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Dairying Horizons:
Exploring the potential for New
Zealand's Dairy Expansion in Nigeria

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Anna Gower-James

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Executive Summary

In the face of market volatility and increasing uncertainty in international trade, New Zealand as an exporting nation, must adopt forward-thinking strategies to protect its interests. Market diversification within the dairy industry holds significant impacts on New Zealand dairy farmers, processors, and the wider economy. This report analyses the potential for expanding New Zealand's dairy partnership with Nigeria, a market with untapped opportunities.

Report objectives:

- Investigate the current landscape of Nigeria to set the context in which the dairy sector operates.
- Analyse the structure and dynamics of the Nigerian dairy sector.
- Examine the relationship between demographic factors, economic growth, urbanisation, and the political landscape on the demand for and consumption patterns of dairy products in Nigeria.
- Propose recommendations for New Zealand dairy exporters to explore further growth between New Zealand and Nigeria.

The research methodology involved a situational analysis through a comprehensive literature review to assess the current state of Nigeria and the structure of its dairy sector. Semi-structured interviews with key stakeholders were conducted to gain an understanding of the consumption trends and drivers. Critical analysis of the literature review and interviews revealed four drivers impacting the growth of Nigerian dairy consumption these were: the force of population growth and demographic shifts, economic recovery, political stability, and rate of urbanisation.

As Nigeria's population continues to grow, urbanise, and the working age demographic expands the demand for dairy products is projected to substantially increase. This increased demand is driven by an emerging middle class, youthful and urban population. However, the Nigerian dairy market's potential hinges on the country's political stability and sustained economic recovery. Given global market uncertainties and geopolitical dynamics, New Zealand's commitment to diversification is paramount. Underscoring the significance of engagement with Nigeria to ensure that future growth opportunities remain open.

Recommendations for New Zealand's engagement with Nigeria:

1. Establish relationships:

The Ministry of Foreign Affairs and Trade to proactively build relationships in Nigeria and West Africa. Through establishing representation across the country to prepare for future growth opportunities.

2. Cultivate market familiarisation:

New Zealand Trade and Enterprise to invest in building expertise and knowledge to gain a greater understanding of the Nigerian market. Enabling New Zealand to make informed decisions.

3. Prioritise Nigeria as a long term future trading partner:

The Ministry of Foreign Affairs and Trade to develop a strategic plan to build engagement with Nigeria by dedicating resources and diplomatic presence.

4. Facilitate exchange and capacity building:

Industry bodies to facilitate the exchange of knowledge and expertise. By bringing Nigerian dairy stakeholders to New Zealand to familiarise themselves with New Zealand dairy processes, quality standards and market dynamics.

5. Diversify commodity offerings:

Encourage New Zealand dairy processors to consider expanding their product range to include Fat Filled Milk Powder to target a broader and growing consumer base.

1.0 Introduction

The New Zealand dairy industry is the cornerstone of the country's economy and has long been the largest exporter earner (Sense Partners, 2022). In 2022, dairy exports recorded a substantial 25.7 billion dollars, highlighting its economic significance (Sense Partners, 2022). However, on the global stage, New Zealand dairy only accounts for 3% of the world's production, the reality is the industry faces strong competition from dairy producing powerhouses such as the European Union and the United States. New Zealand dairy exports are concentrated in a handful of markets, with over half (54.1%) of New Zealand dairy exports sold to China, Indonesia, Australia, the United States and Japan in 2022 (Sense Partners, 2022). While these markets have grown both in volume and value the limited diversity has seen the New Zealand dairy sector exposed to the volatility of the global commodity market referred to as the "commodity roller coaster."

The vulnerability of New Zealand's dairy sector again became evident in August 2023 when dairy commodity prices on the Global Dairy Trade auction plummeted to a five-year low. Declining commodity prices have a knock on effect across the dairy value chain from processors to farmers. The impact of macroeconomic factors resulting in a slowdown in global demand saw customers become increasingly hesitant to buy. China, one of New Zealand dairy's most significant export markets, significantly reduced their dairy imports (Ministry for Primary Industries, 2023). Historically New Zealand has been chasing growth in China dairy exports, but the slowdown in their demand and declining population highlights the importance of continuing to develop market opportunities. New Zealand's heavy reliance on a single market like China, raises concerns of over-dependency on one market.

Global markets that New Zealand operates in are evolving at an accelerated rate in this moving landscape, the ability to capture and capitalise on market opportunities is crucial. Nigeria has emerged as an attractive market due to its rapid population growth, economic landscape and urbanisation trends (Yeboua et al., 2022). By 2050 the population is set to reach 400 million people and will surpass the United States as the world's third most populous country (United Nations, 2022). The sheer size and scale of the country's population growth is systematically important and a promising frontier to grow dairy trade. New Zealand's historical successes in markets have resulted from being a first mover, proven in the advantages gained due to being the first developed Western country to secure a Free Trade Agreement (FTA) with China this highlights the importance of pioneering opportunities.

For an exporting nation that is deeply reliant on international trade forward-thinking strategies are crucial. New Zealand must continue to invest in market diversification to aid the country's ability to adapt, navigate market volatility and protect our interests. Market diversification is far reaching, shaping the long term prospects of New Zealand's dairy farmers, processors, and the broader economy. As the New Zealand dairy industry looks ahead it can continue to deliver sustainable results over the long term, ensure a resilient future and maintain it's crucial contribution to the nation's economy.

This report analyses the future growth of dairy consumption in Nigeria, a market that has untapped potential.

2.0 Aim and Objectives

This report aims to explore the future growth of Nigerian dairy consumption by providing insights into the dynamics of the Nigerian dairy market and the influence of socio-economic and demographic variables that will shape future demand.

The objectives of this report are to:

- Investigate the current landscape of Nigeria to set the context in which the dairy sector operates.
- Analyse the structure and dynamics of the Nigerian dairy sector.
- Analyse the relationship between demographic factors, economic growth, urbanisation and the political landscape on the demand for and consumption patterns of dairy products in Nigeria.
- Propose recommendations for New Zealand dairy exporters to explore further growth between New Zealand and Nigeria.

The output of this research will provide insights into the Nigerian dairy market, enabling relevant stakeholders to make more informed decisions and potentially explore growth opportunities within the market. Furthermore, it will provide an understanding of the interplay between socioeconomic, and demographic factors and food consumption patterns in developing countries, which can be relevant for broader research and policy considerations.

3.0 Methodology

3.1 Literature Review

A situational analysis was conducted through a comprehensive literature review to analyse the current state of Nigeria and investigate the structure of the Nigerian dairy sector. The literature review aided in introducing and critically analysing the relationship between the drivers of agricultural demand. A variety of sources were used in the literature review including published reports, market insights, peer-reviewed research papers, data banks and reputable websites. Key data and information were primarily sourced from The Food and Agricultural Organisation (FAO), The World Bank, The United Nations, The United States Department of Agriculture and The African Union, from August to October 2023.

3.2 Semi-Structured Interviews

A semi-structured interview was developed see appendix A to gain further insights into the Nigerian market. The questions were structured into three main areas of focus. Firstly, to gain a comprehensive understanding of the Nigerian dairy market focusing on dairy applications, supply chain, retail outlook and research and development efforts. Secondly, identify the challenges and opportunities in the Nigerian dairy sector. Thirdly, it was important to understand dairy demand, trends and drivers.

A range of interviewees were engaged across procurement, traders, market managers, dairy consultants, New Zealand government officials and New Zealand Trade and Enterprise (NZTE) involved in Nigeria and the Sub Sahara Africa region. A total of nine interviews were conducted representing the different segments of the industry and to gain a diverse set of perspectives. Interviews were conducted either via Microsoft Teams or phone call, with consent interviews were recorded and transcribed.

Due to the complex and sensitive space of the Nigerian market, it became apparent that preserving anonymity was essential to ensure a confidential approach to conducting the interviews. To safeguard the identity of each participant, a system of generic classification was employed see Table 1 below.

Table 1: Summary of Interview Participants by Region and Industry

Stakeholders	Trader	Market Manager	Procurement Manager	NZTE	Government Official	Dairy Consultant	Food Technologist
Region	Africa	North Africa	South Africa	Africa	Africa	New Zealand	New Zealand
Industry	Dairy	Dairy	Juice	Trade	Trade	Dairy	Dairy
Number of interviewees	3	1	1	1	1	1	1

3.3 Thematic Analysis

Thematic analysis is a qualitative research method used to identify, analyse, and report patterns within data (Braun & Clarke, 2006). Thematic analysis was employed to draw out key themes from the literature review and interviews, using an inductive approach.

To capture the key messages from the literature reviews and interview transcripts an Excel spreadsheet was used to collate and record the relevant information under key topics. The process taken to identify overarching themes involved coding and categorising the information based on recurring patterns and commonalities. Thematic maps were created using the Miro website to condense the final themes and illustrate the connections among them. This supplied the foundation for discussion and insights.

4.0 Limitations

Several limitations were encountered during the data collection process and therefore need to be taken into account when interpreting findings and drawing conclusions.

4.1 Response Rate

A lower response rate from relevant stakeholders limited the ability to gain a comprehensive view of the Nigerian dairy sector. Several factors may have contributed to this including the sensitive nature of the topic, confidentiality of information and complexity of the Nigerian environment. As well as the interviewer being employed by Open Country Dairy may have influenced stakeholders' willingness to participate.

4.2 Data Integrity

Sourcing complete and accurate data on Nigeria was a challenge due to the vast landscape of the country, limited technological infrastructure and concerns regarding the reliability of statistical and official data sources. A triangulation method was employed to cross-reference reputable data sources to provide the best possible data. The credibility of various sources of data may have introduced variability impacting the reliability of the study.

4.3 Time Constraints

Further research in the form of an econometric study to support this research, would provide a qualitative framework.

5.0 Situational Analysis Nigeria

A situational analysis of the literature review was conducted to determine the current landscape of Nigeria today. Supported by key ideas and themes drawn from the interviews.

5.1 Population

Nigeria is Africa's largest market from a population and size perspective, with a diverse population of 218 million distributed across 36 states, comprised of over 300 ethnic linguistic groups. The country

is currently growing at a rate of 2.4% annually and is projected to reach 400 million by 2050 (World Bank, 2022). This would position Nigeria as the third most populous country globally and surpass the United States (United Nations, 2022).

The country's birth and fertility rates have been declining over the past decade; however, they remain relatively high with a crude birth rate of 37.12 per 1,000 inhabitants down from 41.80 per 1,000 inhabitants in 2011 (Statista, Search Department, 2022). The recorded fertility rate in 2021 of 5.24 children per woman a reduction from 5.92 in 2011 (Statista, Search Department, 2022). Consequently, this makes Nigeria the fastest growing population of any country with 100 million people and on track to become a geopolitical powerhouse.

Nigeria's death rate increased for the second consecutive year in 2021 to 13.08 per 1,000 inhabitants (Statista, Search Department, 2022). In 2022 the average life expectancy was the third lowest globally at 53 years (World Bank, 2022)

Nigeria's demographic profile today is characterised by a youthful population, in 2022 the country had a median age of 17.1 years, ranking as the 20th country with the lowest median age in the world significantly below the global median age of 30.3 years (Statista, Search Department, 2022). This is reflected in Figure 1 below, 43% of the population are children aged 0-14 years and only 3% of the population are above 65 years indicating a relatively small elderly population. Of more significance is the under 24 age bracket alone which accounts for the majority of the population at 63%. In terms of gender distribution females make up an estimated 49.3% of the population.

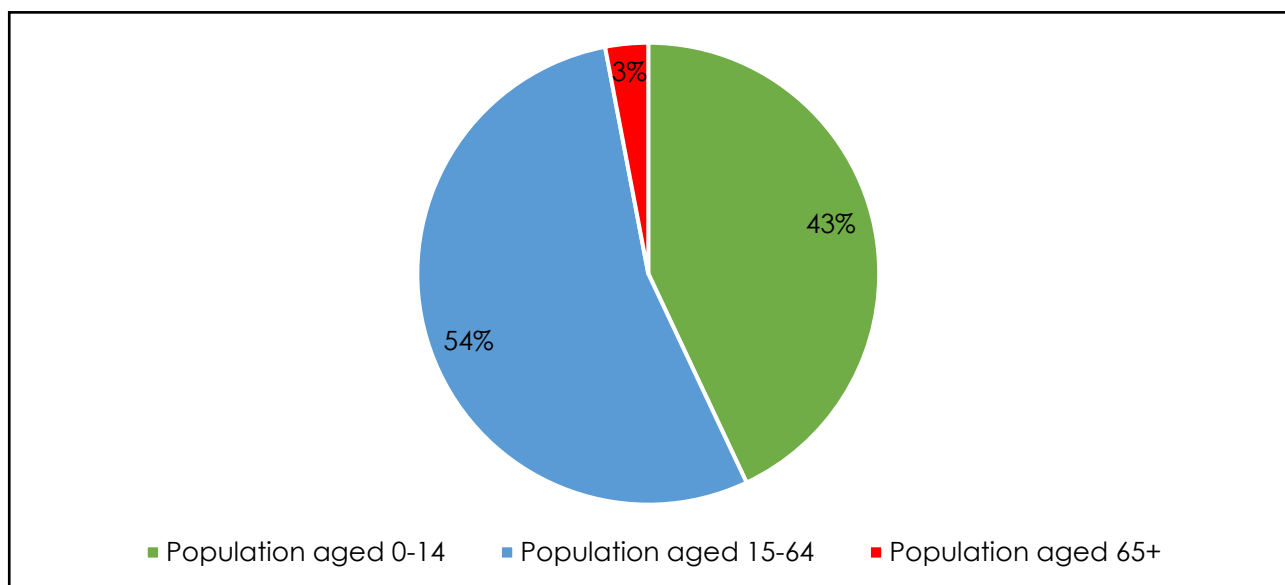


Figure 1. Nigeria's population structure 2023. Source: United Nations Population Fund.

