Dairy Market Assessment: Kenya

Working document

August 2021

This programme is funded by UK aid from the UK Government; however, the views expressed do not necessarily reflect the UK government's official policies

Contents of this document

Sections		Description
1. East African regional dairy trade flows		Review of **trade flows in the region** to identify key exporter and importer countries High level look at **dairy imports of the Middle East**
2. Kenyan dairy market demand	**a. Current consumption**	Historical analysis of the **domestic market** and overview of the **demand across product categories** Overview of **current and emerging trends in formal consumption** across product categories
	b. Future expected consumption	Analysis of the **domestic market growth over the next 5 years** and overview of the **demand curve across product categories**
3. Kenyan dairy value chain and competitive landscape		Review of the **dairy market structure** and **assessment of the value chain**, including key stakeholders and the barriers they are facing Review of **existing players, market shares, competitive advantages and product portfolios**
4. Potential opportunities		Analysis of **current and future value pools per product** Assessment of **branding, product and segment opportunities in the dairy value chain**

This document does not include a review of the potential response of stakeholders to a new entrant in the market

Executive summary – dairy market in Kenya (1/3)

1. East African regional dairy trade flows

The majority of dairy trade by East African (EA)[1] countries is intra-regional, which is 8-9x bigger than trade with the rest of the world based on UN Comtrade data. Total dairy imports represent only a small amount of local consumption (e.g. <5% of total local consumption for Kenya)

- **EA region imports mostly from Europe** (73% of imports), mainly **powder milk**, while **91% of EA exports are directed to the rest of Africa**, originating mostly from Uganda. There is currently **limited trade with the Middle East**, even though **ME has a large dairy trade deficit**
- Within EA, **Kenya is the biggest importer of dairy** (95% of total intra-East Africa imports), while **Uganda is the biggest exporter** (~92%); this indicates the potential opportunity for some **import substitution in Kenya but also potential exports** of Kenyan processed dairy

2a. Kenyan dairy market current consumption

Kenya has the highest dairy consumption per capita (~110 kg/capita/annum) in EA, with a dairy market of 5.2 Mn tons based on IFCN and experts

- The **country produces 95% of all its dairy** (4.9 Mn tons according to KDB[2]) domestically and **imports** the rest, historically mainly **from Uganda**
- **84-86% of the dairy market is informal,** while only **14-16% is formal** (processed dairy sold in establishments with a legal authorization) based on KDB's measured annual processor milk intake
  - **~84%** of dairy consumed in the informal sector is **fresh milk** and **~16% is artisanal processing**, mainly into mala (sour milk) based on KIPPRA
  - **UHT and fresh milk** are the most consumed products in **the formal market** (**42% and 30%** respectively, the former partially driven by the fact that **only 9% of the population has a fridge**) followed by yoghurt (12%), milk powder (9%), butter (3%) and cheese and other (4%) according to experts
- 6 trends seem to shape the Kenyan dairy market: (i) according to experts, **children and youth consume more dairy than adults** as it is traditionally part of their diet and was supported by historical school milk programs; (ii) **consumers are price sensitive** (80% of population with an income <5k USD/year) but **quality is also important**, (iii) **milk stations** dominate sales but consumers are **increasingly concerned about product safety** according to Euromonitor, (iv) **health awareness is growing** and impacts the type of dairy consumed (e.g. interest in low fat dairy, according to experts), (v) consumers are **worried about preservatives and chemicals** (e.g. TetraPak had to launch awareness campaigns explaining that long-life milk is preservative-free), (vi) **sour milk (mala) remains a staple food** (processors even introduce sweetened varieties for children)

2b. Future expected consumption

The share of the formal sector in the overall dairy market has been growing, and is expected to continue in the next 5 years

- There has been limited growth in the overall Kenya dairy market **since 2016** (0-1% based on IFCN), due to the 2017 **drought**; however, consumption of processed dairy in the **formal market grew steadily at 4% p.a. based on KDB**
- The **formal market is expected to further grow at 5-6% p.a. according to experts** influenced by a government push to formalize the market and some cooperatives aiming to process more milk themselves (to increase their farmers' incomes); **the overall market** is projected to **grow by 3-4% p.a.** in line with population and urbanization trends
- **Yoghurt and milk (UHT and fresh) are expected to remain the most popular processed dairy products** and to see the highest growth rates (~17%, ~6.5%, ~2.5% p.a. respectively) according to experts, milk powder is expected to grow slower as its taste is not appreciated by consumers (1-2% p.a.), while cheese and butter are expected to see minimal growth since they are expensive products and not widely consumed (0-2% p.a. on average)

1. Kenya, Uganda, Rwanda, Tanzania
2. Kenya Dairy Board

Source: UN Comtrade, IFCN, Kenya Dairy Board, KNBS census data, expert interviews

Executive summary – dairy market in Kenya (2/3)

3. Kenyan dairy value chain and competitive landscape

While the local dairy farming industry is fragmented with ~1.8 Mn dairy farmers and 600+ dairy cooperatives and unions (KIPPRA and KNBS), the dairy processing industry is highly concentrated as 4 large dairy processors have ~80% of the market based on Euromonitor

- Kenyan dairy farmers are mainly **concentrated in the Western Region, Rift Valley and Central Highlands**, in the highest agricultural productivity zones
  - The majority of Kenyan **cows are fed with maize**; opportunities for **feed import substitution could exist for maize, soybean and rapeseed** (~270 tons imported/year based on UN Comtrade)
- Small holder farmers face **challenges of stagnating income and production inefficiencies according to IFCN and experts:**
  - **Farmers' income have been stagnating since 2014** (~30-33 Ksh/L based on data from IFCN) despite being well unionized and a **6% p.a. increase in consumer price.** To protect the farmers, the Government set a **minimum farmgate milk prices of 33 KSh/L** in 2021
  - **Productivity of cows is low** (**~5-9L/cow/day** on average depending on the location and the grazing type) partly due to **low qualities of feed and low availability of feed caused by weather seasonality,** uneven and more and more unpredictable rainfall based on KDB and experts
  - **Insufficient cold chain and other infrastructure** hinder the safe delivery of milk from the farmers (>7% wastage for the farmer during rainy season according to experts). **Low quality storage of maize** can also result in **high levels of aflatoxin** in Kenyan dairy (+50% of sampled products exceeded EU aflatoxin authorized levels, according to ILRI research)
- **80% of the milk processed (~690k tons/year as per KDB) is done by 4 processors:** Brookside, NKCC[1], Githunguri Dairy and Sameer
  - The processors seem to have **low utilization of their plants (40-50% according to KDB – even though it is unclear how much of the idle capacity is functional, up to current quality standards or in the right location)** and other **production inefficiencies** (particularly wastage during processing, according to experts), that could partly explain the **growth of consumer prices** (while farmers' milk price has been stagnating)
  - Nevertheless, a number of **cooperatives and even Counties plan to set up their own processing plants highlighted by experts**
- While the market is concentrated, the **processors introduced multiple brands to serve different customer segments** in each product category (e.g. Brookside has 5+ brands like Molo, Tuzo, Ilara; NKCC has 3 and Sameer has 2); **Brookside brands are the most popular and perceived as the highest quality and most expensive** dairy brands based on a consumer survey performed
- The **survey shows that consumers are prepared to purchase more high quality products if they came at the right price point** (e.g. ~57% of consumers would like to buy more fresh milk if it were cheaper)
  - Current dairy retail prices are ~100 Ksh/L for fresh milk and UHT, ~300 Ksh/L for yoghurt and ~1,500 KSh/L for powder milk; **low cost products' market is very competitive** (only 7-17% spread in prices), however price spread can be wide for certain products (e.g. ~110% in yoghurt)
  - **Processor margins differ based on the product** (e.g. typically ~20% of the processor selling price for fresh milk, 18% for UHT, ~30% for yoghurt, ~50% for milk powder) while **retailer margins and costs are estimated to be ~20-25%** of the consumer price across products

1. New Kenya Cooperative Creameries

Source: UN Comtrade, IFCN, Kenya Dairy Board, KNBS, ILRI, Euromonitor, KIPPRA, expert interviews, Sagaci consumer survey

Executive summary – dairy market in Kenya (3/3)

4. Potential opportunities

Taking all this into consideration, a high quality/good value brand could be developed focusing on specific products

- Brand could be developed around **better value products with high quality and safety;** safety (e.g. aflatoxin levels) is becoming an increasing concern for consumers and positioning the brand as the proven safe dairy provider could mean a competitive advantage
- In addition, 3 product/segment opportunities exist:
  - (i) **Yoghurt** is expected to be the **fastest growing dairy product segment** (~15-17% p.a.) as it is increasingly perceived as a **healthy snack and popular amongst children and the youth**. It could also be **exported to the Middle East if current Kenyan processing prices can be reduced**
  - (ii) **UHT and fresh milk** are expected to **grow at 6-7% p.a. and 2-3%** respectively as consumers like the taste of fresh milk and would like to buy more (57% of the consumers in the survey want to buy more while 16% want to buy more UHT). Even though consumers prefer the taste of fresh milk, they are willing to buy UHT due to storage challenges (esp. if UH'T could taste similar to fresh milk)
  - (iii) **New product varieties** that respond to consumer trends from **adults looking for healthy alternatives** (e.g. lactose-free, fat-free, free from artificial colors and preservatives) and from **youth for flavored products** (e.g. flavored UHT and sweetened mala)

Disclaimer

The document uses official data sources and reporting, but in some cases the official reporting is incomplete or inconclusive, as is flagged on several individual slides

Key sources used for Kenyan dairy market assessment

Type of source	Description		
Qualitative interviews	International dairy experts (x2) Former Regional Manager, Milk Procurement & Extension Services of large dairy processors	CEC of Agriculture of Trans Nzoia Dairy business consultant, Technoserve Inc. Former Commercial Manager of large dairy processors	
Databases	Euromonitor FAOSTAT Fitch Solutions Food Business Africa Global Data Lab IFCN	IMF WEO Database Kenya Dairy Board (KDB) Kenya Institute for Public Policy Research and Analysis (KIPPRA) Kenya National Bureau of Statistics (KNBS) Macmap.org	OECD-FAO Agriculture Database Trademap.org UN Comtrade UN Population World Bank Climate Change Knowledge Portal
Consumer survey	Consumer survey carried out with 813 Kenyan adults in June/July 2021, conducted via an app by market research firm Sagaci (data on demographic variables, dairy consumption behaviors and preferences collected and analyzed)		
Reports	Ahlberg, S. (2020): Aflatoxins: A food safety hazard in Kenyan dairy chains – prevalence, risks and assessment of a biocontrol solution Agro-Climatic Zone Map of Kenya Climate Hazards Group Infrared rainfall data Dr. Nabiswa P. Koyi: Report on the Role of Dairy Cooperative Societies in sustainable Dairy Development in Kenya IFPRI (2020): Consumer perception of milk safety in Kenya Kenya Economic Abstract (2020) Kenya Census (2019) Kenya Dairy Board and Tegemeo Institute of Agricultural Policy and Development (2020): Report on a study of the cost of milk production in Kenya Kenya Economic Survey agriculture employment data Lindahl, J.F., Kagera, I.N. and Grace, D. (2018): Aflatoxin M1 levels in different marketed milk products in Nairobi, Kenya Makoni, N; Mwai, R; Redda, T; Zijpp, A. van der; Lee, J. van der. (2013): White Gold : Opportunities for Dairy Sector Development Collaboration in East Africa SNV (2017): Dairy Market Study North Rift Kenya Tegemeo Institute of Agricultural Policy and Development (2020): Study on the Cost of Milk Production in Kenya USAID-KAVES Value Chain Analysis Wageningen UR (University & Research centre (2013): White Gold; Opportunities for Dairy Sector Development Collaboration in East Africa. Centre for Development Innovation WFP Comprehensive Food Security and Vulnerability Survey (2016)		

Agenda

1. East African regional dairy trade flows

2. Kenyan dairy market demand

3. Kenyan dairy value chain and competitive landscape

4. Potential opportunities

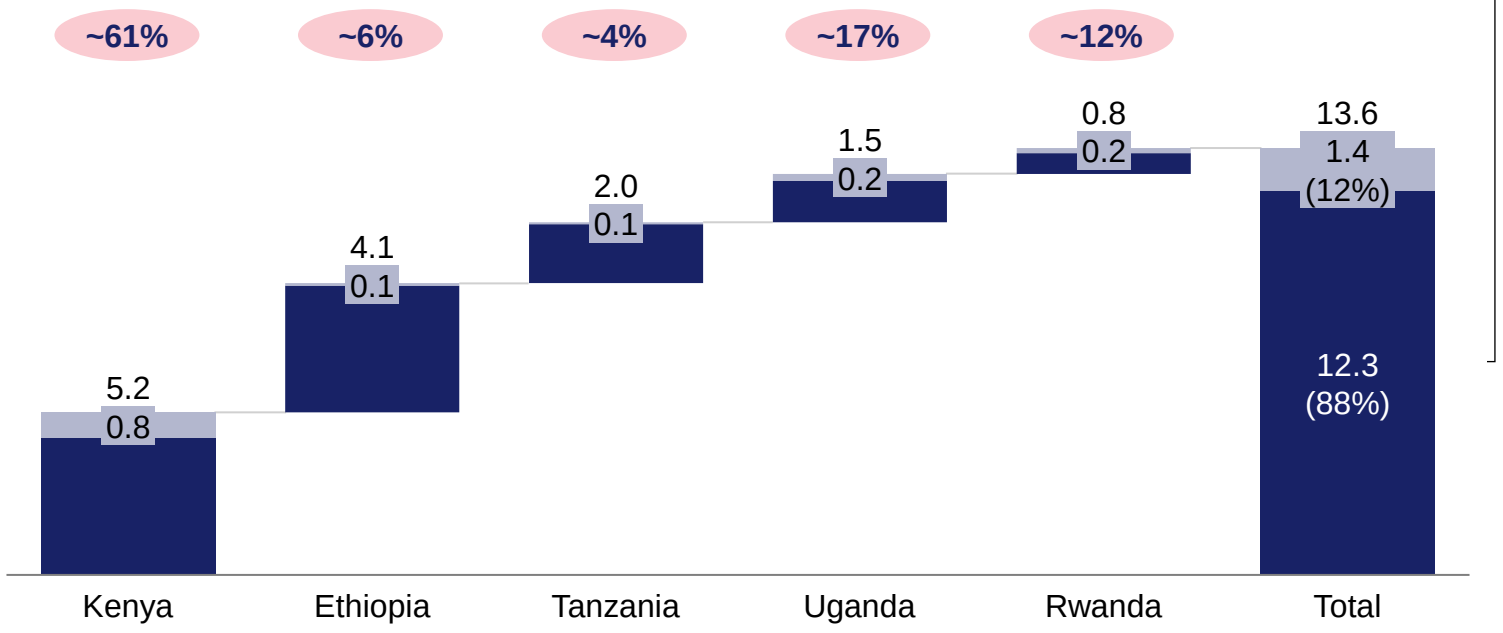
Dairy consumption in East Africa is close to 14 Bn kg, with only 12% processed milk

Unprocessed | Processed | xx Share of total processed milk

Dairy demand in milk equivalent in East Africa[1]

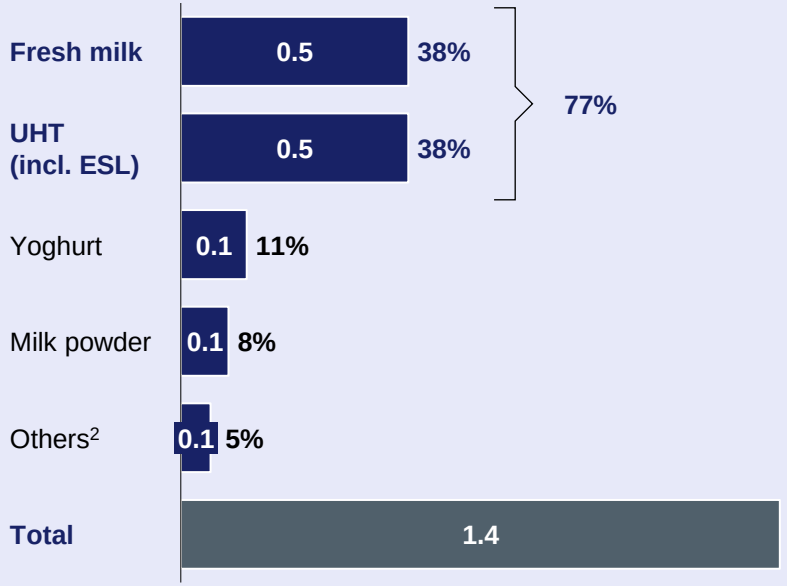
Bn kg in 2017

~88% of total milk demand is **consumed by households or sold to neighbors and local markets**



Processed milk demand in EA,

Bn kg in 2017, % of total



Segmentation varies slightly per country but **fresh milk and UHT milk are the largest segments** with a combined ~77% market share overall

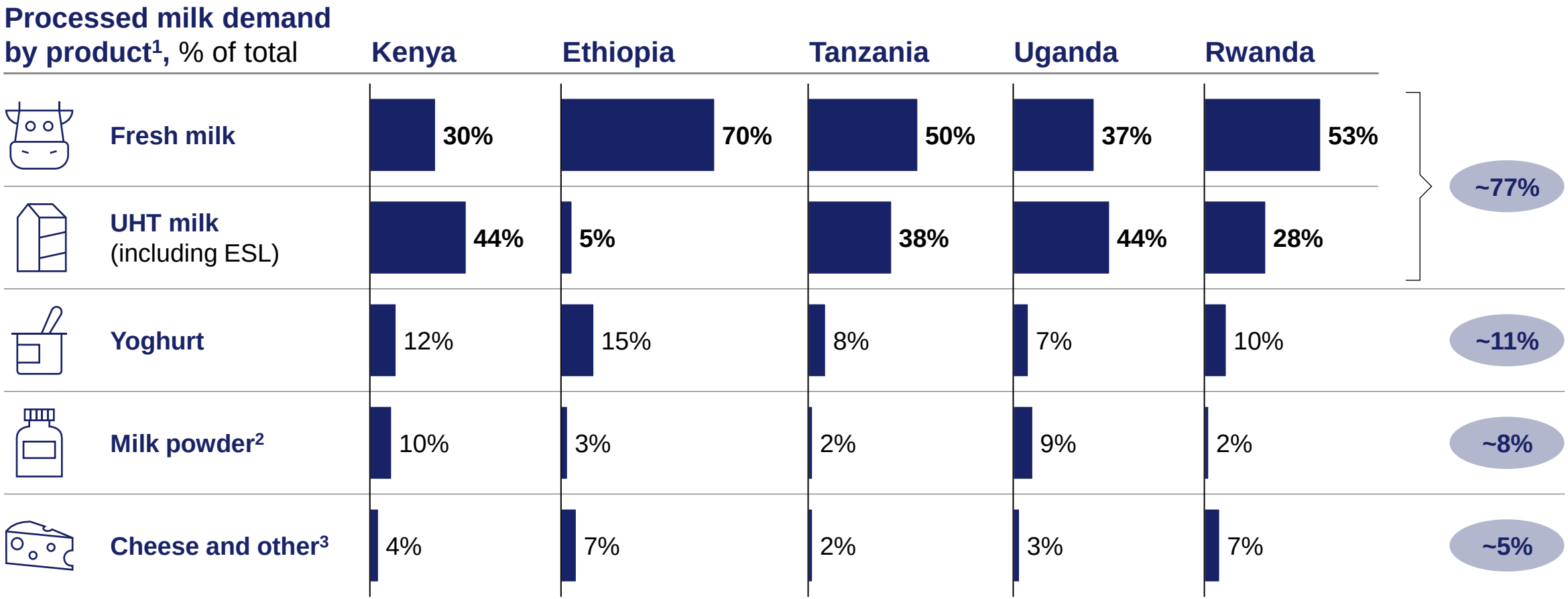
~70% of milk powder is used as an input material (e.g., to reconstitute milk), the rest is sold directly as an end product

1. Based on milk production adjusted by trade activity; East African countries include Kenya, Uganda, Tanzania, Rwanda and Ethiopia
2. Includes cheese and other dairy products

Source: UN Food and Agricultural Organization (FAO), expert interviews

Across the region >75% of processed milk demand is driven by UHT and fresh milk

xx Share of total dairy demand in East Africa

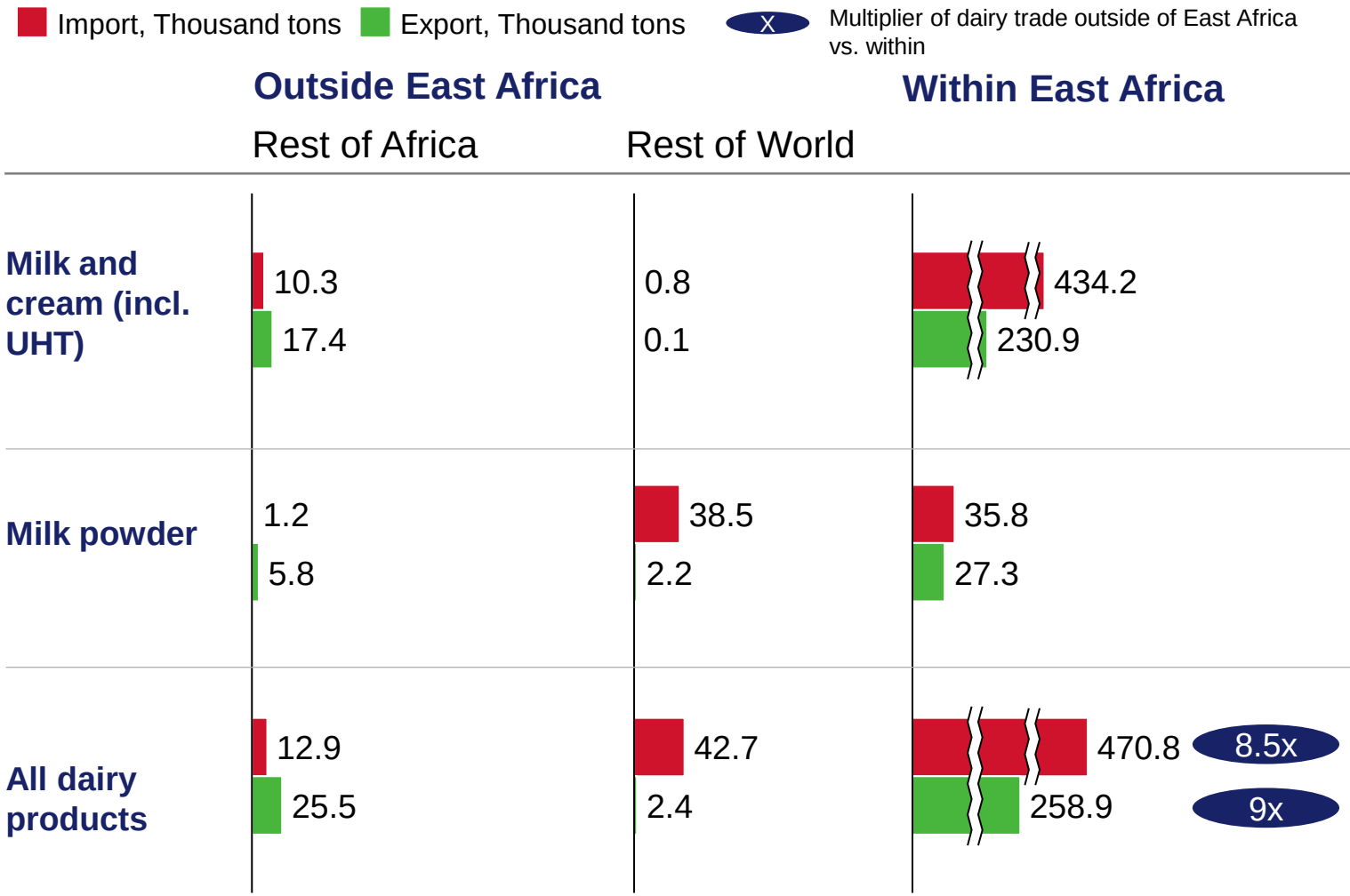


1. Top down data based on multiple expert calls – for Tanzania, data is different from Tanga Fresh's data where ~30% is Fresh, ~30% is Mtindi & Yoghurt and ~20% is UHT
2. An estimated ~70% of milk powder is used to reconstitute milk into UHT, so share of powder consumption could be lower in favor of UHT
3. Includes ghee, cream and other

Source: Expert interviews, UN Comtrade

Majority of dairy trade is within the region, with fresh/UHT milk and milk powder being the most traded dairy products both within East Africa and outside

Total dairy imports and exports to, from and withing East Africa, tons, 2016-2020



Most milk and cream (incl. UHT) trade is within the East Africa region; few amounts are coming from the rest of Africa (e.g. South Africa, South Sudan)

Most milk powder in East Africa is either coming from within the region (mostly Uganda) or from Europe

Within East Africa, the dairy trade is 8-9 times the dairy trade being imported into or exported out of East Africa

