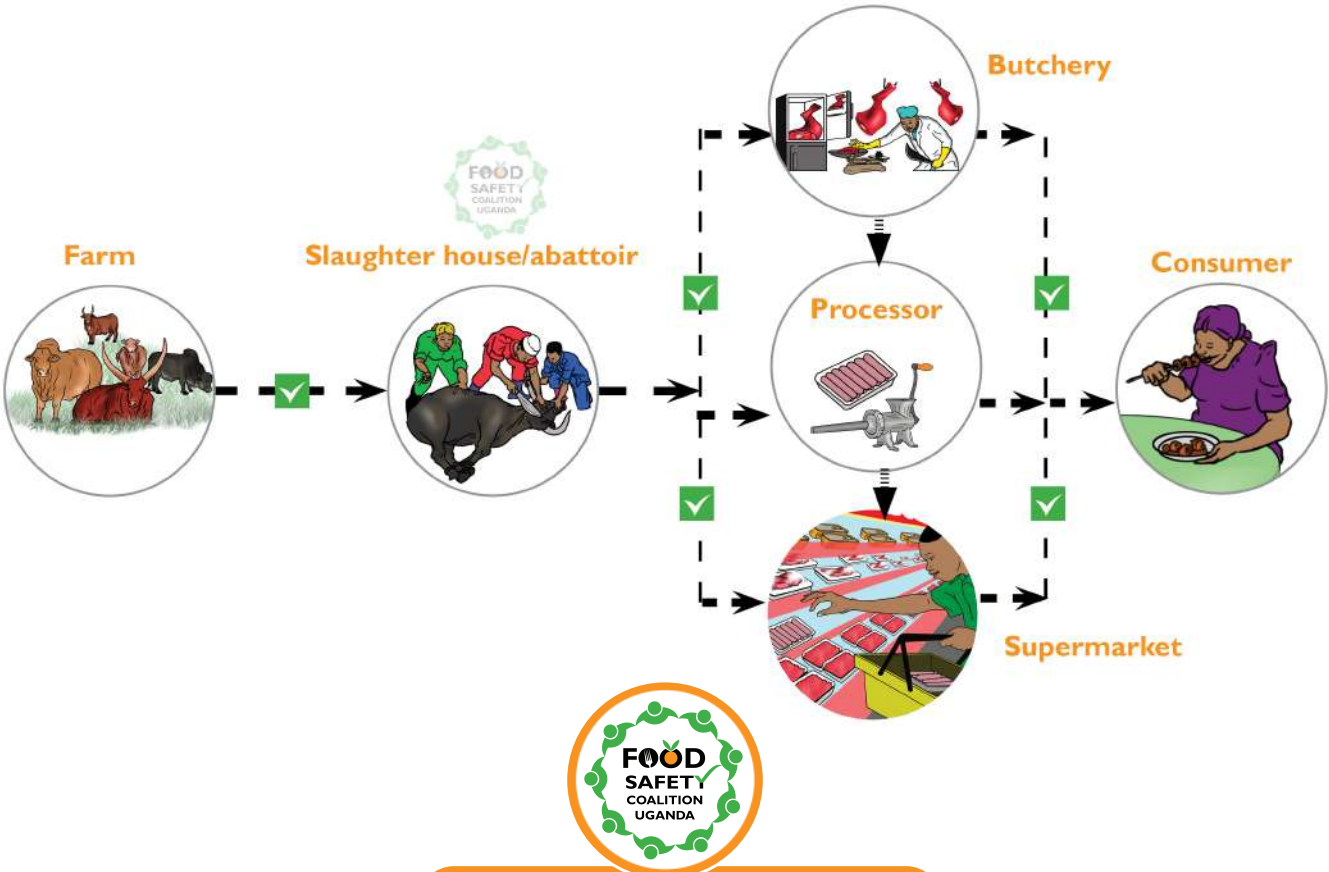




# Beef Safety

## - BEEF VALUE CHAIN -



## Acronyms and Abbreviations

CGIAR	Consultative Group on International Agricultural Research
DRC	Democratic Republic of Congo
FoSCU	Food Safety Coalition Uganda
HACCP	Hazard Analysis Critical Control Point
ILRI	International Livestock Research Institute
MAAIF	Ministry of Agriculture Animal Industry and Fisheries
MDAs	Ministries Departments and Agencies
MoFPED	Ministry of Finance Planning and Economic Development
MoH	Ministry of Health
MT	Metric Tonnes
MTIC	Ministry of Trade Information and Cooperatives
NDA	National Drug Authority
NDP	National Development Plan
UBOS	Uganda Bureau of Statistics
UNBS	Uganda National Bureau of Standards
URA	Uganda Revenue Authority
USD	United States Dollar

Global beef consumption is estimated to rise from 70MT to 72MT between 2021 and 2025. An annual increment of 3.8MT beef consumption is estimated in Sub Saharan Africa (SSA) between 2020 and 2030. In Uganda, annual beef production for the year 2018 was estimated at 217 million kilograms, with an annual growth rate of 6.5% registered in the period 2001-2010. Beef production systems in Uganda include agro-pastoral, pastoral, commercial ranching, and semi-intensive with the proportion of beef cattle reared under system estimated at 49%, 41%, 8%, and 2% respectively (Mubiru et al., 2024). Beef consumption is highest in the capital, Kampala, with an estimated annual demand of 15,500 tonnes (Jeffer et al., 2021) Beef value added products on the Ugandan include kidney, tail, tongue, foot, fillet, bones, knuckle, brisket, cube, t-bone steak, top-side, minced, bacon, hot dog, and sausages among others (Mubiru et al., 2024).

