

Beef and dairy value chains in Senegal: Problems and opportunities

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Key messages

- Livestock production, especially pastoralism, is a vital part of the Senegalese economy.
- A large variety of production methods have been observed: from producing milk for household consumption, to collection and transformation by cooperatives to distribute the milk nationwide.
- The most significant problems faced are increased competition for fewer resources (namely pasture biomass and water) which, compounded with high feed prices and tight margins, contributes to conflict.
- There are opportunities to improve the marketability of dairy products and milk and beef productivity by improving connections to the market, testing different stabling and feed practices, adapting climate information services to producers' needs, identifying and rehabilitating transhumance corridors, improving accessibility to feed, and introducing better and more veterinary checks.

Beef and dairy production in Senegal

Pastoralism is the major income-generating activity in Senegal's arid and semi-arid areas, and livestock farming is one of the priority sectors of the *Plan Sénégal Emergent* (ANSD 2020).

Three production systems co-exist in Senegal: an extensive pastoral system (representing about 32% of cattle in the country), an agropastoral system (about 67% of cattle), and a small, but growing intensive system (with about 1% of cattle; Seck et al. 2016; Wane et al. 2016). Cattle production has increased steadily in recent years, with a country-wide herd size growing about 1% a year since 2010, with a total herd size of 3.7 million in 2020, of which 19% are milk-producing (ANSD 2020; FAOSTAT 2022). Milk production has increased to 267.8 million liters in 2020 from 180.9 million liters in 2010 (ANSD 2020; Chengat Prakashbabu et al. 2020).

The Ferlo region, a silvopastoral semi-desert located in the northern part of the country, covers a third of the country's land mass and is the

primary cattle-producing area, containing two-third of the total domestic ruminant in Senegal. According to a 2016 survey of 410 pastoralists in this area, on average, 49% of their revenues come from the sale of cattle (Beye et al. 2019).

Long restricted to the rural pastoral economy, the dairy industry is now in full expansion in Senegal (Ferrari 2017). With an expanding population and increased demand for milk and dairy products, domestic production is inadequate to meet demand, with imports covering 49% of consumption (ANSD 2020).

Figure 1: Cattle resting in the shade near Niassanté (credit: AICCRA/Senegal).



Many different breeds of cattle are used in dairy production in Senegal, consisting of local, exotic and crossbred cows. Local cattle have low milk production but are well adapted to the climate and have a certain degree of resistance to locally prevalent disease. In contrast, exotic breeds have high milk production but are usually not well adapted to the local climate and have low resistance to local disease (Marshall et al. 2017). Crossbred cows have higher production and as some resistance to local disease (Marshall et al. 2017). Reported figures from our interviews found that local breeds produce between 1.5–2.5 L/day while cross-bred cows can produce between 12–20 L/day. The use of improved feed and improved livestock management practices could improve milk production as well.

Figure 2: Crossbred cows feeding at a sole proprietor dairy farm (credit: AICCRA/Senegal).



The development of the dairy industry in Senegal has been characterized by limited, discontinuous public interventions, a disconnect between local production systems and technical models, and conflicting trade and development policies (Magnani et al. 2019).

Men, women, and youth are all significant stakeholders in livestock production. The cattle value chain in Senegal is characterized by the strong horizontal diversity of stakeholders. These stakeholders may be participating across multiple nodes of the value chain (production, marketing, processing, distribution, etc.) (Beye et al. 2019). Inputs mainly concern veterinary services, research, and feed supplied primarily by natural, herbaceous, and woody pastures. During the lean season, supplementary feed in various forms is required. Animals often weigh less during the lean season, and milk production may stop. Production is carried out by national livestock farmers and importers of meat or live animals from Mali and Mauritania. The generally sell live animals to local traders or butchers (Beye et al. 2019).

In this report, we present findings from interviews with producers and beef and dairy value chain actors conducted throughout 2022, with focus on problems and opportunities for them.

Dairy value chains

A large variety dairy value chains were observed in the different regions of Senegal. Amongst milk producers:

- Producing solely for home consumption.
- Selling fresh milk or soured milk in local areas (operations range from manual milking to automated milking, and from manually filling bottles to processing in machines)
- Collection and processing by cooperatives at a local scale
- Collection by cooperatives that sell nationwide

As local breeds typically produce milk in low quantities (or none at all during the dry season), some farmers choose not to engage with cooperatives and use any milk for consumption at home. Factors hindering milk production include not having sufficient access to feed year-round, access to market, either with sufficient traffic nearby the source of production or access to the collection networks of cooperatives.