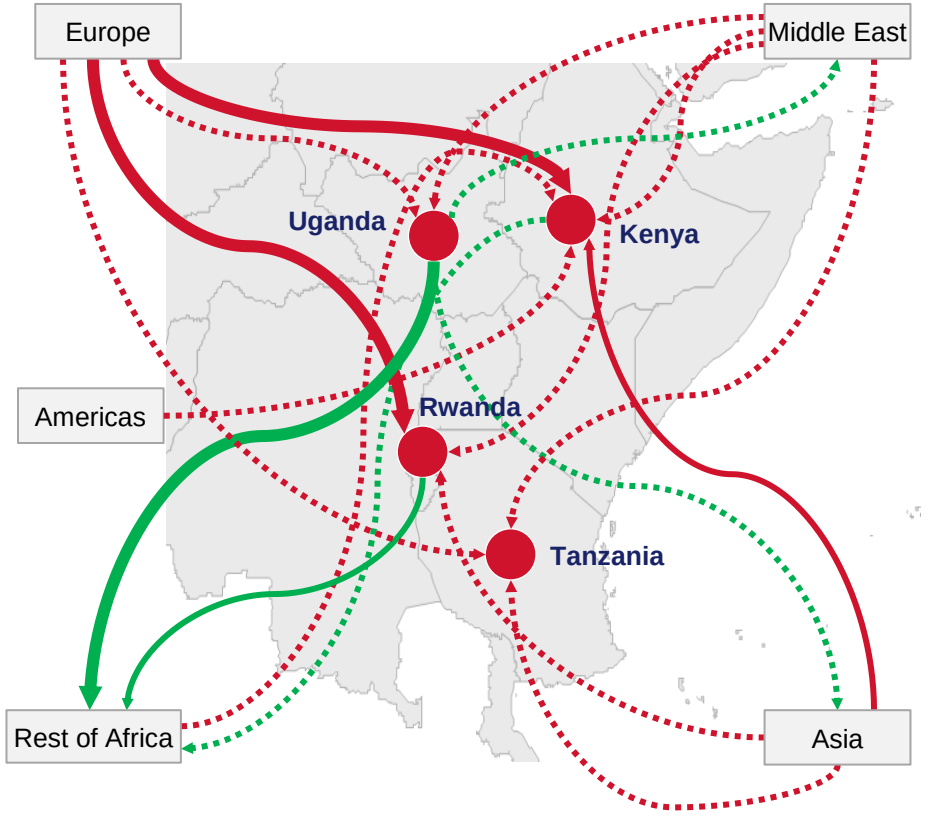
Note: Imports and exports in East Africa do not add up, assumed to be due to underreporting of exports

Source: UN Comtrade

The majority of East African dairy imports have come from Europe, while the majority of exports are originating from Uganda to the RoA[2]

Average yearly imports into EA, tons
Average yearly exports from EA, tons
Focus of next pages
100-500 tons/year[1]
500-1,000 tons/year[1]
>1,000 tons/year[1]
Export
Import

Average yearly imports and exports 2016-2020



Region	Average yearly dairy imports into EA, tons		Average yearly dairy exports from EA, tons	
Rest of Africa	210	(2%)	5,106	*(91%)*
Americas	228	(3%)	1	*(0%)*
Asia	1,162	(13%)	229	*(4%)*
Europe	6,389	(73%)	5	*(0%)*
Middle East	766	(9%)	250	*(4%)*
Total	8,755		5,591	

1. Average tons per year based on 2016-2020 data
2. Rest of Africa

Source: UN Comtrade

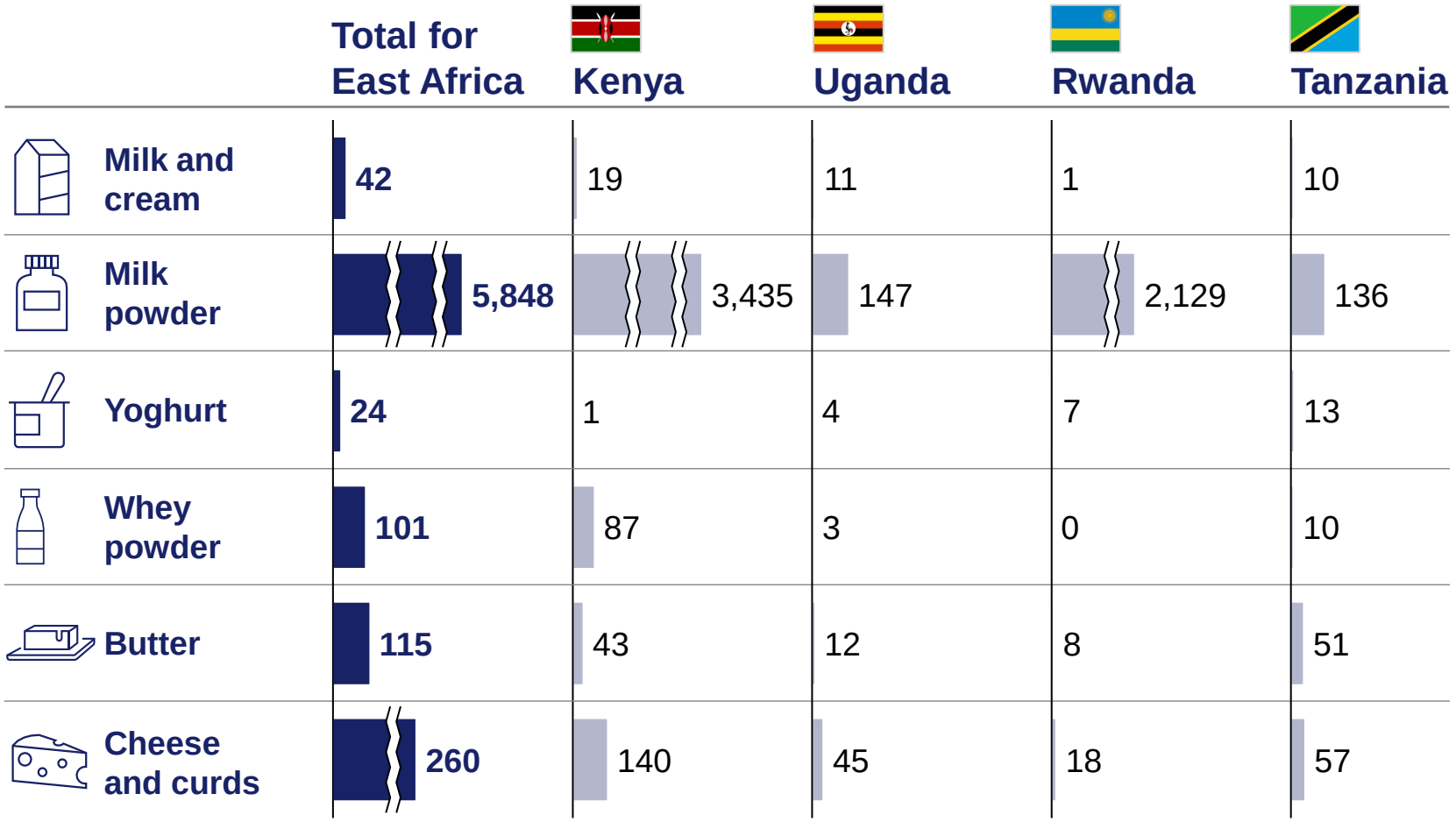
>70% of dairy imports coming **to East Africa** are from **Europe**, majority flowing to **Rwanda** and **Kenya – powder milk** represents **91%** of all dairy imported from Europe

Uganda is the **biggest exporter** of **dairy** in EA, and mainly **supplies** the **rest of Africa.** Uganda is the only East African country to significantly **export** to **Asia** and the **Middle East**

While **Kenya** and **Rwanda export** some of their **dairy products** to the **rest of Africa, Tanzania** does not (and also only imports small amounts)

Milk powder is the most significant dairy import from Europe in all four East African countries

Average annual European imports by product type, tons, 2016-2020[1]



Majority of **European dairy imports** is **milk powder (~5.8k tons/year)**, mainly **to Kenya** (~3.4k tons/year) and **Rwanda** (~2k tons/year)

Cheese and curds are the **second most popular** dairy **import** from Europe, with **~260 tons/year** imported into the region, **mainly into Kenya** (~140 tons/year)

1. Average tons per year based on 2016-2020 data

Source: UN Comtrade

The Middle East seems like an attractive market due to proximity and strong imports, but is planning on becoming self-sufficient

Average size of imports by product type, tons, 2016-2020[1]

Dairy trade surplus
Dairy trade deficit

	Total	UAE	Saudi Arabia	Oman	Kuwait	Bahrain
Milk[2] and cream	131	55	8	31	24	13
Milk powder	526	219	141	110	32	23
Yoghurt	97	33	0.2	40	18	6
Whey powder	7	2	3	1	0.2	0.3
Butter	34	9	18	1	2	3
Cheese and curd	157	36	77	15	19	11

Country-specific insights

UAE	Saudi Arabia	Oman	Kuwait	Bahrain
UAE has 42,000 dairy cows and a dairy industry just outside of Dubai to reduce reliance on imports	Saudi Arabia is 4th biggest yoghurt exporter globally, probably importing premium yoghurts only	The company Mazoon Dairy recently announced the launch of a full range of dairy products with the aim of making the Sultanate a self-sufficient dairy producer	Highly competitive market; Kuwait Dairy Company is one of the leading players and aims to increase production capacity to alleviate shortage of dairy in the country	Arla Foods inaugurated a new cheese production and sterilised cream site in 2019 to support increasing demand for dairy in the region

1. Average tons per year based on 2016-2020 data
2. Fresh and UHT

Source: UN Comtrade, OEC.com; press search – megalac.com (2020): Dairying in Dubai; Dairyreport.com (2020): The company Mazoon Dairy recently announced the launch of a full range of dairy products with the aim of making the Sultanate a self-sufficient dairy producer; Mordor Intelligence: Kuwait Dairy Products Market; ; Dairyreport.com (2019): Arla Foods inaugurates Bahrain cheese production site

Most **Middle East countries** have a dairy **trade deficit**, apart from **Saudi Arabia** and **Kuwait (**which **export fresh and UHT milk**, **milk powder, yoghurts** and **whey powder)**

However, **ME countries** are trying to **reduce** their **reliance** on **dairy imports** by **expanding dairy farming** and **production locally**

In East Africa, **Uganda** represents **99%** of **all dairy exports** to the **Middle East** and **Kenya 1%**

Uganda exports >90% of all intra-EA dairy trade while ~95% of all of exports flow into Kenya

Average exports to East African countries, tons

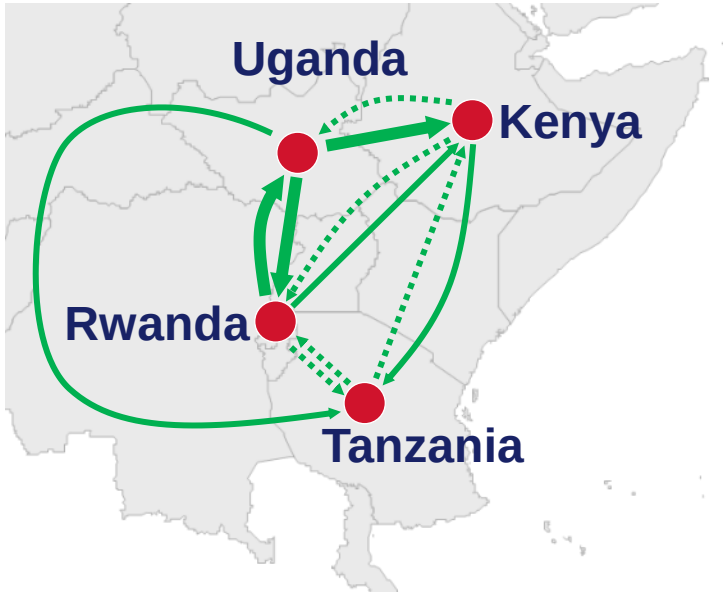
Average imports from East African countries, tons

100-500 tons/year[1]

500-1,000 tons/year[1]

>1,000 tons/year[1]

Average yearly imports and exports within EA, 2016-2020



Country	Average yearly dairy exports to EA[2], tons	Average yearly dairy imports from EA[2], tons
Uganda	48,137 (92%)	2,212 (2%)
Rwanda	2,638 (5%)	1,338 (1%)
Kenya	1,005 (2%)	89,103 (95%)
Tanzania	8 (0%)	1,501 (2%)
Total	51,788	94,154

1. Average tons per year based on 2016-2020 data
2. Imports and exports do not add up, assumed to be due to underreporting of exports

Source: UN Comtrade, expert interviews

>90% of **intra-East African dairy exports** are coming from **Uganda** but even Rwanda's exports are higher than Kenya's

~95% of **intra-EA dairy imports** flow into **Kenya**, mainly to **cushion** its **low milk production** during dry season with UHT and milk powder. This could indicate an **opportunity for import substitution**

Uganda and Rwanda import some **UHT products from Kenya** due to **perceived better quality**

Tanzania is **importing** and **exporting very little**, both within **East Africa** but also from the **rest of the world**, and **mainly relies on its own dairy production** for its consumption

Trends in the East African dairy sector

Uganda

The 2020 ban on Ugandan milk exports to Kenya is lowering farmgate milk price and **forced local Pearl Dairies Limited to halt full-scale production,** forcing some farmers to turn to alternative sources of income (e.g. beekeeping)

Recent droughts may impact the availability and quality of feed for dairy farmers, thereby reducing Uganda's dairy output in the coming year(s)

Pearl Dairy Farms Limited is planning on expanding milk powder, yoghurt and UHT exports outside of East Africa

- **The company recently announced its plan to export yoghurt and milk powder to Ethiopia, Malawi and South Sudan** from its Mbara factory in Western Uganda
- **The company recently unveiled the addition of a new UGX 9.25 Bn and 130k L/day Tetrapak Edge production line,** allowing for the UHT milk produced to be kept up to 12 months without refrigeration, leading the way for exports outside of EAC

Rwanda

Demand for milk powder is growing ~5% p.a. with multiple companies planning to build milk powder plants, with the hopes of exporting to the region

- **Inyange Industries is set to invest USD 20.8 million into a milk powder plant** in Nyagatre district, with a capacity of 14k tons of milk powder/year; the company plans to **secure an off-take from Africa Improved Foods** for 2k tons/year
- **South African firm TRIOMF East Africa** and local dairy farmers had **planned to construct another milk powder** plant late 2020 of ~252k L/day but **halted due to lack of funding**

Government recently introduced the S-mark quality scheme for dairy products, a requirement to supply hotels, some restaurants and supermarkets

East Africa

East African dairy cattle are at risk of increasing heat stress caused by climate change, according to new research by NatureFood – 4-19% of current dairy production occurs in areas where dangerous heat stress conditions are likely to increase, requiring selective breeding of exotic cattle

Tanzania is seeking to increase milk yields through a 4-year government project in Dar es Salaam, Tanga, Coast Region and Morogoro to encourage proper feed of animals and improved dairy cow breeds

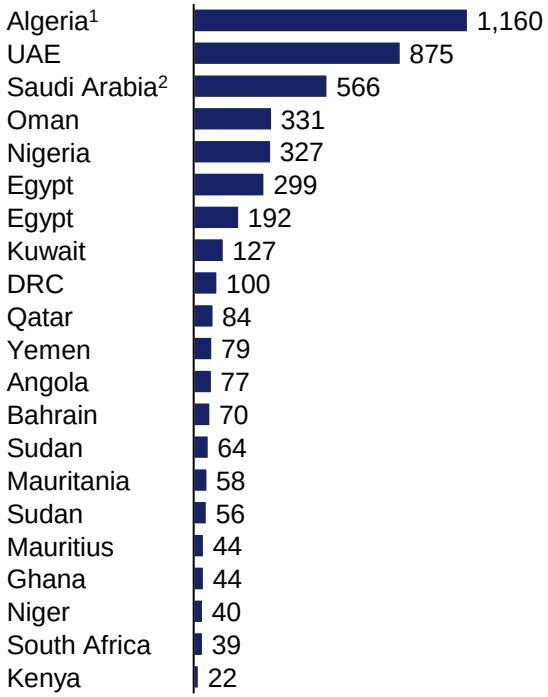
The Kenyan government announced a KSh 600 Mn embryo transfer facility in Eldoret, enabling farmers to get better breeds and increase yields

Source: Expert interviews; press search – The Africa Report (2021): Kenya's ban of Ugandan milk points to flaws in soft diplomacy; Dairy Reporter (2020): Lato Milk expands to new African markets; PML Daily (2021): Lato milk producer, Pearl Dairy installs UGX. 9.25b packaging line to boost sector; The New Times (2021): Nyagatare: Inyange to construct Rwf20 billion milk powder plant / Powdered milk plant suffers setback due to shortage of funds; Nature food (2021): Heat stress will detrimentally impact future livestock production in East Africa; Kenyanews.com (2021): Government Set To Establish 600 Million Embryo Transfer Centre In Eldoret; allAfrica (2021): Tanzania: National milk production set to increase

Kenya's current milk powder production costs make it uncompetitive for large-scale regional exports

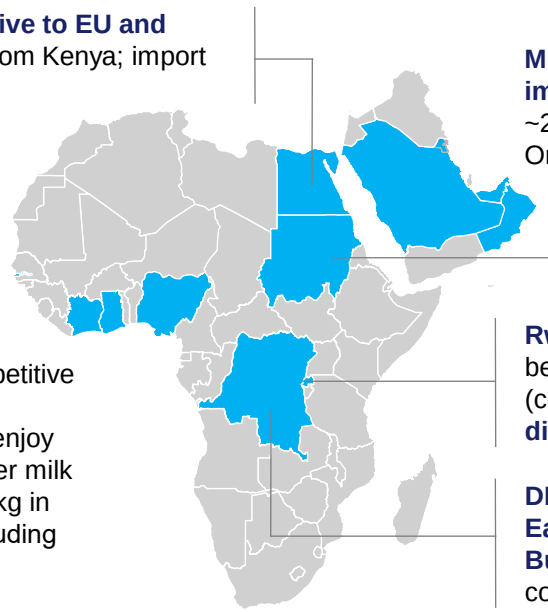
PRICES ARE MOSTLY BASED ON UN COMTRADE DATABASE AND NEED TO BE FURTHER VERIFIED FOR A BUSINESS CASE

Average size of powder milk imports, Thousand tons/year



Comparison of potential to export powdered milk from Kenya

Egypt: unlikely to be cost competitive to EU and Middle East supplier if transporting from Kenya; import prices average 2.3 USD/kg[4]



Middle East: unlikely to be cost competitive as **import prices are relatively low** at ~2.6 USD/kg in Saudi Arabia, ~2 USD/kg in Bahrain and Oman, and ~3 USD/kg in Kuwait[3]

Sudan: Kenya **unlikely to be cost competitive vs. EU, NZ imports;** import price of milk powder is ~2.7 USD/kg[4]

Rwanda: Relatively small market at 10-15 MT/day; could be cost competitive with retail prices at 7-10 USD/kg (compared to Kenyan 9-11 USD/kg); **ongoing trade disputes**, while temporary, hamper exports from Uganda

West Africa: unlikely to be cost competitive as (i) large distributors and players represent 85-90% of the market and enjoy bulk discounts and (ii) prices of powder milk are relatively low (e.g. ~2.2-2.9 USD/kg in Nigeria, Ghana and Côte d'Ivoire including freight and tariffs)

DRC: Large market of ~100 MT/day. **Kenya is near Eastern DRC (12% of population) towns e.g., Goma, Bukavu,** retail prices are 9-14 USD/kg and Kenyan imports could be competitive

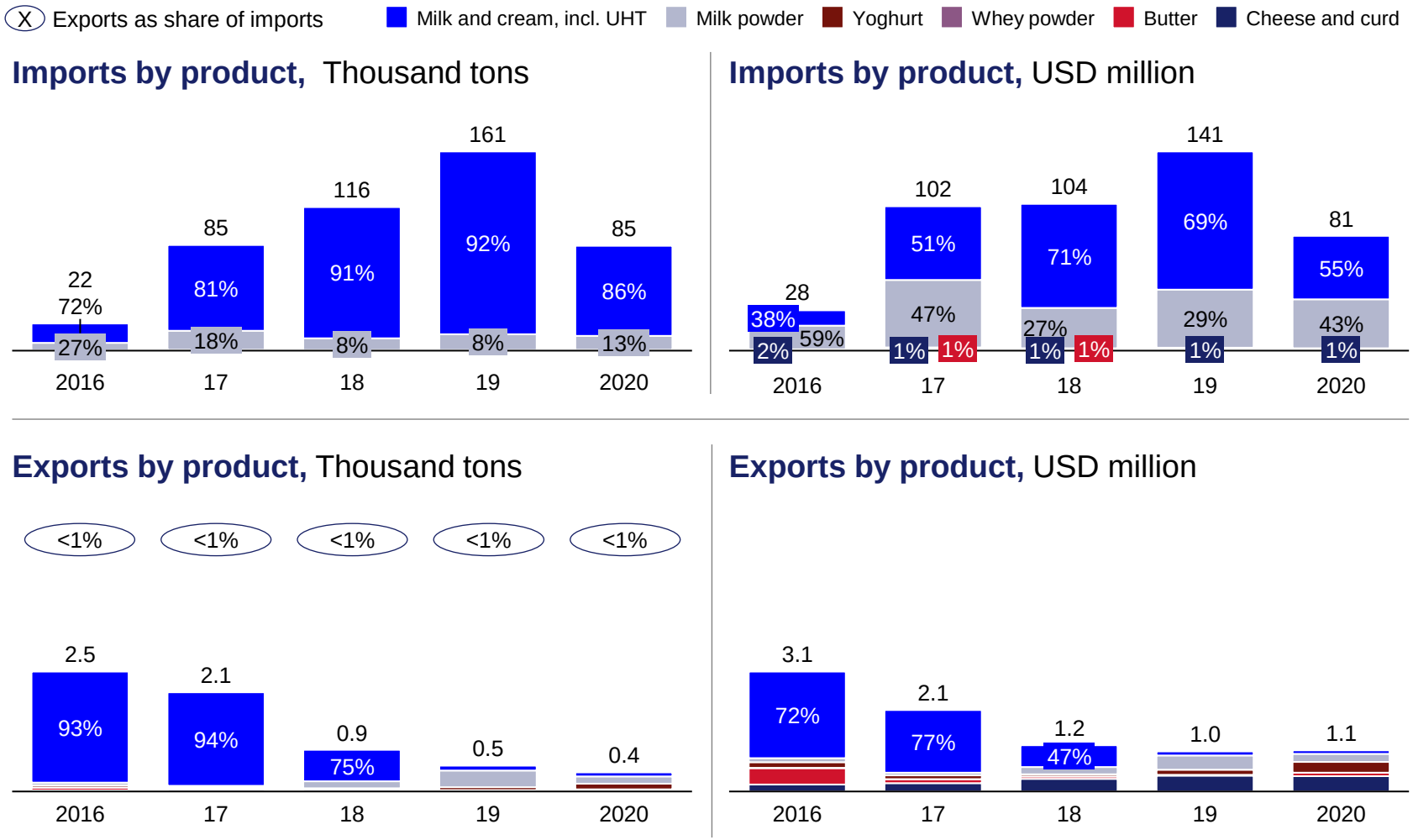
Exporting milk powder from Kenya would only be competitive if milk powder production costs were under ~2-2.5 USD/kg compared to the current processing cost of ~4 USD/kg[5]. Current production costs could work for exporting to Rwanda and DRC

1. 2017 Data
2. Net exporter
3. Import prices calculated using UN Comtrade
4. Price estimated using UN Comtrade; tariffs, transportation costs and retailer costs/margins still need to be accounted for to estimate the proper consumer price
5. Excluding 50% processor margin (Kenyan industry average stated by expert), freight, insurance or tariffs (~5%)

Note: There is no duty on import of milk powder between the countries part of the EAC and COMESA (e.g. Kenya, Uganda, Rwanda, Ethiopia)

Source: UN Comtrade, World Bank, expert interviews

Kenyan imports rose significantly between 2016-2019, while exports have been small



Kenyan dairy imports are **~85-160k tons** and mainly comprised of **milk** (incl. UHT) (~85-90%) and **milk powder** (~10-15%); the majority of import **value** is still driven by **milk** (~55-70%) but also milk powder (~27-45%)

Kenya has a dairy trade deficit as **exports** represent <1% of the value of imports – **imports increased** heavily **from 2017** due to **several droughts** that reduced the availability of feed for animals

Kenyan exports are **slowing down** and **mostly** comprised of **milk** in terms of **volume**

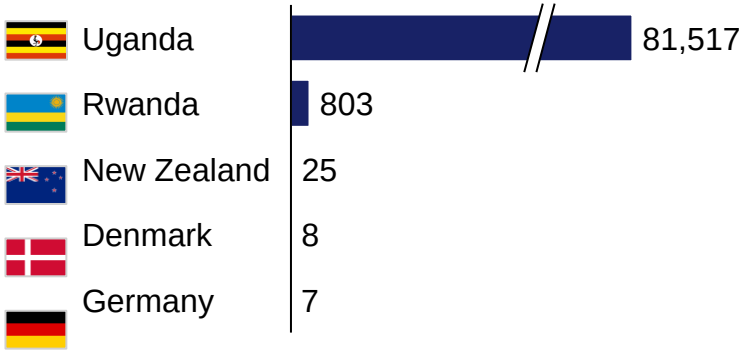
Source: UN Comtrade

Most Kenyan imported milk and powder are from Uganda, while it exports some milk to Tanzania and the rest of Africa

