3	60
Promotion of beef cattle breeding(number)	3,500	1,104	32
Beef breeding, promotion of beef breeds associations and beef breeder societies. (number)	6	2	33
Multiplication of pure beef breeds & appropriate crosses (number)	3,500	1,104	32

(Adapted from MAAIF, 2020-21 - Agriculture Sector semi-annual monitoring report)

Beef genetics improvement suggestions

Suggestions for improved breeds and breeding include

- strengthening breeding services and the linkage between processors and cattle keepers to align the interests of different actors. The capacity of NAGRC & DB to reach all the farmers is limited and therefore, the government can partner with the private sector to establish breeder societies at different levels to complement the efforts of NAGRC & DB in supplying high-quality breeds.
- commercial breeding and grazing practices need to be guided by industrial requirements to ensure that processors get the required animals. Therefore, there is a need to undertake a thorough assessment of the requirements and specifications of the processors to align interventions (breeding and grazing) towards meeting these specifications (EPRC, 2021).
- Development of a standard beef breeding programme
- Use of both AI and bulls to quickly improve the multiplication of superior genetics

6.0. Inputs and Services

6.3. Feeds and Water

Feeds

- Key feed resource for beef production are the pastures with grazing area in the country estimated at 84,000 ha – mainly natural pasture
- During the dry season yield of pastures reduce by 23%
- Establishment of improved pastures and conservation of feeds interventions that have been promoted to address these feed challenges
- They increase cattle weight gains by upto 40%
- Mechanised baling of hay had higher cost-benefit ratio for both the value of the hay and the cattle of over 60% and as such efforts to grow commercialisation of the beef industry should put mechanisation of feed operations at the fore front
- Other feed resources include commercial mixed feeds (concentrates), agro-industrial by-products and crop residues

Main Feed Challenges



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- Insufficient quantity and quality of forages
- Low digestible forage available and very low digestibility of crop residues.
- Inefficient feed utilisation (unbalanced rations)
- Seasonality
- Feed/Forage testing and standardization not available
- Limited quality support services for feed improvement
- Availability, high cost and/or poor-quality inputs (seed, fertilizers etc)
- Low level of adoption of (improved) forage technologies (e.g. drought tolerance, disease resistant) that can alleviate seasonal shortages
- Access to and cost price of agro-industrial by products
- Extreme low level of mechanisation

Suggested Feed Interventions

- Accelerate and identify options for dissemination knowledge and knowhow in enhance aware and adoption of improved forage production
- support development of mechanisms for enhancing appreciation and access to mechanisation for feed resource production and conservation
- Strengthen public/private partnerships in the forage seed sector
- Stimulate adoption of feedlots for beef production in appropriate settings
- Support commercialization and professionalization of the feed and forage supply chain with capacity developed for development of effective and efficient feeding models
- Create enabling environment for investments (large, medium and small scale) to expand commercial forage production and mechanisation
- Promote climate smart practices “from seed to feed” focused on productivity, quality and sustainability of agro-ecosystems (Integrated soil fertility management (ISFM) conservation agriculture (CA), reduction of GHG-emissions)
- Develop and operationalize index based livestock insurance systems in partnership with insurance companies

Water

- In 2021, 65.8% of beef producers across 9 cattle corridor districts in central and SW Uganda water their cattle from their own valley tanks
- 65.3% of these valley tanks are in good condition, however, the water availability is short of the requirement in all the districts