5.2 Economic Landscape

Comparing African countries with the highest GDP in 2022, Nigeria leads the way as Africa's largest economy with a GDP of 447.4 billion US dollars (accounting for 15% of Africa's GDP) followed by Egypt and South Africa (Statista Search Department, 2022).

The country's economy is heavily reliant on oil, which represents 80% of exports and contributes 18% of Nigeria's national GDP (FAO, 2021). Evident in Figure 2 is the relationship between crude oil prices and GDP growth. Nigeria's heavy reliance on oil makes the country's economy highly exposed to the volatility of the crude oil market and economic disruption such as the COVID-19 pandemic. The lack of diversity in the economy has led to Nigeria experiencing two recessions in 2015 and another in 2020, marked by the contraction in the GDP growth rate. These recessions were further fuelled by monetary and exchange rate policy distortions, increasing fiscal deficits, a fuel subsidy programme,

rising trade protectionism and the ongoing impact of COVID-19 (World Bank, 2022). Together, these factors have collectively weakened the country's economic fundamentals.

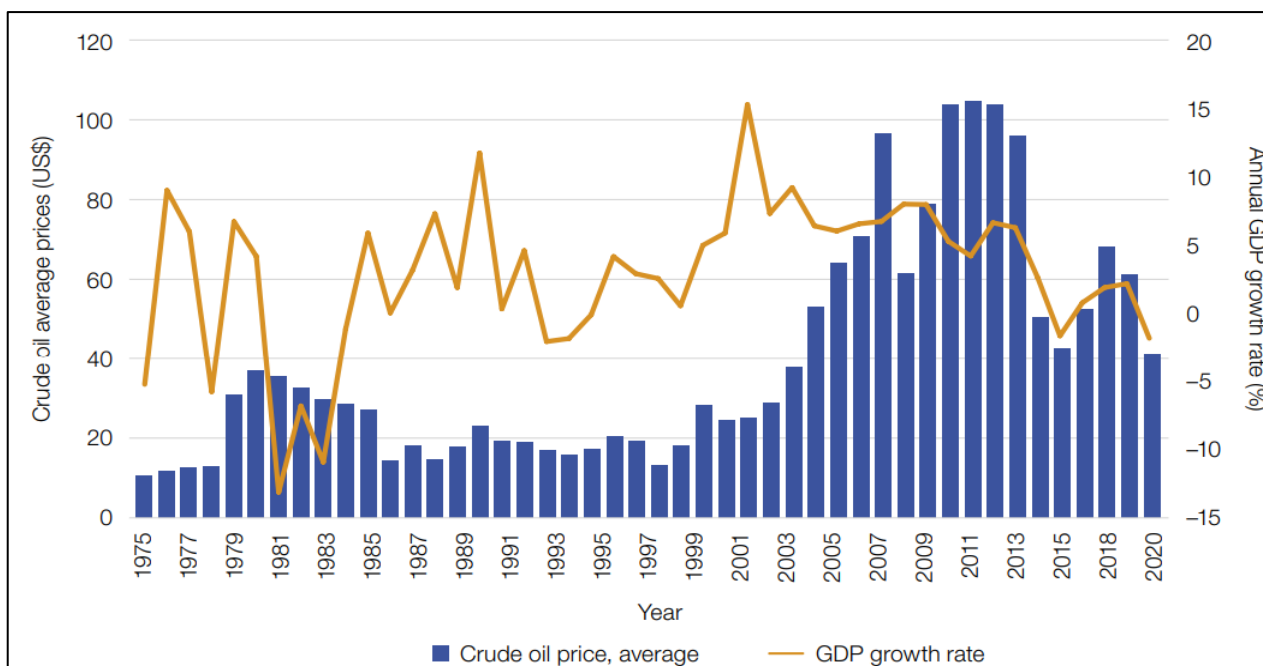


Figure 2: Trends in crude oil price and GDP growth in Nigeria 1975 – 2022 (Yeboua et al., 2022).

The impact of declining crude oil prices has significant impacts on Nigeria's economy. The fall in foreign reserves, places pressure on exchange rates and impacts the country's ability to import food products due to depreciation in the Nigerian Naria. The devaluation of the local currency makes it challenging to obtain foreign currency to pay overseas suppliers (Trade and Commercial Advisor). As Yeboua et al. (2022) highlighted increases in the cost of imports lead to higher domestic price levels being passed onto the consumer.

Nigeria today is still facing economic challenges including rising food inflation which has reached multi-year highs recording above 25% in August 2023, consequently decreasing the purchasing power of consumers (United Nations, 2022). Thomas & Turk, 2023 emphasised the importance of a population to be able to demand food, ensure food products can be supplied and for the price of food to remain at affordable levels. This underscores the importance of a stable and strong economy to ensure the population can access and afford food items.

Nigeria's economy is currently fragile; however, in 2022 real GDP growth recovered to 3.1%. The World Bank noted that the actions of a new administration removing the gasoline subsidy, and liberalising the exchange rate combined with oil prices returning to historical averages supported a more stable economic environment (World Bank, 2022).

5.3 Geography

Nigeria's geography is marked by its diverse and expansive landscape of 923,770 square kilometres located in the tropical zone of West Africa. Figure 3 illustrates the borders the county shares with Benin, Niger, Chad and Camerron, the Atlantic Ocean and the Gulf of Guinea form the Southern limits. Nigeria's location positions it as a major economic hub in Africa due to its proximity to the Atlantic Ocean allowing for trade and access to the oil and gas resources of the Gulf of Guinea.



Figure 3: Geography of Nigeria (Encyclopædia Britannica, 2012).

The country's geography can be categorised into six ecological zones each with varying climates. These zones include the Swamp and Coastal Vegetation, Freshwater Swamp Forest, Lowland Rain Forest, Derived Savanna, Guinea Savanna, Sudan Savanna, and Sahel Savann (Federal Republic of Nigeria, 2019). The mountainous zone forms the border to Cameroon and the plateau zone in the centre of the country. Nigeria experiences a wide range of temperatures and soil types due to this diversity the country produces a wide range of food products. However, the diverse landscape of Nigeria brings challenges in terms of infrastructure, power supply, distribution networks and production (Trade and Commercial Advisor).

5.4 Agriculture

Nigeria's agriculture sector comprises 70.8 million hectares of agricultural land, and the varied climate allows for the cultivation of a range of agricultural products. However, only 42% (34.4 million hectares) is under cultivation indicating that Nigeria has yet been unable to unlock the full potential of its agriculture sector (FAO, 2021). The sector is classified into crop production, fishing, livestock and forestry, with crop production accounting for 90% of the sector output. This dominance is attributed to the favourable climatic conditions for the production of cassava, yam, maize, sorghum and millet, with Nigeria the world's largest producer of cassava (United Nations, 2022).

Agriculture is the foundation of the Nigerian economy, in 2021 agriculture contributed to 23% of Nigeria's GDP (United Nations, 2022). In contrast to the oil industry which dominated in terms of exports it only accounted for 7% of GDP, highlighting agriculture's economic significance. The agriculture sector in Nigeria is the largest employer of the country's labour force. Employing 35% of the workforce in 2021 it is estimated that a further 70% of the population is actively involved in agriculture (World Bank, 2022). In terms of export value Nigeria is also a key exporter of cocoa, oil seeds, fruits, nuts and spices are included in the top 10 export values from Nigeria in 2021.

The country's agricultural sector is heterogeneous, comprising small through to large farms with varying levels of efficiency. Notably, smallholder farmers comprise 70% of the total farming population cultivating less than 2 hectares of land but producing 90% of the national agriculture output this is the majority of Nigeria's rural dwellers (African Union, 2022).

5.5 Poverty and Food Insecurity

Nigeria is still facing poverty and food insecurity challenges (United Nations, 2022). The most recent poverty data collected in 2018/2019 Nigerian's Living Standards Survey revealed that Nigeria had a pre-pandemic poverty rate of 40.1% affecting 82.9 million people. This equated to 4 in 10 Nigerians living below the poverty line emphasising the widespread impact (Lain & Vishwanath, 2022). The survey revealed that poverty rates vary significantly across the states ranging from 4.5% in the North to 87.7% in the South, with the prevalence of poverty more concentrated in rural areas (52.1%) compared to urban areas (18%).

As depicted in Figure 4 the prevalence of undernourishment and food insecurity in Nigeria has experienced a significant increase. Food insecurity rates grew from 36.5% from 2014 to 2016 to 57.7% from 2018 to 2020, while undernourishment rates doubled (from 7.9% to 14.6%) across the same time frame (United Nations, 2022). Indicating a lack of improvement in the poorest.



Figure 4: Food Insecurity and Undernourishment in Nigeria (United Nations, 2022).

Nigeria's poverty trends have mirrored the country's macroeconomic situation, the heavy reliance on oil exports, population growth, unemployment and food inflation have reduced the welfare impact of growth. The economic impact of COVID-19 resulted in a significant increase in the percentage of the population living below the poverty line as shown in Figure 5 below. The World Bank predicted an additional 5 million Nigerians would be pushed into poverty by 2022, and the poverty headcount rate to increase from 40.1% to 42.5% (Lain & Vishwanath, 2022).

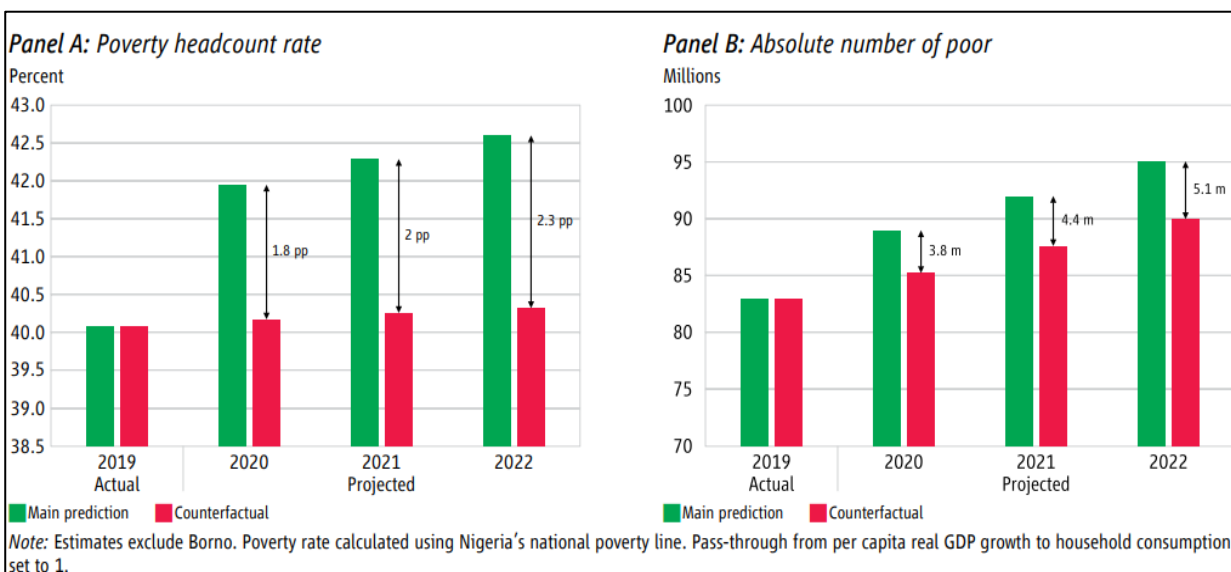


Figure 5: Projected poverty headcount rate and absolute number of poor Nigerians, throughout the COVID-19 crisis (Lain & Vishwanath, 2022).