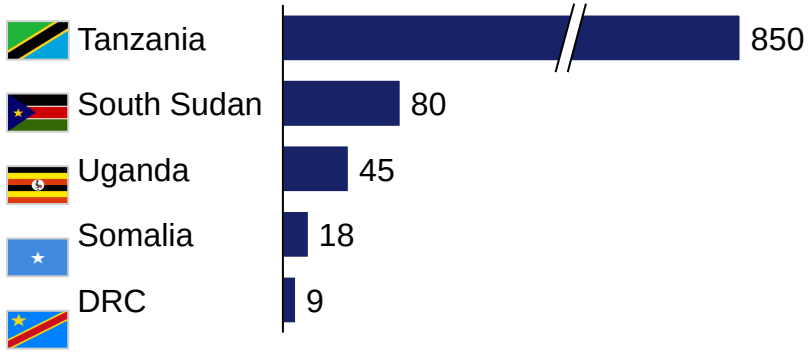
2016-2020 average annual volume, tons

Milk and cream (incl. UHT)

Top 5 countries for imports[1]

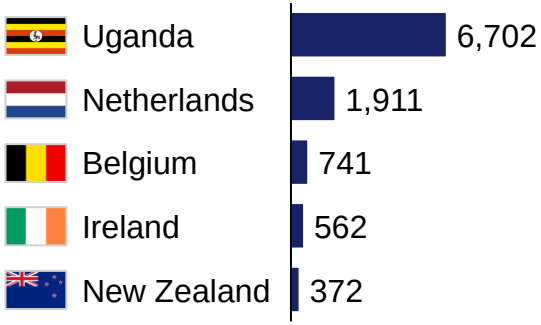


Top 5 countries for exports[1]

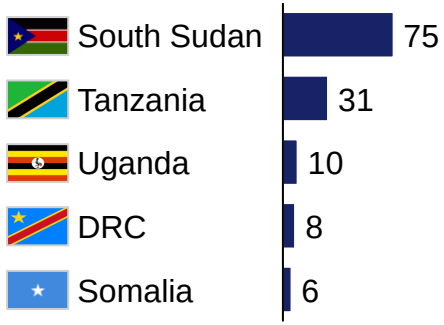


Powder Milk

Top 5 countries for imports[1]



Top 5 countries for exports[1]



Source: UN Comtrade

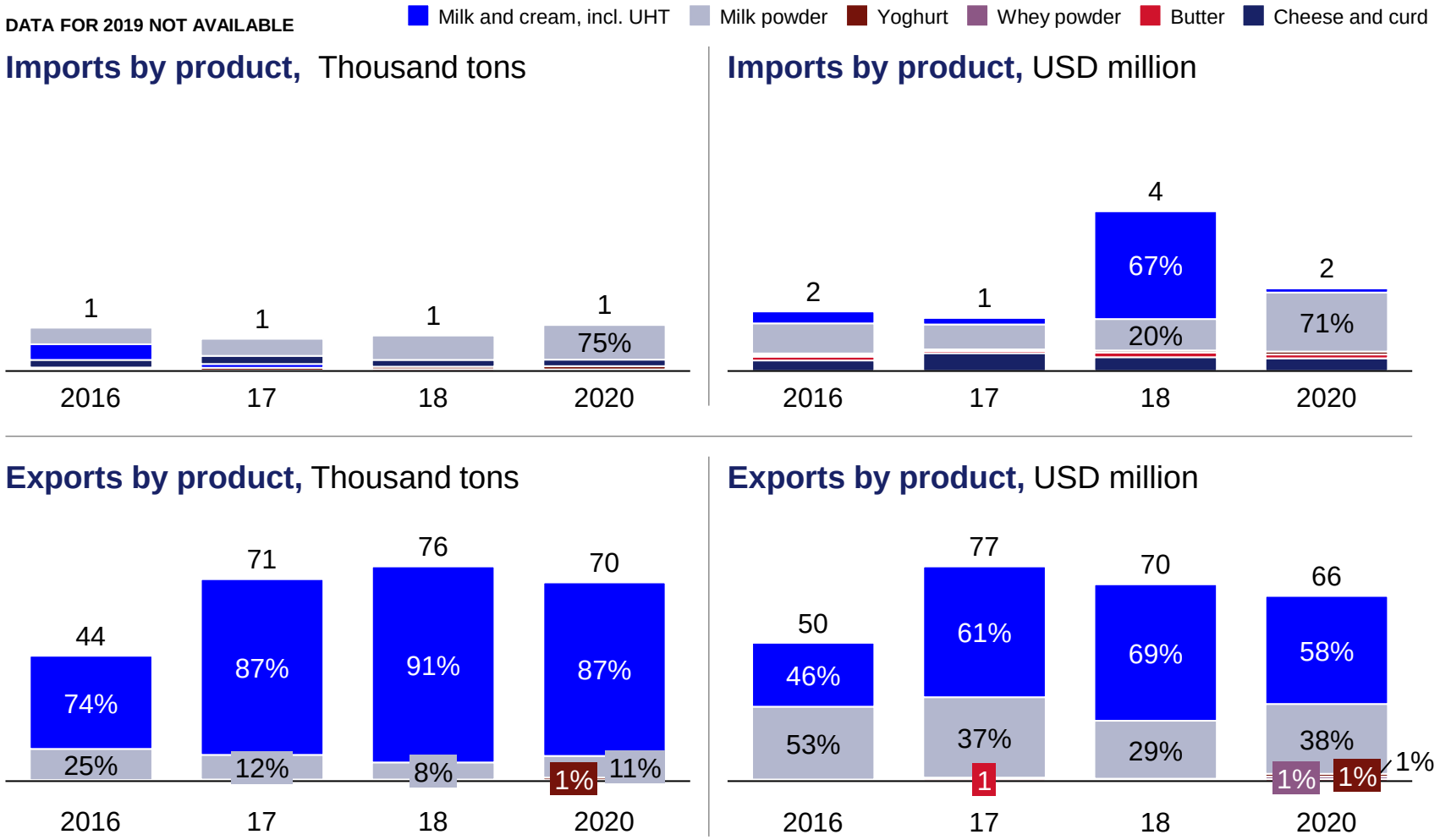
The **majority** of Kenya's imported **milk** comes from **Uganda (~82k tons/year)**, some from **Rwanda** (~803 tons/year)

While the majority of Kenya's **exported milk goes to Tanzania (~850 tons/year),** it also exports to **South Sudan** and **other parts of Africa** (~150+ tons/year)

Its imported **milk powder is mostly** from **Uganda (~7k tons/year)** and from **Europe and New Zealand (~3k+ tons/year)**

Exports of **milk powder** are **relatively minimal** with (~130 tons/year) to **South Sudan and Tanzania**

Uganda is the only East African country with a dairy trade surplus with slightly decreasing exports that is possibly a result of the ban to export to Kenya



NOTE: UN ComTrade does not have data for Uganda in 2019

Source: UN Comtrade, The Africa Report (2021): Kenya's ban of Ugandan milk points to flaws in soft diplomacy

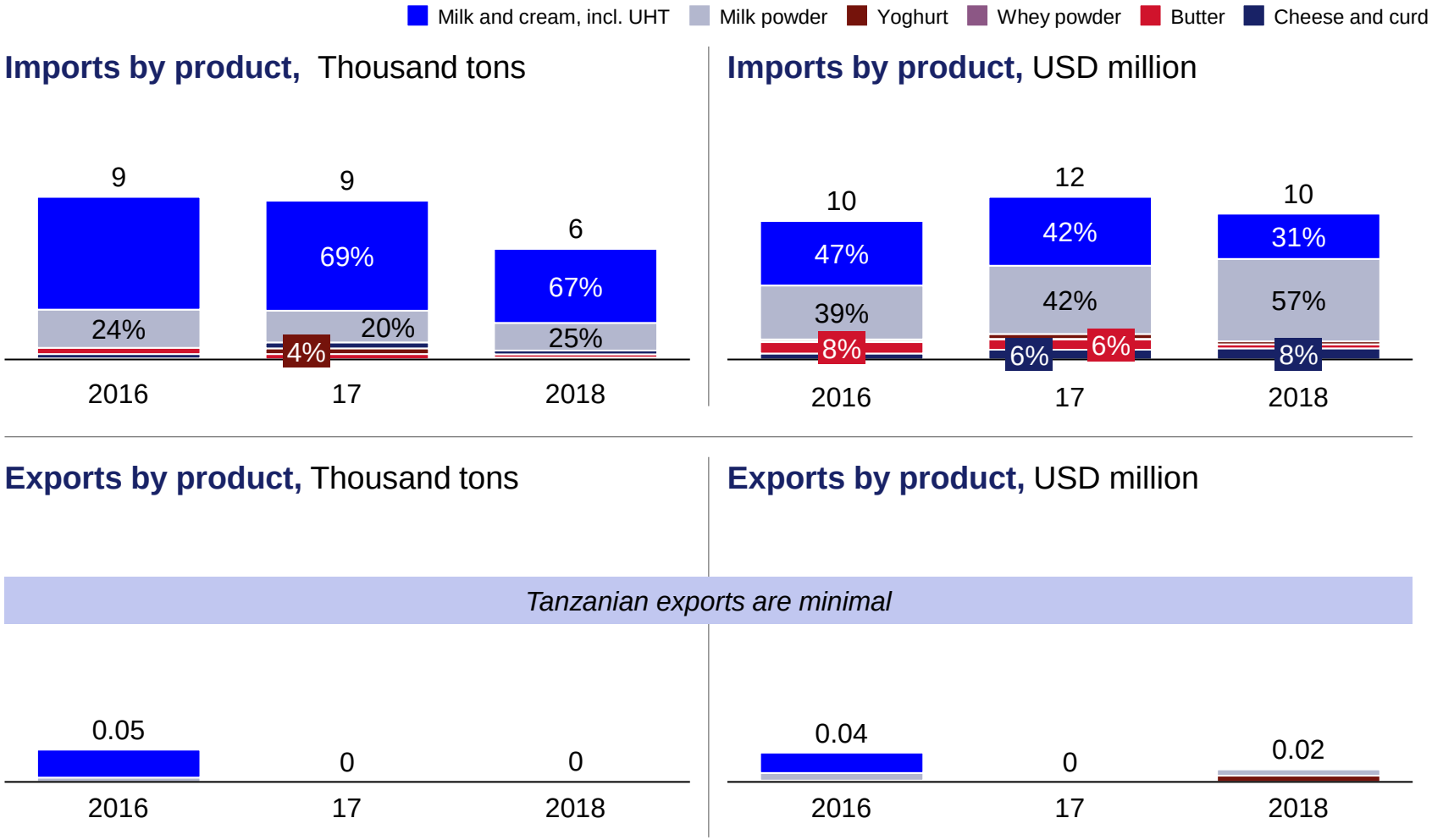
Ugandan dairy imports are **minimal compared to exports**; the country is the only one in East Africa to have a **dairy trade surplus**

Imports are mostly comprised of **milk powder** (~50-75% in terms of volume and value)

Ugandan dairy exports are the **most important** in terms of **volume** and **value** in the East Africa region. **Dairy exports** are driven mainly by **milk and cream incl. UHT** (~85-93%) and **milk powder,** which are manufactured locally by Brookside Dairy Ltd. and Pearl Dairy

A ban on Ugandan milk has been enacted in 2020 by the Kenyan Government

Tanzania seems to supply its own dairy demand



NOTE: UN ComTrade does not have data for Tanzania in 2019 and 2020

Source: UN Comtrade, expert interview

Tanzanian dairy imports are **relatively smaller than Kenya** at **~6-8k tons,** mainly comprised of **milk** (incl. UHT) and **milk powder** as **Tanzania relies** mainly on its **own production of dairy** for **national consumption**

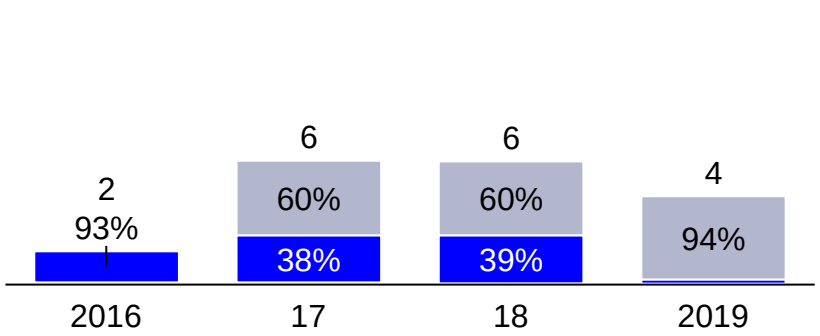
Tanzanian exports are minimal, this could be due to **limited production capacity**

Rwanda's imports have been stable and mostly comprising of milk powder, while its exports were more volatile and mainly milk and cream

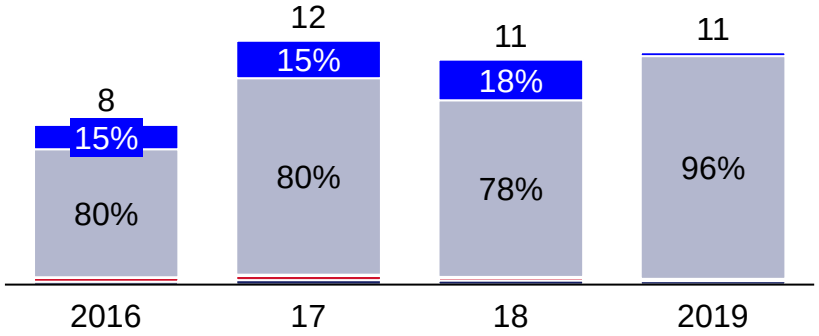
DATA FOR 2020 NOT AVAILABLE

Milk and cream, incl. UHT | Milk powder | Yoghurt | Whey powder | Butter | Cheese and curd

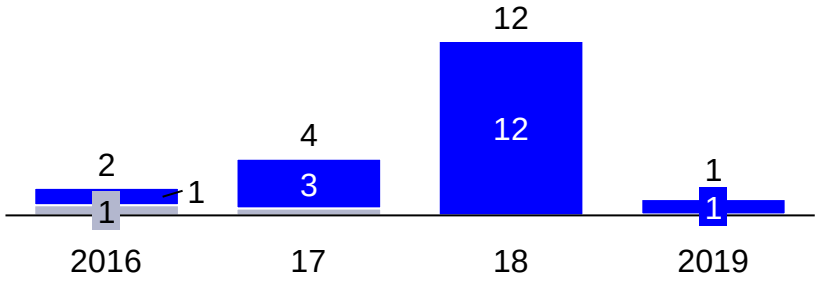
Imports by product, Thousand tons



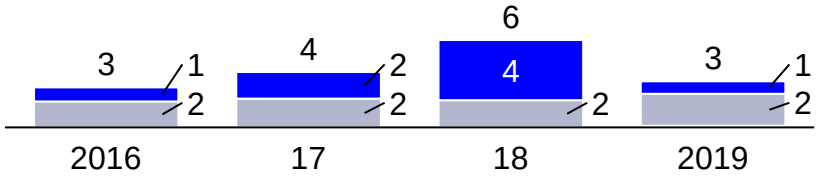
Imports by product, USD million



Exports by product, Thousand tons



Exports by product, USD million



NOTE: UN ComTrade does not have data for Rwanda in 2020

Source: UN Comtrade

Rwandan dairy imports are **~4-6k tons,** mainly comprised of **milk powder** (60-90%) and **fresh milk** (incl. UHT) – **milk powder** drives **most** of the **import by value** at (~85-96%)

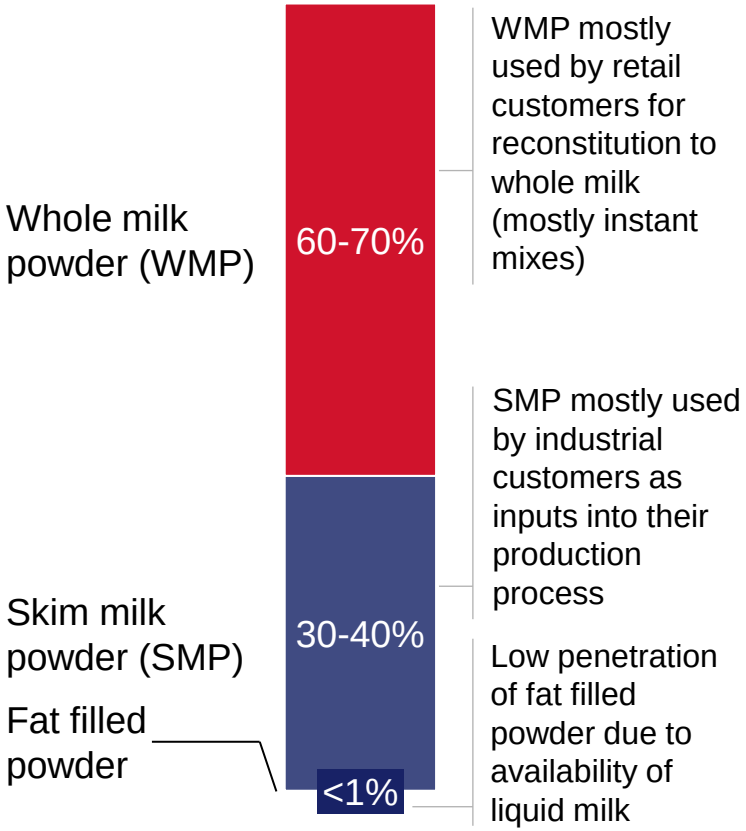
Rwanda has a dairy trade deficit as **exports** are mostly lower than **imports**

Rwandan exports mainly comprised of milk (incl. UHT) (>90%) although some of the **value** is **driven** by **exports of milk powder**, which is more expensive than fresh milk

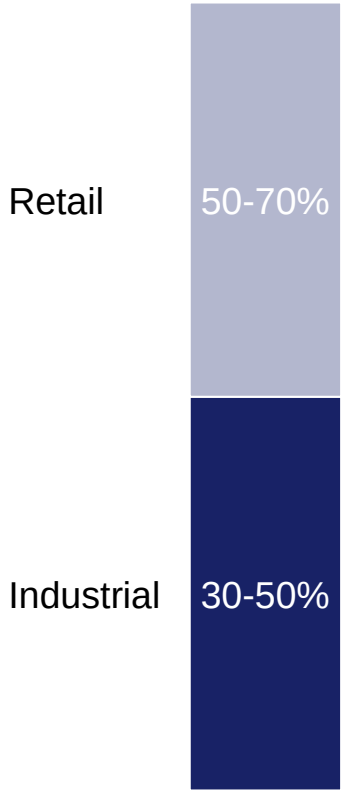
Skim milk powder dominates the industrial segment but 50-70% of Rwanda consumption is in the retail segment and mostly whole milk powder

Powdered milk demand, % of total

By product type



By customer segment



Key customers	Product	Key buying factor
Mass market retail customer in major town (liquid milk consumed in rural areas in East and Northern province)	Whole milk powder	Price Branding and perceived quality
AIF (fortified foods manufacturer) , (70-80%)	Skim milk powder	Quality Price[1]
Other smaller industrial e.g., ice cream & yogurt processors (20-30%)	Skim milk powder	Quality Price

1. AIF has received an exemption on the 60% import duty charged on dairy products from outside EAC and COMESA. Its landed costs are therefore much lower than local options

Source: Expert interviews

Agenda

1. East African regional dairy trade flows
2. Kenyan dairy market demand

Current market consumption

- Market demand growth

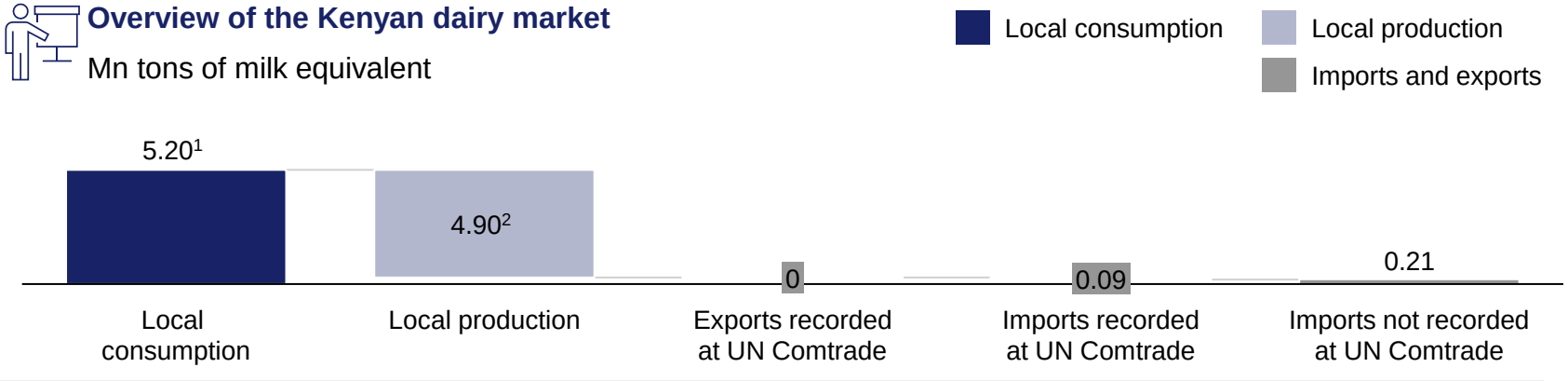
3. Kenyan dairy value chain and competitive landscape
4. Potential opportunities

Kenya's dairy market is estimated at ~5.2 Mn tons of milk equivalent of which ~4.9 Mn tons are locally produced

Comparison of data from different sources to estimate the Kenyan dairy market

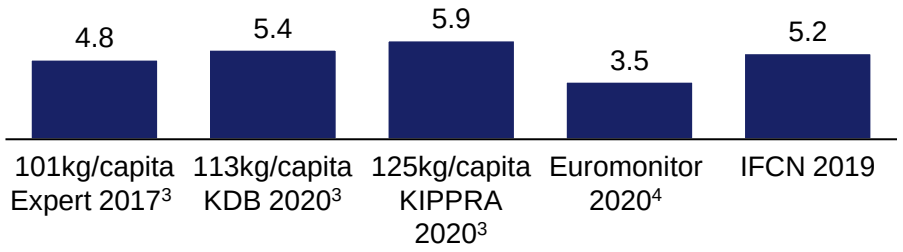
Overview of the Kenyan dairy market

Mn tons of milk equivalent



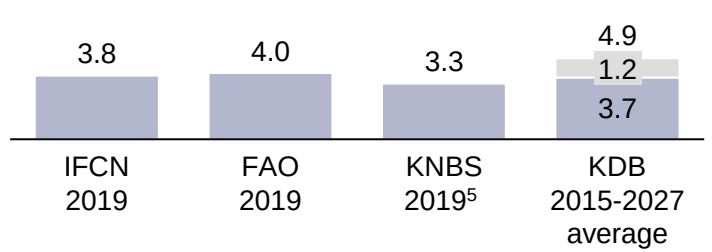
Local dairy consumption according to different sources

Mn tons of milk equivalent



Local dairy production according to different sources

Mn tons of milk equivalent



1. Based on the IFCN dairy consumption assumption
2. Based on the KDB 2015-2017 average milk production number including cow, camel, goat and sheep milk
3. Multiplied by a population of 47.5 Mn people, according to data from the 2019 Kenya census
4. Estimated based on the hypothesis that Euromonitor data (689 Mn tons for 2020) captures only the formal market, which represents 20% of the overall market
5. Estimated based on the hypothesis that the amount of milk production recorded in the KNBS 2020 Economic Survey (668.2 Mn tons for 2019) represents the 20% of the formal market