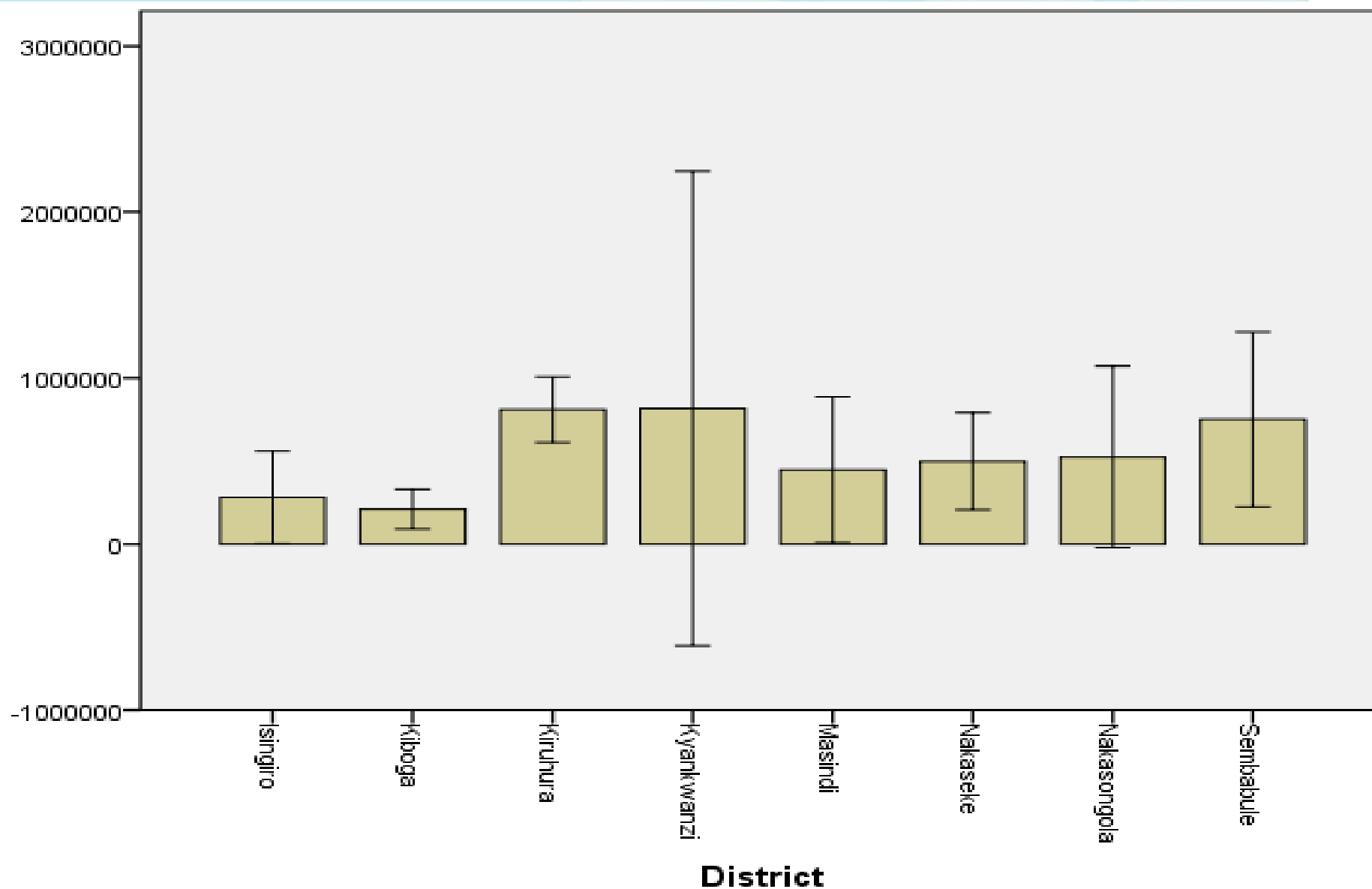
Valley tanks – socioeconomic factors

Correlation analyses, showed that

- (i) total farm land size,
- (ii) membership in farmers group,
- (iii) herd size and
- (iv) years of experience in cattle keeping,

had a linear relationship ($p < 0.05$) with presence of valley tanks on farms. The strongest relationship was with cattle heads which had a positive relationship and the weakest was with experience in cattle keeping which had a negative relationship

Difference between annual water requirement and annual valley tank water capacity - Litres



Error bars: 95% CI

Difference
 between annual
 water
 requirement
 (based on existing
 cattle TLUs per
 farm) and water
 potentially
 available in own
 valley tanks
 annually in eight
 districts of the
 cattle corridor in
 Uganda (Source:
 Nanyeenya *et al.*,
 2023)