Over 100 million Nigerians face a form of food related challenges linked to the low productivity of the country's agricultural sector, conflicts, and policies aimed at reducing food imports. Restrictions on food imports combined with the existing supply and demand gap of food products have driven an increase in food prices and poverty levels. Nigeria's food production systems are struggling to meet the nutritional needs of the population. Dairy products offer a source of rich protein and essential nutrition providing a vital solution to address food security challenges (Trade and Commercial Advisor). Emphasising the necessity of dairy imports to bridge the gap and provide greater food accessibility.

5.6 Dairy Consumption

In Nigeria, dairy consumption is low at an average per capita intake of eight litres of milk per year (FAO, 2021). Trailing the African average of 40 litres of milk per year and significantly lower compared to the World Health Organisation's recommended intake of 210 litres per year (2-3 servings per day) (FAO, 2021). Indicating the scope to increase milk consumption. Data from the 2018/2019 National Bureau of Statistics Nigerians Living Standard Survey indicates that fewer than 40% of Nigerian households consume dairy products. Moreover, Tassy et al. (2022) reported that only 25% of children aged 4 -13 years in Ibadan, Nigeria consume dairy foods. This is due to several barriers across the dairy value chain and life phases.

However, there is a long-standing traditional culture of milk consumption in Nigeria multiple interviewees reporting that milk and dairy consumption is integral to Nigerian's diet. "The country has a long tradition of milk culture and has always been and will always be a milk market" (Market Manager Africa). Consumption preferences have regional variations due to cultural and economic factors. The majority of the population consumes milk powder or yoghurt with only middle to high-income, urban dwellers or producers consuming fresh milk daily (Arla Foods, 2015).

Comparing milk consumption patterns across Nigeria, it became clear from the interviews that there is a clear difference in consumption between the North and the South of the country. Northern Nigeria with its tradition of cattle rearing, has a higher consumption of liquid milk and fermented products, their consumption has evolved towards milk powders. Southern Nigeria has limited access to fresh milk, imported products in the form of milk powder and yoghurt products are more commonly consumed. While the urban middle class has greater access to a variety of dairy products. Consumers at the lower end of the economic spectrum opt for products with long shelf life due to limited purchasing power and lack of refrigeration. These regional disparities in dairy consumption indicate the accessibility, cultural and economic factors that influence dairy consumption and preferences in the country.

5.7 New Zealand and Nigeria Trade Relations

Examining New Zealand's trading relationships with Africa, it is clear that New Zealand's footprint is very low when you consider the 25 African states and the level of diplomatic representation. Africa is therefore one part of the world New Zealand is least represented. This reflects the current importance of the continent in terms of New Zealand's trading and political relationships. Instead, New Zealand directs its focus on their immediate neighbours such as the Pacific, Asia and Europe which serve as significant trading markets and the country's traditional trading partners (Ministry for Primary Industries, 2023). Historically this strategy has served New Zealand well, however, there is a need to look further abroad and focus on alternative markets.

New Zealand currently has no diplomatic representation present in West Africa, with the relationship defined through multilateral organisations such as the United Nations and the Commonwealth. The New Zealand Ministry of Foreign Affairs and Trade (NZMFAT) has publicly stated on its website that progress is being made to build new relationships in African markets based on shared interests. Naming Nigeria as one of the four countries in progress.

A pivotal development with the potential to reshape trading dynamics across the African continent is The African Continental Free Trade Agreement (AfCFTA). This is a multilateral free trade agreement that seeks to create a single market across 54 members of the African Union and will create the largest free trade area in the world (World Bank, 2020). If properly implemented it has the potential to streamline trade across Africa, this is attractive for New Zealand as it transforms a single market such as Nigeria of 218 million people into a continent of 1.5 billion potential consumers. New Zealand's strategy for entering a market could therefore take a sideways approach capitalising on established markets such as South Africa or Algeria. However, this is a long term approach considering a key challenge hindering intra-African trade is the lack of infrastructure facilitating trade within the African continent instead established for exports to the coast (Procurement Manager).

6.0 Structure of the Nigerian Dairy Sector

Figure 6 provides the foundational framework for exploring the structure of the Nigerian Dairy sector. The subsequent sections of the report will analyse each segment.

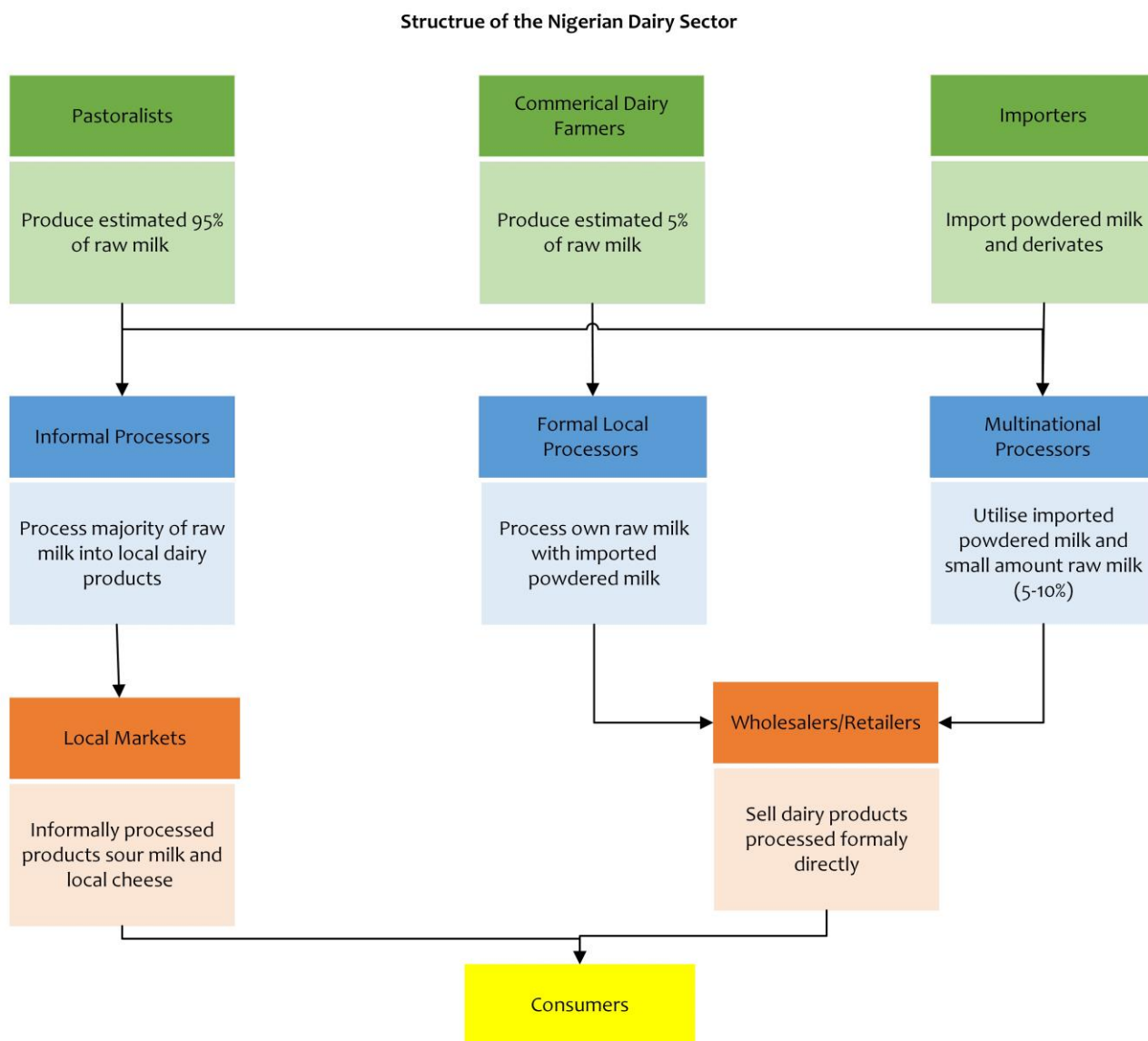


Figure 6. Structure of Nigeria's Dairy Sector (Based on Sahel Consult, 2019).

6.1 Milk Production

Nigeria's national cattle herd in 2020 was estimated by the FAO to be 20 million cattle, this is the fourth largest cattle population in Africa. However, among these, only 2.35 million are dairy producing and are located in the Northern region of Nigeria where there is a greater tradition of cattle-rearing. Indigenous breeds (Bunadji, Rahaji and Sokoto Guadli) account for 99% of the total cattle population. Cultured breeds comprise the remaining 1% and are primarily imported from South Africa and the Netherlands (Friesians, Jerseys and Brown Swiss) these cattle are utilised for commercial farming purposes (PWC, 2017).

Despite its size, the Nigerian dairy sector is unproductive and inefficient. Nigeria annually produces 530,000t of cattle milk figure 7 displays the trend in dairy milk production in Nigeria from 2000 to 2021. Cattle milk production peaked in 2014 at 585,000t and has steadily declined to 2016. From 2017 milk production has remained relatively stable, despite government initiatives to stimulate production. This is due to a lack of proper storage, transport, infrastructure, and distribution conditions (Trader Africa).

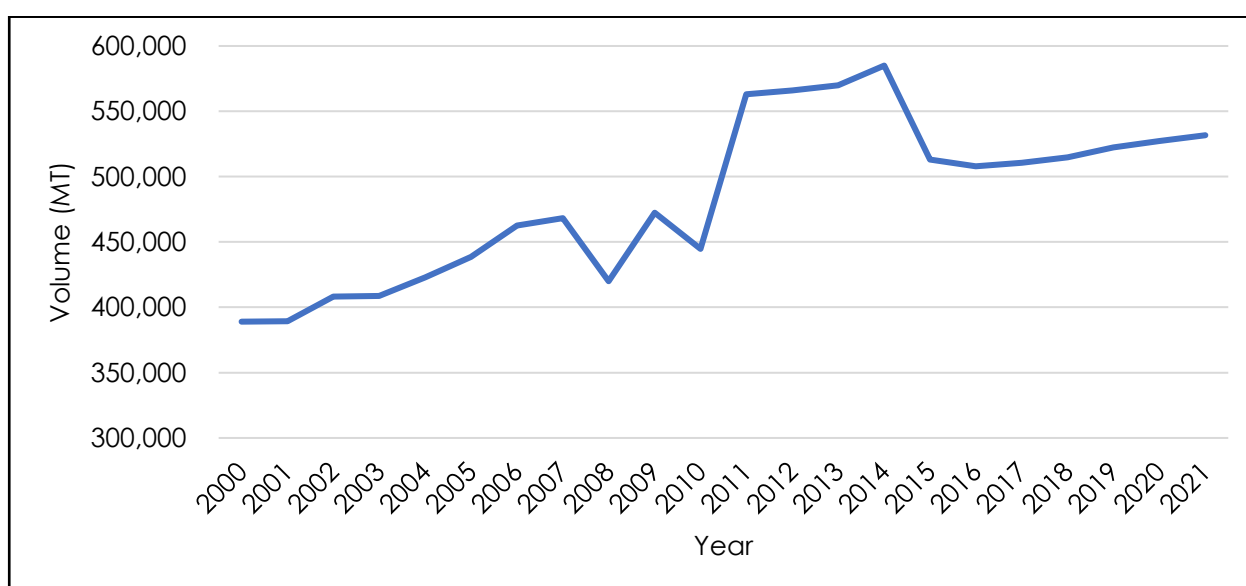


Figure 7. Production of cattle milk in Nigeria 2000 - 2021. Source: FAOSTAT.

Nigeria's aggregate demand for milk and dairy products was estimated to be 1.7 million tonnes, with local production therefore only fulfilling approximately 31% of demand. The deficit is met through imports which represents the greatest share of milk supply.

Recognising this dependency and leveraging its dairy production expertise, New Zealand can provide insights into improving milk yield, animal health and breeding. Rather than solely focusing on exporting dairy products. This exchange of knowledge can help build relationships and differentiate New Zealand from other international trading partners.

6.2 Cattle Production Systems

In Nigeria, the cattle production sectors consist of three main farming systems Pastoral, Agro Pastoral and Commercial.

Pastoral farmers referred to as "Non-Settled Fulani Nomadic" herd their cattle over long distances in search of pasture and water and do not practice any form of farming or cropping. Herd size is typically 100 – 300 head and cattle rely on uncultivated pastures. The nomadic system impacts the nutrition and animal management of the cattle resulting in weight loss and reduced productivity. Pastoralists practice free-range grazing methods. Sahel Consult reported that in 2019 approximately 95% of the raw milk produced in Nigeria was sourced from pastoralists. However, productivity in these systems is significantly lower, at an average of 0.7 litres per day compared to the global

pastoralist average of 6.6 litres per day (PWC, 2017). In pastoral farming systems, women play a central role across the milk production chain through the processing and sale of milk carried out through informal channels (FAO, 2021).