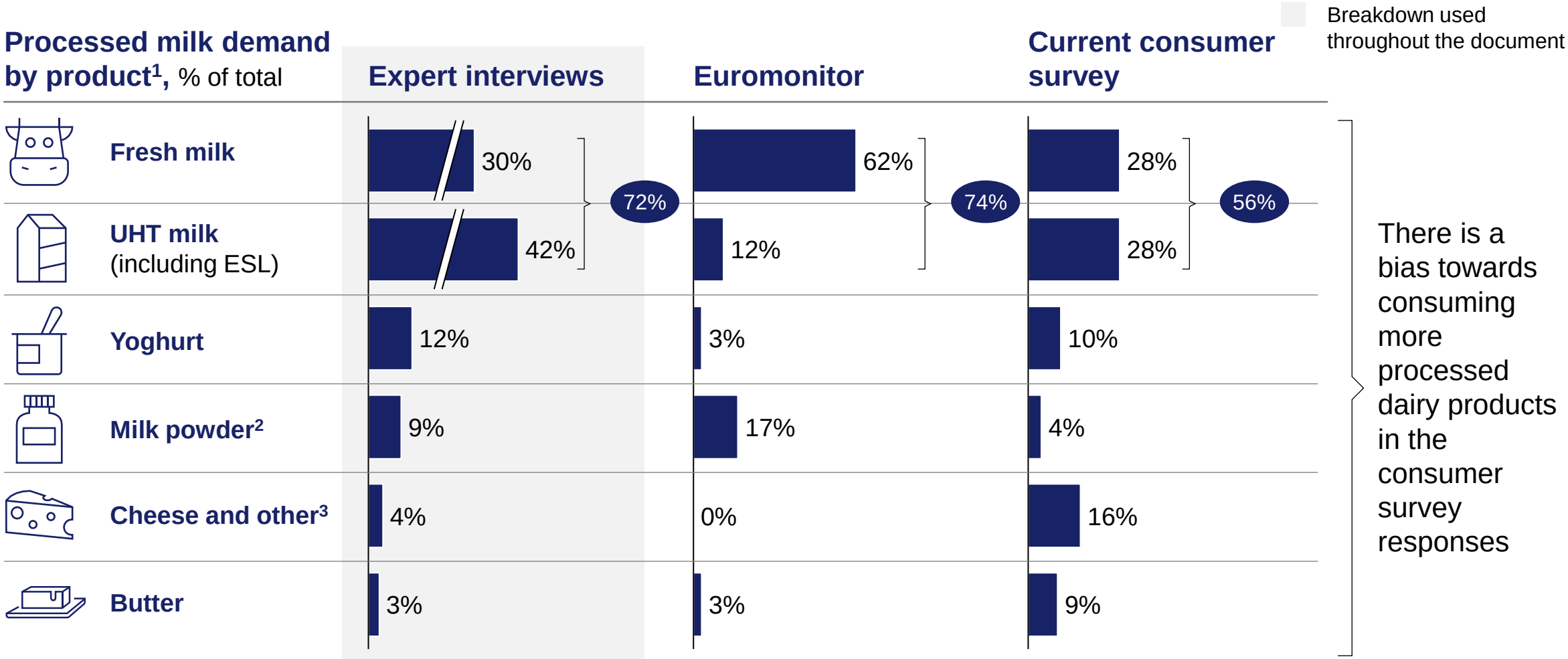
Source: Expert interview, Kenya Dairy Board (KDB), Kenya National Bureau of Statistics (KNBS), Kenya Institute for Public Policy Research and Analysis (KIPPRA), Food and Agriculture Organization of the United Nations (FAO), International Farm Comparison Network (IFCN) Euromonitor

Kenyans consume **~5.2 Mn tons** of **milk equivalent** per year (incl. cow, camel, goat and sheep milk) both informally and formally based on IFCN data that falls in between most other estimates

Local production of milk equivalents stands at **~4.9 Bn tons** based on KDB that measures local production

Kenya has **small share of domestic consumption fulfilled by imports recorded by UN Comtrade**, however discrepancies between local consumption and production suggest that **dairy imports are ~0.2 Mn tons higher than UN Comtrade records**

Different data sources for the formal Kenyan dairy market indicate that fresh and UHT milk are by far the most consumed categories



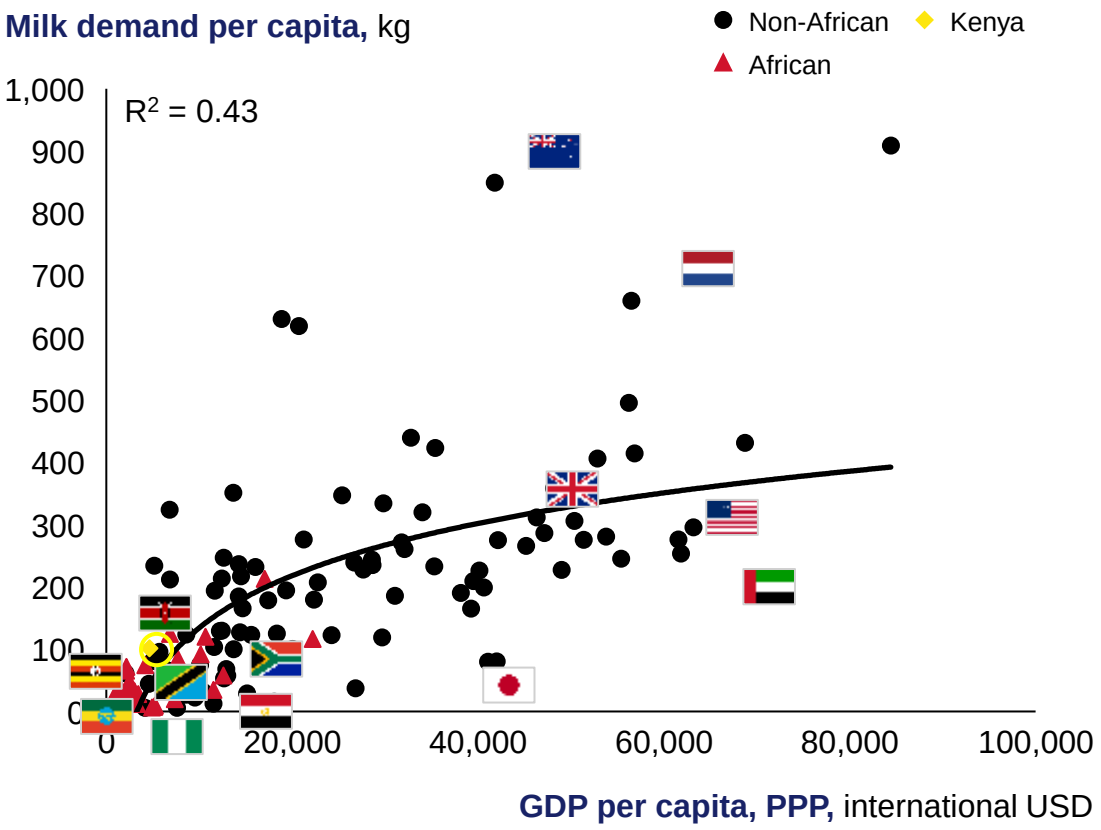
1. Top down data for market volume estimates based on multiple expert calls and different data sources
2. An estimated ~70% of milk powder is used to reconstitute milk into UHT, so share of powder consumption could be lower in favor of UHT
3. Includes ghee and cream

Source: Expert interviews, UN Comtrade, Sagaci consumer survey

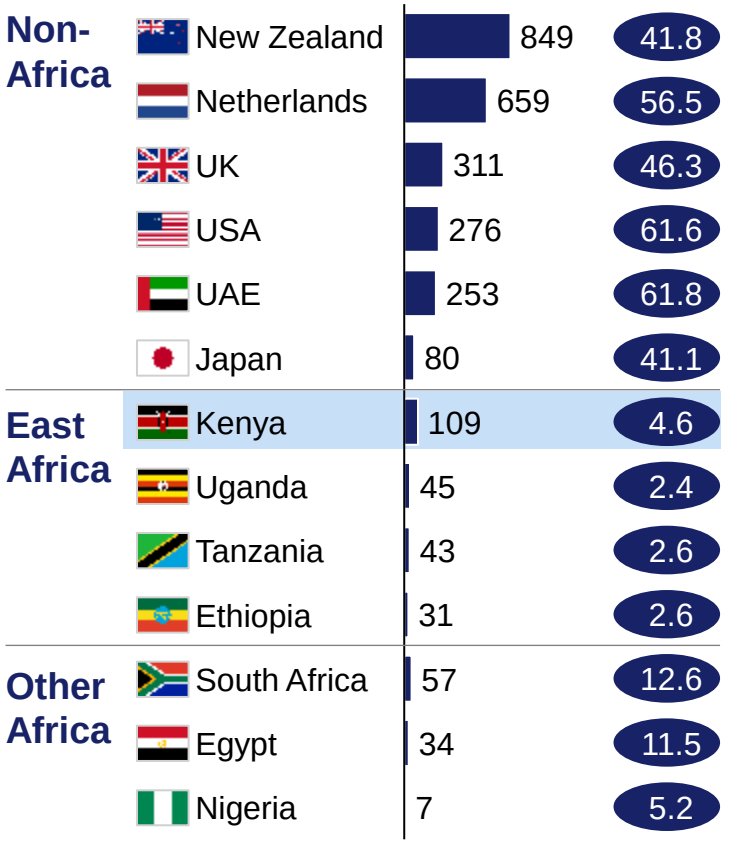
Kenyans drink the most milk p.c. in Africa, even compared to countries with higher GDP/capita

x GDP per capita, PPP, international USD '000

Relationship between GDP per capita and milk demand[1] per capita, 2018, n=123



Estimated milk demand per capita, 2018[1], kg



1. Cow milk equivalent; demand estimated using FAO Stats production data, adding imports and subtracting exports from UN Comtrade; Value for Kenya is calculated based on estimated consumption of 5.2 Mn tons and 47.5 Mn population according to Kenya Census 2019. Value for Rwanda is based on expert interviews and refer to 2017, while value for Ethiopia is for 2020 and based on OECD-FAO and UN Comtrade; Population data from UN Population

Source: FAO Stats, UN Comtrade, Expert interviews, OECD-FAO Agricultural Database 2020-29, IMF WEO, UN Population

Key insights

There is a **positive correlation** between income and milk consumption per capita (p.c.)

However, there are **also other factors at play than income** only (e.g. diet, cultural factors, economic and trade policies)

Kenya has one of the highest milk consumption p.c. in Africa and is **slightly above** the **global average** p.c. consumption relative to its GDP p.c. level

Overview of the Kenyan consumers

Who are they?

- **48** Million people
- **109** Kg milk consumption per capita p.a.[1]
- **66** % of HH own **agricultural land**[3]
- **72** % of people live in **rural areas** (~28% urban)
- **9** % of HH with **refrigerator** at home[2]
- **40** **%** of the population are <15 years old
- **80** **%** of households earn <USD 5,000 p.a.
- **32** **%** of income is held by the top 10% of the population

Which dairy products do they consume and for what use?

	% of total formal consumption	Uses
Fresh milk	30%	Boil and drink (especially children), use for baking and others (e.g. tea, coffee or cereals), school milk program ongoing in 7 counties
UHT Milk	42%	
Yoghurt	12%	Yoghurt mostly eaten by children and youth as a healthy snack, with mala remaining a staple food for all
Powder milk	9%	Used to make milk or add in coffee, processors use it to balance supply and prices
Cheese and other	~4%	High end products, relatively expensive, only used by middle-class and above, in particular cheese (e.g. paneer, haloumi and mozzarella)
Butter	3%	Mostly used by patisseries and hotels as deemed as a premium product as according to expert most of the population cannot afford it, however perceived as healthier than other spreads (e.g. Blueband)

1. Estimated cow milk equivalent based on 5.2 mn tons of milk consumption and 48 mn people
2. ~2.5% in rural areas and 19% in urban areas
3. 79% of rural households and 48% of urban households own agricultural land

Source: Expert interviews; World Bank; Global DataLab

Where do they buy dairy products?

FORMAL

Supermarkets

Formal shops, selling food and household goods

Neighbourhood shops

Small corner shops that sell food for daily needs

Specialty dairy shops

Independent small stores specialized in dairy

Hospitality points of sale

Commercial food-service locations, such as restaurants, hotels, airlines

INFORMAL

Home delivery

Farmers or agents delivering to the doorstep (mostly fresh milk on daily basis)

Pick-up from farm

Collection by buyer from farm

Traditional market

Outdoor markets where farmers or traders sell vegetables, dairy products, accessories

Kenyan consumption is driven by 6 trends

Detailed further

Trend	Description	Expert and research quotes
Children and youth are the most important consumers of dairy products	Children and youth consume higher quantities of milk products due to several factors: school milk programs, popularity of yoghurt as a healthy snack as well as their overall large share in the population	*"Yoghurt consumers are mainly the youth and kids and that is the growing population"* *"Half of respondents consumed milk, while two thirds of children"*
The consumers are price sensitive, especially after COVID but also care a lot about milk freshness	Consumers after COVID, particularly in the rural areas are becoming even more price sensitive – that could explain the small share of butter and cheese in the product mix However, consumers seem to be willing to pay more for fresher and quality milk	*"Price sensitive market, most new entrants come in with lower price and bundle offers"* *New KCC sells a "Value Pack" of 4x 1 L UHT in tetrapak packaging*
Milk stations dominate sales because of price and taste but quality concerns are increasing	Informal sector takes up ~85% of the total consumption in Kenya, mostly through milk stations (where consumers need to bring an empty bottle to fill it up with raw milk, one litre of milk costs Ksh 60-70 compared to the Ksh 90-100 in a shop). Consumers also prefer the fresh milk taste. However, more and more consumers turn to packaged and processed milk as hygiene concerns are increasing, while some milk ATMs also had to close due to insufficient supply of milk	*"Kenyans prefer raw milk because of its superior taste and its lower price"* *"Milk ATMs in Eldoret closed primarily because of low supply but demand is also a question"*
Growing health consciousness impacts all products	Youth and the middle class are becoming more health conscious, which increases demand for skimmed and low fat milk, yoghurt as alternative to snacks perceived as unhealthy, and even helps the popularity of butter over margarine and other spreads	*"Adults will go for a healthy drink in yoghurt form, low fat yoghurt and milk"*
Consumers are worried about preservatives and chemicals	Long-life milks need to promote low levels of preservatives (e.g. Tetrapak is currently running an awareness raising campaign), while an awareness raising is also required to restore trust in milk powder as consumers believe there are chemicals in it	*"General perception among the Kenyan consumers that milk powder has some chemicals"*
Sour milk is a staple food	Sour milk or fermented milk, called mala, is a traditional staple food in Kenya, also eaten at family events. The youth are turning to flavored versions but still consuming sour milk	*"Local players are expected to develop sour milk products which have a slight flavor to meet the needs of the urban consumers"*

Source Expert interviews; Euromonitor; IFPRI (2020): Consumer perception of milk safety in Kenya

Price is a key driving factor, however, there is willingness to pay for better quality milk

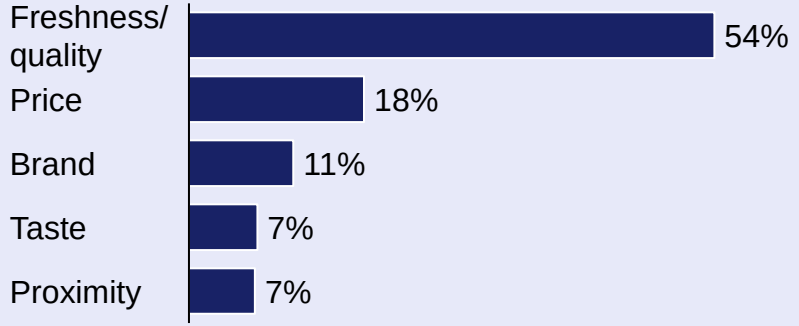
IFPRI Consumer perception of milk safety in Kenya report

Decision factor (in order of importance)	**Description**	**Willingness to pay premium,** KSh
Price	Price is the first decision factor	Aflatoxin-free certificate: 58-77/L premium
Quality	Measurement of quality depends on whether the milk is packaged or not but can include: Aflatoxin-free certificate, smell and color of milk There is no consensus between the consumers on whether raw or packaged milk is of higher quality	White vs. yellowish milk: 8-12/L premium Non-smelly vs. smelly milk: 61-93/L
Packaging	Tetrapack is the most preferred packaging for those who can afford it even though it is more expensive but it is perceived as more durable	Tetrapack vs. pouch: 18/L Plastic container vs. pouch: 10/L
Fat content	Consumers prefer whole milk to low fat milks, however the trend might be shifting for the youth and middle-class striving for a healthier life	Whole milk vs. low fat milk: 7/L

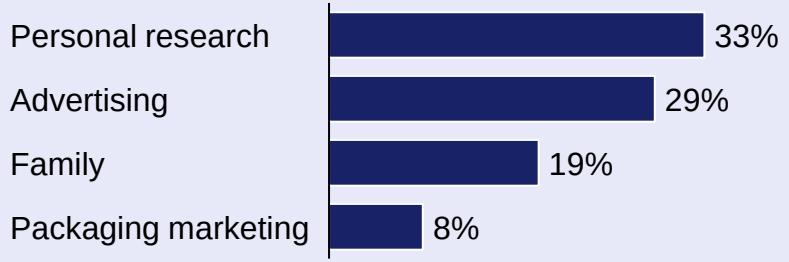
Source: IFPRI (2020): Consumer perception of milk safety in Kenya, Sagaci consumer survey

The consumer survey confirms previous findings that price and freshness are most important..

Most important factors when buying dairy, top 5 responses, share of total survey respondents



Factors that most influence dairy purchase, top 4 responses, share of total survey respondents



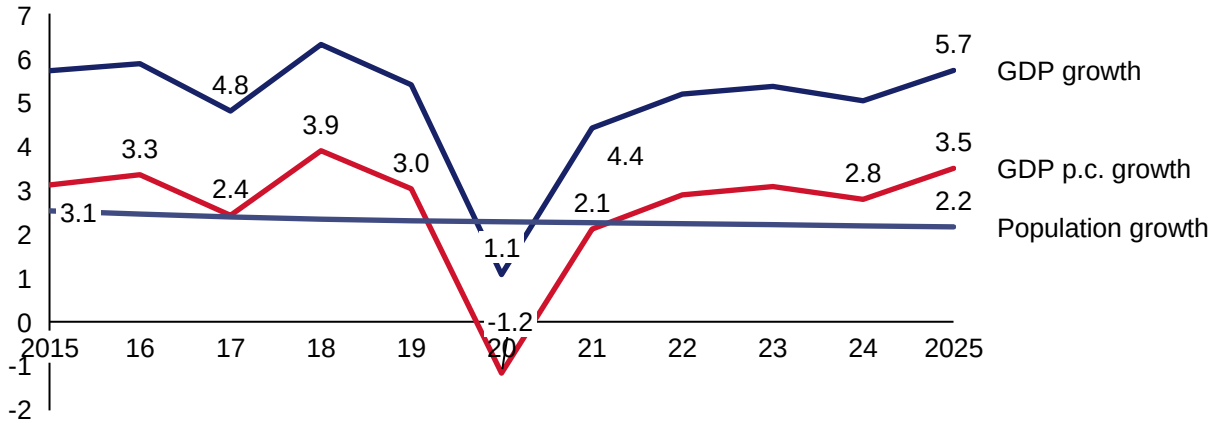
Agenda

1. East African regional dairy trade flows
2. Kenyan dairy market demand
   - Current market consumption
   - **Market demand growth**
3. Kenyan dairy value chain and competitive landscape
4. Potential opportunities

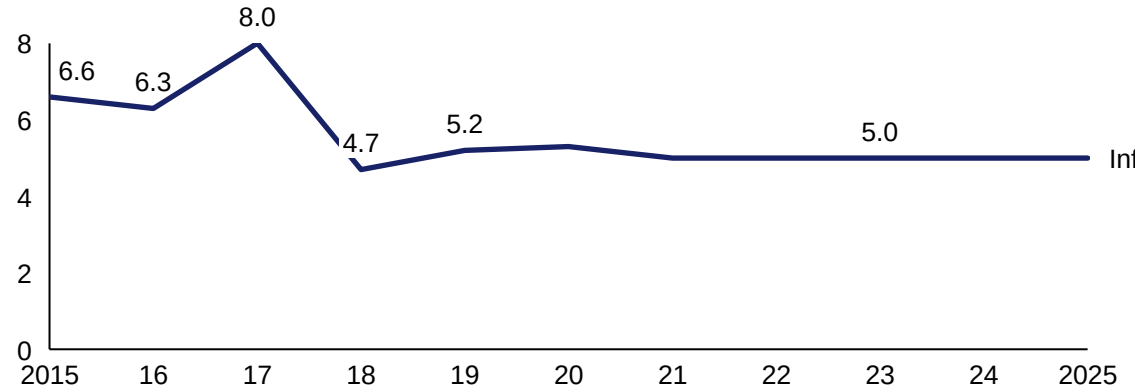
Kenya's economy is expected to grow slower than peer countries, but still reach 5.3% p.a. between 2021 and 2025

Key macroeconomic indicators, 2015-25, %

GDP and population growth, %



Inflation, %

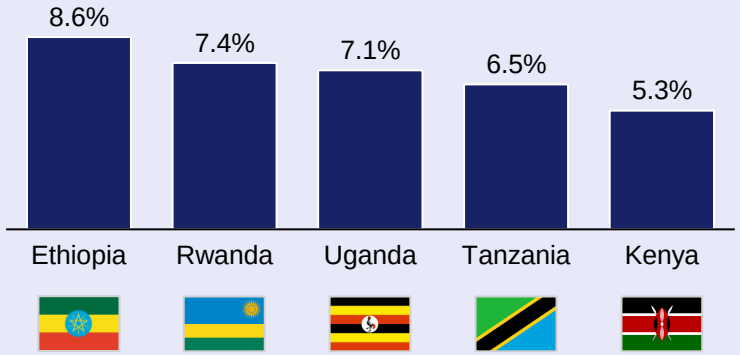


Source: IMF data used for inflation, UN Population, Fitch Solutions' projections used for GDP

Key comments

- Kenya's GDP is expected to recover partially in 2021 (4.8%) following the Covid-19 pandemic; however, the country is only expected to recover to pre-Covid GDP growth rates from 2025
- Kenya's growth rate is expected to be lower than four East African peer countries until 2025 (at 5.3% p.a. vs. 6%+ p.a. for peers)
- Inflation is expected to remain constant in the coming years at ~5%
- Should a climate change disaster hit Kenya (e.g. drought in 2017, locust in 2020), inflation and GDP would likely be affected

Real GDP growth (constant USD), CAGR 2021-25, %



Different data sources show different values for historical and future growth of the Kenyan dairy market

Formal consumption **Total consumption**

Source of estimation	Historical development Volume market growth, ME consumption CAGR 2015-20		Future outlook Volume market growth, ME consumption CAGR 2020-25		Comments
	+0% +2% +4% +6% +8%		+0% +2% +4% +6% +8%		
Total GDP growth (if milk consumption grows in line with GDP)		**4.7%**		**5.3%**	Assumes that each person increases milk consumption in line with income growth
Population growth (if milk consumption grows in line with population)		**2.3%**		**2.2%**	Assumes constant per capita milk consumption
IFCN (2016-2019)		**0.0%**			Due to a 2017 drought, consumption in Kenya was estimated to have dipped between 2016 and 2019
Expert interviews – total market (n=2)				**3-4%**	Based on per capita consumption rate growth of 1-2% because of urbanization and growing purchasing power of the youth, and 2.2% of population growth
Kenya Dairy Board[1]				**7.7%**	Based on aspiration from the Kenya National Dairy Master Plan to reach 220l/per person consumption by 2030
Euromonitor – formal consumption only		**3.9%**		**5.5%**	Estimate based on collected market data of formal distribution channels only
Expert interviews – formal consumption (n=1)		**5.5%**		**5.5%**	Estimate focused on the formal market and historical growth
Kenya Dairy Board[2]		**4.0%**			Historical growth based on processor milk intake adjusted by import to account for the drought in 2017

1. Projected growth based on KDB's aspiration for achieving 220 l/capita consumption by 2030
2. Historical growth based on growth in formal production and adjusted by imports