Suggested Interventions - Water

- Encourage membership to location beef producer groups eg Farmer Field Schools to enable learning and pooling of resources to access excavation equipment
- Study water resource sharing models existing among cattle keepers and adapt for piloting in other locations

6.0. Inputs and Services

6.4. Credit

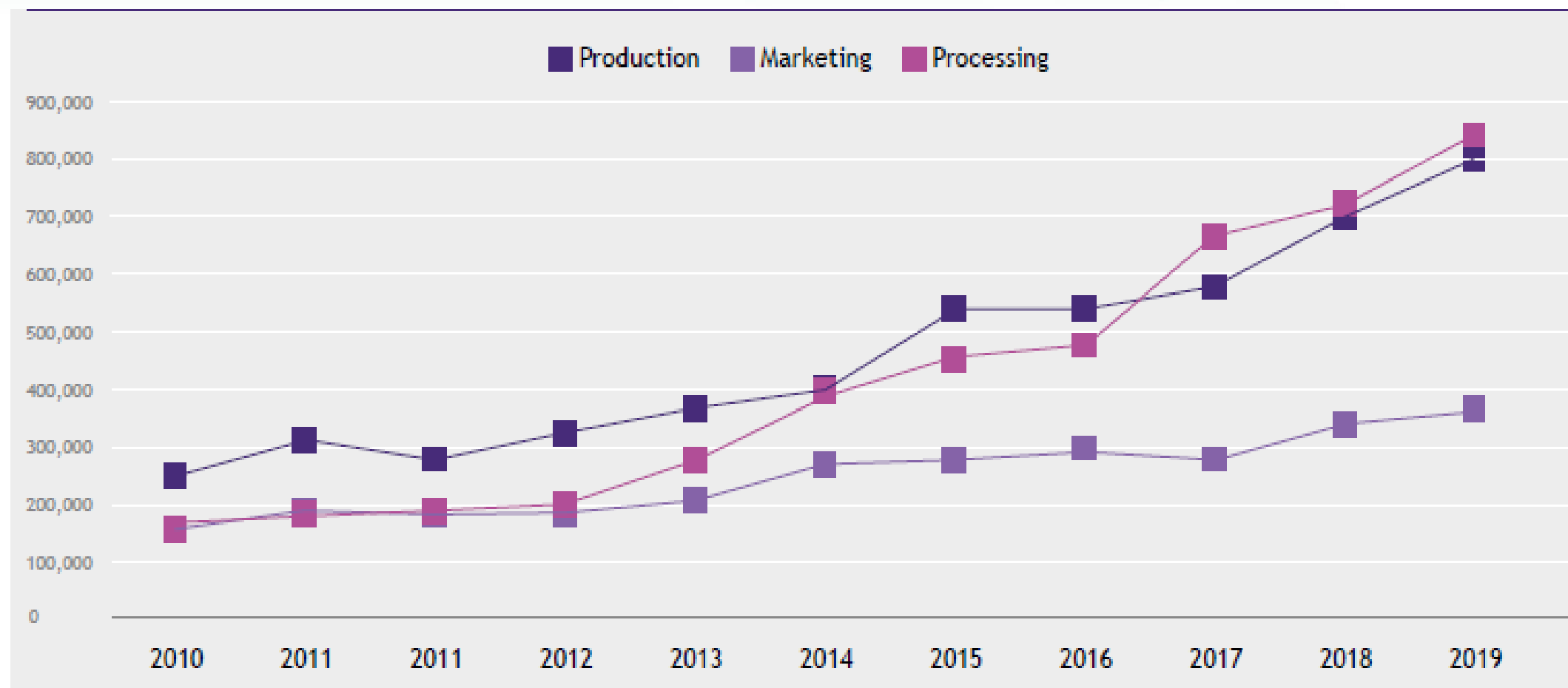
- The Bank of Uganda in 2018 reported that only 12.2% of total banking sector loans and advances were to the agricultural sector.
- The Bank of Uganda has made efforts through policy measures to foster financial inclusion in Uganda's agricultural sector.
- Between 2014 and 2020 most of the formal credit going to the agricultural sector was provided by commercial banks.
- The bulk of this credit was allocated to large-scale agribusinesses while largely avoiding smallholders
- The share of agricultural credit has also grown in the last decade from 6.7% in 2011 to 12.8% in 2018, which in nominal terms represents a growth from) UGX 518.9 billion to UGX 1.9 trillion (USD 140 million to USD 506 million)