Agro Pastoral farmers referred to as “Settled Fulani” engage in both crop cultivation and livestock rearing. Maintain indigenous cattle, herd sizes range from 20 -100 head, grazing occurs on demarcated rangelands typically recently harvested fields and fallow land owned by the farmers or neighbouring villages. Cows are supplemented with feeds and milked once daily (FAO, 2019).

In contrast, commercial farmers use imported crossbreeds and high-quality feeds to maximise milk production. Unlike pastoralists, they do not graze their cattle instead utilise controlled feeding and management. Herd sizes range from 50 -100 head and productivity is low at 8 litres per day compared to the global commercial dairy of 30 litres per day (Sahel Consult, 2019). Commercial farms produce the remaining 5% of raw milk, produced and are located close to urban centres where there is heightened dairy demand.

The key differences in the farming systems are summarised in Table 2 below.

Table 2: Cattle Farming Systems Nigeria (Source Author).

System	Herd Size	Breed	Grazing	Production Focus	Productivity	Region
Pastoral	100 - 300 head	Indigenous	Uncultivated pastures no supplements	Subsistence oriented	0.5 – 1 litres/day	Northern
Agro Pastoral	20 - 100 head	Indigenous	Demarcated rangelands and supplementary feeds	Self-consumption or commercial	0.7 litres/day	Southern
Commercial	50 – 1000 heads	Local, cultured and cross breeds.	Zero Grazing	Maximum output	8 litres/day	North Central

6.3 Milk Collection Centres

Milk Collection Centres were established in Nigeria to facilitate the collection of raw milk from local pastoralists to promote domestic milk production and reduce the country’s reliance on dairy imports. The centres are managed by dairy cooperatives. They collect the raw milk, analyse the quality and sell it to the dairy processors for processing, providing a source of income and guidance on herd and milk quality for pastoralists (Friesland Campina, 2022). Friesland Campina has established 28 Milk Collection Centres to increase its collection of raw milk from farmers. However, despite these efforts reports from Eukato and PricewaterhouseCoopers suggest that Friesland Campina sourced only 3% of milk inputs from the local markets in 2016 and between 60-80% of raw products required were imported.

6.4 Processing and Distribution Channels

Milk processing and distribution channels in Nigeria are split into formal and informal channels through traditional, local, and commercial processors. With only a small proportion of local production entering formal marketing channels, this is estimated to be as low as 5-10% through public or private collection schemes (PWC, 2017). Consequently, only a small amount of milk reaches the urban market where there is the highest demand.

Traditional processing is run by Fulani women who are responsible for processing, marketing, and distribution of the raw milk. They rely on traditional techniques to produce sour milk, millet, and cheese products. The women transport their products in plastic containers to sell informally at local markets close to their settlements (Sahel Consult, 2019). Due to the short shelf life of products and transportation on foot products can be found in the Northern state of the country.

Local processors operate on a small scale and produce traditional milk products such as "nunu" (sour milk), "kindirmo" (sour yogurt), "manshanu" (local butter), "cukwi" (fulani cheese), and "wara" (yoruba cheese) (PWC, 2017). However, due to limited access to advanced technology and insufficient dairy infrastructure, the quality of these milk products is often low.

In terms of formal players Arla Foods in 2015 reported 80 formal players in the market across importers and manufacturers. The majority established factories in the South-West of Nigeria, due to the high population density and proximity to the country's largest port.

Commercial processors dominate the market as shown in Table 3 below Friesland Campina is a multinational corporation that in 2016 held a 75% market share. These processors operate at a larger scale and use a combination of raw and imported milk to reconstitute imported milk powder into evaporated, condensed, powdered milk and yoghurt. As milk collection is very low a large percentage of milk is imported. Reported that 75% of the milk used for processing is imported with the majority milk powder as it is significantly cheaper than domestic raw milk. Products are sold in markets, with a large part of the economy informal markets commonly known as "wet markets" where sellers open a 25kg bag of milk powder and scoop it into a 1kg bag to sell loose to consumers (Trader Africa).

Products are also distributed via wholesalers and sold via direct channels across the country in urban and rural market outlets. With fresh dairy products such as yoghurt available in limited quantities in outlets that have a chilled supply chain. However, the lack of a chilled distribution network means that the raw milk market is concentrated in local channels. The lack of cold chains over Sub-Sahara Africa remains a huge challenge (Trader Africa).

Table 3. Market share of dairy companies in Nigeria – Other Dairy Retail Value RSP % 2016. Source: Euro Monitor 2016 (PWC, 2017).

Companies	Shares
FrieslandCampina WAMCO Nigeria Plc	74.5%
Nutricima Pz	7.0%
National Food Industries Co Ltd	5.1%
Sosaco Nigeria Ltd	4.8%
CHI Ltd	4.0%
PZ Industries PIC	3.5%
Others	1.0%

6.5 Product Categories

The dairy industry in Nigeria consists of six major product groups these are milk (evaporated and powdered), yoghurt, cheese, ice cream, butter and infant formula sold under 70 local and imported brands (Arla, 2015). Along with local dairy market products and raw milk. The main applications for powdered milk are drinking, yoghurt, coffee and tea. Trader in Africa noted that

"Due to lack of cold chain in Nigeria most households are used to small sachets of powdered milk which they reconstitute, the packaging size ranges from 1kg to 25kg."

6.6 Role of Multinationals

Multinational Corporations have played a significant role in shaping the Nigerian dairy industry they have become increasingly active in the sector bringing expertise, investment, and technology to catalyse growth (Busola et al., 2022). Along with partnering with the government to create programmes to build local capacity and to preserve their market access to the country.

Multinationals have injected significant capital and resources into the Nigerian dairy sector to aid production, processing, and distribution throughout the supply chain. Adigun et al. (2023) demonstrated the importance of cooperatives investments in technological advancements, healthcare management and education to increase profitability in smallholder dairy farms in South-West Nigeria. Multinationals have introduced higher quality and safety standards to enhance the quality of dairy products, benefiting not only local producers but also consumers (Friesland Campina, 2023). The involvement of multinationals has significantly increased production and market access for local farmers. Adigun et al. (2023) concluded dairy cooperatives are important for increasing bargaining power in input delivery and securing better prices for output supply to the market. A study conducted by Busola et al. (2022) explored the role of the Friesland Campina Dairy Development Programme on annual dairy income and daily milk yield. Revealed the positive welfare effects of the programme with participants earning on average 30% more in annual dairy income and producing 10% more milk per cow per day than non-participants.

However, the literature argues that the flood of multinationals' imported dairy products has disrupted local markets. Affecting prices, production, and food security in rural areas, as local dairy farmers struggle to compete with these imports. As they have higher production costs and limited market channels to sell their products. A case study on the Friesland Campina Development Programme highlighted that due to the high prices of local raw milk, companies resorted to utilising imported milk powders as the cost of producing dairy products is significantly cheaper (Ekumankama et al., 2018). Attributing the dominance of dairy multinational companies due to weakness in the governance, regulatory institutions and high cost of doing business in Nigeria. The implication is that local dairy production systems are either non-existent or poorly integrated into the global business value chain (Ekumankama et al., 2018).

Achieving a balance between capitalising on the benefits of multinational involvement and protecting local production systems and the interests of smallholder dairy farmers is therefore an ongoing challenge in Nigeria.

6.7 Government Initiatives and Partnership

The Federal Republic of Nigeria has implemented several initiatives aimed at stimulating the development and productivity of the local dairy sector. The National Livestock Transformation Plan aimed at improving the performance and sustainability of the entire livestock sector and more recently the 2023 National Dairy Policy. This policy is designed to enhance livestock farming to ensure a stable and sustainable dairy sector and drive further investments in the industry (Federal Bank of Nigeria, 2023). Along with the ECOWAS local milk offensive a regional priority programme aimed to double regional fresh milk production by 2030 through the investment in developing local milk value chains and taxation measures.

In addition to these government-led initiatives, partnerships with private firms have played a role in advancing the dairy industry. In 2010 a partnership with Friesland Campina was established to deliver the Dairy Development Programme. This initiative focused on raising raw milk quality and safety standards, increasing farm productivity and helping farmers access markets for their milk (Friesland Campina, 2023). More recently a 2023 a partnership with Arla Foods through a memorandum of understanding to continue providing training and employment opportunities for

nomadic herders to join their cooperative business structure (Arla Foods, 2023). The involvement of private firms is important in the dairy sector development to provide financial investment, expertise, resources and market access.

Sahel Consult launched Advancing Local Dairy Development in Nigeria (ALDNN) in 2020, a five-year programme aimed at empowering smallholder women dairy farmers to enhance their livelihoods, productivity and nutrition. ALDNN took a multi-stakeholder approach to partner with the government, private companies and several dairy processors to enhance the local dairy value chain and support the critical role that women play in Nigerian dairy farming.

The Nigerian government has demonstrated a strong commitment to encouraging the growth of the domestic dairy industry. Evident in the implementation of policies that include import restrictions and tax incentives for local dairy processors. Of significance was the import ban on milk and dairy products in 2020, consequently multinationals would no longer be able to use foreign currency for milk imports. This would affect the profits of importing companies, forcing them to utilize their naira accounts for importing expenses. As a response, several multinational corporations, such as Promasidor and Friesland Campina, are making substantial investments to support domestic milk production. These two companies are part of a group of six companies that the Central Bank granted exemptions from the foreign exchange restrictions (Friesland Campina WAMCO Nigeria, Chi Ltd, TG Arla Dairy Products, Promasidor, Nestle Nigeria, Integrated Dairies Ltd), due to their commitment to developing the domestic sector they maintained access to foreign exchange.

6.8 Dairy Commodity Imports

Figure 8 displays an overview of the proportion of Nigeria's major dairy product categories imported in 2022. As there is no production of milk powder in Nigeria due to the limited and irregular amount of locally produced milk, the dairy sector relies heavily on imported powders to fulfil their demand. In 2022 Nigeria imported a total of 141,000MT of powdered product.

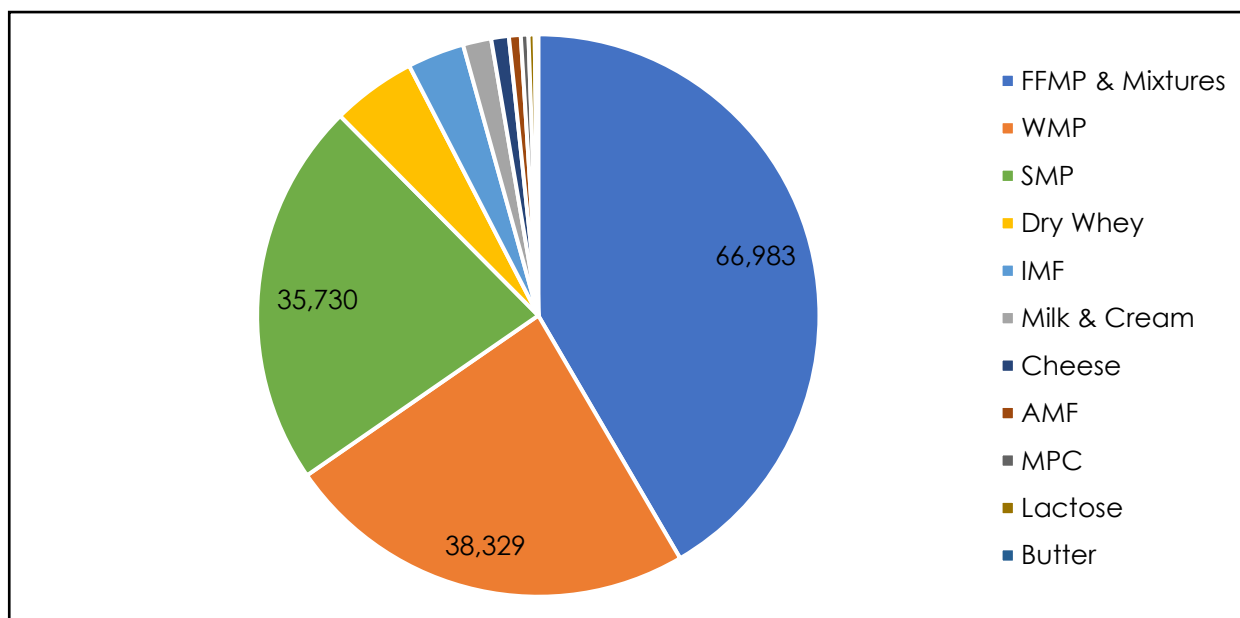


Figure 8: Nigeria Dairy Imports Volume (MT) 2022. Source: Fresh Agenda Data Base.

Figure 9 highlights the trends in powder imports over the past decade. It is evident that Fat Filled Milk Powder (FFMP) and Whole Milk Powder (WMP) are the predominant imports and Skim Milk Powder (SMP) represents a smaller proportion. Comparing historical imports, WMP imports represented the largest share of powdered dairy imports, but over the past decade, WMP imports have been fluctuating and declining. While the demand for FFMP has been steadily growing a major trend seen in the African market.

