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THE NIGERIAN DAIRY SECTOR

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EDITOR'S NOTE



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Happy New Year!

Welcome to our 1st issue in 2019, focused on the Nigerian Dairy Sector.

Like many West Africans, I grew up seeing pastoralists travel from the North to the South, in search of pasture and water for their cows and to sell them in beef markets. Rarely, if ever, were there stories of conflicts between these herdsmen and the crop farmer communities they encountered along their journey. Today, the news is filled with weekly reports of ongoing violent conflicts between the two groups. The herdsmen-crop farmer conflict is currently viewed as one of the most serious national security issues in Nigeria and a key impediment to the agricultural sector in the country.

Over two years ago, I joined Sahel and started managing the Nigerian Dairy Development Program (NDDP), which aims to tackle challenges faced by the local dairy sector and improve farmers' productivity and livelihoods through a market-based approach. Working in the dairy sector has provided me with a first-hand opportunity to see the potential impact that this priority value chain, which currently remains largely unorganized and inefficient, can have on reducing these herdsmen and crop-farmer conflicts. This can be done through the development of a feed & fodder industry and the settlement of pastoralists close to dairy processors. Moreover, developing the sector can help reduce the country's import bill, improve livelihoods for dairy farmers, and improve nutrition outcomes, especially for children. Critical interventions needed to catalyse the dairy sector's growth and enhance its competitiveness include improving the enabling environment to promote local sourcing and reduce the country's reliance on imports. Various initiatives including the formation of cooperatives, genetics & breeding are also needed to improve production systems, organize farmers, incentivize private sector investments and increase consumption levels. Finally, by making interventions targeted at dairy farmers gender sensitive, women, who currently play a critical role in the sector, will be empowered and able to improve their livelihoods and those of their children.

This Sahel Review provides an overview of the Nigerian dairy sector, including factors affecting its performance; the impact of the existing policy landscape on the sector; leading practices from India and Kenya that can be adapted to develop the sector; interventions needed to make local dairy sourcing more competitive; and an overview of NDDP, its objectives, interventions and impact.

As Nigeria embarks on a 10 years journey to implement the newly approved 2018-2027 National Livestock Transformation Plan, Sahel is looking forward to strengthening its collaborations with key stakeholders in the industry to develop a thriving local dairy sector.

OVERVIEW OF THE NIGERIAN DAIRY SECTOR

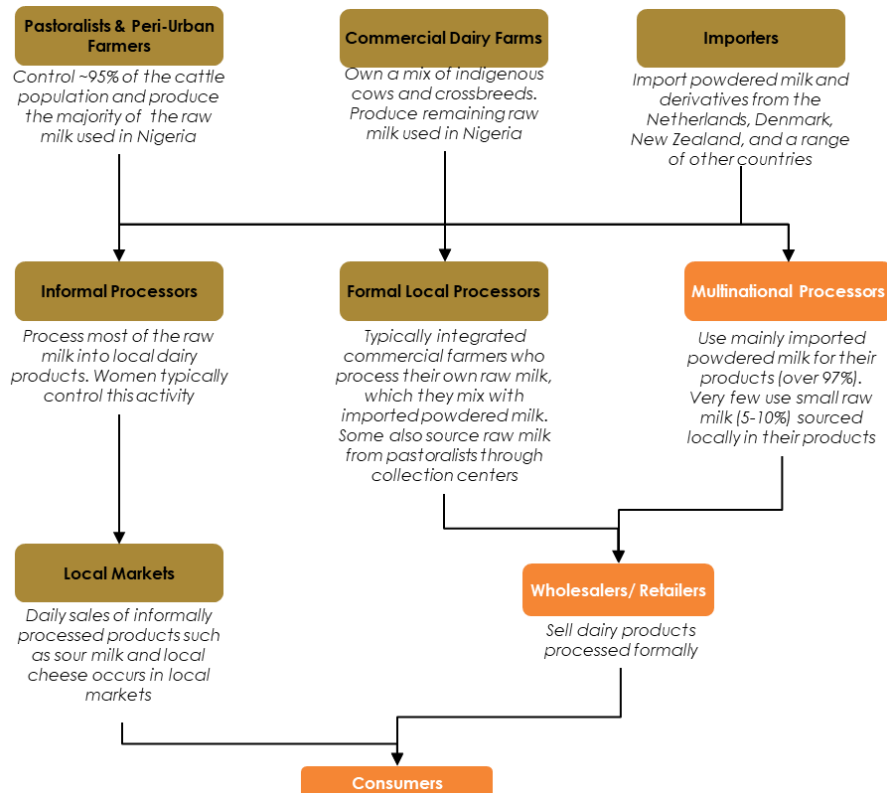


Nigeria has the 4th largest cattle population in Africa, estimated at 20 million cattle, including 2.35 million cows used for dairy production¹. There is also evidence of cattle originally from Chad, Niger, Burkina Faso, and Cameroon in Nigerian markets.

Dairy Value Chain Overview

The Nigerian dairy sector is largely fragmented, unproductive and inefficient despite its size. Though smallholder dairy households (i.e. pastoralists) produce most of the raw milk in Nigeria, the end market is controlled by large multinationals that use imported milk in over 97% of products consumed.

Structure of the Nigerian Dairy Sector



Inputs & Production

There are three main dairy production systems in Nigeria: The Pastoral System, the Semi-Intensive or Peri-Urban System, and the Intensive or Commercial System.

“About 95% of the raw milk produced in Nigeria is sourced from pastoralists who are nomadic.”