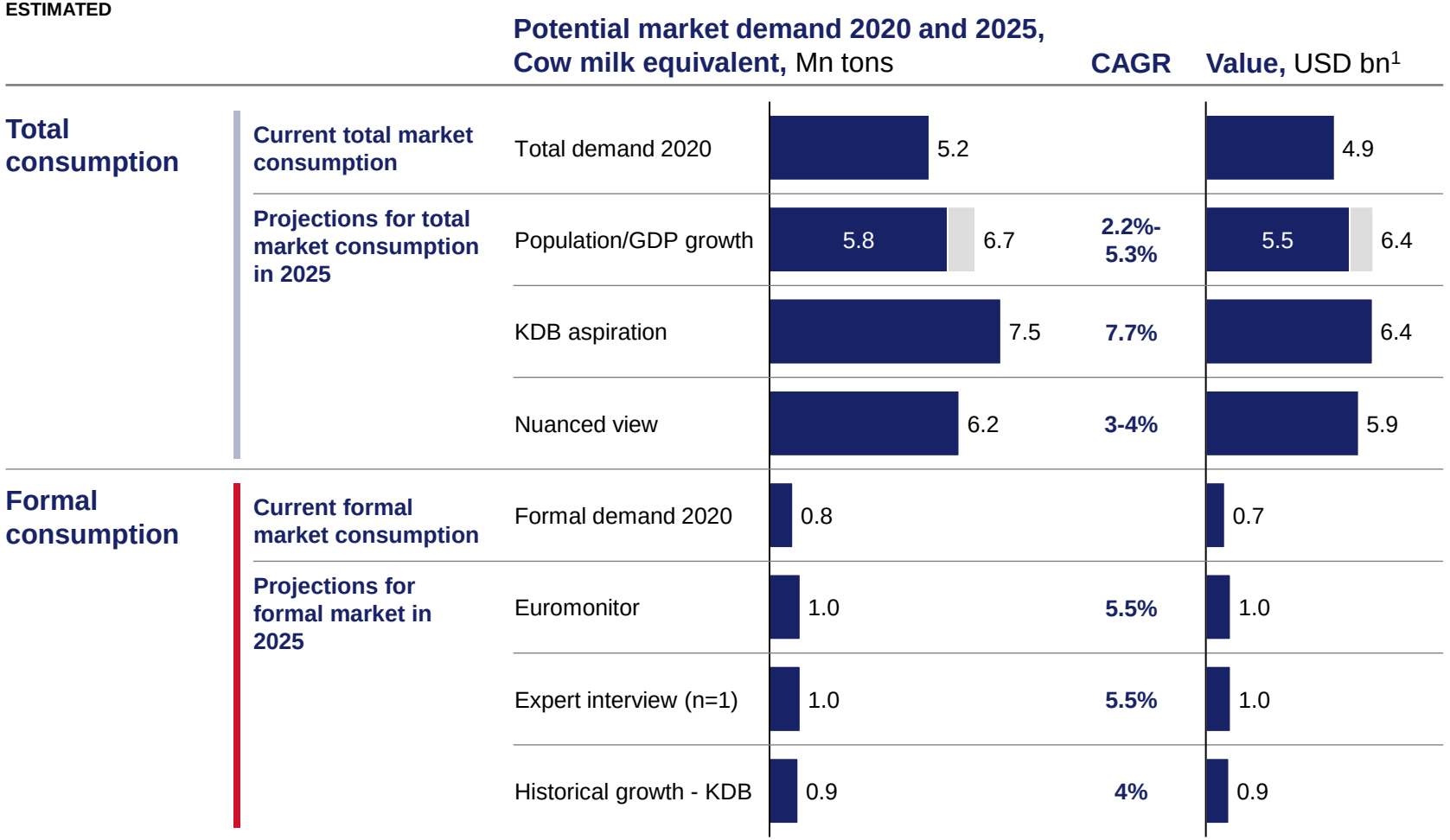
Source: Expert interviews; KDB, Euromonitor, IFCN, UN Population, UN Comtrade

Key notes

- While **population and GDP growth are good proxies** for growth in the dairy consumption, **the growth between 2015-2020 was eliminated by the drought** in 2017 as measured by IFCN
- However**, formal consumption has increased by 4-6%, growing faster than the total market,** that shows some previously informal dairy consumers decided to consume formal dairy
- Looking forward, experts expect 3-4% growth of the total market:
  - **Higher than population growth as urban population** is also growing over 4%, with >5x more milk consumed by urban citizens than rural, and because **purchasing power of the youth grows and middle-class population is adopting healthier lifestyle** that increases consumption of dairy, particularly yoghurt, flavored and low fat milk and mala
  - **Lower than GDP growth** as per capita consumption is already above the curve of what GDP per capita would indicate

Total consumption is expected to grow with population and urbanization, ~3-4%, formal consumption is projected to grow slightly higher by ~5-6%

ESTIMATED



1. Calculated using an average price of 103 KES/kg of milk equivalent and an exchange rate of 1 Ksh = 0,0092 USD
2. Historical growth between 2015 and 2020 is close to zero due to an important drought in 2017 which reduced milk production in the country, production took some years to increase back up again

Source: Expert interviews; KDB, Euromonitor, IFCN, UN Population

Key insights

- **Total consumption based on the nuanced view** is expected to reach 6.2 Mn tons of dairy with a **growth rate of 3-4%** that is arrived at from the **2.2% population growth and the additional per capita consumption growth of 1-2%** that experts estimate **because of urbanization and the growing purchasing power of the youth**
- **Formal consumption** is expected to **grow faster, by 4-6%** as experts and Euromonitor suggest **similar growth to the historical one,** potentially **reaching ~1 Mn tons by 2025**

Agenda

1. East African regional dairy trade flows
2. Kenyan dairy market demand
3. **Kenyan dairy value chain and competitive landscape**
4. Potential opportunities

The dairy market can be classified along 5 key stages of the value chain

Out of scope

Logistics & transportation

	Crop farming	Dairy farming	Dairy processing	Packaging	Distribution
Key inputs	• Labour • Seeds • Land • Fertilizer • Water • Chemicals • Machinery & tools • Knowledge	• Cows • Labour • Land • Animal feed • Water • Vaccinations • Knowledge	• Raw milk • Machinery • Labour • Water • Cooling & storage capacity • Energy • Knowledge	• Packaging material, such as paper, plastic, metal, glass • Labour • Machinery • Knowledge	• Dairy products • Stores • Cooling & storage capacity • Trucks, cars • Labour • Knowledge
Key stakeholders	• ~100 animal feed farmers	• ~1.8+ million dairy farmers – Small – Medium – Large • >600 dairy cooperatives, societies and unions	• >30 domestic formal processors but 4 have ~80% market share • Few EA and European dairy processors who export to Kenya • Workers and representatives		

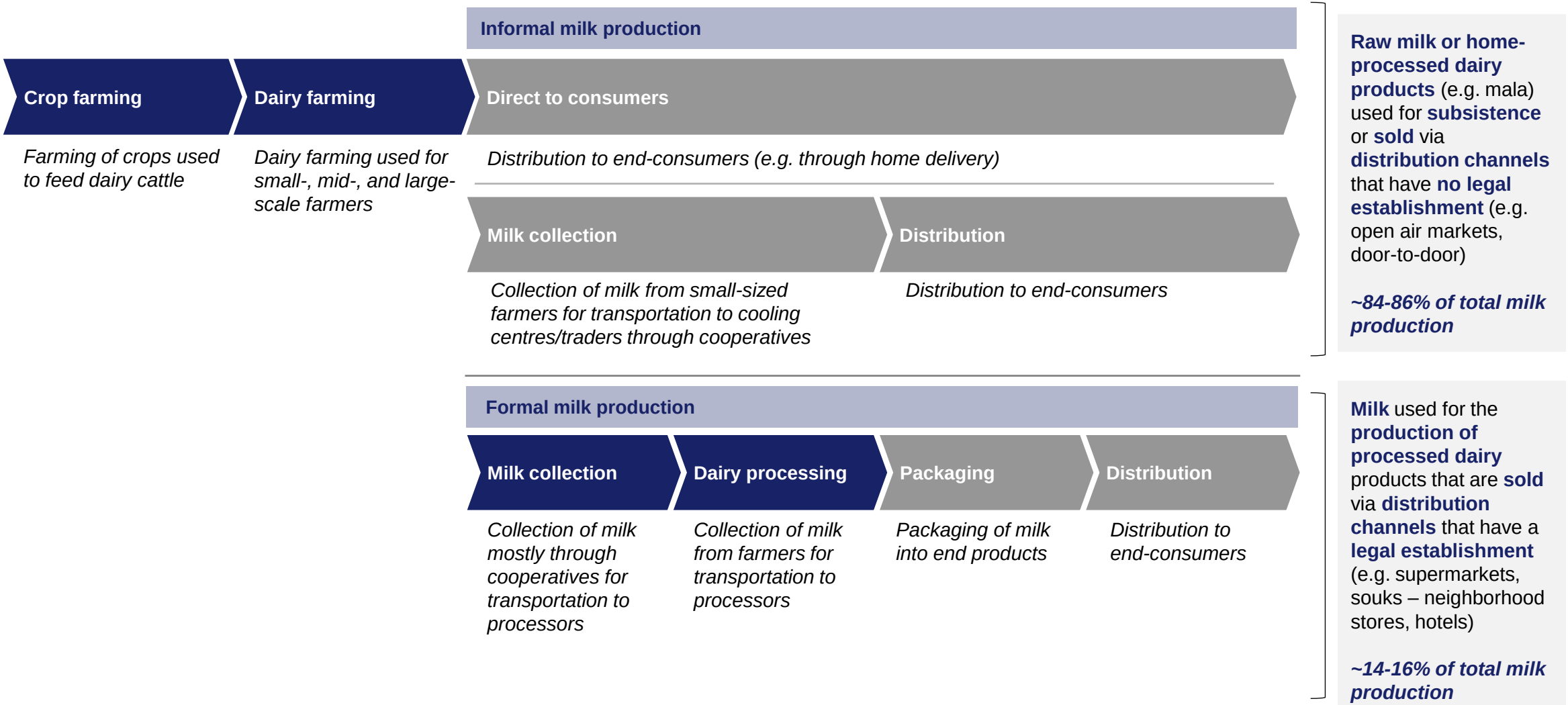
Key stakeholders across the value chain

Service providers (e.g. veterinary, quality, agri. inputs)	Government, parastatals	Research institutions	Development partners	Communities and civil society	The public and media

Source: KDB, KNBS; Euromonitor

The Kenya dairy value chain can be differentiated by formal and informal milk production

Focus of this document Out of scope



Source: KIPPRA (2020): Exploring Kenya Dairy Industry for Job Creation for the Youth, expert interviews

In addition to crop and dairy farmers, several actors across Kenya are active in the dairy value chain

NON-EXHAUSTIVE

Public sector: *public agencies/ministries that dictate regulations relating to the dairy industry and/or provide training and research*

- Ministry of Agriculture Livestock and Fisheries (MALF),
- County Governments
- Dairy Training Institute (DTI)
- Animal Health and Industry Training Institute (AHITI)
- **Production and extension colleges** incl. Edgerton University, Nairobi University, Departments of Animal Production etc..

Milk buyers and processors: *public or private organizations that help process milk from farmers into other products (e.g. pasteurized/UHT milk, yoghurt)*

- Brookside Dairy
- New Kenya Creameries Cooperative (New KCC)
- Sameer/Daima Dairies
- Githunguri Dairy
- Uplands Dairy

Dairy industry traders lobby group: *groups and/or associations which lobby the government in favour of dairy stakeholders*

- Kenya Dairy Farmers Federation (KDFF)
- Kenya Livestock Breeding Organization (KLBO)
- Kenya Livestock Producers Association (KLPA)
- Association of Kenya Feed Manufacturers (AKEFEMA)

Dairy input suppliers: *private organizations that sell services/inputs necessary to large-scale dairy farmers and producers*

- **Milk packaging suppliers:** TetraPak
- **Imported genetics, artificial breeding equipment and supplies of frozen bull semen and embryos:** ABS TCM Ltd, Bimeda/Alta Genetics, Dairy Enterprise Trust Fund, Highchem/CRI
- **Liquid nitrogen:** British Oxygen Company (BOC), Welrods
- **Bred heifers:** Gogar Farm, Baraton University, Deneside Farm
- **Dairy equipment (milk cooling and processing, milk cans and bulk transport tanks):** AITEC, Desley Holdings Kenya Limited, and DSS/Alfa Laval
- **Veterinary inputs and vaccines:** Coopers, Norbrook, Ultravetis, Higchem
- **Commercial feed and ingredients:** Unga (K) Ltd, Sigma Feeds Ltd, Pembe

Parastatal institutions: *associations that help dairy stakeholders with the aim of improving the industry*

- KAGRC, Kenya Dairy Board (KDB)
- Agricultural Development Cooperation (ADC)
- Agricultural Finance Corporation (AFC)
- Bukura Agricultural College, Kenya
- Kenyan Agricultural Research Institute (KARI)
- Agricultural Information Resource Centre
- Kenya Veterinary Vaccines Production Institute (KEVEVAPI)

Civil society: *organizations supporting rural development in the agricultural sector*

- Kenya Small-scale Milk Traders Association

Services: *public and private sector labs and foundations that help improve feed, veterinary services or access to finance for dairy farming*

- **Feed laboratories:** ABS TCM Ltd and Egerton University
- **Milk quality and Veterinary services:** ANALABS
- **Veterinary laboratories:** Nairobi University, KEVEVAPI for vaccine production, and Vetlabs
- **Dairy ICT providers:** Grameen Foundation and AgriTrace

Source: Wageningen UR (University & Research centre) (2013): White Gold; Opportunities for Dairy Sector Development Collaboration in East Africa. Centre for Development Innovation

The dairy market can be classified along 5 key stages of the value chain

Detailed further next | Out of scope

Logistics & transportation

	Crop farming	Dairy farming	Dairy processing	Packaging	Distribution
Key inputs	• Labour • Seeds • Land • Fertilizer • Water • Chemicals • Machinery & tools • Knowledge	• Cows • Labour • Land • Animal feed • Water • Vaccinations • Knowledge	• Raw milk • Machinery • Labour • Water • Cooling & storage capacity • Energy • Knowledge	• Packaging material, such as paper, plastic, metal, glass • Labour • Machinery • Knowledge	• Dairy products • Stores • Cooling & storage capacity • Trucks, cars • Labour • Knowledge
Key stakeholders	• ~100 animal feed farmers	• ~1.8+ million dairy farmers – Small – Medium – Large • >600 dairy cooperatives, societies and unions	• >30 domestic formal processors but 4 have ~80% market share • Few EA and European dairy processors who export to Kenya • Workers and representatives		

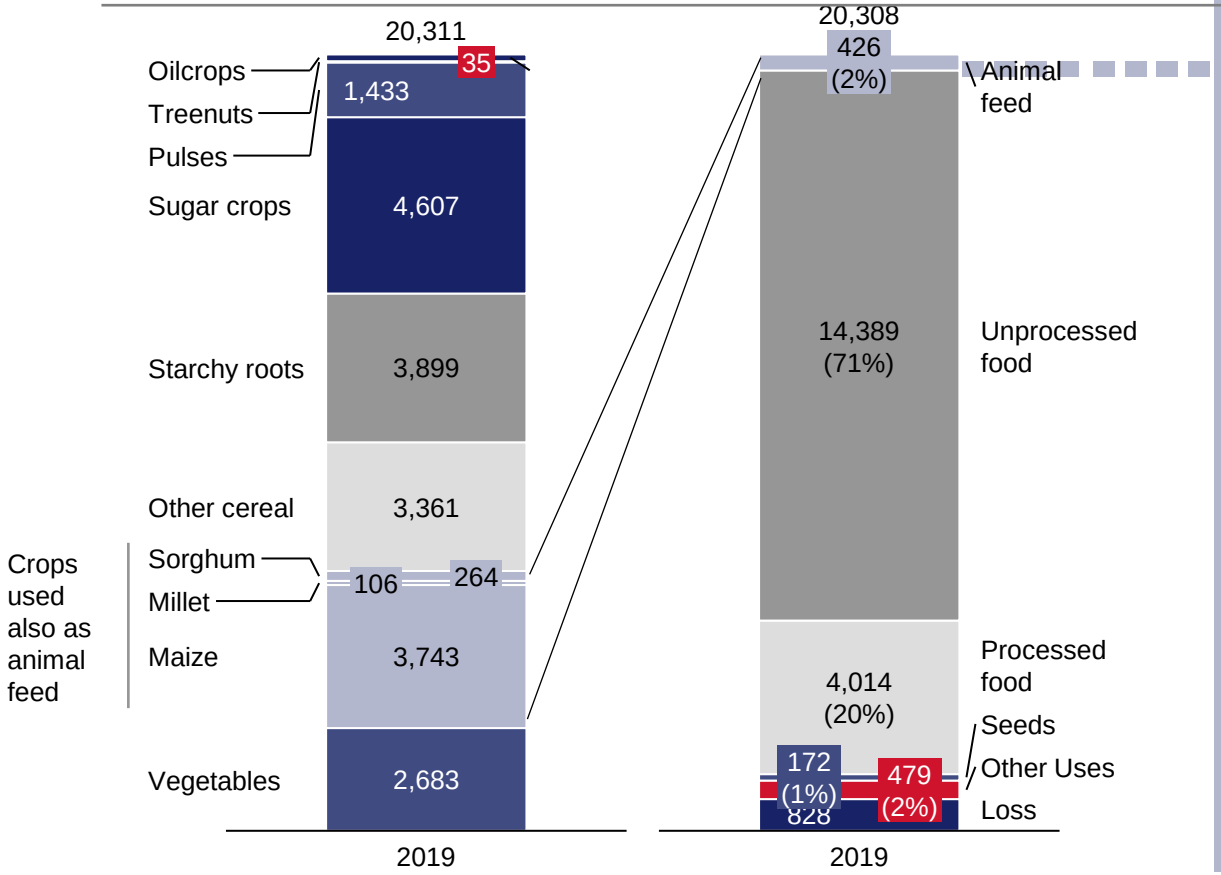
Key stakeholders across the value chain

Service providers (e.g. veterinary, quality, agri. inputs)	Government, parastatals	Research institutions	Development partners	Communities and civil society	The public and media

Source: KDB, KNBS; Euromonitor

Animal feed consumption in Kenya is significantly lower than world average

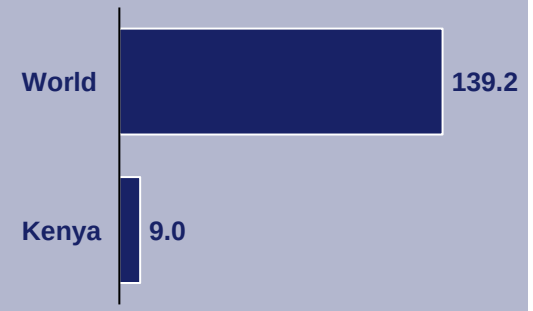
Crop consumption by type of crop, 2019, Thousand tonnes



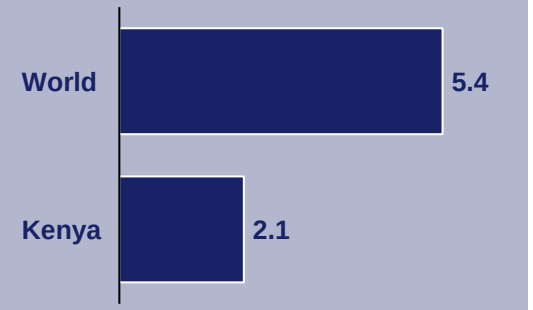
Crop consumption by objective, 2019, Thousand tonnes

Global comparison

Animal feed production per capita, 2019/20, Kg/capita



Proportion of animal feed production of crop production, %



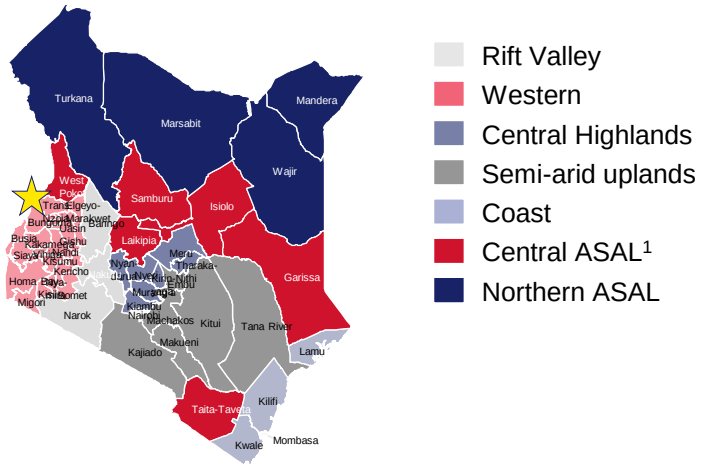
Key insights

- **9kg per capita crop** is dedicated for **animal feed in Kenya** compared to the **world average of 139 kg per capita,** mainly maize (93% of total animal feed), sorghum (6%) and millet (1%)
- **Animals mostly graze on what is available on farmlands in their vicinity**, which is area that is not included in this data

Source: KNBS, FAO World Crop Production Database

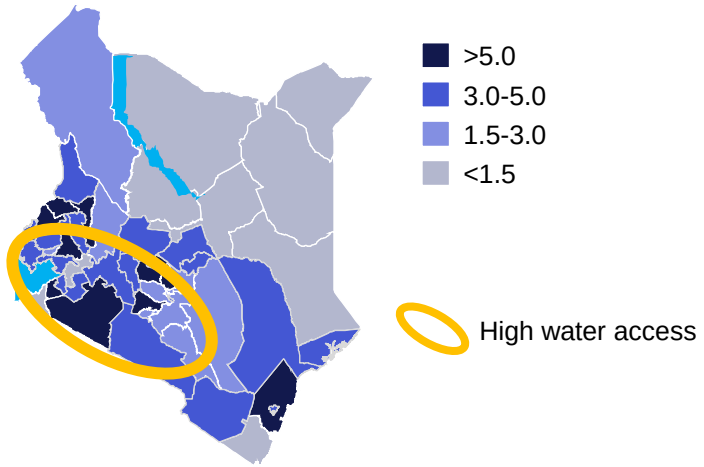
Kenya has 7 farming system archetypes

Farming system archetypes
Qualitative analysis



- Rift Valley
- Western
- Central Highlands
- Semi-arid uplands
- Coast
- Central ASAL[1]
- Northern ASAL

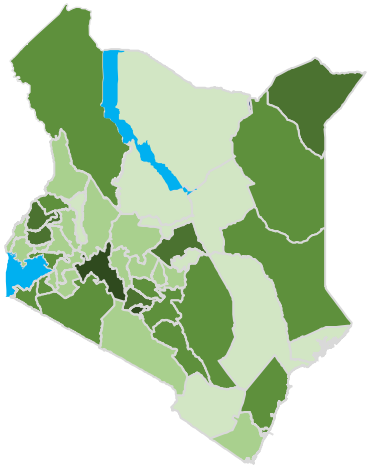
Crop yields, 2016
tonnes/ha



- >5.0
- 3.0-5.0
- 1.5-3.0
- <1.5

High water access

Population by county, 2016
mn



- >2 mn
- 1.5-2 mn
- 1-1.5 mn
- 500 k - 1 mn
- 0-500 k

Highest crop yield areas (**bold >5.0 tonnes/ha)** are in Western, Central Highlands, Rift Valley and Coast

- Western: **Trans Nzoia, Bungoma, Kisii, Elgeyo Maraket, Nandi**, Busia, Kakamega, Vihiga, Kisumu, Bomet, Kericho
- Central Highlands: **Nyeri, Kiambu, Kirinyaga**, Nairobi, Nyandarua, Tharaka Nithi
- Rift Valley: **Narok,** Nakuru
- Coast: **Kilifi,** Lamu
- Central ASAL: West Pokot, Laikipia, Taita Taveta
- Semi-arid uplands: Kajiado, Tana River
- Northern ASAL: Turkana, Marsabit, Wanjir, Mandera

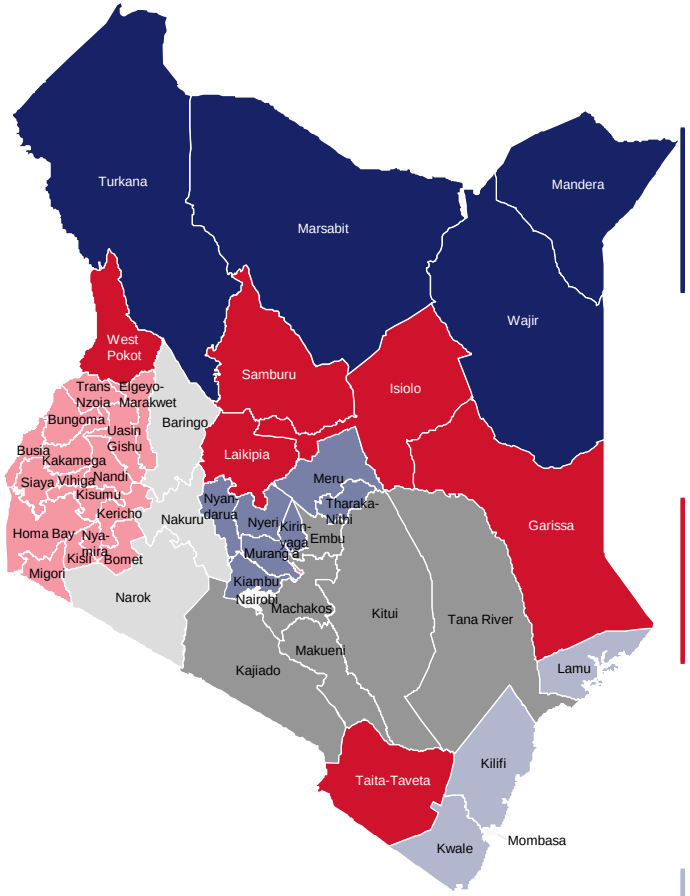
1. Arid and semi-arid land

Source: UNICEF population projections based on KNBS data; WFP Comprehensive Food Security and Vulnerability Survey 2016

Trans Nzoia is part of the Western region of Kenya; farmers there mostly grow maize, French beans and potatoes

Summary of farming system archetypes in different Kenyan regions

HIGH LEVEL ARCHETYPES



x Estimated # farming households

Western – high population density, farmers with mixed staples & cash ~1.6 mn

Farm size: 0.5-5 acres
Soil: mix moderate-deep red soil of medium-high fertility
Income (KES/month): 15,000
Rainfall: 1,200-1,800mm, 2 seasons, long season in March, short season in November,
Crops: mainly maize, French beans, sugar, ground nuts, sweet potato, Irish potato
Livestock: **2 dairy cows**, 20 chickens
Fisheries: freshwater tilapia, perch, carp