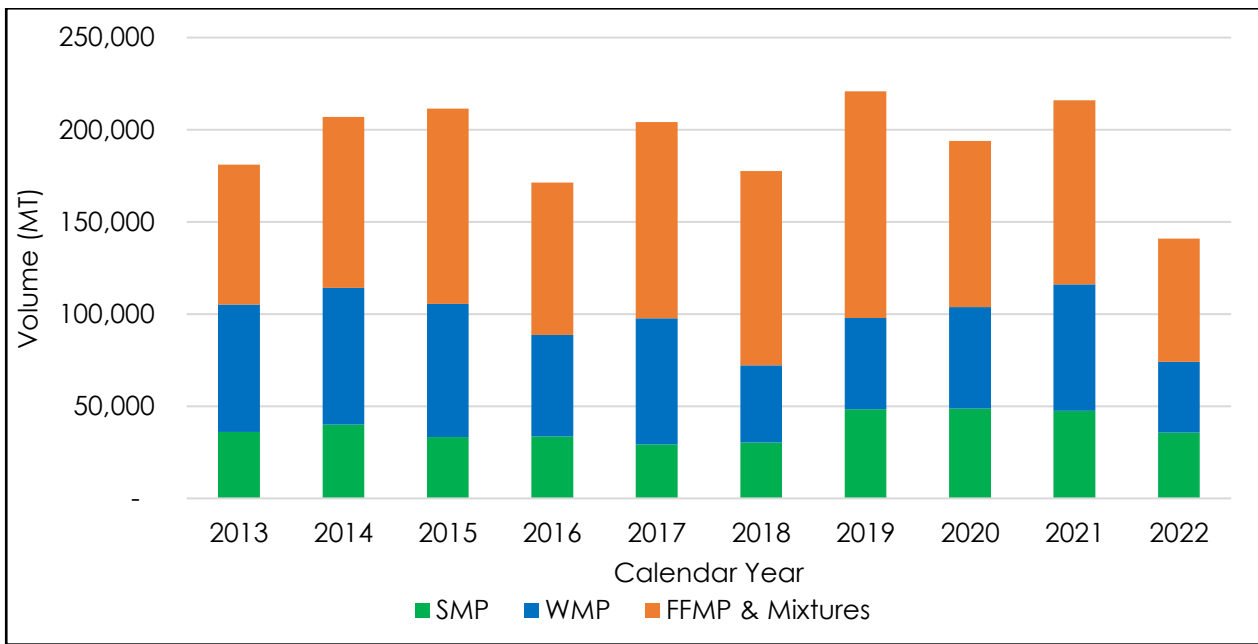


Figure 9: Nigeria Powder Import Volumes, 2013 – 2022. Source: Fresh Agenda Data Base.

The growth of FFMP was initially driven by the lower price differential compared to WMP.

“Processors found a creative way to make milk powder at a cheaper price by replacing full cream milk powder with skimmed milk and vegetable oil” (Market Manager Africa). Resulting in a product that can be offered to consumers as an affordable alternative to WMP. Additionally from a New Zealand dairy processor's perspective, the production of FFMP utilises plant capacity during the off peak periods when milk collections are lower, given the reduced amount of protein and milk required to produce FFMP (Innovation Technologist).

Multiple market managers and traders emphasised a shift in Nigeria's consumer preferences once exposed to FFMP. Consumers developed a preference for the taste of FFMP over WMP, due to the addition of sweeteners targeted to suit the market. Another driver contributing to the popularity of FFMP is the “stability of the product compared to WMP and the greater product behaviour and performance in applications” (Innovation Technologist). Further enhancing its appeal to the Nigerian market.

The dairy import landscape showcases the major trend of a shift from WMP to FFMP and the notable impact of the country's economic situation on import volumes. Examining imports trends over the prior 10 years in Figure 9 there is a notable decline in powder import demand in 2016 attributed to the economic recession and a similar reduction in 2020 due to the impact of Covid-19 in 2020. Both placing pressure on consumer disposable income. In 2022, the reduction in powder imports can be linked to the country's rising inflation.

Displayed in Appendix B is the market share of importing countries in Nigeria. EU-27 countries serve as Nigeria's major source for SMP and FFMP, while New Zealand dominates the market share for WMP. New Zealand's dominance is due to its lower price point of the product supplied through traders compared to the major EU and US suppliers (Trader Africa).

7.0 Analysis of Interviews

Following the thematic analysis process outlined by Braun and Clarke (2006), a mind map was developed to outline the interview insights of the drivers of demand and identify connections (Figure 10).

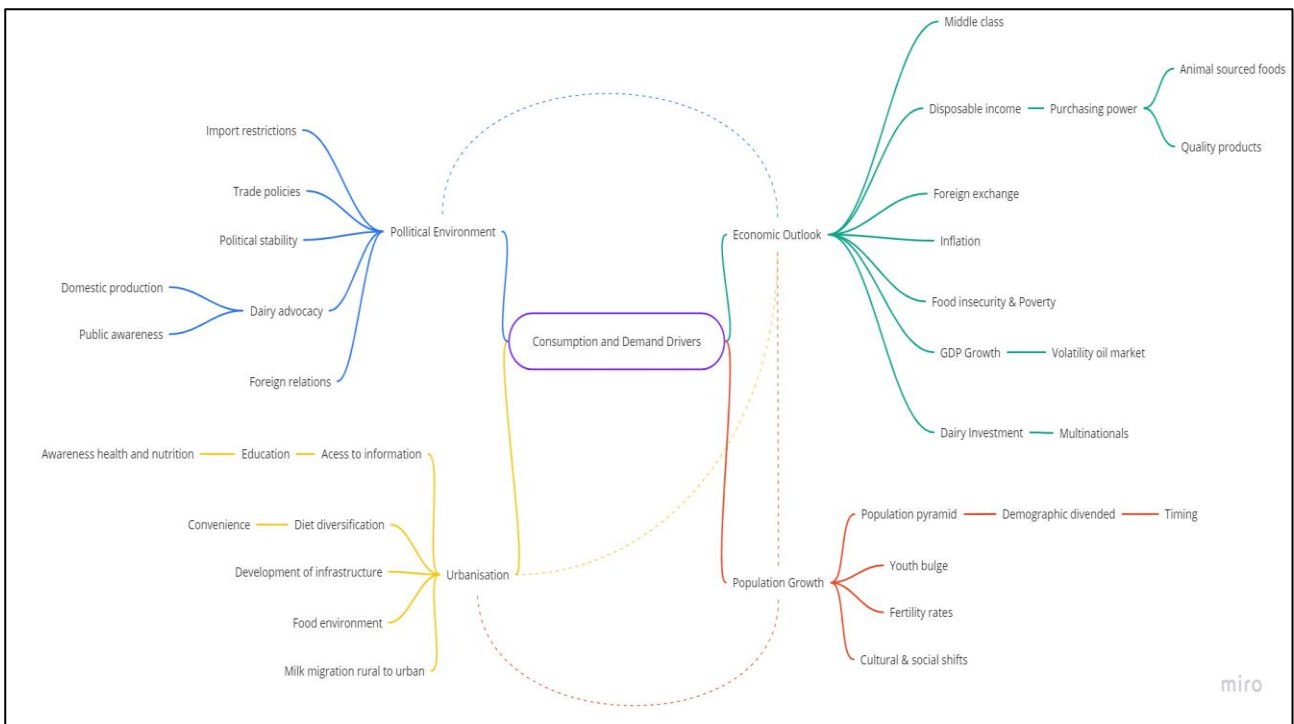


Figure 10: Mind map highlighting consumption and demand drivers in the Nigerian dairy market identified through semi-structured interviews. (Source Author).

7.1 Driver 1 - Population Growth

A key driver that was raised in all interviews was the force of Nigeria's population growth and the demand that this generates.

"Because of the population you need to be there, there are only a few markets where you can send high volumes of dairy powders that will be consumed, in Nigeria it will be consumed" Trader Africa.

This was commonly echoed by market managers and traders in Africa stating that the country will not be able to meet the growing demand with domestic dairy production.

"As long as the population continues to grow the market will grow, but the bigger question is how are they going to fill this market demand?" Trader Africa.

Highlighting the ongoing need for dairy imports.

All interviewees emphasised the influence of Nigeria's growing young population often termed the "youth bulge" as a driver that will significantly impact dairy consumption and demand.

"Nigeria has a clear trend of a growing youthful population creating an extremely young demographic, this creates strong potential for dairy for children and adolescents" Trade and Commercial Advisor Africa.

Combined with the population growth was the impact of the demographic dividend. Several interviewees drew parallels with the demographic dividend observed in Asian countries. Where a shift in the population pyramid contributed to economic growth and subsequently led to a rise in milk consumption.

"Currently Nigeria has way more dependents than working age, once it starts moving up the population pyramid, this shift can cause a massive explosion of economic growth. That is when milk consumption will start to take off and this has been the experience in Asia" Dairy Consultant.

A contrary viewpoint was expressed by three interviewees who emphasised that population growth does not always translate to economic growth.

"A country's population growth does not always result in economic growth." Procurement Manager Africa.

The timing of a demographic shift emerged as a pivotal consideration. Multiple interviewees raised the question of how long would it take for Nigeria to reap the benefits of a demographic dividend. *"How long will it take Nigeria to reach its demographic dividend?" Dairy Consultant.*

7.2 Driver 2 - Economic Environment

The current and future economic outlook was topical, seen as both a driver of demand and an obstacle.

A central driver raised was the global correlation between economic expansion, and increased income leading to higher dairy consumption.

"As economies grow everywhere in every country that there is data for, it will show as incomes rise so does dairy consumption" Dairy Consultant.

However, a notable contradiction arose from the perspectives of New Zealand government officials and consultants. Who emphasised that due to the economic challenges facing Nigeria, the population is shifting back towards more affordable staple items

"At the moment Nigerians are getting poorer therefore they resort back to the most basic food items they can get" Dairy Consultant.

Interestingly this theme contrasts the message conveyed by dairy suppliers and traders in Nigeria who both reported increases in their product volumes.

The growth of the middle class repeatedly emerged as a key driver of economic growth for Nigeria. This growth of significance as the middle class typically holds more disposable income, enabling them to afford dairy daily.

"The growth of the population and the growth of the middle class results in more spendable income, this means that more people will start using dairy in their daily life as it is an appreciated source of protein and fat" Trader Africa.

A consistent theme echoed by all interviewees directly involved in business in Africa was the most significant obstacle to sustainable dairy growth and consumption in Nigeria is the monetary crisis.

"The devaluation of the local currency, the Naria, has led to significant challenges, particularly in securing foreign currency to pay overseas suppliers." Market Manager Africa.

The devaluation was interestingly raised by traders as having a knock-on impact as neighbouring countries with stronger currencies purchased milk powders from Nigeria. This is important as it causes a scarcity of milk powder in Nigeria.

"Nigeria's currency has devalued greatly which means neighbouring countries have the power to purchase what is in Nigeria as their currency is of more value" Trader Africa.

Payment issues were repeatedly identified as a significant roadblock for suppliers and traders, further complicating the market. This is determinantal as the opportunity for growth in the market only exists if importers have a way to pay suppliers.

7.3 Driver 3 - Political Environment

There was a strong focus on the political instability and the high-risk profile of the country consistently recognised as the biggest challenge in engaging with Nigeria.

"The political instability is the biggest challenge and constraint at the moment and causes issues getting payment out of countries, putting stock into market and creates uncertainty where the economy is headed" Market Manager Africa.

This is of significance as political instability directly influences economic stability.

The worrying political climate has led to stakeholders hesitating in committing resources due to concerning indicators and political interference.

"Due to the worrying political signs in the market, it is difficult to commit the required resources" Government official.

From a supplier's perspective, there was a key theme of a clear lack of a regulative framework making it difficult to operate in the market. Regulations in African countries were described as opaque. Thereby impacting business operations and investment decisions.

"Regulations around African countries and Nigeria in particular are opaque compared to other markets" Market Manager Africa.

In a positive light, it was repeatedly raised that the Nigerian government has a strong objective to promote dairy consumption and improve accessibility.

"The Nigerian government strongly supports dairy consumption by promoting the school in milk programmes and in the hospital. To increase public health and improve access to dairy products for the population" Trade and Commercial Advisor Africa.

This commitment has the potential to stimulate demand and awareness of dairy and is echoed by the Nigerian government's commitment to enhance food security with dairy products recognised as a cost-effective source.

"Strong objective of the government is to enhance food security, dairy products are a cheaper source of protein, rich in essential nutrition and a vital solution for this challenge" Trade and Commercial Advisor Africa.