Pastoralists are primarily Fulani herdsmen who are mostly nomadic and own indigenous cow breeds (e.g., White Fulani and Sokoto Gudali). They own on average 18 cows per pastoralist. They are primarily based in the northern part of the country, though some often migrate to the South in search of water and pasture and also, to bring cattle to markets where they are sold. They mainly practice free range grazing. Women play a critical role in these smallholder dairy households as they typically manage the production, informal processing, and sale of the milk as well as the proceeds from the sales. The commercial system which is more structured, accounts for the remaining raw milk production and consists of established dairy farms who have a mix of indigenous cows and crossbreeds (e.g., mix of local cow with Friesian Holstein breed). Most commercial farmers produce fodder for their cows and use improved dairy practices to manage their businesses.

Aggregation & Processing

The formal Nigerian dairy market is primarily controlled by multinationals owned by European dairy cooperatives such as FrieslandCampina WAMCO (FCW) and Arla, and corporations such as PZ Wilmar (Nutricima), Fan Milk, Promasidor and CHI who rely on milk imports as raw materials.

“Most of the raw milk produced in Nigeria is traded or processed informally by Fulani women into local products. Only a small percentage estimated at 5% is purchased by a few formal processors.”

FCW is the only multinational currently sourcing raw milk locally. Arla signed an MOU with the Federal Government in 2017 and is planning to launch its dairy development program in Kaduna State. Few indigenous formal processors such as Integrated Dairy Limited, L&Z Integrated Farms, and Nagari Farms, use raw milk sourced from their own cows, and/or sourced from pastoralists and peri-urban farmers. Most of them mix the raw milk with powdered milk to ensure they are price competitive.

Distribution, Sales and Consumption

Dairy is an important source of protein, macronutrients and several key micronutrients. Distribution and sales of dairy products vary by product type and processing method:

Traditionally Processed Products: These include nono (sour milk), *fura da nono* (sour milk and millet), *mai shanu* (cheese) and are usually informally processed, transported in plastic containers and sold by Fulani women in local markets close to their settlements.

Formally Processed Products: These include evaporated milk, powdered milk (full cream and skimmed), and yoghurt. The vast majority are processed from imported powdered milk and come in various types of packaging and sizes to target different segments of the population. They are distributed through wholesalers and sold via direct channels or in retail outlets. Single-serving sachets of powdered milk for example, are widely available and are sold in neighborhood kiosks or by ambulatory merchants. They are targeted mainly at lower income consumers in urban and rural areas. Products in mid and large packages, such as the 400g tin of powdered milk are also widely available in retail outlets and target mostly middle-income consumers. Meanwhile, fresh dairy products such as 1 litre of premium yoghurt made mostly from raw milk is targeted at middle-upper income consumers. They are available in limited quantities in retail outlets with cold distribution equipment.

The tables below present the prices of commonly available dairy products in Nigeria².

Prices of Some Traditional and Formally Processed Dairy Products

Traditional Dairy Products	Price Range (Naira per litre)
Nono	N160 - N200
Fura da nono	N300 - N320
Formally Processed Products	Price Range (Naira per unit)
Single-Serving Powdered Milk Sachet (50g)	N25 - N50
Powdered milk Tin (400g)	N900 – N1,200
Fresh Yoghurt (1 litre)	N1,000 – N1,800

“Consumption levels in Nigeria are low at 10 litres per person per year, compared to the African average of 28 litres per year and the global average of 40 litres per year³.”

Key Challenges faced by the Nigerian Dairy Sector

The local dairy sector is plagued by various challenges along the value chain including limited access to quality inputs, the poor genetic composition of the local breeds for dairy production, archaic production practices, and limited availability

Key Challenges along the Dairy Value Chain⁴

Inputs	Production	Aggregation & Processing	Distribution & Sales	Consumption
<ul style="list-style-type: none"> • Limited access to water and to quality feed and fodder, which affects cows' productivity and contributes to conflicts between herdsmen and crop farmers • Limited access to veterinary services, vaccines and drugs, which hamper cows' productivity 	<ul style="list-style-type: none"> • Unfavorable genetic composition of local breeds for milk production, leading to low yields of 0.5-1.5 litres per cow per day (compared to 28 litres for cows in the USA). • Use of archaic production practices (e.g. hand milking) which affects products' quality and farmer's income potential • Limited access to credit and cost-effective financing hampers the ability of commercial farms to scale up their operations 	<ul style="list-style-type: none"> • Unfavorable competition from milk imports that are cheaper to produce (due to more efficient production systems in Europe and government subsidies) and to import into Nigeria given low tariffs and duties • Lack of farmers' organization, which affects the stability of the supply chains of dairy processors that are sourcing or interested in sourcing locally • Limited availability of cold chain infrastructure for collection and milk evacuation 	<p>Informally-Processed Products</p> <ul style="list-style-type: none"> • Unproductive time use as women trek long distances to/from local markets to sell their products • Revenue losses due to the perishable nature of dairy products and Fulani women's lack of access to low-cost and innovative processing solutions <p>Formally-Processed Products</p> <ul style="list-style-type: none"> • Limited availability of cold chain infrastructure for the distribution of premium dairy products made with fresh raw milk • Limited product innovation 	<ul style="list-style-type: none"> • Unaffordability of dairy products (particularly premium products made with fresh raw milk), given their high price point compared to the low purchasing power of the average consumer • Insufficient consumer sensitization campaigns around the benefits of dairy consumption

Harnessing the dairy sector's potential would have multiple transformative benefits on the Nigerian economy. More specifically, the increased production levels and processing will improve, sustainable livelihoods for dairy farmers, increase security (with reduced migration of cattle and conflicts between herdsmen and crop farmers), improve nutrition statistics (particularly among children, with 40% of Nigerian children stunted⁵) and reduce the country's dairy import bill.

The development of the sector requires an enabling policy environment that promotes backward integration and incentivizes investments along the value chain to boost local sourcing and drives increased awareness for local milk



POLICY LANDSCAPE FOR THE NIGERIAN DAIRY SECTOR



Effective and comprehensive policies, plans and initiatives that create an enabling environment for the development of the local dairy sector are critical prerequisites for the growth of the sector.