Rift valley – mixed staples, cash, livestock ~0.4mn

Farm size: 2-60 acres
Nakuru: maize, wheat, sorghum, **dairy cattle**, Irish potato, chickens
Baringo: honey, goats, dryland cereals
Narok: **large herds cattle,** goats, sheep, maize

Central highlands – cash crops ~1mn

Farm size: 2-5 acres
Crops: coffee, tea, **tomatoes, potatoes, maize, bananas, French beans**
Livestock: **2 dairy cattle**, 20 chickens

North ASALs – pastoralist, camels ~0.4mn

Farm size: group ranches
Crops: occasional maize cultivation on raised plateaus
Livestock: camels, goats, sheep

Central ASALs – pastoralist, cattle ~0.3mn

Farm size: group ranches
Crops: occasional maize cultivation on raised plateaus
Livestock: **beef cattle**, goats, sheep

Semi-arid uplands – dryland crops ~0.5mn

Farm size: 2-5 acres
Crops: sorghum, cowpea, chickpea, pigeon pea
Livestock: **beef cattle**

Coast – mixed staples & cash ~0.3mn

Farm size: 1-10 acres
Crops: mangoes, cashews, sorghum, millet, maize
Livestock: 20 chickens
Fisheries: marine finfish, crustaceans, molluscs

Maize is **grown** in **most regions, apart** from **semi-arid uplands** which **grow chickpeas**

French beans are also **grown** in the **Western region**

Soybean, canola/rape, linseed, sunflower, and **alfalfa** are **not commonly grown crops in Kenya**

Source: UNICEF population data (2018), Kenya Economic Survey agriculture employment data, Agro-Climatic Zone Map of Kenya, Climate Hazards Group Infrared rainfall data, USAID-KAVES Value Chain Anaylsis, expert interviews

Certain crops could be cultivated together with maize instead of import

Volume, tons Value, Thousand USD

NON-EXHAUSTIVE LIST OF CROPS

	Crops	Kenyan production	Import volume[5]	Import value[5]	Most common end products for human consumption
Oil seeds	Soybean	2,396	18,697[3]	18,317	Soybean oil, soy, milk, soy flower, soy protein, tofu etc.
	Linseed	968	22	26	Linseed oil, linseeds as dietary supplement
	Canola/rape	N/A	4,144[4]	4,399	Rapeseed oil
	Sunflower	14,459	1,456	109	Sunflower oil, sunflower seeds, sunflower seed butter
Animal feed	Maize/corn	3,897,000	249,493	64,753	Maize oil, maize flour, cornmeal, grits, starch, tortillas, snacks, and breakfast cereals
	Alfalfa	N/A	7	52	Dried herbs, supplement, alfalfa sprouts
Legumes	Beans, green	40,416	946[1]	283	Canning, sauces, falafel
	Beans, dry	747,000	104[2]	81	
	Chickpeas	1,306			Chickpeas, hummus, falafel, chana masala

1. Coded as 'Legumes, green'
2. Coded as 'Legumes, dry'
3. Includes imports of seeds, flour and oil
4. Includes imports of seeds and oil
5. Based on an average from 2019 and 2020

Source: FAO STAT, UN Comtrade

Maize and **beans** are the **most grown products** in Kenya with **~4 Mn, ~800k tons** respectively

Maize (~250k tons), **soybean** (~18k tons) and **rapeseed** (~4k tons) are the **most imported crops** of this list

Maize is mostly imported from Uganda, Tanzania, Zambia and South Africa, soybean is similar but also from Ethiopia

Import substitution might be possible especially for soybeans, soybean oil and canola oil if growing conditions are favorable

		Import volume, tons[5]	Import value, '000 USD[5]	Average import price, USD/ton[1]
Soybean	Soy beans	11,668	9,890	848
	Soybean flour	71	49	692
	Soybean oil	6,958	8,378	1,204
Canola/ Rapeseed	Rape/colza seeds	20	136	N/A
	Rape/colza and mustard oil	4,124	4,263	1,034

1. Prices estimated by dividing import value with import volume stated on slide. Average prices
2. Be taken as a very high level estimate as UN Comtrade value of imports can sometimes be over/underestimated and the calculated prices are higher than seen on the global market

Source: UN Comtrade

Soy beans (~11k tons/year) and **soybean oil** (~7k tons/year coming mostly from USA, Uganda and Argentina) are the two **most imported soybean** products into Kenya

Rapeseed oil is also the **most** imported **rapeseed product** with ~4k tons/year

The growing conditions for these crops would need to be evaluated

Prices were **determined using UN Comtrade, reporting could be incomplete** and average 'real prices' of imports could differ

The dairy market can be classified along 5 key stages of the value chain

Detailed further next | Out of scope

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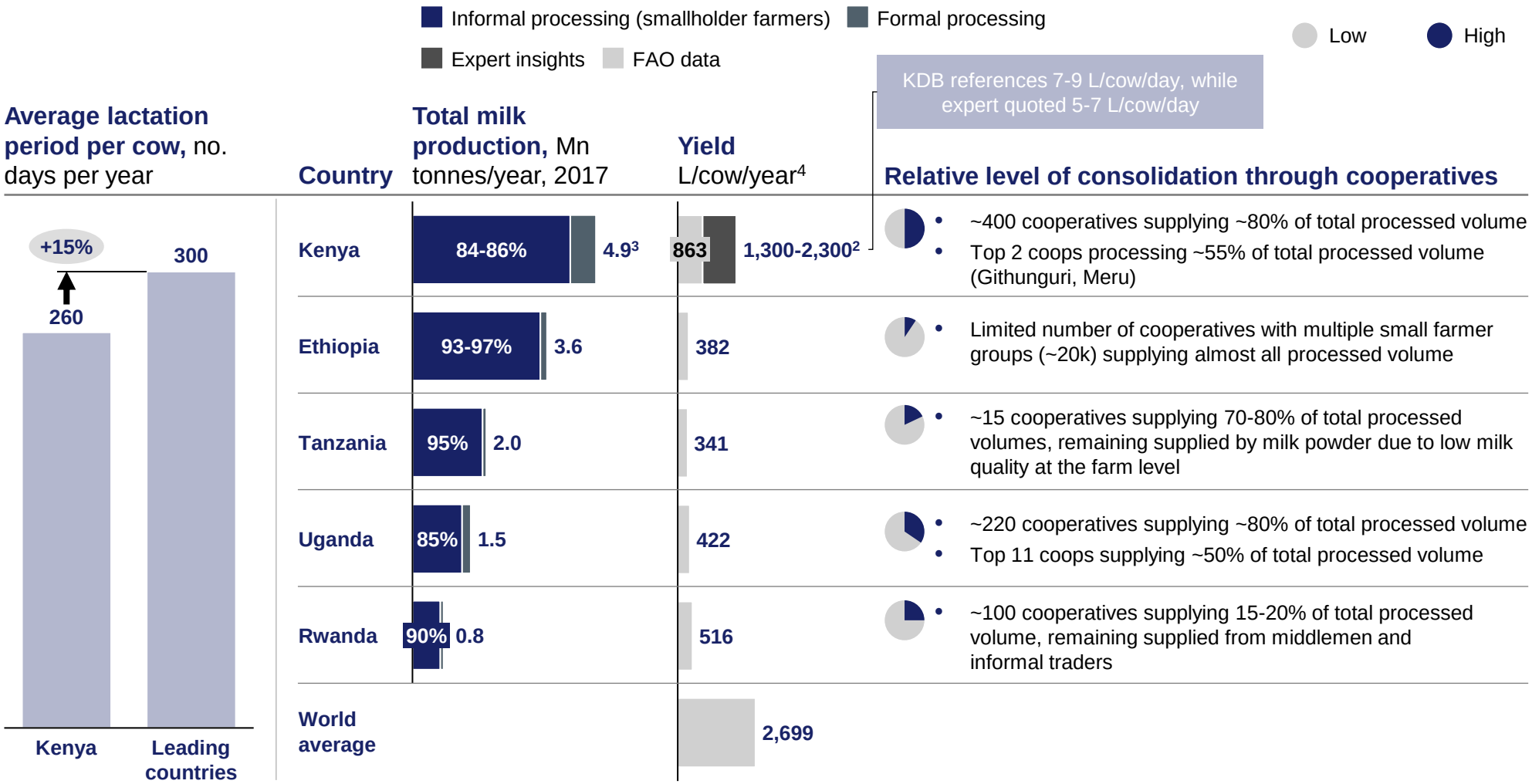
Key stakeholders	• ~100 animal feed farmers	• ~1.8+ million dairy farmers – Small – Medium – Large • >600 dairy cooperatives, societies and unions	• >30 domestic formal processors but 4 have ~80% market share • Few EA and European dairy processors who export to Kenya • Workers and representatives		

Key stakeholders across the value chain

Service providers (e.g. veterinary, quality, agri. inputs) | Government, parastatals | Research institutions | Development partners | Communities and civil society | The public and media

Source: KDB, KNBS; Euromonitor

Kenya has highest milk yield in East Africa at 1.3-2.3k liters/cow/year, but it is still lower than global average



1. Based on FAO estimate and data from UNIQUE's Kenya Livestock sub-sector NDC report (2020)
2. KDB references 7-9 L/cow/day accounting for 1,800-2,300 L/cow/year, while expert quoted 5-7 L/cow/day in 2020, accounting for 1,300-1,800 L/cow/year if calculated with average lactation period per cow
3. 2019
4. FAO data is likely to be underestimated due to the high informality of the dairy sector in East Africa

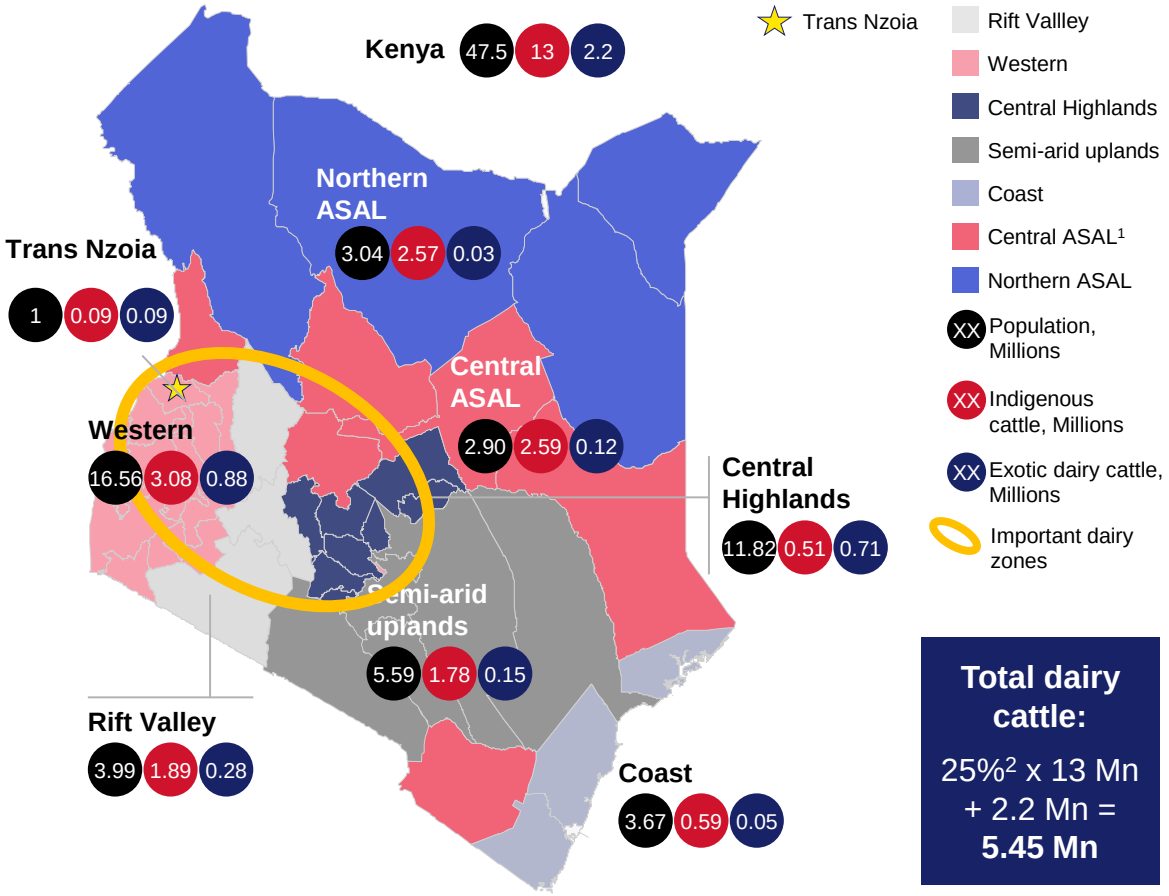
Source: USAID-KAVES, FAO STAT, Expert interviews, UNICEF

Average **lactation period** in Kenya is **only ~8.5 months due to low-quality animal feed** and dry season

Yield per cow is ~2x **higher in Kenya than in other EA countries** but still **lower** than **world average** according to FAO data

Milk production in Kenya is mostly located in the Western, Rift Valley and Central Highlands regions

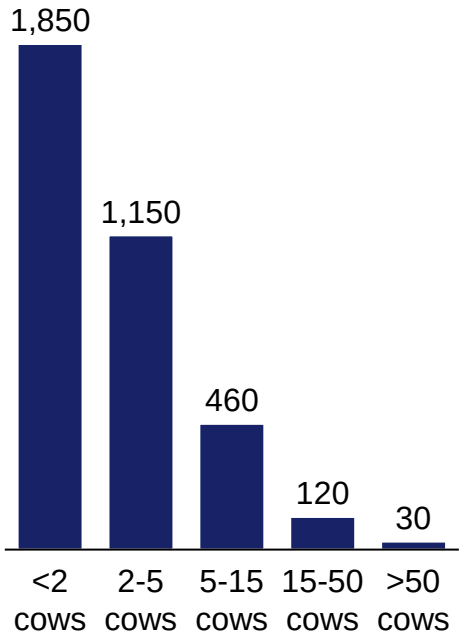
Distribution of population and cattle per agricultural zones



Total dairy cattle:

25%[2] x 13 Mn + 2.2 Mn = **5.45 Mn**

Number of cattle herds based on their size, '000



Types of dairy farmers

Zero grazers

Semi-zero grazers

Open grazers

1. Arid and semi-arid land
2. ~25% of indigenous cattle is assumed to be dairy cow based on USAID estimates
3. Assuming 25% of cattle are dairy cows and each farmer has 2-4 cows

Source: Kenya Census 2019, Kenya Dairy Board, FAO, USAID, expert interviews

Dairy cows are estimated to be 5.45 Mn as 25%[2] of the 13 Mn indigenous cattle is assumed to be dairy cows on top of the 2.2 Mn exotic dairy cattle

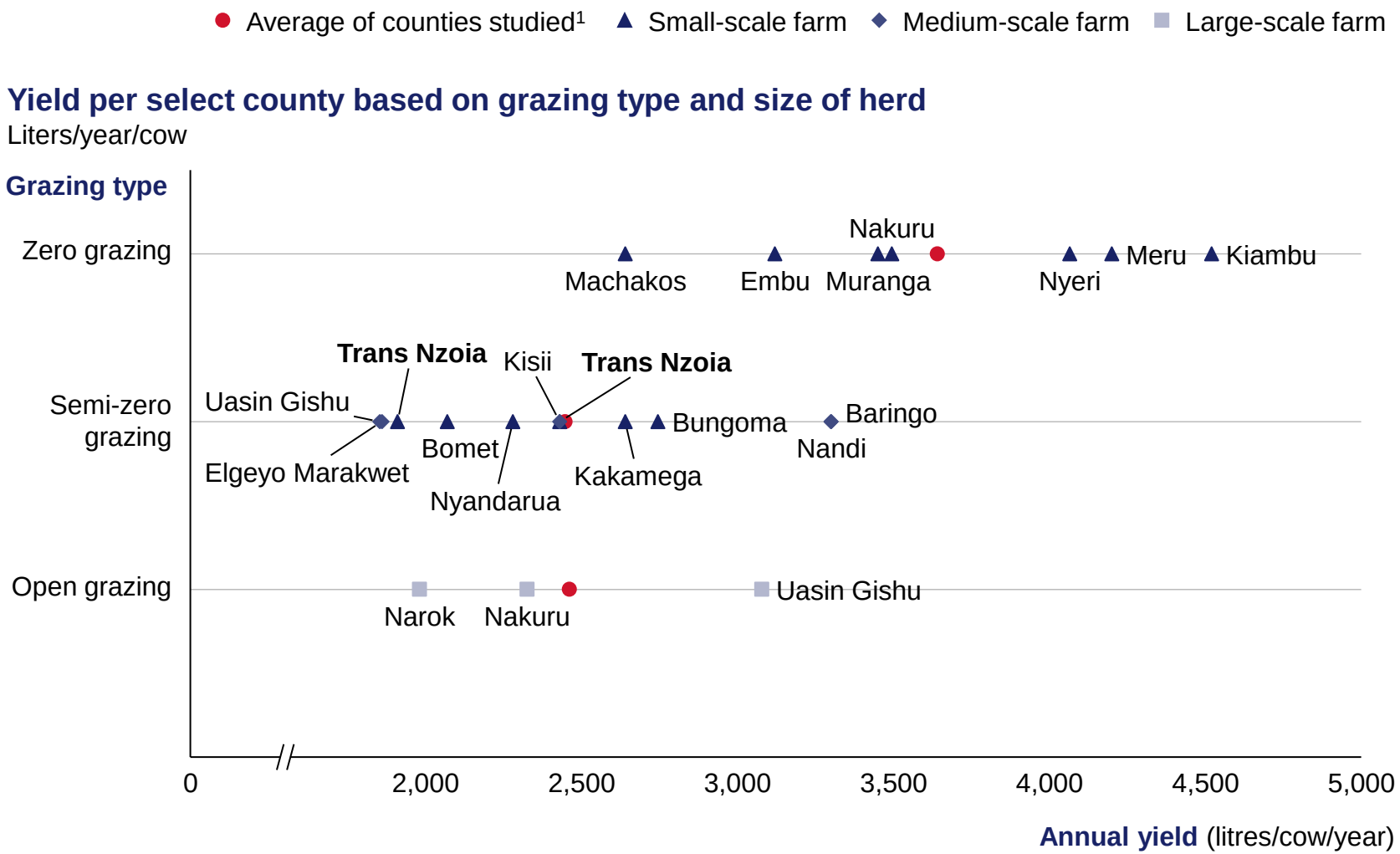
However this **ratio is likely higher in** specific dairy regions, e.g. **Western and Central Highlands**, while **little dairy is expected in Northern ASAL or in Narok** where cattle populations are high for subsistence purposes

~1.85 Mn cattle owner smallholders have less than 2 cows, while the estimated number of **dairy small holders is also 1.8 Mn with an estimated 100k living in Trans Nzoia**

In Trans Nzoia, ~12-25% of households are estimated to **rely on dairy[3]**

Dairy farmers vary in their grazing types and can be zero or semi-zero grazers or open grazers

Dairy yields vary by county, but the highest yields are produced when cows are not open grazers



1. Counties studied: Baringo, Bomet, Bungoma, Elgeyo Marakwet, Embu, Kakamega, Kiambu, Kisii, Machakos, Meru, Muranga, Nakuru, Nandi, Narok, Nyandarua, Nyeri, Trans Nzoia, Usain Gishu

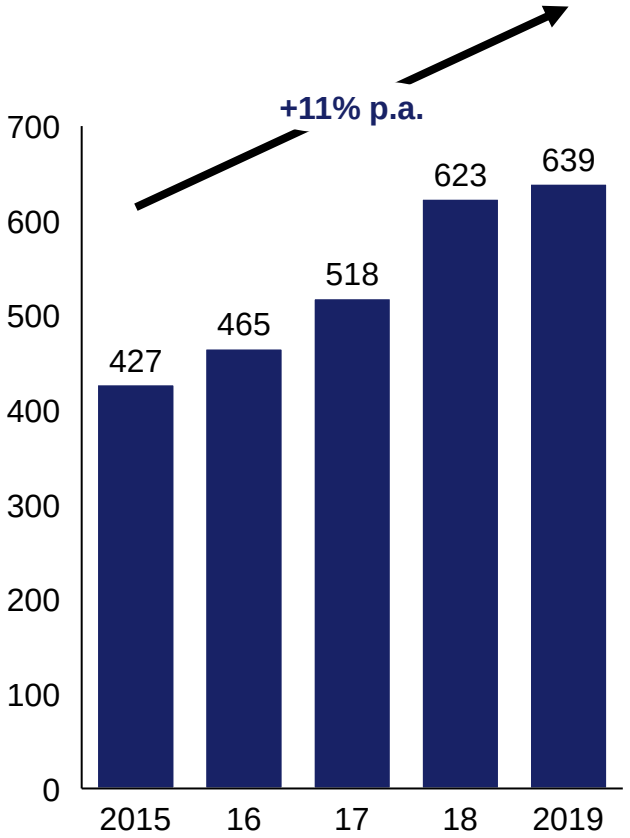
Source: Kenya Dairy Board and Tegemeo Institute of Agricultural Policy and Development (2020): Report on a study of the cost of milk production in Kenya,

Dairy yields depend on the **type of grazing**, and are **highest** when dairy cattle is exclusively fed through **animal feed (zero-grazing)**

On average, **Trans Nzoia's yields are relatively low,** compared to the counties studied

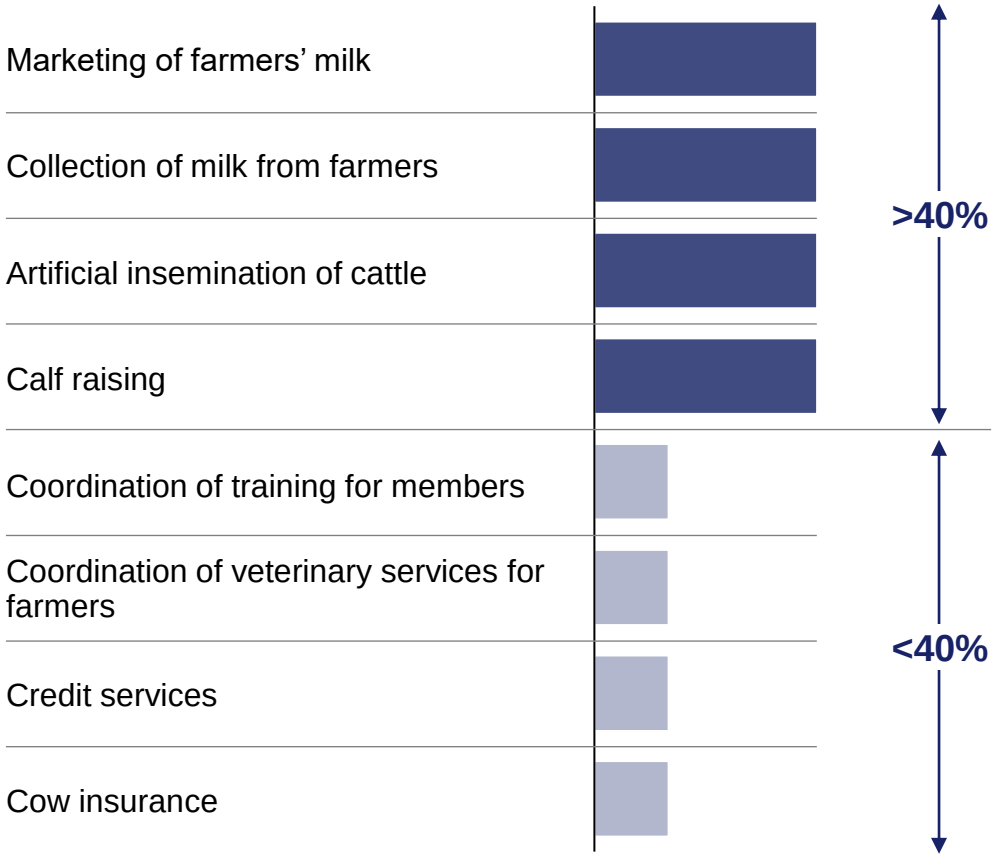
Dairy societies and unions have grown 11% p.a. since 2015 and provide essential services to smallholder farmers in Kenya

Number of Kenyan dairy societies and unions



Examples of services provided by dairy cooperatives

Share of cooperatives providing service



Source: Dr. Nabiswa P. Koyi, International Journal of Community and Cooperative Studies (2020): Report on the Role of Dairy Cooperative Societies in sustainable Dairy Development in Kenya, KNBS

Since 2015, the **number of dairy societies and unions** has grown by 11% p.a. to **>600 in 2019**

Dairy cooperatives are important as they **provide essential services to farmers** – e.g. **>40%** of cooperatives offer services such as **marketing and collecting milk** or **artificial insemination**

However, **<40%** of cooperatives provide other **services** such as **training, veterinary services, credit and insurance**

Moreover, dairy cooperatives are an important link between smallholder farmers and the broader dairy stakeholder ecosystem