A government official effectively summarised the political risk of the country and its potential as a market. They implied that Nigeria has the potential to become a significant market but the decision to invest hinges on the balance between the risk and costs associated.

7.4 Driver 4 - Urbanisation

The theme of urbanisation was discussed to a lesser extent and raised by three interviewees. One interviewee stated that the rural to urban migration globally is the most significant migration occurring in human history.

A common idea raised by all three was the difference in consumption patterns and consumer preferences due to the population shift from rural to urban areas.

"Traditional dairy consumption in Nigeria was centred around fresh milk and fermented products in rural areas. The milk migration from rural to urban areas has resulted in a shift towards processed dairy items such as cheese and yoghurt." Trade and Commercial Advisor Africa.

This is important to understand as it impacts future demand.

8.0 Discussion

The thematic analysis of both the literature review and semi-structured interviews revealed four overarching themes that impact the growth of animal sourced foods. These were the force of population growth and changing demographics of a country, economic growth, political environment, and urbanisation. These drivers go hand in hand and are key to understanding the global demand for animal sourced foods which has seen significant growth in developing countries over the past three decades and is referred to as the "livestock revolution."

Projections based on data from the FAO and USDA indicate that the livestock revolution is forecasted to decrease in developing countries as the rate of population growth, GDP growth and urbanisation slows compared to the prior four decades. However, an exception to this trend is Africa where the Livestock Revolution is predicted to continue fuelled by four key drivers to boost demand for animal sourced foods across developing countries globally as highlighted in a study by Robinson & Pozzi, 2011.

These four factors were further examined to determine their implications on the demand for dairy products in Nigeria.

8.1 Population Growth and Demographic Shift

Nigeria's population has been rapidly increasing and projected population growth rates are set to continue at an accelerated rate. Over the next 30 years, there will be an additional 200 million people in Nigeria by 2050, putting Nigeria on track to become the third most populous country globally after India and China. As a population grows the consumer base expands leading to increased demand, simply the more people there are the more demand there is (Robinson & Pozzi, 2011).

An important factor in understanding the impact of Nigeria's population growth is the country's population age structure as Yebou et al. (2022) reported this influences both the social and economic development of a nation. For Nigeria, this is the growth of the young population, due to the interrelationships of high fertility and mortality rates which are influenced by education and employment levels. Gender disparities in education and employment are evident in Nigeria, stemming from deeply rooted traditional and cultural norms (Obiageli et al., 2022). These cultural traditions create significant barriers to women's ability to access educational opportunities and join the workforce.

The gender gap in educational attainment is apparent when comparing the average duration of schooling in Nigeria, males receive significantly more years of education than females. Yebou et al. (2022) analysis of Nigeria's pathway to 2050 highlighted that the low female education levels in Nigeria are concerning. Evidence suggests that increased levels of female secondary education lowers fertility, reduce the number of unwanted pregnancies and raises awareness of modern contraception (Yebou et al., 2022). The cultural and social expectations of gender roles in Nigeria are evident in employment rates. In 2022 the labour force participation rate which is the proportion of the population aged 15 years and older that is economically active was only 52.1% among females and 65.5% among males (World Bank, 2022). Addressing the disparities in female education and employment is critical to achieving a demographic transition in Nigeria. As Obiageli et al. (2022) study revealed the more women with secondary and tertiary education, positively correlates with economic growth, welfare improvement and the overall development of Nigeria.

Figure 11 illustrates the past and projected growth in total population to 2050, split into three age brackets. The trend in the graph illustrates the majority of the population growth will come from the 15-64 year age bracket which currently makes up 54% of the population and is expected to increase to 59.7%. This trend is of significance as this is the category that represents the working age and highlights the growing working age population which in turn can be a potential driver of economic growth and demand. By 2050 it is projected that the proportion of the population below 15 years of age will decrease from 43% to 34.4% and the proportion of the elderly population above 65 will double from 3% to 5.8%. The impact of the young population correlates to economic growth due to an increase in the working age population (Yebou et al., 2022).

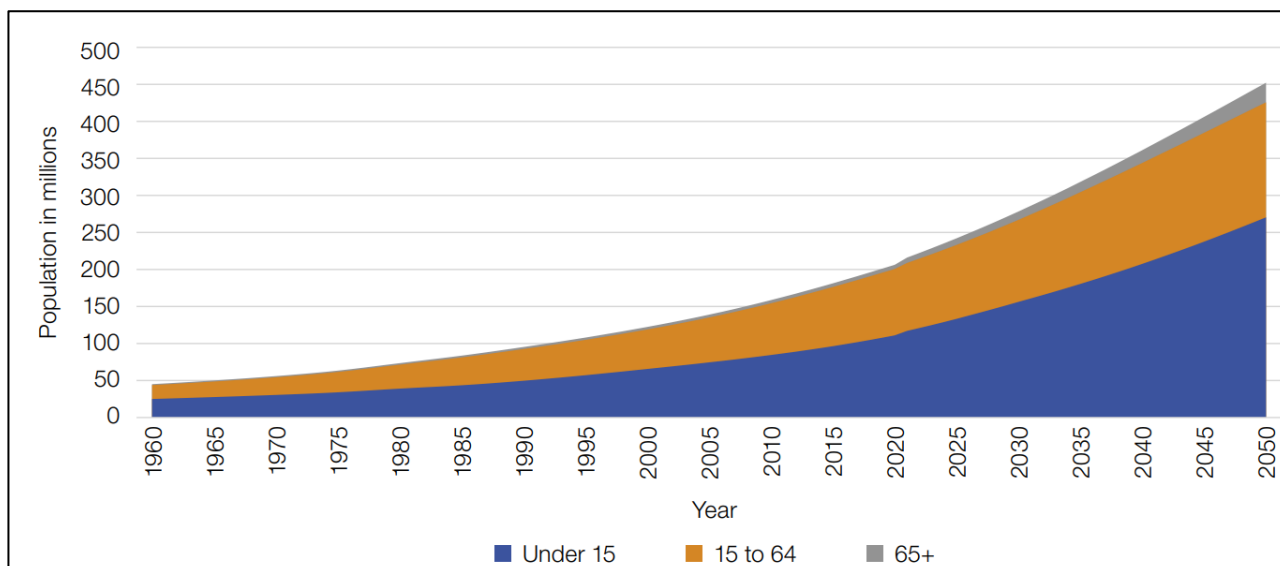


Figure 11: Nigeria's population structure from 1960 to 2050 (Yebou et al., 2022).

This young population researchers term the “youth bulge” is increasingly urban and plugged into digital media, adopting new lifestyles and changing food consumption patterns (Yebou et al., 2022). In addition to boosting the demand for additional and new types of food. In terms of dairy demand the young population will be the future of the dairy market and are a fundamental driver for nutritional needs for dairy consumption (Trade and Commercial Advisor Africa). They represent a significant opportunity for further growth in the dairy market.

The impact of the demographic dividend was constantly raised in the interviews, which refers to the potential economic benefit associated with a country's demographic context (Hasan et al., 2019). This occurs when there is a higher ratio of working age population compared to dependents, which can have significant economic implications for a country. The interviewees drew parallels between the macroeconomic growth that occurred in East Asian countries as they took advantage of their demographic window. This is further supported by studies that showed one third of economic growth gained during the East Asian economic miracle can be attributed to the large workforce and a relatively small number of dependents (Yeboua et al., 2022). However, the literature notes that the growth in the working age population does not automatically translate into economic growth unless the labour supply is met.

In the case of Nigeria, the pivotal question is timing - when will the country reap its demographic dividend? Projections from the United Nations and World Bank indicate that by 2060 the country will reach the demographic dividend. Figure 12 below illustrates Nigeria's population pyramid from 2022 to 2060, there is a large growth in the working age population. Comparing Nigeria's trajectory towards its demographic dividend with lower-middle income countries in Africa and globally, Nigeria lags. The country is set to experience its demographic dividend two decades later than the average lower middle-income Africa and five decades later than the global average (Yeboua et al., 2022).

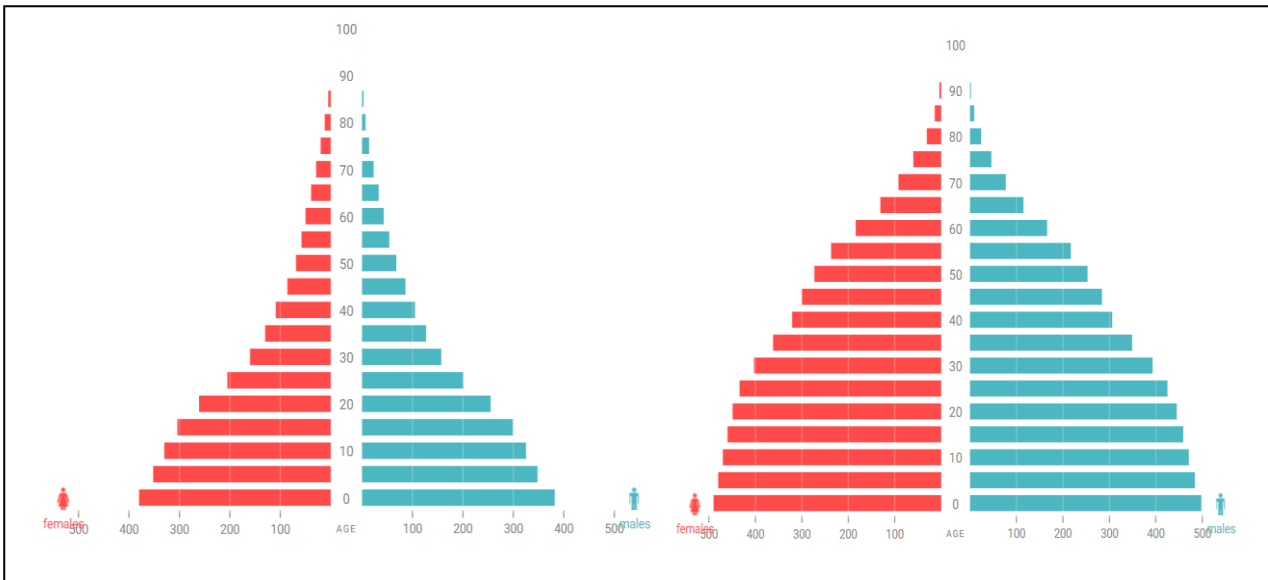


Figure 12: Nigeria's Population Pyramid 2022 to 2060. Source United Nations Population Fund.

However, for Nigeria to unlock its demographic dividend The World Bank Group identified three key factors that must occur. Firstly, fertility decline is essential for achieving a favourable ratio of working age adults to dependents. Secondly prioritising health and education investments to lower fertility rates and empower the workforce through development. Finally, the creation of an economic environment that generates employment opportunities is crucial to prevent an increase in unemployment levels for the large cohort entering the workforce.

The force of Nigeria's population growth alone supports the theme of increased demand and positions Nigeria as an important market, due to the significant volume of food that will be demanded. Combined with Nigeria's unique demographic profile, marked by a growing and youthful population is a potential driver for economic growth. Nigeria is set to be one of the largest countries in the world and, a major player in the global food system and therefore the potential to be a vitally important market.

8.2 Economic Outlook

A country's demand for food products is stimulated by economic growth. The International Monetary Fund (IMF) projects Nigeria's GDP growth to slow to 3.1% and remain stable from 2024 to 2028. Comparing the forecast against the global average in Figure 13 below Nigeria's GDP growth is relatively aligned. In contrast to Sub-Sahara Africa Nigeria falls below the regional average, however, in comparison to East Asian countries, Nigeria's GDP growth is forecasted to outperform them from 2027 onwards. The East Asian economic outlook is forecast to slow.