There are currently four major policies and plans that impact the sector. They include the following:

1. **ECOWAS' Common External Tariff (CET) 2013:** In 2013, ECOWAS member countries adopted a five-band Common External Tariff (CET) as part of their regional integration efforts during a meeting in Senegal. Member countries have until 2019 to progressively review their national tariff lists downward until the total implementation of the CET takes effect in 2020. The Federal Government of Nigeria approved the implementation of the ECOWAS CET in October 2016, which led to the reduction of import duties on most milk products from 10% to 5%. According to some local processors, the reduction encourages the importation of powdered milk, which already accounts for over 97% of dairy inputs in Nigeria and thus hampers the demand for local raw milk. This in turn reduces the willingness for pastoralists to settle close to and supply milk to formal dairy processors because there is no guarantee of sustained demand.

"The reduction of CET import duties on most milk products from 10% to 5% may further encourage the importation of milk products, which will decrease the demand for local raw milk."

2. **Agriculture Promotion Policy (APP) 2016 – 2020:** The APP outlines Nigeria's strategy to develop its agriculture industry in order to diversify the economy, create more jobs, achieve food security, and reduce imports. Dairy is one of the priority value chains included in the APP, with a clearly outlined objective to improve its productivity and value addition. The APP provided a framework for the development of the National

Livestock Transformation Plan.

3. **National Livestock Transformation Plan (NLTP) 2018 - 2027:** The National Economic Council approved the NLTP on January 17, 2019, after several deliberations and discussions with critical stakeholders in the Nigerian livestock sector. The NLTP aims to improve the performance and sustainability of the livestock sector, including meat and dairy production, through partnerships with state governments and the private sector.

"The NLTP seeks to convert the current pastoralist system to a ranching model, which would facilitate the settling of nomadic pastoralists, improve their access to productive inputs and reduce their conflicts with crop farmers."

It is hinged on key pillars including economic investment; conflict resolution; law and order; humanitarian relief; information, education & strategic communication; and a range of other cross-cutting issues. The plan is expected to expend an estimated N91 billion over a 10-year period. The initial seven focus states are Adamawa, Benue, Ebonyi, Edo, Kaduna, Nasarawa, Oyo, Plateau, Taraba, and Zamfara.

By 2027, the NLTP expects to develop market-driven ranches in the seven target states, establish 63 pasture lands and 1 semen bank in each target state and artificially inseminate at least 170,000 cows

4. **National Grazing Reserves Establishment Bill 2016:** The Bill seeks to establish grazing reserves across all the states in the country and set up a corporate commission to govern and regulate the reserves. This critical Bill was enacted in 2016 by the National Assembly but is yet to be approved or gazetted by the Federal Government.

The existing policies outlined above must be evaluated for comprehensiveness and complementarity in order to identify inconsistencies and critical areas that still need to be addressed. In addition, effectively translating these policies into action is key. This demands a wholistic process that clearly breaks targeted outcomes into clear action plans, with timelines and milestones for implementation at the Federal, state and local government levels. In addition, effective governance

models need to be instituted to ensure proper coordination, monitoring, reporting and accountability against stated targets. Finally, given the limits of government's resources, partnerships with the private sector, nonprofit and development sectors will need to be leveraged to ensure impact and sustainability.

GLOBAL BEST PRACTICES IN THE DAIRY SECTOR



The top milk producing countries in the world are the United States and India, with annual production levels estimated at 92 million MT and 61 million MT respectively. In Africa, Kenya and Ethiopia lead the pack with an annual production of 5.2 million MT and 4.0 million MT of milk respectively⁶.

In order to effectively develop its dairy sector, Nigeria can leverage best practices from these countries, particularly those from India and Kenya, which have achieved

relatively good productivity levels despite their production systems.

“The establishment of a national dairy board, the formation of dairy cooperatives, the use of improved production systems are leading practices from India and Kenya that can be emulated to develop the Nigerian dairy sector.”

Global Dairy Statistics

Top Milk Producing Countries	Annual Milk production (million MT) ⁷	Number of Dairy Cows (million) ⁸	Average yield per cow per day (litres) ⁷	Per Capita Annual Milk Consumption (litres) ⁹
USA	92	9.4	28	229.3
India	61	43.6	12	53.3
China	36	12.7	12	21.82
Brazil	35	22.9	10	114.65
Germany	32	4.2	18.8	264 ¹⁰
Ethiopia	4.0	6.6	1.5	19 ¹¹
Kenya¹²	5.2	4.2	10	100
Nigeria	0.6	2.1	1	10¹³

Spotlight

Lessons Learned from Sahel Team's Visit to Kenya



In October 2018, Sahel led a team which included representatives from dairy processors and state governments' partners, on a dairy study trip to Kenya. The team met with key stakeholders within the sector, including input suppliers, farmers, cooperatives, processors and government agencies. The purpose of the trip was to understand the Kenyan government's role in fostering dairy development in the country, examine the production systems used, learn from farmers' organizations, and observe mechanisms in place to provide them with inputs, training & extension, and other value addition services.

Based on the insights gained from the trip, the following factors were identified as critical to the growth of the Kenyan dairy sector:

- **The presence of a conducive policy environment:** Kenya's dairy sector contributes about 4.5% to the country's Gross Domestic Product (GDP), with smallholder farmers accounting for up to 90% of its dairy production¹⁴.

Policy reforms by the government enabled the establishment of the Kenya Dairy Board (KDB) in 1958 to regulate the industry, promote public-private partnerships for dairy development and support the marketing and distribution of dairy products. The KDB also improved dairy companies' access to finance through formal channels such as loans from financial institutions, and grants from the government and development organizations. Moreover, it increased farmers' interest in dairy through economic incentives.

In addition, the Kenyan tariff regime disincentivizes milk imports, which attract a 60% duty plus an additional 7% levy from the KDB on both concentrated and non-concentrated milk and cream products.