Figure 3: Milk transformation facility near Niassanté (credit: AICCRA/Senegal).



Case 1: Sole-proprietor, intensive, integrated milk production in Dahra

Figure 4: Crossbred milk producing cows stabled in Dahra (credit: AICCRA/Senegal).



A female sole proprietor in the urban area of Dahra in the Louga region runs a fully integrated operation, keeping four crossbred (Gobra-Montbéliarde) dairy cows stabled. She milks the cows twice a day, processes it and sells it in a storefront beside the stables. Her operations are powered by solar panels that were subsidized by the state (50%). She has two hectares of land nearby where she grows feed and supplements with purchased feed. High urban water prices remain an issue. Her dairy cows are cycled with her husband's herd, who keeps grazing cattle in a village about 15km away. Driven by high demand for milk in the urban area, she can support the education of six family members.

Case 2: Agro-pastoralist near Richard-Toll, animals no longer producing milk

Figure 5: Vegetable and rice fields in Richard-Toll, where the livestock have been relocated due to conflict (credit: AICCRA/Senegal).



A male agro-pastoralist produces vegetables and rice near Richard-Toll. In the past, he produced fodder for his cattle, but due to conflicts with his neighbors, he has sent his herd of around 100 cattle to relatives in Niassanté about 40 km away to take care of. His cattle are primarily for storing his wealth, and for his own consumption. He mentions the lack of available labor as a problem, as many youth are leaving for other opportunities, as well as increased evapotranspiration due to the absence of trees and climate change. In the future, he wishes to bring back his livestock to the farm and increase livestock-crop integration, while having training on herd and feed management, and enough labor to ensure this can be successful.

Beef value chains

Beef is primarily from farmers who sell their cattle, typically in times of financial need. The value chain is characterized by the movement of animals from the primary production areas, with pastoral systems in the Ferlo, in the north of Senegal, and livestock farmers in the groundnut basin. Dahra,

located in Linguère region serves as a central node of collection of animals from the aforementioned production areas, as well as collecting animals from neighboring countries of Mauritania and Mali. In 2006, it was estimated that about 25% of cattle slaughtered in Dakar came from these countries

(Duvergé 2006), although for a period in 2022, a border closure with Mali has reduced the number of animals coming in, introducing a price shock. Between April–May 2022, prices ranged from XOF 360 296 for male cattle and XOF 251 148 for female cattle, representing a 37% increase and 35% increase respectively from the three year April–May average between 2019–2021. A network of weekly markets (*louma*) also facilitates the collection, forwarding and sale of animals, with Diourbel

serving as a primary destination for animals from Dahra, further forwarding to terminal markets in

Figure 6: Automated milking of cows at an intensive farm (credit: AICCRA/Senegal).



Dakar, Thiès, Saint-Louis or The Gambia. Dioulas collect animals from herders and farmers, and Téfankés are at local markets to facilitate sales. Brokers also work outside markets to connect butchers and chevillards with livestock. Chevillards are large-scale butchers who process meat for retailers, while butchers process meat themselves and sell to the end-consumer. Slaughter facilities run by the state are provided for the use of chevillards and butchers, however our informants estimate that a similar number of livestock is slaughtered outside of these facilities. Figure 7 includes the main actors and their linkages in the cattle value chain in Senegal.