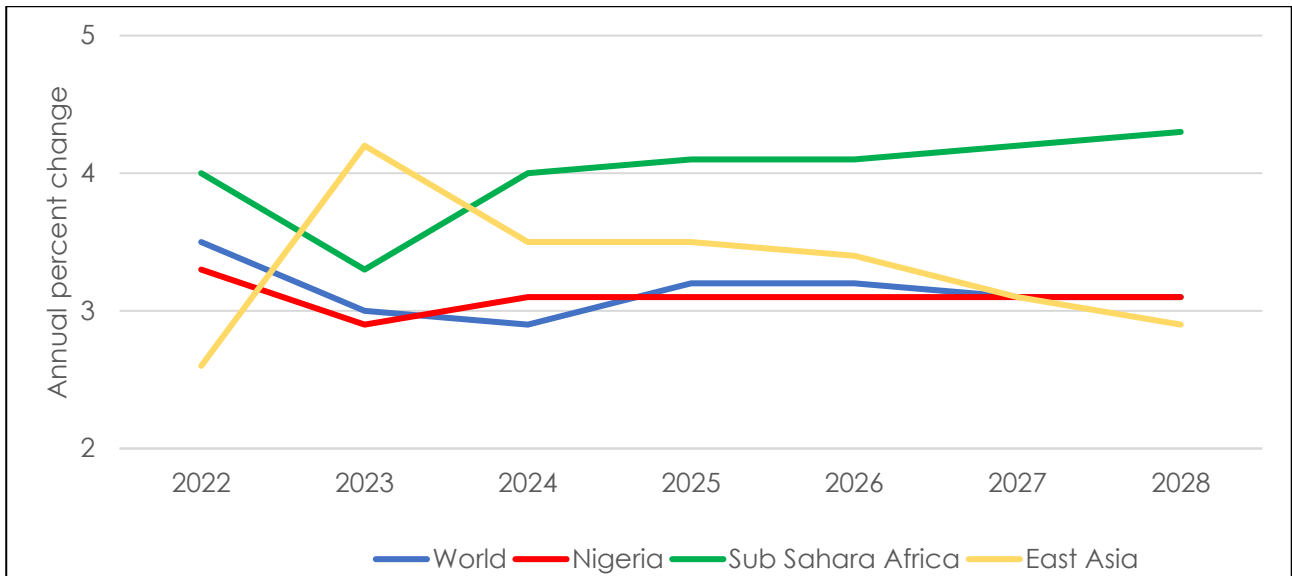


Figure 13: Real GDP Growth from 2022 and forecast to 2028 for selected countries. Source International Monetary Fund World Data Sets.

GDP per capita income is a measure of a household's disposable income and is determined by dividing the country's gross domestic product, adjusted for inflation, by the total population. The FAO (2023) reports the relationship between per capita income and demand for agricultural commodities as an indicator of consumer purchasing power. This affects an individual's ability to afford and consume food products, with the general trend being a higher per capita income implies greater disposable household income (FAO, 2023).

Analysing the trends in Nigeria's GDP per capita income, GDP per capita peaked in 2015 (US\$2,679) and steadily declined over the next five years as population growth outpaced the country's economic growth. However, from 2021 onwards GDP per capita began increasing and in 2022 recorded US\$2,449. Looking ahead it is evident in Figure 14 that Nigeria's GDP per capita is forecast to remain below its 2015 peak until 2029. This is impacted by the country's strong population growth, outweighing economic growth, and therefore limiting per capita income (Yebou, et al., 2022). On the current path, Nigeria's GDP per capita income is projected to increase from US\$2,330 in 2022 to US\$10,684 by 2050, a substantial increase from 2029 onwards.

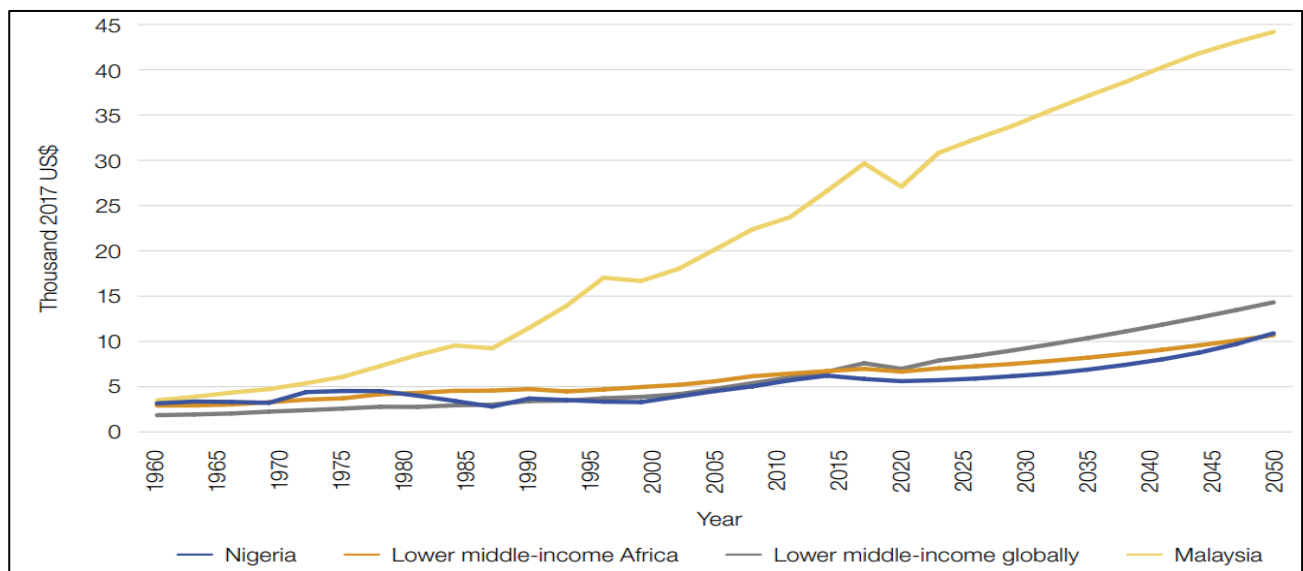


Figure 14: Trends in GDP per capita comparing Nigeria, lower middle-income Africa and globally. Source Historical data from IMF, forecast from IFS (Yebou, et al., 2022).

Comparing Nigeria's projected GDP per capita growth to lower middle-income countries in Africa and lower middle-income countries globally, Nigeria's progress is significant. By 2050 Nigeria's GDP per capita will exceed lower middle-income countries in Africa. This indicates that Nigeria's economic growth is expected to be greater than many of its African neighbours, within the same income category, highlighting the nation's potential. However, compared to the global lower middle-income countries Nigeria's projected income remains below. This supports the second driver of agricultural demand highlighting Nigeria's economic potential.

The future trend of rising GDP per capita income in Nigeria correlates with the increase in purchasing power enabling the Nigerian population to afford higher quality and more premium food items. In 2020 Nigeria's lower, middle and upper middle classes represented the highest purchasing and consumption power in Africa (BTI, 2022). Crucial for future demand as the FAO (2023) reported dairy products in West Africa are the most expensive food group. According to the FAO African nations face some of the highest food prices compared to other regions at similar levels of development. Households in West Africa spend on average 50% of their income on food making them particularly sensitive to food prices and inflation. A key dairy trend in Africa has been the growth in demand for FFMP the driver of this growth was purely affordability, with FFMP significantly cheaper than regular milk powder (Market Manager Africa).

Staatz & Hollinger's (2016) research paper on the key drivers of change and their implications on food demand in West Africa noted an increasing demand for higher quality, safe and convenient food products. Attributed to a higher disposable income. However, a common complaint among their Nigerian consumer focus groups was that nutritious food is too expensive they concluded price will remain the driver of choice in West Africa. Despite per capita income growth the price of food therefore remains a key barrier to demand.

As West African economies have grown there has been an emergence of the middle class, in Nigeria the middle class is found in urban areas and is a significant factor shaping the prosperity of the nation. The African Development Bank (AFDB) has defined the middle class as the share of the population that can afford to spend between \$2 and \$20 per day, however, the literature argues it cannot be defined in dollar terms alone. Instead, the FAO and AFDB define the segment of the population as characterised by socioeconomic factors, high disposable income, employment, education, professional affiliation, and asset ownership. Of importance, they note the middle class places a stronger focus on allocating more resources to nutrition, children's schooling and spend a higher share of income on food (AFDB & FAO, 2015).

Nigeria's middle class has been expanding. Comparing Nigeria globally, Nigeria is the most populous nation in terms of middle class people in 2020 with 22.9 million people ahead of South Africa and Egypt (Metiki, 2022). Metiki, 2022 research measuring the urban middle class in Africa concluded that developing nations with the highest proportion of middle class are more likely to have a higher degree of development. Metiki (2022) demonstrated a country's prosperity to be positively correlated to its middle class. Nigeria's growing middle class is therefore significant as it indicates economic development and a target consumer base.

As income per capita and the middle class population rise, this translates into increased demand for higher value added products. The middle class in Nigeria is the driving force behind the future trajectory of the country's economy as they bring financial stability, growth and prosperity to Nigeria and are shaping the dynamics of food demand.

8.3 Political Risks

Nigeria has long been considered an attractive market; however, the political risks have historically overshadowed the potential rewards. All interviewees identified the country's political situation as the most significant constraint affecting business. Nigeria's political landscape as described in Yebou et al. (2022) report on Nigeria's economic development trajectory highlighted several

critical issues that hinder the country's potential these include policy inconsistency, security, corruption and mismanagement.

One contributing factor is Nigeria still faces unresolved security issues, these include the Boko Haram insurgency, an extremist Islamic group in the northeast, and farmer-herder clashes which undermined socio-economic development (Page, 2018). These security issues reduce the country's ability to attract foreign investments and contribute to a heightened risk profile.

Corruption is another critical challenge, the 2022 Transparency Corruption Index which ranks the perceived level of public sector corruption ranked Nigeria 150 out of 180 countries. With a score of 24 out of 100 well below the global average of 43 (Transparency International, 2022). Nigeria's score remained the same as 2021 highlighting that the country has made no progress in tackling corruption. The political stability and corruption index significantly influence foreign direct investment and the economic outlook of a country as they attract foreign capital. This impacts Nigeria's potential as foreign investors are hesitant to invest in a country where corruption prevails. As stated by a government official Nigeria is a very complicated market, difficult to operate in, corruption is high and ease of business low. This is why lots of investors can't justify the amount of risk involved. The ability to attract foreign investment depends on the government's commitment to fight corruption, and despite Nigeria's corruption index trending downwards over the past decade it remains high.

Nigeria is poised to become an emerging global power as Africa's largest economy, major oil and gas producer and booming population. This reflects China's strategic interest and investment. China's growing investment in Nigeria is driven by its geopolitical strategic importance as an export destination, source of oil outside the Middle East, and rapidly growing consumer population (Page, 2018). However, concerns raised in Page's (2018) report on China's commercial interests in Nigeria concluded that the prevalence of bribery practices between the nations compromises the integrity and effectiveness of the Nigerian government and heightens the risk profile of trading with the country. For New Zealand the deepening relationship between two geopolitical powers has important implications, it impacts the trading interests, ethical considerations, and strategies in the African market.

The political instability, corruption, and security challenges the country is facing have resulted in a high-risk profile for Nigeria. This high-risk perception impacts its market potential and economic growth. As mentioned by one trader "Nigeria may be the richest country in Africa on paper, but it is managed poorly." Furthermore, Salisu et al. (2023) examined the relationship between Nigeria's currency and stock markets and found a positive relationship between rising geopolitical tensions and the volatility of the currency of the stock market. Concluding that curbing geopolitical tensions in Nigeria is crucial for financial market stability.

For Nigeria to become a more stable trade partner, effective governance is crucial in addressing Nigeria's corruption, security and shaping the country's economic prospects. Nigeria's market potential hinges on tipping the balance between political risk and reward. At some stage the value of the Nigerian market will outweigh the associated risks and costs involved or the risks and costs involved will decrease to the extent that the market becomes more attractive.

8.4 Rate of Urbanisation

Urbanisation can be simply defined as a population shift from rural to urban areas driven by urban population growth, urban expansion, or migration from rural to urban areas (FAO, 2023). In Africa urbanisation is transforming the landscape, for the first time in history more Africans are expected to live in cities than in rural areas.

The urbanisation rate in Nigeria is one of the fastest in the world, and compared to other African countries Nigeria has experienced a rapid rate of urbanisation. Figure 15 highlights the percentage of the Nigerian population living in an urban setting has increased by 20% from 2000 (35%) to 2022 (54%) totalling 116 million people (Sakketa, 2023). The number of Nigerians living in urban areas is projected to reach 68% (226 million) by 2050. This demographic shift is driven by urban natural

population growth as a result of the country's high fertility rates and declining mortality rates. Figure 15 clearly shows the trend that Nigeria has experienced the greatest degree of change compared to other African countries.

Urbanisation has been identified as a megatrend that is reshaping agrifood systems globally through the production, processing, trade and consumption of food. Urbanisation has been widely examined to show a direct link to increased demand for livestock products (Sophie et al., 2021). Two important changes that urbanisation results in is rising food demand and changing food preferences.