- **The use of improved production systems to improve milk yields:** Kenya uses a combination of semi-intensive (peri-urban with semi-grazing) and intensive (zero-grazing) production systems. Smallholder Kenyan dairy farmers are settled, own 2-5 crossbreeds, which contain up to 95% genetic component of exotic¹⁵ breeds and also engage in crop farming. Medium to

large scale farmers own 5 – 10 or more cows, mostly all exotic breeds, and focus on dairy farming.

The transition to improved breeds was achieved over time using artificial insemination as part of various dairy development programs, such as the Smallholder Dairy Commercialization Program (2006 – 2016) and the East Africa Dairy Development Program (2008 - 2018). Private artificial insemination service centers such as the Kenya Animal Genetic Resources Centre (KAGRC) were set up by the government.

- **The use of cooperatives to organize farmers and strengthen the value chain:** Kenya dairy farmers are organized into common interest groups (CIGs) such as cooperatives, with formal governance and management structures. This provides an effective way to promote ownership, improve participation in the formal dairy value chain, and increase knowledge on improved practices. Cooperatives also play a critical role in supporting the following:
 - ◇ **Farmer's access to inputs and value-added services:** Feed supplements are sourced from feed mills, while the CIGs and commercial fodder producers process hay and silage on a large scale. The Kenya Dairy Board and dairy cooperatives are currently making efforts to improve year-round access to fodder by fostering the use of mechanization and irrigation systems. Animal health care and artificial insemination services are provided regularly to farmers by their cooperatives and dairy processors in partnership with service providers such as KAGRC. Some cooperatives also provide other services such as training & extension and access to credit to their farmers to improve their productivity and increase their participation.
 - ◇ **Milk collection, aggregation and transportation network:** Milk collection, cooling and aggregation services are mainly provided by the cooperatives. Smallholder farmers typically transport their raw milk to medium scale bulk milk chilling hubs, which are established across most dairy producing regions and are managed by dairy cooperatives and some processors. Processors then collect the milk from neighboring bulking units.
 - ◇ **Market Linkages:** The cooperatives also play a key role in linking farmers to dairy processors and to the direct market by serving as milk aggregators. Some processors however buy directly from the dairy farmers. The processors transform the raw milk into finished products such as yoghurt, cheese, butter, and ghee for distribution and sale through various channels for public consumption.

The Kenya dairy system is worthy of emulation as it has developed drastically over the past few years, supporting the country's goal to become a net dairy exporter by 2030. More initiatives are however still needed to improve

productivity levels and adherence to quality standards, as well as to enhance rural infrastructure, access to inputs and supply chain efficiency.

Spotlight

Dairy Production in India



India is the 2nd largest milk producer in the world, accounting for more than 13% of the world's total milk production, with an annual volume of about 61 million MT. It is expected to emerge as the largest dairy producer in the world by 2020. A unique feature of India's dairy sector is that more than half of its milk production comes from water buffalos rather than cattle. India also has the largest dairy herd and is the largest milk consumer in the world.

The factors driving the dairy sector growth in India are similar to those in Kenya and include the following:

- **The presence of a conducive policy environment:** The success of the sector is largely attributed to their National Dairy Development Board, which was created by the government in 1965 to promote, finance and support producer-owned and controlled organizations, as well as to set up cooperatives to organize farmers. As in Kenya, the tariff regime in India also discourages imports with most dairy products facing basic import tariffs at 30% for non-concentrated milk and cream products and 60% for concentrated products ¹⁶.
- **The use of improved production systems:** About 80% of India's milk production comes from more than 10 million smallholder farmers, who consider dairy production as a secondary occupation. They typically own less than 2 ha of land and 1-2 dairy cows which are crossbreeds and generate average yields of 12 litres per day.
- **The use of cooperatives to organize farmers and strengthen the value chain:** Indian dairy farmers are organized in more than 130,000 cooperatives societies at the village level. The cooperatives aggregate the milk and sell it to district cooperatives unions supported by state-level milk marketing federations. The integrated cooperative system of milk collection, transportation, processing, and distribution enables the large-scale production of milk in the country.

Despite its size, the sector can further be developed if India wants to play a significant role on the global export market in addition to meeting internal demand. The growth also

appears to have been primarily driven by government interventions with modest private sector contributions, which thus represent an opportunity area. The Sahel team is planning a trip to India in early 2019 to gain a deeper understanding of its dairy sector.

The cases of Kenya and India demonstrate that a strong enabling environment through the articulation of a cohesive national dairy development strategy and the establishment of a national dairy board to implement the strategy and regulate the industry is critical to develop the dairy sector. Other key success factors include the use of improved production systems and the formation of a strong network of dairy cooperatives to organize farmers and improve of their access to inputs, finance and value-added services. Learning from these countries and adapting insights gained to the local environment can help catalyze a vibrant dairy sector in Nigeria.



MAKING LOCAL DAIRY SOURCING MORE COMPETITIVE



In 2017, Nigeria imported about N82.8 billion worth of dairy products, which accounted for 2% of the country's total import bill for that period¹⁷. These imports fill the deficit created by low local production volumes.

To make local dairy sourcing more attractive, key interventions are needed to improve the enabling environment and make local production more competitive.

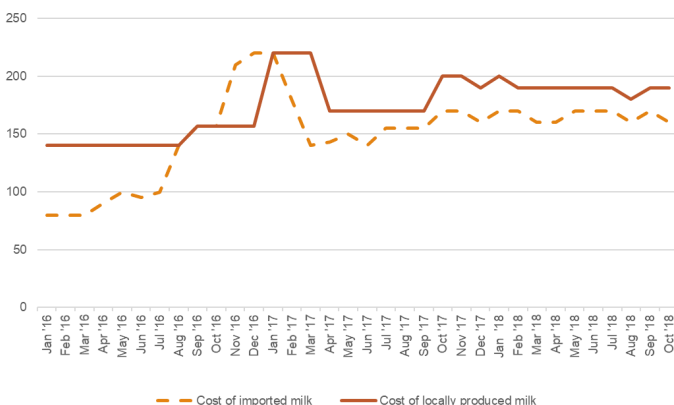
These include:

“The Government’s ability to create a conducive enabling environment, attract investments in cold chain infrastructure, organize farmers, and reduce raw milk production costs, will help increase local milk sourcing and reduce the country’s import bill.”