6.4. Credit

- In 2019 and 2020, the agricultural sector continued to grow, accounting for 13.5% and 17.1% of banking sector total loans and advances.
- The sector also accounted for 13.4% of past due restructured loans as at 31 December 2020.
- Agricultural sector still attracts considerably less financing from the formal financial sector compared with other areas of the economy such as industry (36% share of total credit) and services (52%) .

Suggested Interventions

- Strengthen the integration of beef production and processing segments (appear to currently be attractive segments for financing - Figure) in credit schemes and prioritise training on financial access and literacy



Agricultural lending by segment of value chain provided by formal financial institutions, UGXM,
(Source: AFI, 2021 - Alliance for Financial Inclusion MSME SME document)

7.0. Value addition and marketing

7.1. Beef value added products on the Ugandan market

10 Companies with beef value added products

in the supermarkets

9 local and 1 foreign



Beef value added products on sale in Kampala and their retail prices – *from supermarket meat stands*

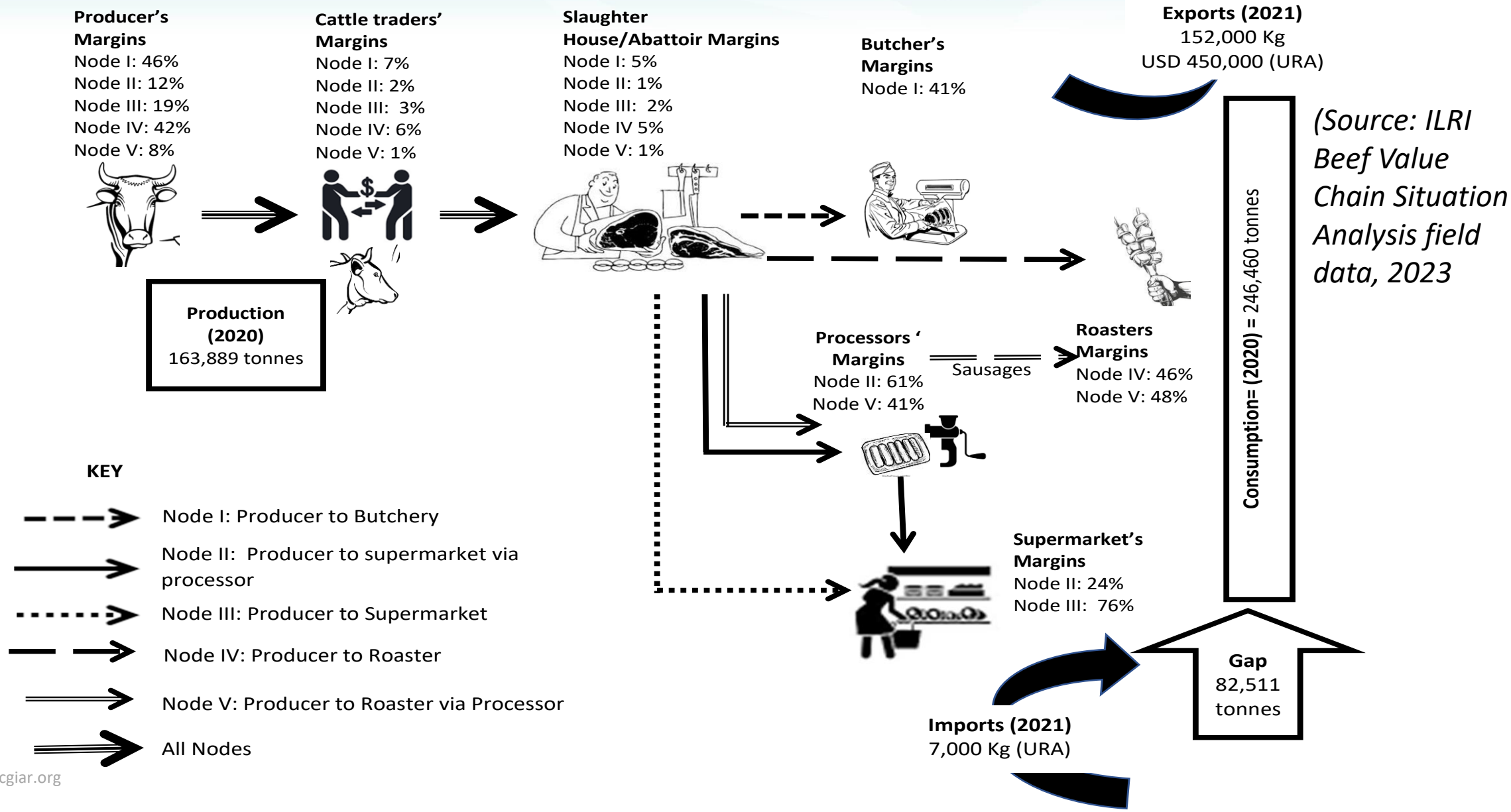
Beef value added products	Retail price per Kg (UGX)	Retail price per Kg (USD)
From the supermarket meat stands		
T-bone steak	26,990	7.3
Brisket	19,500	5.3
Cube (Low fat)	26,900	7.3
Knuckle	25,900	7.0
Beef of ribs	26,990	7.3
Top side	26,900	7.3
Mince Standard	19,500	5.3
Kidney	16,500	4.5
Tail	21,500	5.8
Foot	9,500	2.6
Tongue	16,500	4.5
Fillet	32,990	9.0
Bones	3,250	0.9