NON-EXHAUSTIVE

Reduce cost of services to farmers | Coordination of capacity building and funding | Selling of farmers' milk

Small-holder farmers → **Dairy cooperative**

Stakeholders	Services provided by the cooperative
Financial institutions	Coordinate financial services for farmers and negotiate better terms
Input suppliers	Coordinate purchasing of inputs and reduce prices through economies of scale
Veterinary services	Coordinate services and reduce prices through economies of scale
Livestock production officers	Coordinate capability building for farmers
Kenya Dairy board	Coordinate capability building for farmers
National government	Disseminate policy guidelines as well as technical, financial & coordination services
County government	Facilitate and coordinate county-support to farmers
NGO & donors	Negotiate funding for dairy-related programs and create a platform for donors
Research centres	Collaborate and coordinate dissemination of research to farmers
Retailers/traders	Supply milk after collecting milk from farmers
Transporters	Coordinate with transporters to distribute farmers' milk to further distances
Milk processors	Supply milk after collecting milk from farmers

Source: Dr. Nabiswa P. Koyi, International Journal of Community and Cooperative Studies (2020): Report on the Role of Dairy Cooperative Societies in sustainable Dairy Development in Kenya

Kenyan **dairy cooperatives connect** Kenyan **smallholder farmers** to the **broader ecosystem of stakeholders** in the dairy industry

In doing so, they provide **3 important services** to farmers:

- **Reduce the cost of services/inputs** (e.g. financial and veterinary services)
- **Coordinate capacity building and funding** (e.g. for donor-funded programs or after new policies are issued by the government)
- **Sell farmers' milk** to retailers and milk processors

Trans Nzoia already has some dairy cooperatives, that have recently united to process milk together in the longer term

Examples of dairy cooperatives in Trans Nzoia, 2017

ILLUSTRATIVE **NON-EXHAUSTIVE**

Examples of dairy cooperatives in Trans Nzoia (2017)

Cooperative name	Tot. members	Average milk intake, L/day	Milk cooling equipment	Services provided to farmers
Mwaita	700 / 1,700	3,437	Milk chiller	Artificial insemination, agrovet shop, agriculture contracting services[2]
Endebes	42 / 450	2,404	Milk chiller	N/A
Meboot	52 / 475	447	Milk chiller	Contracting
Mois Bridge[1]	2,500 / 4,500	14,443	Milk chiller and tanker	Artificial insemination, agrovet shop, agriculture contracting services

1. Also active in Usain Gishu so numbers are higher
2. Cooperatives harvest fodder crops for their members

Source: Dairy Market Study North Rift Kenya, SNV (2017), press search – Aspect News: Trans Nzoia: Dairy farmers form union to enhance productivity

- **Trans Nzoia and Bungoma dairy farmers** had **difficulty of selling their products** on a highly **competitive market**, dominated by large processing firms capable to add value/process milk
- In **2019**, **15 dairy societies united** to form the **Nzoia Dairy Farmers Co-operative Union**
- The **objective** of the union is to increase farmers' income through economies of scale in processing
- The union aims to **acquire infrastructure to process milk** in the long term, and had planned to **supply Brookside Dairy Ltd** in the **meantime**

The Kenyan dairy sector facing multiple challenges that lead to stagnating income for farmers and milk supply constraints

Deep dive next page

	Challenges	Description
Causes of stagnating income for farmers	**Stagnating farmgate milk prices**	Even though consumer prices increased by 6% p.a. since 2013, farmgate milk prices have stagnated (1% p.a. growth vs. 5-8% annual inflation) due to increasing share of processors and retailers that puts pressure on farmers' real income. Seasonality of milk production also destabilizes the price at the farmgate
Causes of supply constraint in the country	**Low quality and uneven availability of animal feed**	Most farmers feed cows on fresh pasture with inadequate/ inconsistent quality and quantity. Available processed feed has high cost and inconsistent quality resulting in low dairy yields, especially during dry seasons Incidence of aflatoxin in Kenyan milk is high (>50% of sampled products were above EU limits, according to a study) due to low quality maze storage
	Lack of cold chain	There is lack of chilling equipment on farms and lack of chilled transportation means. Long distance to cooling centres impact quality and lead to milk losses of up to ~7% for farmers during rain season due to poor road infrastructure
	Inadequate services to farmers	Liquidity constraints (due to lack of credits from cooperatives to farmers and payment delays from processors) and inadequate extension services (e.g. advice on livestock and husbandry practices) due to officers retiring are hindering farmers' productivity and also discouraging them to sell on the formal market
	Prevalence of animal diseases	High incidence of mastitis and other animal diseases, such as foot and mouth disease, due to changing weather patterns according to experts
	Increasing pressure on land	Reduced land availability has led to a reduction in herd size, low amounts and increased cost of fodder and in some counties, and to other changes to the production system[1]

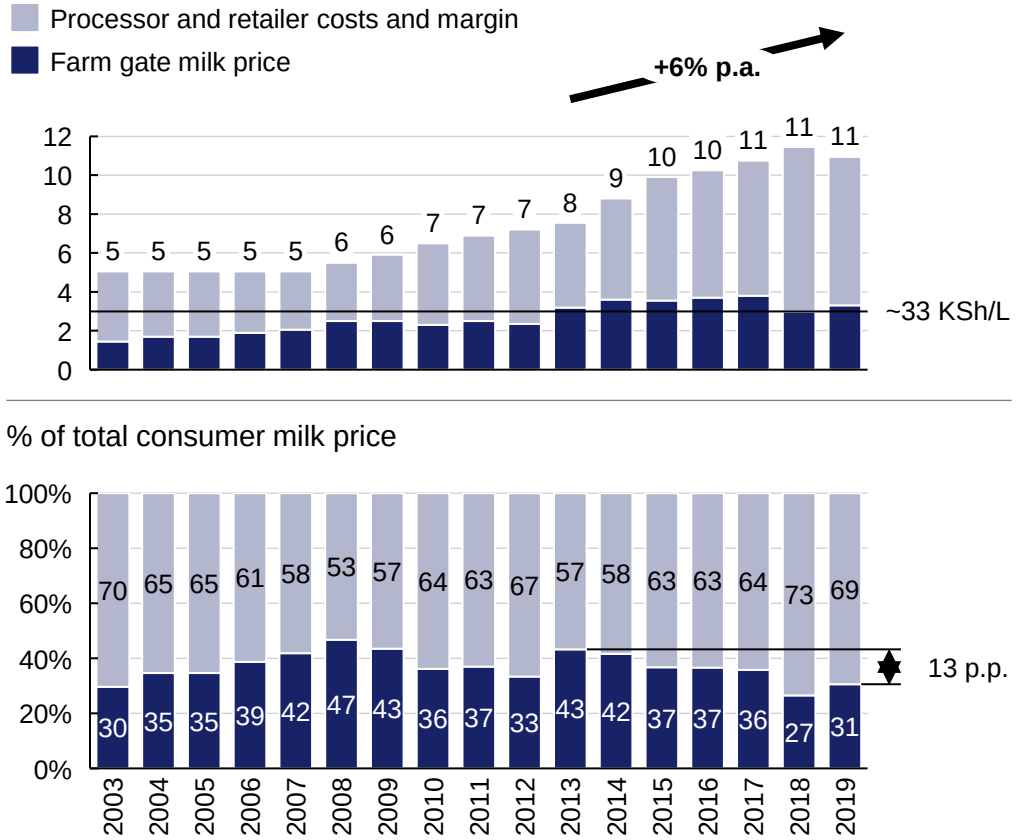
1. E.g. Baringo went from open to semi-zero grazing, Nakuru and Machakos from semi-zero to pure zero grazing and Kiambu from medium scale to small scale zero grazing, between 2014/15 and 2019

Source: Expert interviews; Makoni, N; Mwai, R; Redda, T; Zijpp, A. van der; Lee, J. van der. (2013), Tegemeo Institute of Agricultural Policy and Development study on the Cost of Milk Production in Kenya (2020), ILRI

Kenya's farm gate milk price has been growing slower than consumer prices

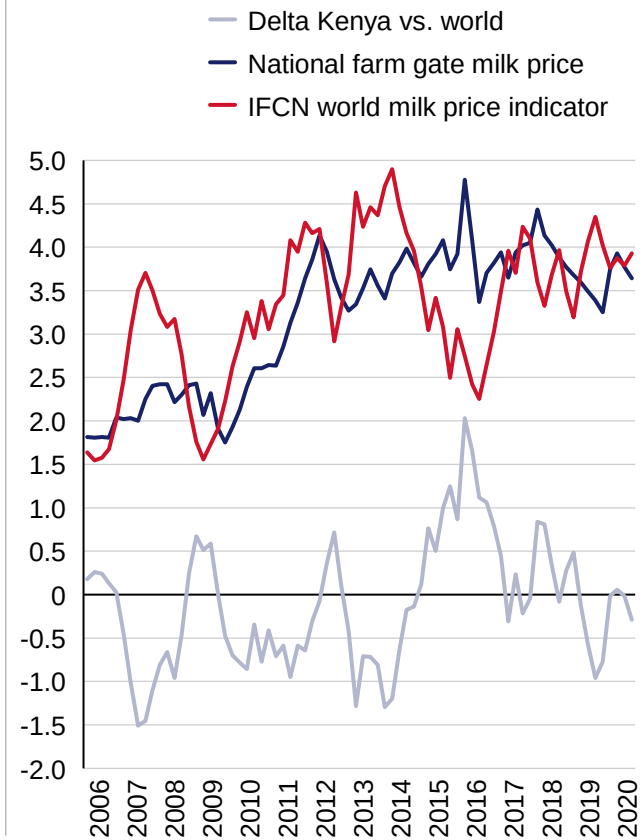
Consumer milk price split[1]

1,000 KSh/100kg SCM[2]



Farm-gate milk price

1,000 KSh/100kg SCM[2]



1. Based on both, formal and informal production
2. SCM = solid corrected milk; internationally comparable price adjusted for protein and fat content in the milk

Source: IFCN, Kenya Law

Farmgate prices have **increased slower** than **consumer prices** between 2013 and 2019 (**1% p.a. vs. 6% p.a.** respectively)

As a result, the share of **processors' as well as retailers' in** the consumer **milk price** have **increased** by 13 p.p. since 2013, which according to experts **could potentially be explained** by **increasing costs** due to **processing inefficiencies, underutilization** and **high investments into processing plants**, as well as changes in processor and retailer margins

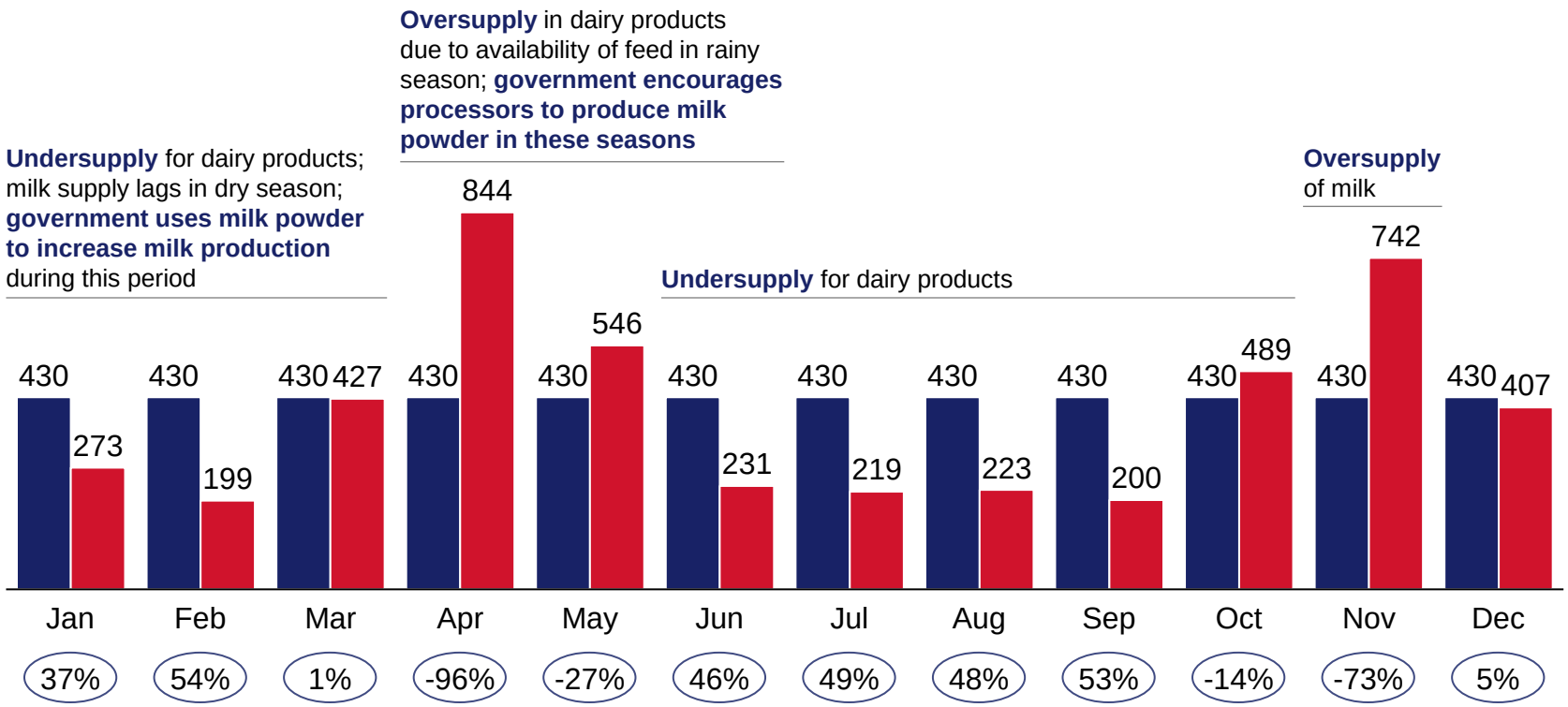
In **March 2021**, the government **mandated a minimum farmgate milk price**, setting the price at **33 KSh/L for raw milk**, **35 KSh/L for chilled milk** and **37 KSh/L for pasteurized milk**

Rainfall patterns impact milk supply, typically leading to a shortage in the dry seasons (June-September and beginning of the year)

Estimated monthly milk demand and supply based on average monthly rainfall 2010-2020, ’000 tons

SIMPLIFIED ILLUSTRATION BASED ON ASSUMPTIONS AND ESTIMATIONS

- Milk demand (simplified estimate using average monthly consumption of 430k tonnes, assuming demand is stable throughout the year)
- Milk supply (simplified estimate using monthly rainfall data, assuming that milk production changes proportionally to rainfall and associated forage production; also assumes very limited production of storable forage crops and no milk powder supply)
- XX Difference between demand and supply (positive value indicates demand higher than supply), %



Source: World Bank Group Climate Change Knowledge Portal 1990-2020 data

During the **wet months** of **April/May** and **November**, there is an **oversupply** of milk in Kenya. Some of the surplus is processed into **milk powder** but there is also **wastage** (e.g. due to poor road conditions)

Rain patterns are becoming **increasingly unpredictable** due to **climate change**

In the **dry months** of **June-September** and **December-March**, there is an **undersupply**, during which milk powder is **being reconstituted** into milk

The dairy market can be classified along 5 key stages of the value chain

Detailed further next | Out of scope

Logistics & transportation

	Crop farming	Dairy farming	Dairy processing	Packaging	Distribution
Key inputs	• Labour • Seeds • Land • Fertilizer • Water • Chemicals • Machinery & tools • Knowledge	• Cows • Labour • Land • Animal feed • Water • Vaccinations • Knowledge	• Raw milk • Machinery • Labour • Water • Cooling & storage capacity • Energy • Knowledge	• Packaging material, such as paper, plastic, metal, glass • Labour • Machinery • Knowledge	• Dairy products • Stores • Cooling & storage capacity • Trucks, cars • Labour • Knowledge
Key stakeholders	• ~100 animal feed farmers	• ~1.8+ million dairy farmers – Small – Medium – Large • >600 dairy cooperatives, societies and unions	• >30 domestic formal processors but 4 have ~80% market share • Few EA and European dairy processors who export to Kenya • Workers and representatives		

Key stakeholders across the value chain

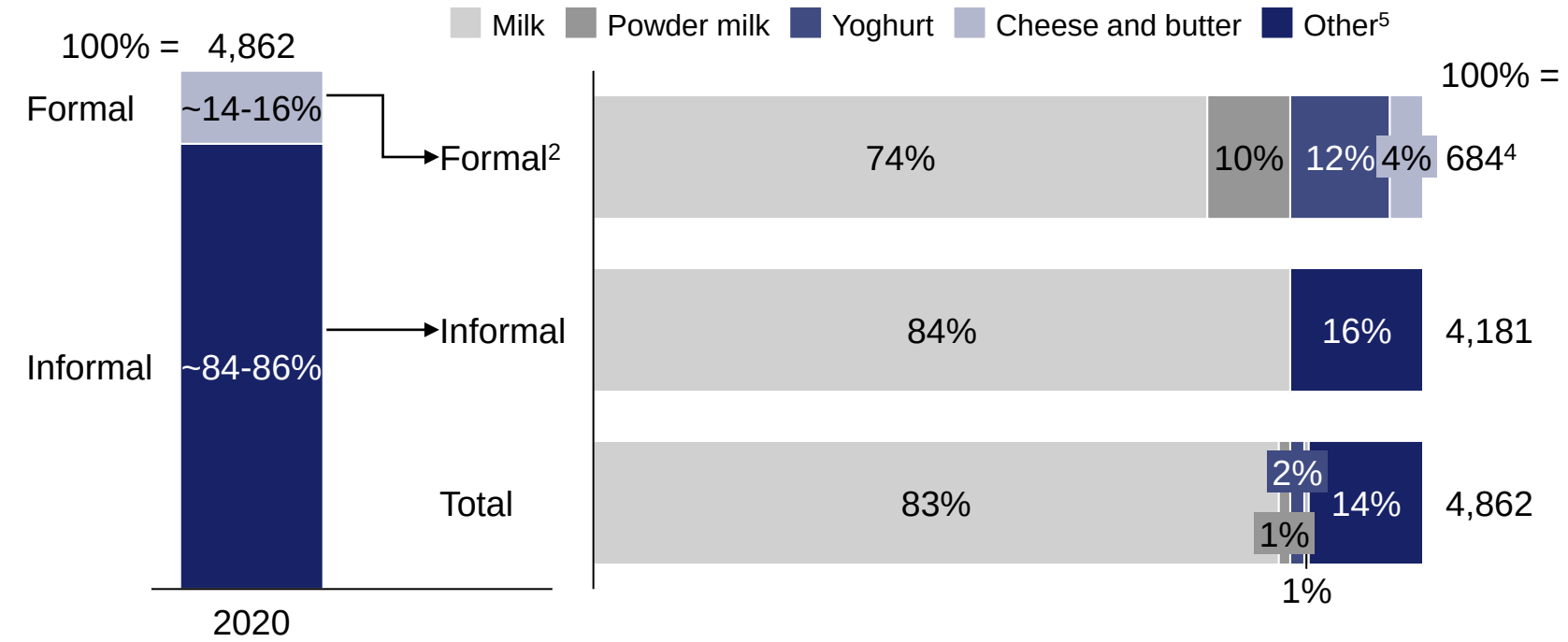
Service providers (e.g. veterinary, quality, agri. inputs) | Government, parastatals | Research institutions | Development partners | Communities and civil society | The public and media

Source: KDB, KNBS; Euromonitor

Kenya is estimated to produce ~4.9 Mn tons of milk per year, of which only 14-16% is processed, mainly milk including UHT

ESTIMATED

Breakdown of milk production by sector and usage by product, 2020, '000 tons cow ME[1]



1. Milk equivalent, excluding imports
2. Formal sector here refers to milk used for the production of processed dairy products that are sold via distribution channels that have a legal establishment (e.g. supermarkets, souks – neighborhood stores, hotels)
3. Estimated based on a KIPPRA report for the informal sector and expert estimations for the formal sector
4. Number corresponds to KDB's milk intake in 2020, corresponding to ~14% of 4.86 Mn tons local production and ~18% of the 3.7 Mn tons cow milk production
5. Informal home artisanal processing of milk, mostly for sour milk (e.g. mala)

Source: KIPPRA, FAO STAT, Expert interview

The dairy market in Kenya is mostly informal, with only an **estimated ~14-16% of milk processed formally**

Among formally processed products, **fresh milk accounts for ~75% by volume**, while **milk powder accounts for 10%**; formal processing of milk for cheese and butter is minor

Informal use includes mostly **raw milk (~74%),** but also **some artisanal processing** (e.g. to make sour milk)

The current processing landscape is highly consolidated with the top 4 processors producing ~80% of total formally processed milk

Overview of key competitors

4 key processors	Brand examples	Dairy products offered	Estimated production, Thousand tons/year	Share of formal processing, %[1]
Brookside Dairy Ltd	*Brookside* *Delamere* *Ilara* *Molo Milk* *Tuzo*	*Fresh milk* *UHT* *Yoghurt* *Milk powder* *Butter*	260	38
New Kenya Cooperative Creameries (NKCC)	*Gold Crown* *La Yoghurt* *My Choice* *New KCC* *Safariland*	*Fresh milk* *UHT* *Yoghurt* *Milk powder* *Butter*	157	23
Githunguri Dairy Farmer Cooperative Society	*Fresha*	*Fresh milk* *UHT* *Yoghurt*	96	14
Sameer	*Daima* *Creambell*	*Fresh milk* *UHT* *Yoghurt* *Milk powder* *Butter*	27	4
Total			540	79

1. Share of formal processing found in Euromonitor for Brookside, NKCC and Githunguri and in a KIPPRA paper for Sameer

Source: KIPPRA, Euromonitor

Kenya currently has ~**30 licensed large-scale milk processors,** with 4 **dominating ~80%** of the milk processing market. This consolidation constitutes a **challenge** for a **new entrant**

Brookside is the **leader** in the milk processing market, with **38% share** and **~260k ton/year marketed milk,** and is **privately owned** by the **Kenyatta (50%)** family, **Danone (40%) and The Abraaj Group (10%)**

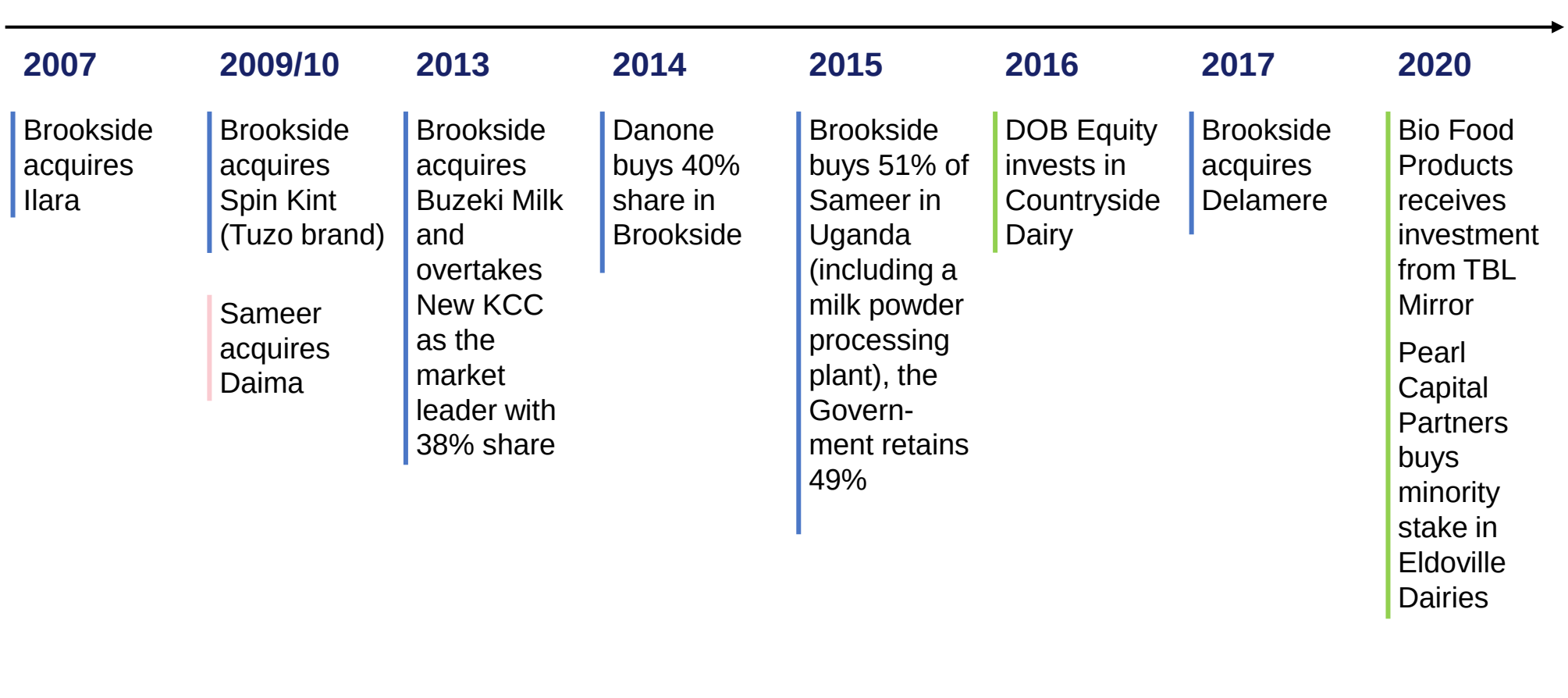
NKCC is a **state-owned enterprise** with **23% share** in the market and ~**157 ton/year marketed milk**, and the **oldest milk processor** in the country