Prior to 2016, milk imports were over 75% cheaper than local raw milk. Since then, the steep depreciation of the Naira has significantly reduced the gap. However, the implementation of the CET reduction on milk imports from 10% to 5% in October 2016 eliminated some of the benefits of the Naira devaluation. As of 2018, imported milk was about 15% cheaper than local milk¹⁸. Formal dairy processors, which control over 97% of the market, thus prefer to use imports as raw materials due to its cost effectiveness, instead of investing in backward integration. They currently offtake only ~5% of the raw milk produced in Nigeria; the rest is processed and traded informally by pastoralists.

- Create a conducive enabling environment to gradually reduce the need for imports while supporting the development of the local sector:** Imports are needed in the short to medium term to meet current deficits in local milk availability. The government could however start imposing levies to fund various activities to support the emergence of the local dairy sector. These could include funding research and development in animal production to increase yields potential; setting up of a national dairy board to oversee and regulate the industry; supporting consumer education to increase demand and consumption levels; and providing financing for companies seeking to enter the sector. Import tariffs can then be increased from the existing 5% level to at least 30% in the medium term as local production increases, and then up to 60% as in the case of India and Kenya.
- Incentivize investments along the value chain to facilitate raw milk aggregation, collection and evacuation:** Local milk sourcing cannot be effectively achieved without the presence of a robust cold chain infrastructure network that enables processors and aggregators to offtake the milk from dairy farmers. To that end, the government should provide incentives to spur investments along the value chain, particularly in raw milk’s aggregation, collection and evacuation infrastructure. Concessional loans for instance could be provided for qualifying projects such as the establishment of milk collection centers. On another note, though the existing zero tariff on dairy equipment is a good measure to incentivize local processing, the government should also ensure that a streamlined clearing process is in place to minimize costs such as demurrage offsetting the tariff incentive.
- Organize farmers:** The development of cooperatives to organize farmers and facilitate aggregation is paramount. Pastoralists can be incentivized to settle

Cost of Imported vs Locally Produced Milk for a Local Dairy Processor (N/Litre)¹⁹



and concentrate on established grazing reserves or ranches to reduce migration and seasonal variability in milk availability for aggregation. Milk collection and evacuation infrastructure can then be set up in these localities and operated by cooperatives, milk aggregators and/or dairy processors to increase aggregation at scale. As in other leading countries, these cooperatives can also be used as an entry point for various value-added interventions to improve farmers' productivity and link them to interested processors .

- **Reduce the production cost of raw milk to levels comparable to milk imports while increasing demand:** Productivity improvement interventions such as the provision of artificial insemination and animal health

services as well as year-round stable access to water and quality feed and fodder, will improve the milk potential of the local cows and overall milk supply availability. These interventions can be funded through public-private partnerships between the government, development programs and/or dairy processors interested in local sourcing. Milk demand also needs to increase simultaneously by educating end consumers and promoting the consumption of dairy products. This will help create a win-win situation in which farmers can sell their raw milk at prices attractive to processors when compared to powdered milk, but at high enough volumes to make it worthwhile for them to focus on dairy as a business that can improve their livelihoods.

NIGERIAN DAIRY DEVELOPMENT PROGRAM (NDDP)



Over the past two years, Sahel Consulting has been at the forefront of tackling challenges affecting the local dairy sector. Sahel is implementing the Nigerian Dairy Development Program (NDDP), in partnership with dairy processors FrieslandCampina WAMCO (FCW) in Oyo State and L&Z Integrated Farms (L&Z) in Kano State; with the support of the Federal Ministry of Agriculture and Rural Development (FMARD), and the governments of Oyo State and Kano State.

NDDP seeks to demonstrate the proof of scale of processor-led dairy development initiatives, in order to increase local raw milk sourcing. The implementation model uses a systems approach centered on dairy processors in order to guarantee a market for the milk sourced from the smallholder dairy farmers. The Government at the Federal and state levels play a key role in creating an enabling environment, providing grazing land (in Kano) and extension agents to support the program.

The program's scope covers the identification and integration of smallholder dairy farmers into the partnering processors' supply chain; the provision of productivity improvement interventions including training & extension, artificial insemination (AI) and feed and fodder production; the development and provision of support infrastructure including solar-powered boreholes, milk cans, milk collection centers/points and milk evacuation vehicles. By the end of the current phase of the program in June 2019, Sahel and its dairy processor partners would have:

- **Integrated over 2,000 new dairy households**
- **Trained over 6,000 dairy farmers on various good dairy management topics such as** hygienic milking practices, dairy cattle nutrition, etc.
- **Inseminated close to 3,500 cows**, which should translate into around 1,400 crossbreeds.
- Supported local crop farmers with access to land to become **commercial fodder producers who established over 500 ha of pasture land to produce hay and silage for onward sales to dairy farmers.**
- **Built over 50 solar-powered boreholes** to improve participating communities' access to clean water
- **Distributed 2,500 milk cans** to participating farmers to preserve milk quality during transportation
- **Established 1 new milk collection center** in Oyo state and **4 new milk collection points** in Kano and **deployed 7 evacuation trucks in both states** to improve milk aggregation and evacuation to the processing plants.