Beef value added products on sale in Kampala and their retail prices – *from supermarket fridges/chillers*

Beef value added products	Retail price per Kg (UGX)	Retail price per Kg (USD)
From the supermarket meat stands		
From the fridge/chilling section		
Sausages	20,000 – 40,000	5.4 – 10.9
Minced	20,000	5.4
Viennas	34,000 - 44,000	9.2 – 12.0
Smookies	25,000 – 29,750	6.8 – 8.1
Bacon	47,500	12.9
Hot dogs	27,400	7.4
Chipolatas	38,000	10.3

(Source: Gathered by Consultant in January 2023); (Exchange Rate: 1 US \$ = 3680.25 Ug Shillings – BoU 27

Distribution of margins across the beef value chains in Uganda



Distribution of margins across beef value chains in Uganda (UGX)

Value Chain Segment	Margin Shares (UGX)				
	Node I	Node II	Node III	Node IV	Node V
Producer	2,612	2,612	2,612	2,612	2,612
Trader selling to Abattoir	399	399	399	399	399
Abattoir to butcher and processors	310	310	310	310	310
Butcher to retailer	2,329				
Processor to supermarket/wholesale buyer		12,829			12,829
Supermarket to retailer		5,000			
Supermarket meat stand to retailer			10,302		
Roaster				2,829	15,000
Overall Chain/Node Margin	5,650	21,150	13,623	6,150	31,150

Suggested Interventions for value addition and marketing

- Strategic support towards value addition of beef for competitive marketing targeting different categories of customers
- Creation of input-output market linkages for beef producers –UMPCU is well positioned to be an active player in this kind of intervention
- Training in beef processing through partnerships with Vocational Training Institutes
- Adapt beef breeding programmes to target specific beef products in response to demand
- Establishment of business linkages between beef value chain actors for increased competitiveness – this can draw on the experience of PSFU in the sector

8.0. Food safety

- Analysis of Food Safety Management System (FSMS) activities (2021);
 - (i) core control
 - (ii) core assurance and
 - (iii) verification of performance, at the three largest slaughterhouses in Kampala produced scores of zero to low (all below a score of 2)
- Both the butcheries and supermarkets had numerous shortfalls in assessment of hygienic practices although supermarkets adhered better than butcheries
- Retailers/vendors roasted beef and beef sausages scored below average in food safety knowledge and skills, attitudes and practices