In terms of trade, Uganda imports and exports beef. The main beef imports include beef and veal preparations, wet-salted hides, fresh or chilled beef (bone and boneless). In the year 2021, an estimated 1,000 kgs of edible beef products were imported mainly from South Africa, France, USA, and Lebanon (URA, 2021). In the year 2018, Uganda's exports were worth USD 1'687'000, USD 814'000, and USD 48'000 in form of live cattle (...to Burundi, Rwanda, and Kenya), frozen beef (...to DRC, Viet Nam, Sudan, and Egypt), and fresh/chilled beef (...to DRC and Viet Nam) (Mubiru et al., 2024). However, according to Jeffer et al (2021) Uganda's beef potential in the international market is greatly impeded by compliance with quality and safety requirements.

Mubiru et al (2024) report numerous short falls from their assessment of food safety knowledge and skills, attitudes, and practices among select butcheries, supermarkets, and retailers in Uganda. In addition, in their review of food safety literature in Uganda, Jeffer et al (2021) reported high prevalence of zoonotic livestock-associated diseases, an outbreak of gastrointestinal anthrax in Isingiro District that associated with consumption of contaminated beef, unacceptable levels of microbial contamination in meat samples and poor hygienic standard and handling practices of beef in abattoirs, slaughterhouses, and butcheries in Kampala.

The foregoing underpins the significance of continuously synthesizing food safety literature to inform efforts to further grow and develop the country's beef industry, to feed the growing number of consumers and betterment of the economic benefits for the beef supply chain actors, as well as national revenue. It is against this background that Food Safety Coalition Uganda (FoSCU) undertook this rapid desk-review assessment, with the objectives to:

- i. Understand the actors and stages involved in Uganda's beef supply chain.
- ii. Synthesize the commonly reported unsafe practices and associated food safety hazards in the beef value chain.
- iii. Compile key action areas for improving food safety in the country's beef supply chain.

## What did FoSCU do?

FoSCU conducted a desk review of literature on beef supply chain, relevant to Uganda's context. This was guided by document review checklist, that included but not limited to:

- Original research papers
- Review reports and articles
- Published experts views
- Relevant regulatory and non-regulatory tools
- Project reports
- Professional blogs

## What did FoSCU find?

### → Supply process and actors

As shown in the figure below, Uganda's supply chain of beef and beef products from the farm to consumer goes through a non-linear process with different actors at different stages.