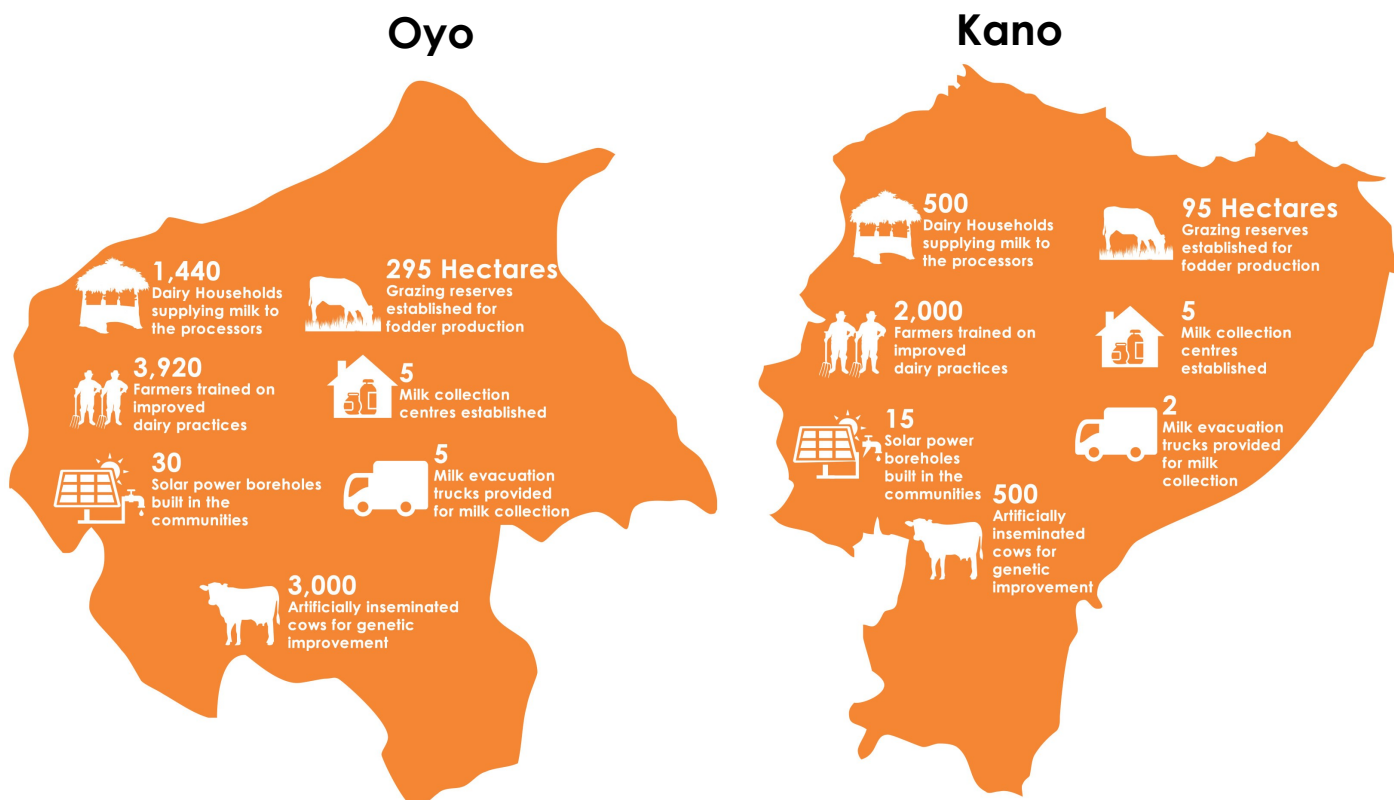
In addition, Sahel commissioned a gender study and a nutrition study to identify interventions to build on the key role that women play in the local dairy sector, improve their livelihoods and the nutrition outcomes of the participating communities.

The full reports from these studies can be downloaded via Sahel's website at <http://sahelcp.com/wp-content/uploads/2018/10/NDDP-Gender-Study-Report.pdf> and <http://sahelcp.com/wp-content/uploads/2018/10/NDDP-Nutrition-Study-Report.pdf>

To-date, NDDP has had a positive effect on the amount of raw milk aggregated from pastoralists by both FCW and L&Z. In addition, the feed & fodder intervention presents an interesting market-based approach to alleviate ongoing conflicts between herdsmen and crop farmers. It helps increase feed availability, hence reducing the need for pastoralists' migration to search for pasture. It also fosters a

mutually beneficial relationship between crop farmers investing in fodder production and herdsmen interested in the resulting hay and silage to feed their cattle.

NDDP is a unique example of the impact that can be generated when public and private sector actors collaborate to tackle key development challenges, with a focus on the dairy sector. Nevertheless, these forms of interventions must be enhanced and scaled to truly transform the sector.



Interviews with NDDP Dairy Processors



L&Z Integrated Farms (L&Z): L&Z is an indigenous dairy processor that owns around 100 crossbreeds and processes about 3,000 litres of milk daily. L&Z sources up to 80% of its raw milk from a network of about 1,000 pastoralists to supplement its own cows' production. The company is located in Kano where it produces fresh milk, fresh yoghurt, ice cream, and *Fura da Nono*, which it distributes to retailers nationwide.

Interview with Alhaji Abubakar, MD L&Z

- **Can you briefly describe the state of the Nigerian dairy sector?** The current situation is not favorable towards local dairy development. Indigenous companies represent only 1% of the sector and government policies, particularly around import tariffs, undermine their growth. The policy environment needs to change e.g., through the provision of subsidies, and infrastructure support, in order to attract foreign direct investment and local investment to develop the sector.
- **What role does your company play in this sector?** L&Z by the nature of its business is getting more smallholder dairy farmers into the formal dairy sector by sourcing most of its raw milk from them. We do that by organizing them into clusters, establishing milk collection points and teaching them good dairy practices. There is however a limit to what we can do, given the unfavorable competition from milk imports.
- **Why did your company see the need to source locally?** Most dairy products in Nigeria are made from imported powdered milk. L&Z uses primarily raw milk to differentiate itself. Our products are more expensive to produce but we can stand out and play in the premium market.
- **How sustainable is your local sourcing business model?** What are the main challenges you are facing? The main challenges are the competition from milk imports and the lack of cold chain infrastructure. L&Z is trying to grow and enter the mass market, which is dominated by products made from imported milk. We however find it hard to be competitive given the economics. We thus have to focus at the moment on the premium market and be margin-driven instead of volume driven. This affects our growth plans and our ability to significantly increase our raw milk collection volumes.
- How has your company benefited from being a key partner on NDDP? What lessons have you learned? NDDP is helping us address inputs and production

challenges with our farmers e.g., training & extension services, access to potable water, to feed & fodder. This enables us to focus most of our own resources on infrastructure development and in the processing and marketing aspects of our business.