8.0. Food safety – suggested interventions

- Slaughterhouses need guidance to adopt science-based prevention, intervention, and monitoring systems—perhaps
- While supermarkets were better in all aspects of meat hygiene practices. However, it should be noted that supermarkets source from slaughterhouses or butcher shops that have low to poor hygiene practices, which weakens the efforts implemented in the supermarkets.
- Adoption of effective FSMS and third-party certifications might be critical to compete in regional and international markets;
- Promote a meat hygiene culture in slaughterhouses and butcher shops particularly, and across the beef supply chain in general, via outreach and accessible educational material. In that regard, government oversight needs to focus on providing training supports from the supply chain perspective, not only via inspections targeting specific slaughterhouses and meat retail outlets.
- Enhance laboratory testing for chemicals in the meat and enforcement of other standards along the beef value chain.
- Establishing modern abattoirs along the cattle corridors. The government needs to explore Public-Private Partnerships to establish these abattoirs to minimise cattle movement before slaughter
- Enforce the meat quality and safety improvement strategy (MQSIS) already developed (MAAIF, 2005).
- Establishment of a supervised common-user beef meat processing, training and business incubating centre targeting beef processing at small, medium and large scale (USSIA, 2021).

9.0. Competitiveness – Key aspects I

- (i) Uganda has ample scope for market diversification of beef and hides and skins exports, to capture the most dynamic markets. Currently, Uganda's export structure is highly concentrated in a few buyer countries and its export flows are currently not reaching the most dynamic import markets.
- (ii) However, when assessing new potential destination markets, it is highly recommended to look not only at the import dynamics but also at the non-tariff measures (NTM) imposed by the importing countries as both fresh and frozen beef exports face a relatively high number of regulatory requirements.
- (iii) On average, exports from Uganda seem to be priced relatively higher than most of competitors, suggesting relatively costlier production processes.
- (iv) There are on average 2.5 and 4 (a) fresh and frozen beef and (b) hides and skins exporting firms per year, respectively. As a result, the beef export industry in Uganda is highly concentrated with only a few actors

9.0. Competitiveness – Key aspects II

(v) Most trade flows occur via informal exports to nearby markets. Since these transactions mainly take place by foot, bicycle, car, motorcycle, or on the backs of livestock, the average value of informal trade shipments is much lower than the formal one.

Suggested interventions

- Need for government to promote diversification towards more dynamic markets, which will be critical for sustainable export growth,
- promote higher quality, the adoption of standards,
- support the negotiation of better prices with international buyers
- There is need to incentivize more exporting firms to enter into the sector, as the reliance on few exporters makes the country highly vulnerable to both local and foreign shocks.
- As the bulk of cross-border trade is informal, more should be done to support smaller informal traders to grow and integrate into the formal export market – e.g. by reducing trade costs, mainly NTMs but also tariffs - and to guarantee more enforcement at customs.

9.0. Competitiveness – Policy Interventions

- (i) Establishing an enabling environment through policy and legal enactments/updates (e.g. the Animal identification and traceability bill, Meat policy, Animal diseases (DCZs), etc)
- (ii) Establishing a meat regulatory authority to enforce which among other things will be responsible for organizing key stakeholders and actors along the beef value chain including financial institutions, beef producers, abattoirs, meat processors, cattle traders and transporters.

11.2. Lessons from past and current initiatives towards the growth of the beef sector in Uganda

- i. Should have included strategies for preventing losses from cattle rustling
- ii. Provision was not effectively made for smallholders who were relying on communal grazing
- iii. Water reservoirs excavated on private land meant for the benefit of communities became inaccessible to the community
- iv. Further upgrades still required to attain required quality for food safety and hygiene
- v. Continuous staff training and supervision was absent
- vi. Some recipients treated the credit funds as grants and pay back rates performance was very poor – high level of sensitisation was required
- vii. Absence of support for markets sourcing
- viii. Absence of in-built resources to support administrative workload for commercial banks

