

# Project *brief*

Thünen Institute of Farm Economics and Thünen Institute of Market Analysis

2023/02a

## The milk value chains in Ghana and Senegal: organisation, structure and challenges

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- Local milk yields are very low in Ghana and Senegal and are not sufficient to meet the needs of the processing industry.
- In both countries a separate value chain exists for imported milk powder and local milk value, and a third value chain that combines milk powder with local milk is found in Senegal.
- In the fresh milk value chain, milk is handled under poor hygienic conditions and processing is highly artisanal, products from local milk are generally of poor quality and are usually uncertified.
- The value chain relying on imported milk powder is more developed and its products are often certified.
- Training programs must be instituted to empower farmers in the processing of milk to overcome fresh milk loses during the rainy season.

### Background and aims

Consumer demand for dairy products is increasing in Africa, especially in the West African region where more than half of the dairy products consumed are directly imported or are domestically processed from imported milk powder. However, the EU exporting companies are continually criticized for flooding West African nations with cheap dairy exports. The allegations link the underdevelopment of the domestic dairy sectors to the activities of these EU dairies, and are mentioned as having negative consequences for producers. This work package is part of a bigger project titled: “Impact of Meat and Milk Product Exports on Developing Countries”. Our aim in this study is to assess the local and imported dairy value chains in West Africa with a focus on Ghana and Senegal. Specifically, we identify the actors and the structure of the value chains, the products, the differences in the use of local fresh milk and milk powder, and the barriers and challenges confronting the dairy sectors.

### Methods and data

The data were gathered from both primary and secondary sources between February 2020 and May 2021 in both countries. Secondary data was based on desk reviews of relevant literature (e.g., reports, articles, etc.). For the primary data, a snowball sampling procedure was employed to identify key actors in both the fresh milk and milk powder value chains in Ghana and Senegal. A total of 59 key actors at different levels of the value chain were selected and interviewed either face-to-face or via telephone.

### Key findings

Two different value chains - local milk and imported milk powder exist in both countries. In Senegal, a third value chain that combines milk powder with local milk is found. The main actors in the local milk value chain in both countries are input suppliers, farmers, milk collectors, processors, wholesalers, retailers, and consumers.

Milk collection in Accra, Ghana



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In the milk powder value chain, the main actors identified are importers, re-packagers, re-constitutors, processors, distributors, wholesalers, retailers and consumers. Significant differences exist between the local milk and milk powder value chains; (i) the local milk value chain is informal, traditional, and is not well organized, (ii) milk handling and processing practices are purely traditional and artisanal, (iii) products from local milk are not diverse and are limited to yoghurt, pasteurized milk,

cottage cheese which are also scarce to find, (iv) certification of products in the local milk value chain is low, and (v) packaging of local dairy products is poor while labelling is almost none existent.

The study finds that the part of the processing industry which relies on imported milk powder performs well. Products are processed from either full-cream, skimmed or fat-filled milk powder. While some NGOs and researchers criticize the poor labelling of the vegetable fat blended milk powder, our study shows that processors are satisfied with its use. To a large extent, this industry is formal and modernized and its products are diverse and largely certified. Processed products in the milk powder value chain are well packaged and have labels with adequate information on traceability. Moreover, milk powder has many advantages over local milk as a raw material for processing. It is cheaper and always available in desired quantities, making it more accessible compared to local milk. Also, milk powder has a longer shelf-life meaning it can be stored for more than one year. Besides, processed products from milk powder have longer shelf lives (usually more than 30 days) compared to fresh milk-based products which are stored for 4-14 days.

#### Yoghurt made from milk powder



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In both countries, the local milk value chain is plagued with several challenges. Milk yields are very low and the supplies are highly unstable due to constraints related to (i) low genetic potential of local breeds used for milk production, (ii) the extensive grazing system (pastoral) of herds, especially during the dry season with nomadic-type of movements that do not facilitate the collection of milk, (iii) low level of development of agro-pastoral and pastoral dairy farming systems, (iv) seasonal variations in milk supply, and (v) water scarcity. Milk yields are much higher in the rainy season compared to the dry season, however, due to a lack of storage facilities and the long distance to market centres, farmers discard significant quantities of milk. Besides, it is costly for middlemen and processors to travel to milk producing areas which are located far from urban and city centers. Moreover, during the rainy season, the predominantly

untarred roads get flooded making it even more difficult for collectors to reach milk producers.

Collected fresh milk is stored in plastic gallons and buckets and these are transported without any form of cooling facilities. Furthermore, the tropical temperatures of above 25 °C accelerates a reduction in milk quality before it gets to the market or to the processors. In addition, the majority of the local value chain actors interviewed do not have any form of training on milk handling, processing and marketing. Attaining self-sufficiency in milk production is impossible for both nations considering the challenges of the local milk sectors. The Artificial Insemination program in Senegal is impacting positively on milk yields. Therefore, few processors combine fresh milk with milk powder for their products. However, milk powder still constitutes a significant proportion of processed dairy products in Senegal. This shows that in the absence of imported milk powder, the dairy processing industry in both countries is likely not sustainable.

#### Conclusion

The local milk value chains in Ghana and Senegal face numerous challenges which hinder them from meeting the demands. As our study shows, restricting imports may not be a solution to the underdeveloped local dairy sectors. However, the following actions could assist in increasing local milk production and supply.

- Intensive practical training on forage production and storage, milk handling, safety and hygiene are necessary.
- The governments could apply national standards and quality policy to the local milk sector. A registration of local value chain actors in a database might help to know the companies and to ensure compliance with standards.
- One way of overcoming fresh milk losses during the rainy season is to process it into final products such as artisanal cheese or ultra-high heat milk which have longer shelf lives compared to the pasteurized milk and cottage cheese. Training programs and dairy processing equipment could be provided to empower farmers in the processing of milk.
- Collection centres could be built close to milk production areas. Also, existing producer associations can be strengthened and the formation of new ones encouraged to facilitate the collection of fresh milk. Facilitating milk collection systems in rural areas will aid rural producers in reaching urban markets and improve their incomes.

## Further Information

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DOI:10.3220/PB1672828132000

### Duration of work package

10.2019-03.2023

### Project-ID

2065

### Project logo



### Funded by



### Publications

Gunarathne, A., & Boimah, A. (2022). "Analysis of the Milk Value Chains in Ghana and Senegal": What Can We Learn? Proceedings in Food System Dynamics, 1-14.

Boimah, M., Weible, D., & Weber, S. (2021). Milking challenges while drinking foreign milk: the case of Ghana's dairy sector. Proceedings in System Dynamics and Innovation in Food Networks, 14-25.