- **What is your vision for the Nigerian dairy sector?** My vision is to see the white revolution that happened in India and was championed by the late Dr Verghese Kurien, also occur in Nigeria. I would like to see Nigeria transform from an imports-dependent to a dairy export country.
- **What are the key success factors for realizing this vision?** The most important success factor is the right enabling environment. The government must provide it in order to help indigenous companies grow and prosper and to make it hard for western countries to dump their dairy products into Nigeria. The government should follow the example of Kenya, which charges 60% for imported dairy products compared to the 5% charged in Nigeria.
- **What are the roles of the private, public and non-profit sectors to achieving this vision?** I have already talked about the role of the government. Private sector companies should come together, e.g., under the Commercial Dairy Ranchers Association of Nigeria (CODARAN) to have one voice to lobby for favorable government policies. NGOs, meanwhile, need to understand that developing the local sector is a sustainable business solution to address the crop farmers/herdsmen conflict. They should thus support the private sector in its lobbying efforts.





FrieslandCampina WAMCO (FCW): is an affiliate of the Royal FrieslandCampina of The Netherlands, one of the largest dairy cooperatives in the world. FCW has the largest market share in the dairy sector in Nigeria. In 2017, FCW sourced on average 6,000 litres of raw milk daily from over 3,000 pastoralists in Oyo State. Its processing plant is in Lagos, where the company manufactures reconstituted powdered, evaporated and fresh milk under its Peak and Three Crowns brands. The products are then distributed to wholesalers and retailers nationally.

Interview with Ben Langat, MD FCW

- **Can you briefly describe the state of the Nigerian dairy sector?** Milk production in Nigeria is largely controlled by pastoralists owning 95% of the country's total herd size of about 20 million cattle. They practice subsistence farming and rear their cattle for dual purpose (milk and meat). Only a few imported cattle breeds such as Friesians, Jerseys and Brown Swiss, and their crossbreeds are kept by few private commercial dairy farms. Most of the milk is processed into traditional products. Very little is processed formally. Urbanization, improving household incomes and general population growth is pushing demand for dairy products, with the growth estimated at 3.2% to 3.5%.
- **What role does your company play in this sector?** FrieslandCampina WAMCO's role in the dairy industry is to bridge the gap between demand and supply, to develop local capacity to encourage the sourcing our raw materials in the country and to contribute to the GDP of the country.
- **Why did your company see the need to source locally?** There is potential for local sourcing in the country. We are the industry leader and we see the need to develop and empower the industry. We also want to support the local content drive of the Nigerian Government.
- **How sustainable is your local sourcing business model? What are the main challenges you are facing?** Our Dairy Development Program (DDP) is an inclusive business model, which supports its sustainability. The farmers we work with are well informed about the business and how they contribute to community development. We are already addressing the issue of ageing farmers and care for environment for sustainability purposes.

Our major challenges include the lack of infrastructure (road network, land tenure system and high cost of inputs especially hardware) and farmer's limited access to finance to pursue dairy farming as a business.

- **How has your company benefited from being a key partner in NDDP?** What lessons have you learned? As a key partner in NDDP, our company benefits from the support on ease of milk transportation from herd level to our milk collection centers (MCCs) through the distribution of good quality milk cans to our farmers. The program also provided our farmers with boreholes for water supply, which improved our milk quality and is a source of clean water for the community. Moreover, extensive training is given to our farmers on topics such as animal health, hygienic milking and all some other elements supporting good dairy farm practices. In addition, NDDP is sponsoring pasture development on over 200 ha of land and an artificial insemination intervention to support our dairy farmers. A key lesson learnt is that with a solid partnership, we can make a difference together in the dairy sector.
- **What is your vision for the Nigerian dairy sector?** That our mission of nourishing Nigerians with quality dairy nutrition will continue to help solve issues of malnutrition and empower Nigerians.
- **What are the key success factors for realizing this vision?** Awareness of the nutritional benefits of milk and of opportunities to invest in the sector needs to be created. An enabling environment to do dairy business and a ready market for raw milk and derived products are also needed.
- **What are the roles of the private, public and nonprofit sectors to achieving this vision?** The major role of the private sector is driving the process. The public sector, meanwhile, must create the enabling environment. The non-profit sector can provide support in critical areas such as awareness/network creation, training and capacity building.



SAHEL CONSULTING SPEAKS

Sahel Scholars Conference 2018, Nigeria

Ndidi Nwuneli, Managing Partner Spoke at Obafemi Awolowo University in Ile-Ife, Osun. The conference was organized by Sahel for agricultural science students and faculty as part of the Sahel Scholars 2018 Programme in July 2018.

Covenant University Hooding Ceremony for MSc & Ph.D. Students, Lagos, Nigeria

Ndidi Nwuneli spoke on "Leadership and Management Paradigms in Postgraduate Studies" for the Future during the Covenant University Hooding Ceremony for MSc & Ph.D. students held in Lagos in July 2018.

Feeding Futures Africa 2018 Conference, Lagos Nigeria

Nathalie Ebo, Associate Partner served as a panelist during the Feeding Futures Africa 2018 conference on 'Walking the talk on finance and market access in agriculture' held in Lagos on August 2018.