12.0. Current perspective on opportunities for pro-poor beef value chain development R&D

Scored Beef value chain intervention opportunities with potential to yield quick gains

Attributes and scores description



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Implementation factors	Description	1	2	3	4	5
Time	Duration required for ultimate results to be achieved	More than 5 years	4-5 years	3-4 years	2-3 years	1 year
Stakeholders	Availability of a multi-sector stakeholders network that can be engaged	Very few	A few	Fair	Large	Very large
Donor funds	Donor interest in the specific kind of intervention as a stand-alone activity	None	Slightly present	Fairly present	Significantly present	Largely present
Investment funds	Strength of interest from private sector in investing in the specific kind of intervention	Very weak	Weak	Fair	Strong	Very strong
HR capacity	Capacity of human resource in the country to successfully implement the intervention	Very weak	Weak	Fair	Strong	Very strong
Physical infrastructure eg labs, training institutions,	Capacity to support successful implementation on the intervention	Very weak	Weak	Fair	Strong	Very strong
Non-physical infrastructure eg policies, by-laws, regulations, standards	Capacity to support successful implementation on the intervention	Very weak	Weak	Fair	Strong	Very strong
Impact factors	Description					
Scaling outwards	Extent to which the interventions will result in impact for masses	Very Low	Low	Fair	Large	Very large
Scaling upwards	Extent to which the interventions will result in fundamental impact even if it is for a few but these few have the likelihood of causing transformation	Very Low	Low	Fair	Large	Very large

12.0. Current perspective on opportunities for pro-poor beef value chain development R&D

Scored Beef value chain intervention opportunities with potential to yield quick gains



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Beef value chain improvement area	Total Scores	
	Intervention	Impact
1. Pasture improvement and large scale machinery enhanced conservation for enhanced beef production (quantity and quality) <u>Potential implementers:</u> NaLIRRI, DLGs, NARO-ZARDIs, private sector actors – including cattle keepers	24	6
2. Agroforestry <u>Potential implementers:</u> NaLIRRI, NaFORRI, DLGs, CURAD	24	6
3. Water availability <u>Potential implementers:</u> UMPCU, Private Sector service providers in water for production, MAAIF – Engineering, commercial Banks	20	8
4. Beef Breeds and breeding <u>Potential implementers:</u> NAGRC & DB, Private breeding farms, Beef Platform under UAA	24	8
5. Business incubation <u>Potential implementers:</u> CURAD, UIRI, AFRISA	25	9

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Scored Beef value chain intervention opportunities with potential to yield quick gains



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Beef value chain improvement area	Total Scores	
	Intervention	Impact
6. Crop-livestock interactions <u>Potential implementers:</u> NaLIRRI-NaCRRI (NARO)	25	8
7. Weather-related risk management <u>Potential implementers:</u> Ministry of Water and Environment, Insurance service providers, Insurance Regulatory Authority (IRA)	20	4
8. Beef platform <u>Potential implementers:</u> UAA, UMPCU	24	7
9. Beef quality – slaughter and beyond(including Food Safety and Hygiene) <u>Potential implementers:</u> AFRISA, MAK-Food Science, Kyambogo Univ, UIRI	25	10
10. Foot and Mouth disease (FMD) <u>Potential implementers:</u> MAAIF, DLGs, FAO, NARO-NaLIRRI, MAK	25	10
11. Laboratories for meat testing <u>Potential implementers:</u> MAAIF, DLGs, FAO	16	5

12.0. Current perspective on opportunities for pro-poor beef value chain development R&D

Scored Beef value chain intervention opportunities with potential to yield quick gains



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Beef value chain improvement area	Total Scores	
	Intervention	Impact
12. Marketing <u>Potential implementers:</u> EPRC, UMPCU, UAA, PSFU, USSIA	30	4
13. Establishment of abattoirs along the cattle corridor <u>Potential implementers:</u> PSFU, Private Sector Actors, Financial Service Providers	20	9
14. Policy Reviews <u>Potential implementers</u> MAAIF	25	7



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Thank You
for your
attention

Looking
forward to
your
feedback