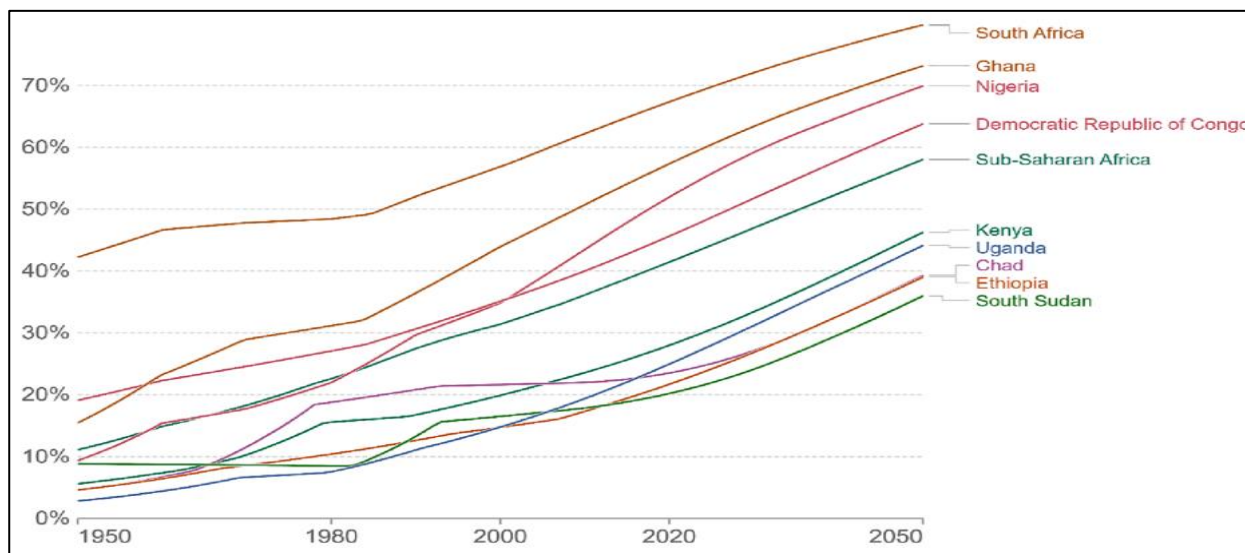


Figure 15: Trends in urbanisation for selected Sub-Saharan African countries 1950-2050 (Sakketa, 2023).

Urbanisation results in an increase in the overall food demand and diversification of diet. This shift is due to several factors including a shift in the food environment with a greater array of food products available, and more diverse places to buy and consume food (Minot 2014; Pingali et al., 2019). Sakketa's 2023 review of urbanisation in Sub-Sahara Africa concluded that urban consumers shifted away from staple grains opting to consume more animal and dairy products, processed and imported foods in their diet, and a greater proportion of food outside of their homes. As Nigeria's population has urbanised they have become increasingly reliant on markets as their main food environment. Supporting research conducted specifically in West Africa demonstrated that a higher degree of urbanisation corresponded to a more diverse diet and an increase in the consumption of animal-sourced foods (Bruin et al., 2020).

Literature suggests that the rising income of urbanities is another crucial factor underlying a shift towards more animal products, due to a higher degree of purchasing power. Traditionally, urbanisation goes hand in hand with economic growth as the impact of urbanisation can lead to poverty reduction, improved incomes and overall economic growth (Sakketa, 2023). The relationship between urbanisation and economic development varies across regions. In the case of Sub-Sahara Africa, the relationship is more complex. A growing number of studies contradict this relationship stating there is no linear relationship between urbanisation and economic growth in the region (Sakketa, 2023, Brunin et al., 2020).

An urban population's greater access to information and increased levels of education have created dietary awareness around food products. Staats & Hollinger, 2016 reported West Africa's population has increased concern about the link between diet and health. Resulting in increased demand for healthier food products. This was raised by multiple interviewees that the second biggest trend observed in Nigeria is the increasing demand for protein. This growing awareness is

driving demand for nutritious products as the population becomes increasingly more educated on the nutritional value of milk and dairy products. Choosing to consume dairy as a source of protein and nutrients.

Examining the projections by Latino et al. (2020), for the consumption of dairy products to 2050 in Africa, between 2015 and 2050 the consumption of milk in African urban areas will more than double (2.6 times). To account for 68% of the total milk consumption in the continent. As displayed in Figure 16 below the increase in urban consumption is led by Sub-Sahara Africa where consumption is projected to triple. This growth is fuelled by a growing urban population as per capita consumption is expected to marginally decrease in cities (Latino et al., 2020).

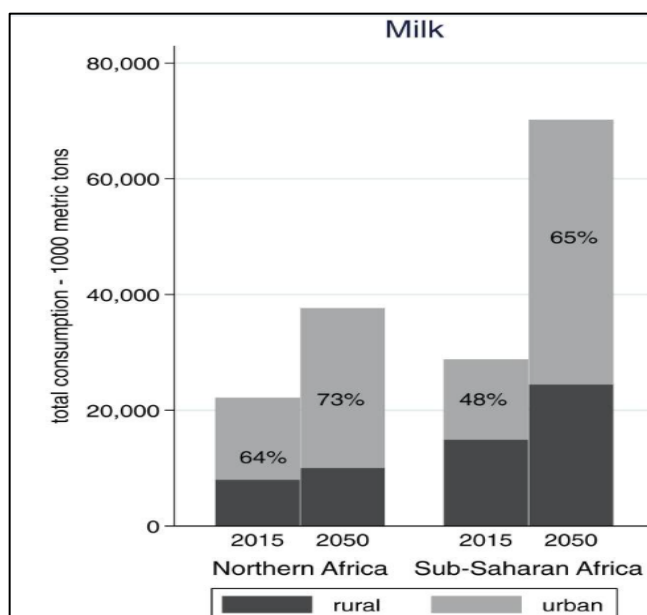


Figure 16. Rural vs Urban Consumption of milk in Africa 2015 – 2050. Source: Latino et al., 2020.

The trajectory of milk demand growth in Africa is projected to be significant, with African urban dwellers anticipated to demand an additional 47 million metric tons of milk by 2050 (Latino et al., 2020). Nigeria will be one of the countries leading the way the country's rapid rate of urbanisation will drive a heightened demand for dairy products. Supporting the considerable influence of urbanisation on the demand for dairy and consumption changes. The rising and changing demand for food from the urban population creates promising opportunities for dairy production, processing and distribution. Allowing for the potential development of value-added dairy products and the expansion of distribution networks.

9.0 Conclusion

As Nigeria's population continues to grow, urbanise, and experience economic recovery, the demand for dairy products is projected to substantially increase. This increased demand is driven by an emerging middle class, youthful and urban demographic. From the situational analysis, it is evident that Nigeria's projected rapid growth will see the country's domestic dairy sector further challenged to meet the rising demand for dairy products. New Zealand dairy exports not only provide a solution to bridge the gap but also aid in addressing the nation's food insecurity challenges. However, the political instability creates a high risk profile for the country and hinders investments and economic recovery. Nigeria's corrupt political landscape remains a key obstacle to unlocking the country's full market potential.

While Nigeria may not be New Zealand's current primary focus for a future dairy trading partner, it holds the potential to become a valuable opportunity in the future. Amidst global market volatility

and geopolitical uncertainties, New Zealand's commitment to forward-thinking strategies and market diversification is paramount. This is crucial for an exporting nation that is deeply reliant on international trade, to protect the country's interest and enhance its ability to adapt and navigate market volatility.

Therefore, it is vital to continue fostering a relationship with Nigeria to secure future opportunities.

10.0 Recommendations and Next Steps

1. Establish relationships:

The Ministry of Foreign Affairs and Trade to proactively build relationships in Nigeria and West Africa. Through establishing representation across the country to prepare for future growth opportunities.

2. Cultivate market familiarisation:

New Zealand Trade and Enterprise to invest in building expertise and knowledge to gain a greater understanding of the Nigerian market. Enabling New Zealand to make informed decisions.

3. Prioritise Nigeria as a long term future trading partner:

The Ministry of Foreign Affairs and Trade to develop a strategic plan to build engagement with Nigeria by dedicating resources and diplomatic presence.

4. Facilitate exchange and capacity building:

Industry bodies to facilitate the exchange of knowledge and expertise. By bringing Nigerian dairy stakeholders to New Zealand to familiarise themselves with New Zealand dairy processes, quality standards and market dynamics.

5. Diversify commodity offerings:

Encourage New Zealand dairy processors to consider expanding their product range to include FFMP to target a broader and growing consumer base.

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12.0 Appendix

Appendix A: Interview Questions

Background:

- Can you provide a brief history of your work experience in the African continent?

Dairy Applications:

- What are the main applications for dairy in Nigeria?
- What part of the socioeconomic and demographic ladder does Nigeria's dairy consumption fit?

Market Demand and Trends:

- What trends have you observed in terms of the demand for dairy products in Nigeria and other Sub-Saharan countries you operate in?
- Do you see dairy consumption in Nigeria following trends observed in other developing countries?
- Are there specific dairy products that have shown significant growth in demand?
- What factors do you attribute to this growth?

Supply Chain:

- How has the dairy supply chain evolved to accommodate the growing demand for dairy products in Nigeria/Sub Sahara region?

Retail:

- What is the retail outlook for Nigeria?
- How has the retail environment changed?
- Who controls the retail sector?

Research and Development:

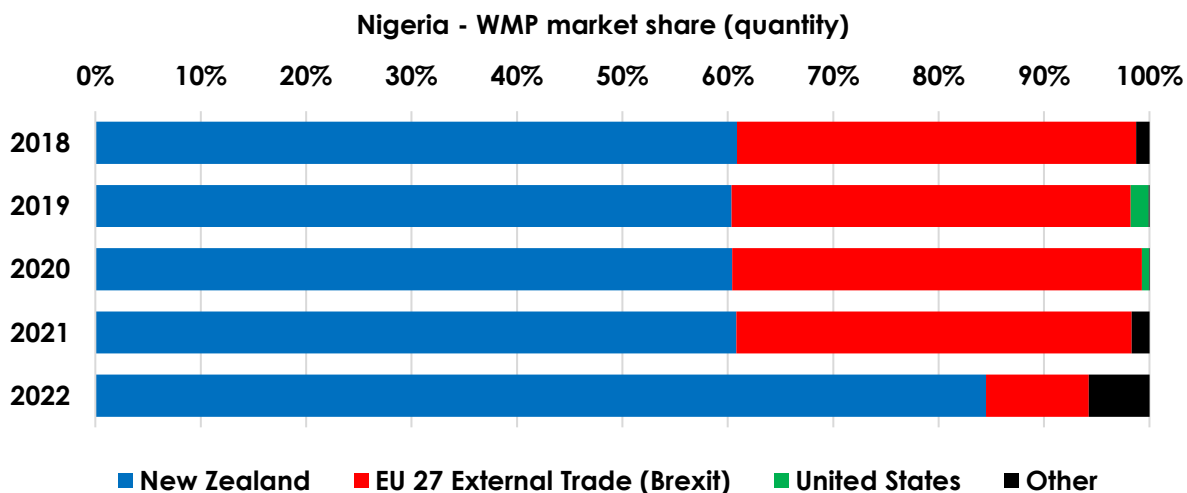
- Are there opportunities to expand from traditional dairy products into value add?
- If so what is the reason behind this potential expansion?

Challenges and Opportunities:

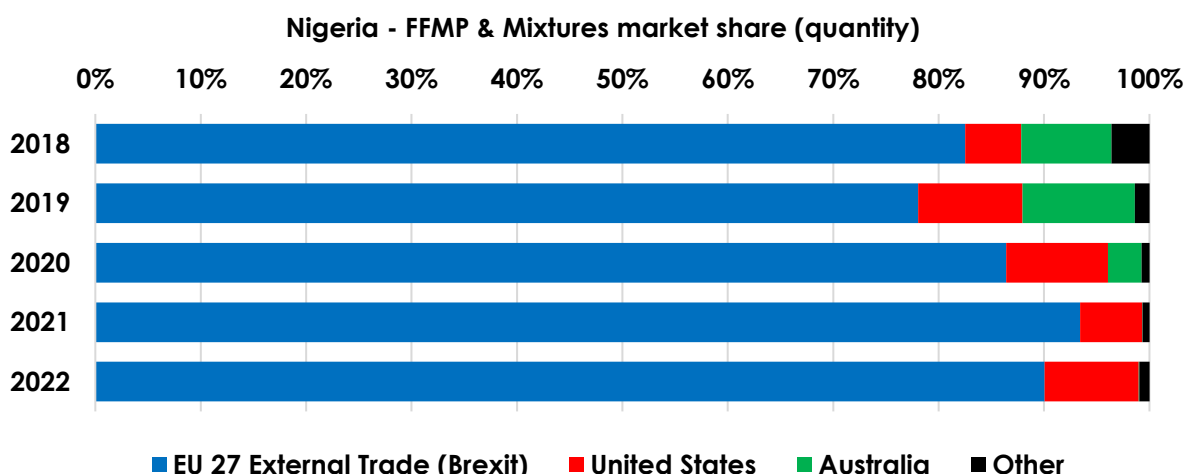
- What are the sourcing and procurement challenges unique to the dairy sector in Nigeria?
- What do you see as the main challenges facing dairy processors/distributors in Nigeria?
- What are the main government regulations that impact your activities in the sector?
- What opportunities do you see for growth in the market?

Appendix B: Exporting Countries Powder Market Share in Nigeria. Source Fresh Agenda.

WMP



FFMP



SMP