Harvard Business School Executive Program – Africa Leadership Program, Ghana

Ndidi Nwuneli attended the Harvard Business School Executive Program – Africa Leadership Program and spoke on "Doing Well and Doing Good: The Role of Social Innovators in Africa's Transformation" which held in Ghana in August 2018.

11th Annual Banking & Finance Conference, Lagos, Nigeria

Ndidi Nwuneli attended and spoke on "Harnessing the Value Adding Potentials of MSMES in Income and Empowerment Generation" at the 11th Annual Banking & Finance Conference held in Lagos in September 2018.

Carrington Youth Fellowship Initiative, Lagos, Nigeria

Ndidi Nwuneli spoke on "Organizing for Action" during the Carrington Youth Fellowship Initiative held in Lagos in September 2018.

Working for God in the Market Place, Lagos, Nigeria

Ndidi Nwuneli spoke on "Living a life of Integrity in the Market-place" during a conference held by Working for God in the Market Place in Lagos in September 2018.

Oxfam Stakeholders Forum, Lagos, Nigeria

Ndidi Nwuneli spoke on "Promoting Young Women's Entrepreneurship and Innovation" during the Oxfam Stakeholders Forum held in Lagos in September 2018.

2018 Africa Trade Forum, Lagos, Nigeria

Nathalie Ebo served as a panelist during the 2018 African Trade Forum themed "African Continental Free Trade Agreement (AfCFTA)'s Ratification and Implementation" on "Harnessing the AfCFTA for Africa's Socio-economic Development: Agricultural Transformation" held in Lagos in October 2018.

Business Day CEO Forum, Lagos, Nigeria

Ndidi Nwuneli spoke on "Business Legacies that endure: Passing the torch across generations" during the Business Day CEO Forum held in Lagos in October 2018

2018 Regional Policy Dialogue, Maputo, Mozambique

Nathalie Ebo was a panelist during the 2018 Regional Policy Dialogue on "High-Level Dialogue on Transformation Africa's Agriculture" held in Maputo, Mozambique in November 2018.

Bill & Melinda Gates Foundation Partners Meeting, Abuja

Ndidi Nwuneli spoke on "Sahel Consulting's Impact in Transforming the Dairy Sector in Nigeria" during the Bill & Melinda Gates Foundation Partners Meeting held in Abuja in November 2018.

SAHEL CAPITAL SPEAKS

Third Vatican Conference, Rome, Italy

Mezuo Nwuneli, Managing Partner attended the third Vatican Conference on Impact Investing where he spoke on a panel, "Across the Returns Continuum", which discussed impact investing return expectations – from purely philanthropic to fully commercial. This held in Rome, Italy in July 9 – 10, 2018.

Sahel Scholars Conference 2018, Nigeria

Mezuo Nwuneli spoke at Ahmadu Bello University in Zaria, Kaduna. The conference was organized by Sahel for agricultural science students and faculty as part of the Sahel Scholars 2018 Programme on July 24, 2018.

Olumide Lawson, Partner also spoke at the University of Nigeria Nsukka, Enugu during the Sahel Scholars 2018 conference held in July 2018.

FATE Foundation Nutri-pitch, Lagos, Nigeria

Olumide Lawson attended the Nutri-pitch organized by FATE Foundation held in Lagos on August 30, 2018.

Covenant Platform Young Professional Bootcamp, Lagos, Nigeria.

Mezuo Nwuneli shared his experiences with young entrepreneurs at the Covenant Platform Young Professional Bootcamp, held at the Digital Bridge Institute, Oshodi, Lagos on September 7, 2018.

Directors for Pension Operators Conference, Lagos, Nigeria

Mezuo Nwuneli attended the 6th Conference for Directors of Pension Operators where he spoke on the panel "Promoting Sustainable Investment of Pension Funds for Economic Development". It was organized by the National Pension Commission and held at the Radisson Blu Hotel, Ikeja, Lagos on September 11, 2018.

College of Agriculture Scale up Conference, Purdue University, Indiana

Mezuo Nwuneli attended the Scale Up Conference and spoke on a panel, "Unlocking Capital to Scale Start-Ups", which discussed examples of capital and strategies for scaling agribusinesses. The conference was hosted by the College of Agriculture, Purdue University, Indiana on September 25 - 27, 2018.

Financial Markets Conference, organized by Financial Markets Dealers Association, Lagos, Nigeria

Deji Adebuseye, Vice President spoke on "The Nigerian Financial Market – A catalyst for Sustainable Economic Growth" on September 21, 2018.

Full Gospel Men's Fellowship, Lagos

Deji Adebuseye spoke on "Opportunities & Challenges in A Recovering Nigerian Economy: Special Focus on the Agricultural Sector" at the Full Gospel Men's Fellowship on September 29, 2018.

Operating Partners Forum, New York, USA

Oluremi Bodunrin, Partner attended the Operating Partners Forum, organized by Private Equity International in New York in October 17-18, 2018

Nigerian Economic Summit, Lagos

Olumide Lawson attended the Nigerian Economic Summit organized by the Nigerian Economic Summit Group held in Abuja on October 22- 23, 2018.

Agri-Finance 2018 Conference, Lagos, Nigeria

Ejoro Agbeyi, Vice President served as a panelist on "Venture Capital and Private Equity" during the Agri-Finance 2018 Conference held at Federal Palace Hotel, Lagos on November 1, 2018.

SAHEL RETREAT 2019



The Sahel Consulting team with Dr. Ikechukwu Kelikume (LBS) and Bethel Nwaneri (General Electric), at the company's staff retreat in January 2019



The Sahel Capital team with Dr. Okey Enelamah, the Honourable Minister of Industry, Trade, and Investment in Nigeria, at the company's staff retreat in January 2019

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APPENDIX: REFERENCES

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