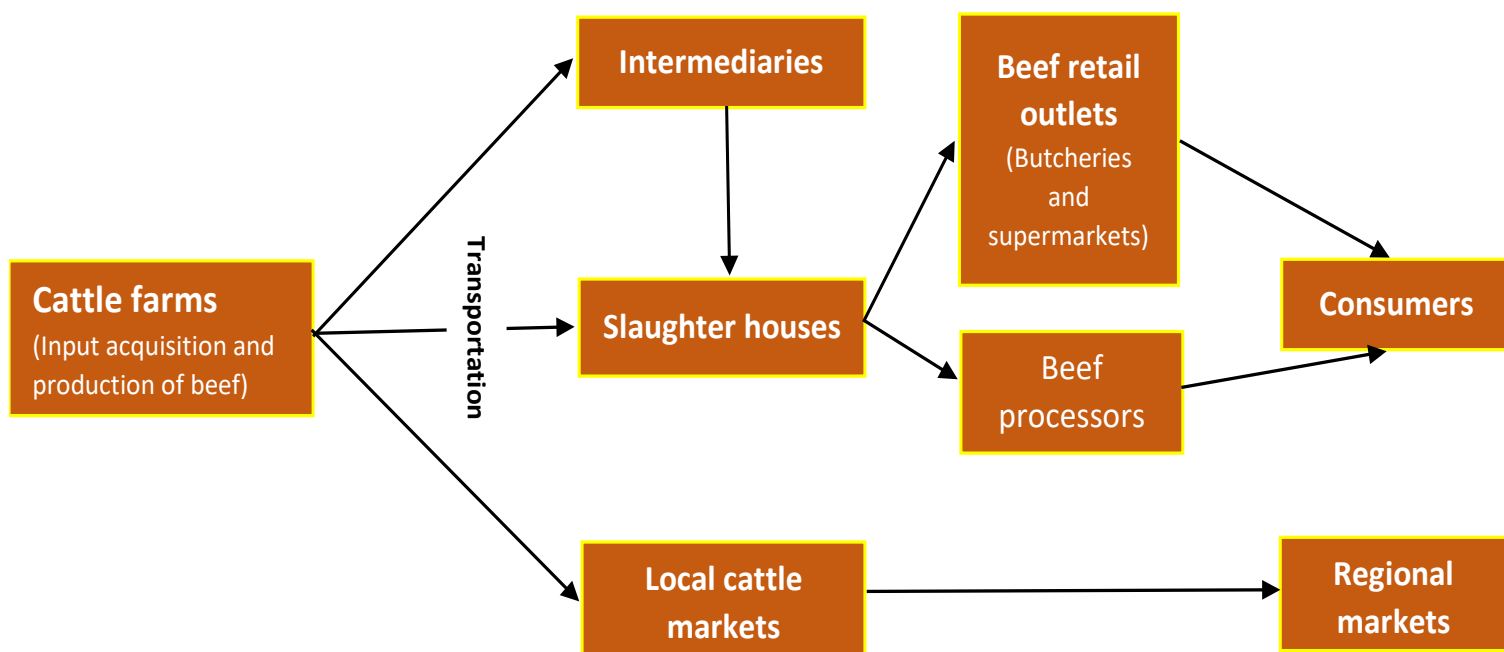


Fig 1: Uganda's beef value chain as adapted from Jeffer et al (2021)

→ Food Safety Hazards and Unsafe Practices

Hazard type	Examples of Exposure factors/unsafe practices
<p><b>Chemical</b></p> <p>High chemical residues in beef and beef products</p> <p>e.g. veterinary drugs, pesticides, and other public health chemicals</p>	<ul style="list-style-type: none"> <li>• Non-adherence to recommended acaricide, antibiotics, and other vet drugs’ dosage and withdrawal periods due to farmers’ self-prescription and self-treatment of animals.</li> <li>• Use and easy access over the counter of banned veterinary drugs and antibiotics by farmers.</li> <li>• Intentional application of unauthorized chemicals on beef to prolong its shelf life and/or avoid flies.</li> <li>• Contamination of the beef with sanitary chemicals meant for cleaning equipment and facility</li> </ul>
<p><b>Biological</b></p> <p>Microbial contamination of beef and beef products...</p> <p>e.g. pathogenic bacteria such as Staphylococcus aureus, Escherichia coli, Listeria monocytogenes, and Salmonella.</p>	<ul style="list-style-type: none"> <li>• Inadequate animal disease diagnosis and management- on farm, animal check points, holding grounds and quarantine stations.</li> <li>• Slaughter and sale of beef from diseased cattle.</li> <li>• Slaughtering in unauthorized places and processing of beef products from facilities that don’t meet minimum sanitary requirements.</li> <li>• Lack of or inadequate proper equipment such as aprons, boilers, cold storage facility and detention rooms</li> <li>• Limited and/or inconsistent utilization of existing and functional cooling facilities in some slaughterhouses due to fluctuating electricity and high energy costs</li> <li>• Improper elimination of condemned parts or whole carcass</li> <li>• Inappropriate transportation of beef and beef products, on open vehicles and motorcycles</li> <li>• Consuming inadequately cooked or roasted beef</li> </ul>
<p><b>Physical</b></p> <p>Foreign material in beef and beef products</p> <p>e.g. dead insects, cattle fur, metal parts, sand/soil, wood, fodder, plastics, fabric, and cow dung</p>	<ul style="list-style-type: none"> <li>• Hanging beef in the open without proper protection from dust and other physical contaminants</li> <li>• Selling of beef from non-gazetted environments such as open dusty roadsides</li> </ul>

## What does FoSCU recommend?

1. Fast tracking the enactment of a food law to establish a food and agriculture authority to regulate and oversee food safety in Uganda.
2. Strengthening enforcement of the current food safety regulatory tools and policy provisions like Public Health (Meat Rules), NDA Act, meat quality and safety improvement strategy, NDA policy and Authority Act by MAAIF, UNBS and NDA.
3. Strengthening local government inspection capacity through recruiting, skilling and retooling enough inspectors
4. Strengthening risk-based inspection and certification
5. Pursuing public-private partnerships that foster beef safety infrastructure building- adequate quality laboratories, storage facilities, processing plants, and establishment of modern abattoirs along the cattle corridors to minimise cattle movement before slaughter.
6. Mandatory and regular training of beef private sector actors on the application HACCP principles and plans.
7. Establishment of a supervised common-user beef processing, training and business incubating centre targeting beef processing at different capacity scales.
8. Dedicated multi-media campaigns to sensitise the public and promote a food hygiene culture, especially in slaughterhouses and butchereries.
9. Strengthening veterinary and extension service providers to reach and guide cattle keepers on tailored animal health care.
10. Conducting research on tailored practices and affordable technologies to guide key value chain actors to adopt science-based prevention, intervention, and monitoring systems.

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11. Uganda Bureau of Statistics (2020). Uganda Annual Agricultural Survey—2018 Second Season: Uganda; 2020. Available online: <https://www.ubos.org/microdata/index.php/catalog/62>

*For more information, watch these videos:*

1. Food safety in beef value chain: [https://youtu.be/DWUmASq\\_9V0](https://youtu.be/DWUmASq_9V0)
2. Food safety hazards and tips: <https://youtu.be/SXZvO4zAi7g>



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