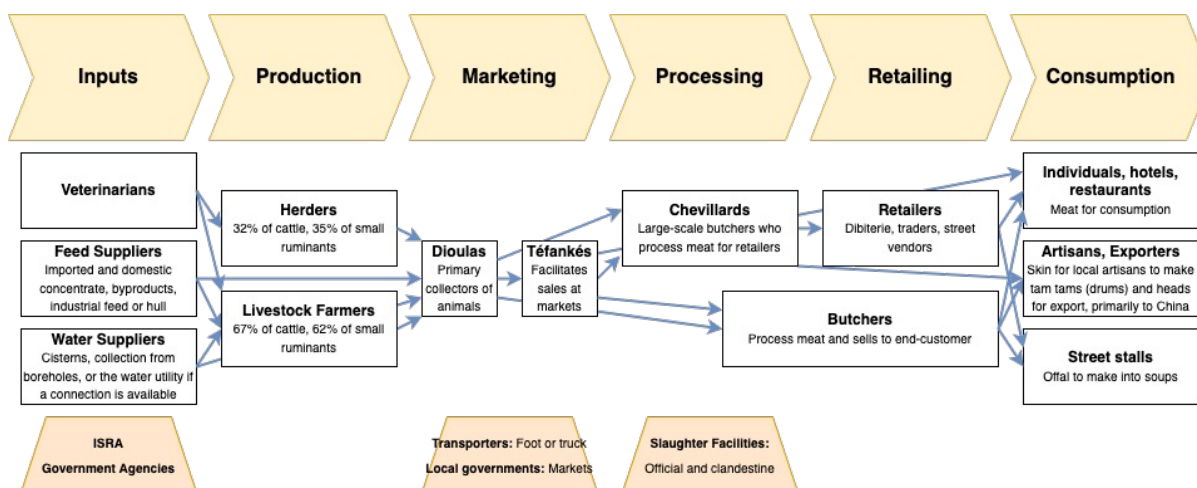


Figure 7: Livestock value chain in Senegal
Source: ILRI.

Figure 8: Livestock market in Dahra



(credit: AICCRA/Senegal).

Problems

Through interviews with producers in the Saint-Louis and Louga regions, we found that the greatest problems they face are:

- Fewer resources:** Increased competition for diminishing pasture biomass and water, which are further reduced and decreasing in quality as result of climate change; one consequence is a shorter rainy season with more significant variability in precipitation (Thornton 2022).
- Conflict:** Increasing conflict between pastoralists in transhumance and farmers, and in some instances, agribusiness due to the increased competition for resources. Specifically in the Saint-Louis region, there was an expressed desire by herders to access water sources that were fenced off by the local agribusinesses.
- Value chain inefficiencies:** In the beef value chain, a large number of actors add to the cost of the price of meat (Sow et al. 2021), but there is evidence that some actors are doing the job of two, such as Téfankés doing their own transport or taking the role of Dioulas. Producers in Dahra and the Louga region in general, which has strong demand for milk within the city, are receiving higher prices for their milk than those in Richard-Toll and Niassanté.

- **High feed prices:** There is uncertainty over the best feed practices to increase beef and dairy productivity. Use of expensive concentrated feeds has resulted in high production costs for small farms
- **Livestock theft:** Livestock theft remains a problem in many regions of Senegal
- **Supply-demand mismatch:** Livestock sales are occurring in times of need, and not necessarily the most economically prudent time, even though the cattle prices have fluctuated greatly

Opportunities

Given these problems and the situation, we identify the following:

- **Connections to market:** The connections to the market (e.g. lowering transport costs or introducing a cold chain) in certain high-supply regions (e.g. Richard-Toll or Niassanté) that are away from high-demand areas (Dahra or Dakar), if improved, can moderate the prices in both contexts.
- **Supplying forage:** The desire to increase the availability of feed resources (through better rangeland management, cultivated forages etc.) and stabling (to facilitate feeding and management) is shared across the value chains, although water access, access to quality seeds and fencing would be necessary.
- **Optimizing feed for productivity:** There is uncertainty over the best feed combinations for productivity, even among the more intensive producers, giving the opportunity for study and optimization.
- **Lack of adapted climate information services:** Climate information services are not well-adapted to the needs of producers, and further adaptation to their geography and practices would help them improve their productivity
- **Reducing conflict through improving transhumance corridors and the availability of feed:** Certain areas have conflicts with livestock producers, especially with crop farmers. *Association pour le développement intégré et durable (ADID)* is working to reduce conflict and such as identifying transhumance corridors, rehabilitating wells, or improving the availability of complementary feed.
- **Improve the relationships between female and male actors:** Improve the relationships between female and male milk value chain actors, especially in Dahra, where milk

production is becoming a more important activity.

- **Improved veterinary checks:** Veterinary checks and vaccination cards to better control the spread of disease, especially with transhumant animals.

Next steps

- The opportunities identified can help with addressing some of the problems identified. We will further our study on livestock practices to improve productivity and reducing emissions in beef and dairy production in Senegal through (1) collecting evidence of changes in practice, (2) analyzing their potential impacts and interactions with each other, and (3) making recommendations on the implementation of such practices.

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About AICCRA INFONOTES

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