Githunguri Dairy Farmer Cooperative Society is **farmer owned** and holds a **14% share** in the market, with ~ **96k tons/year marketed milk**

In the past 15 years, Brookside acquired 4 of its competitors, which consolidate the Kenyan dairy processor market

NOT EXHAUSTIVE

Brookside activity | PE investment | Sameer activity



Brookside has acquired competitors and also **expanded into Uganda**

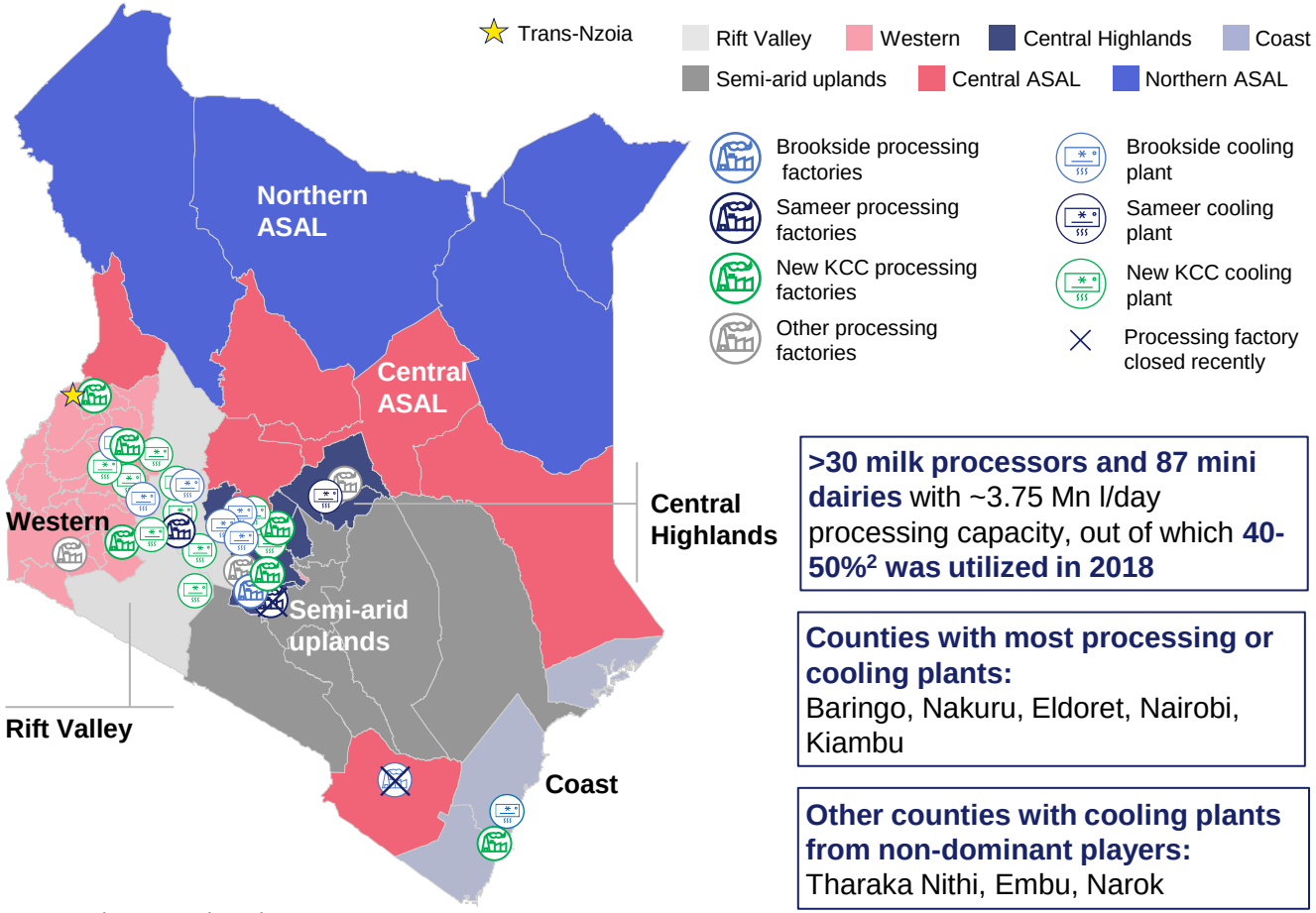
PE companies are becoming more active in the dairy sector, targeting usually smaller players (e.g. Bio Food Products or cooperatives)

Source: Press search – The East African (2013): 2013: Year of vibrant business acquisitions and mergers; The Standard (2013): Brookside Dairy acquires majority stake in Molo Milk; Business Daily (2010): Brookside and Spin Knit complete merger; Food Business Africa (2013): Sameer Agriculture and Livestock, Kenya; Dairy Reporter (2014): Danone to acquire 40% stake in Kenyan dairy Brookside, The Star (2015): Brookside buys Sameer's Uganda dairy operations; Business Today (2017): Brookside Dairy acquires biggest yoghurt brand; AVCA (2016): DOB Equity invests in Countryside Dairy; , Food Business Africa (2020): The dairy industry in Kenya: production capabilities, investments, innovations and trends

Most milk processing plants are in the Western region, Rift Valley and in the Central Highlands with Nairobi

NOT EXHAUSTIVE, CAPACITIES ARE MINIMUM NUMBERS

Distribution of processing and cooling plants per agricultural zones



>30 milk processors and 87 mini dairies with ~3.75 Mn l/day processing capacity, out of which **40-50%[2] was utilized in 2018**

Counties with most processing or cooling plants:
Baringo, Nakuru, Eldoret, Nairobi, Kiambu

Other counties with cooling plants from non-dominant players:
Tharaka Nithi, Embu, Narok

	Plant location	Processing capacity (litre/day)	Product focus	Notes
Brookside	Ruiru[3]	500k		
		500k	Milk powder (since 2014)	
New KCC	Dandora (Nairobi)	360k	Milk, mala, yoghurt, butter	
	Kitale	200k1	Butte, ghee, powder	
	Eldoret (rebuilt in 2017)	200k	Milk, milk powder and UHT	
	Kiganjo		Condensed milk and milk powder	Modernization cost of $3.5 Mn
	Sotik			
	Mombasa			
Githunguri	Kiambu	220k	Milk	
Sameer	Nakuru		UHT processing	Built for $30 Mn
	Nairobi		Yoghurt, butter, icecream	Shut down in 2019
Meru Dairy Cooperative	Meru	300k		Doubling capacity to 600k for $10 Mn
Highland Creamers and Foods	Kisii	200k	Milk, UHT, yoghurt, fermented milk	

1. Based on expert interview
2. This is according to KDB, unclear how much remaining capacity is usable (e.g. functioning) vs. requires modernisation
3. Brookside total capacity appears to be smaller than New KCC even though they have higher market share. One source suggests their capacity is 1.5-2 Mn liter per day, while they historically also had higher capacity usage of 60-70% vs. New KCC with 30-40% based on a Technoserve report from 2008

Source: Kenya Census 2019, Kenya Dairy Board, FAO, Food Business Africa (2020): The dairy industry in Kenya: production capabilities, investments, innovations and trends, expert interviews

Trends in the competitive landscape

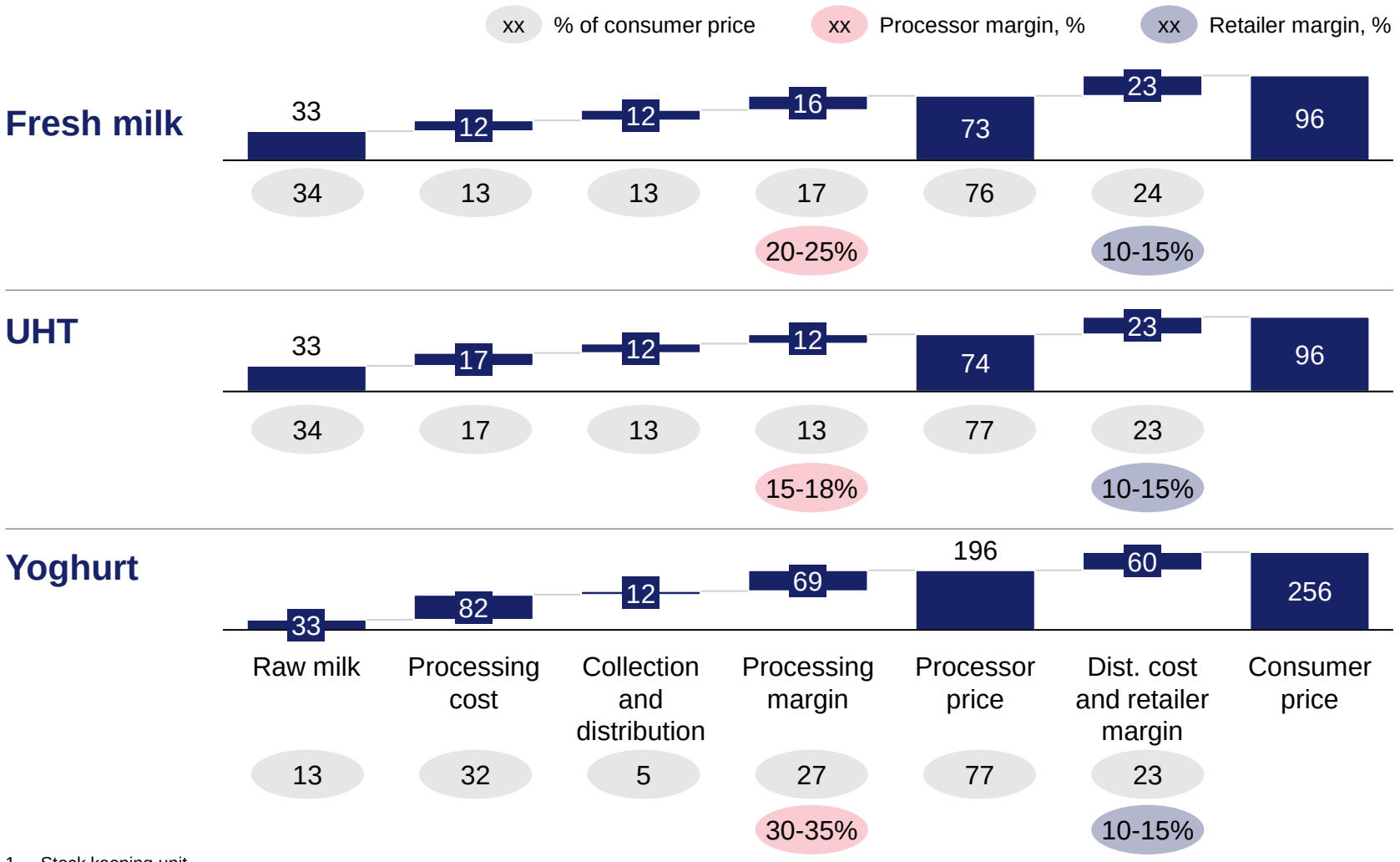
Trends	Description
Cooperatives and Counties investing in own processing plants and cooling plants	**West Pokot County** invested **$2 Mn** in a milk processing plant to **produce cheese and butter** and **Nandi and Baringo counties planning** to set up processing plants **Muranga set up a milk processing plant in Makuyu** on top of the cooling centres it had installed around the county **Kinangop, Wakulima, Ndumberi, Cooperatives planning, while Kangema Unity Investment Cooperative** is in the process of setting up a Ksh 300 Mn milk processing plant in Kangema
High investments flowing into dairy processing both from PE companies and the Government	**DOB, TBR Mirror and Pearl Capital Partners invested** in smaller processors and cooperatives **New KCC invested ~$15 Mn in modernization** in since 2018
Over- and under-supply pushing processors toward milk powder to stabilize price	**Kenyan Government requested New KCC's help to stabilize the milk price's** seasonality: to make milk from the Government's milk powder in under-supply or to take in more milk and produce milk powder during over-supply
Processors innovating with new product lines	**New products** recently introduced: • New KCC: Lactose-free products • Brookside: Low fat products and also flavored UHT milk to appeal to children and youth • Bio Products: Superlite (low fat) yoghurts • Sameer: Light-weight packaging for long-life milk that has an even expected shelf-life • All: More colorful and branded packaging (e.g. Disney and Marvel deals for Brookside)

Source: Euromonitor, press search – Food Business Africa (2020): The dairy industry in Kenya: production capabilities, investments, innovations and trends; The Star (2021): West Pokot puts up Sh200m milk processing plant; FarmbizAfrica (2019: Nandi County launches construction of milk processing plant to help farmers with ready market; Business Daily (2021): New KCC reconstitutes milk powder to keep consumer price stable; expert interviews

Estimated processor margins are ~15-25% for milk and UHT, and 30-35% for yoghurt

Estimated typical consumer price breakdown, KSh/l

2020 ESTIMATES



1. Stock keeping unit

Source: Expert interviews, primary research

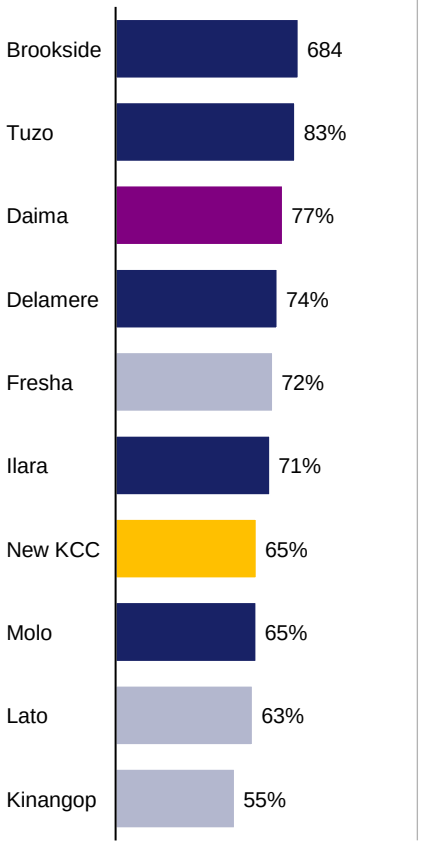
On average, **processors are estimated to earn ~15-25% margins for fresh and UHT milk**, and **30-35% for yoghurts** as well as other fermented products (e.g. mala)

Retailers' margins are estimated at ~10-15%, but **can go up to 30% depending on the location** and even more for hotel or restaurant sales

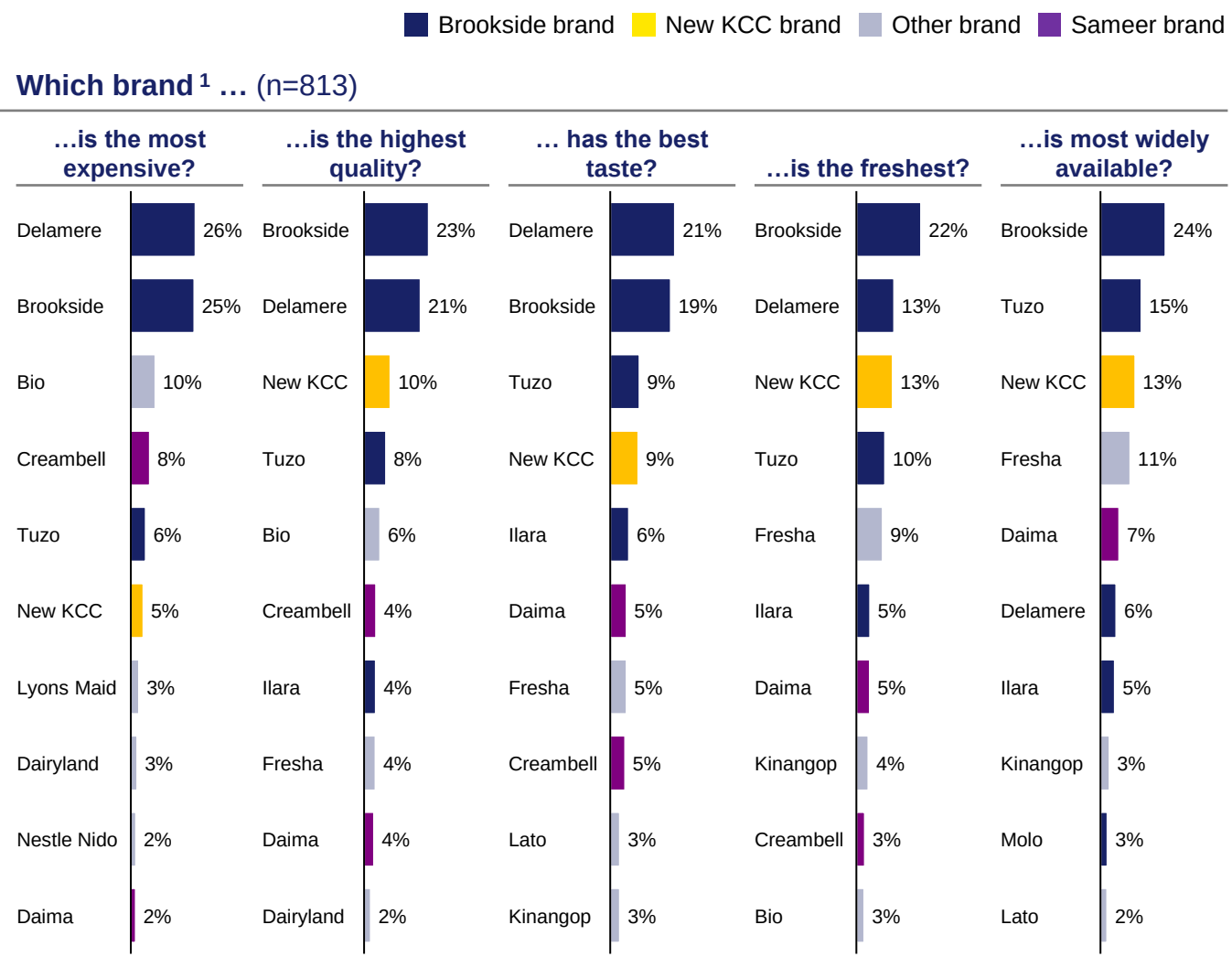
Milk powder processor margins much higher and depend largely on the SKU[1], **going from 50% for 25 kg unit up to even 120% for 250 grams**

Brookside brands are the best-known brands based on survey data

Are you familiar with this brand?[1], %
(n=813)



Which brand [1] … (n=813)



Key insights

- **Brookside and its brand Delamere** are well known and rank highest **across most dimensions**
- **New KCC is not perceived as very expensive, but is top 3 or 4** in all other dimensions, providing a good value for money
- **Fresha** is perceived to have a **good value for money** (no respondents regarding it as expensive) with a good share of respondents mentioning it for quality, taste and freshness
- **Daima** from Sameer is well-known (77%), but only 7% mention it is widely available
- **Bio Products,** a niche premium brand, is perceived as **expensive and high quality, but mentioned for taste, freshness or being widely available**

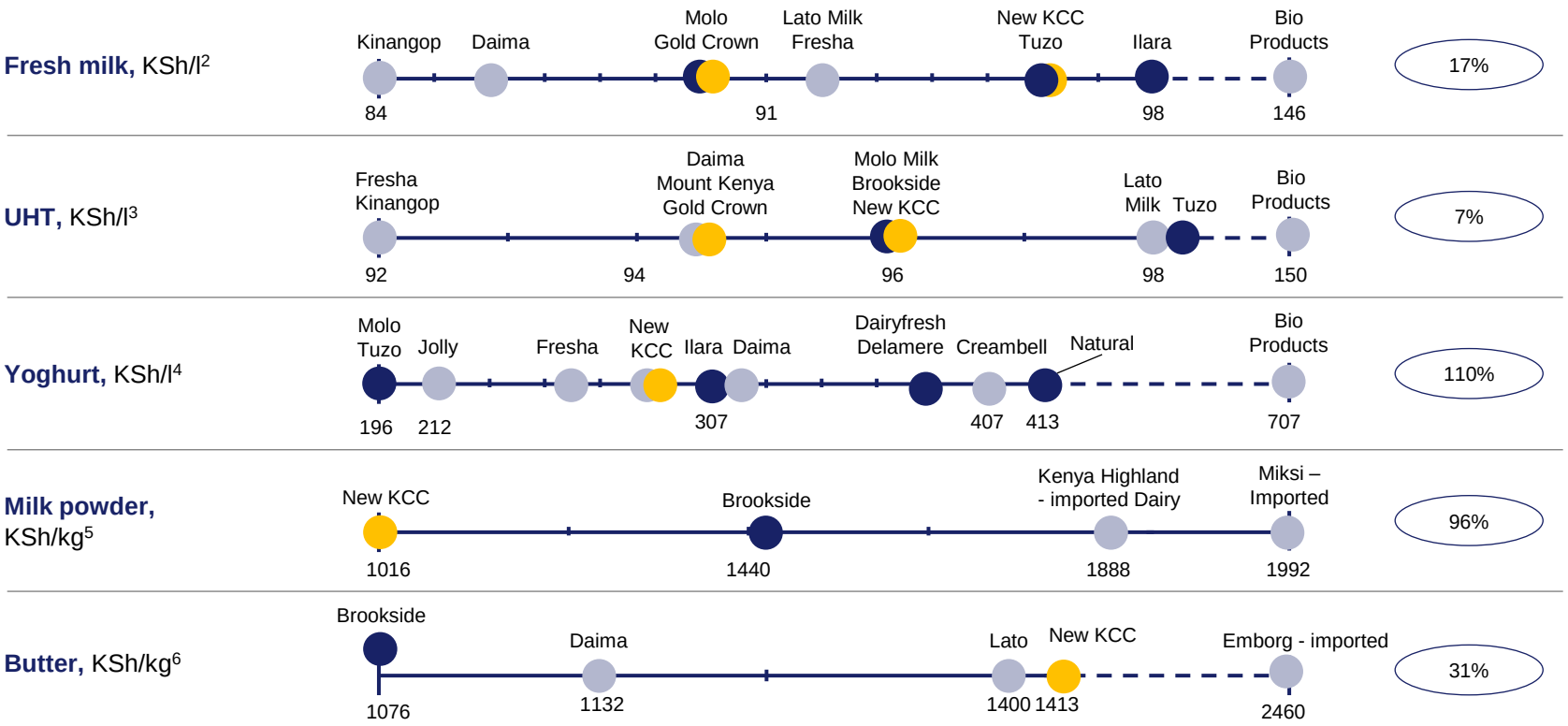
1. Based on the answers, always top 10 brands showed for the respective question

Source: Sagaci consumer survey

Fresh milk and UHT brands have a much smaller price spread than yoghurt, milk powder or butter

x% Gap between highest and lowest price, excluding premium product | Brookside brands | New KCC brands | Others

Price of selected brands[1], 2021



1. Prices gathered in two supermarkets in Nairobi
2. Product with most brands was 500 ml fresh milk packaged in plastic pouch, apart from Bio Products packaged in 1 l plastic bottle
3. Product with most brands was 500 ml UHT in carton pouch, apart from Bio Products packaged in plastic bottle and Tuzo in 450 ml plastic pouch
4. Product with most brands was 150 ml yoghurt in a yoghurt cup
5. Product with most brands was 250 g milk powder, mostly in tin container, except for New KCC that was in plastic sachet
6. Product with most brands was 500 g butter in paper, except for Emborg that was 400 g

Source: On-the-ground dairy channel visits on Monday July 19th 2021, expert interviews

Milk prices are similar across brands, apart from some premium brands such as Bio Products, yoghurt prices cover a large spectrum while milk powder and butter prices vary significantly

Consumers are paying a **premium for imported products** e.g., imported milk powder sells at up to Ksh ~2,000/kg

Milk powder prices decrease to 960-1,000 KSh/kg if package size is over 2.5 kg

Brookside uses different brands to cover different consumer segments (e.g. Molo Milk for lower income, Ilara for higher income)

Brookside's butter is significantly cheaper than the competitors

The **market on mala fermented milk is less saturated**, with a spread of 56% in prices (not shown on the charts)

Products packaged in Tetrapak are most expensive, but pricing also depends on packaging size

	Cheap packaging				Expensive packaging
Fresh milk	 Plastic pouch *500, 1000 ml*	 Plastic bottle *1000, 2000 ml*			 Tetrapak *500, 1000 ml – mostly Brookside*
UHT	 Plastic pouch *200,450, 500 ml*	 Carton pouch/ triangle *200, 500 ml*	 Plastic bottle *500, 1000 ml*		 Tetrapak *250, 1000 ml*
Yoghurt	 Yoghurt plastic cup  Plastic bottle  Tetrapak	Pricing is similar across packaging type and more driven by stock-keeping unit (SKU)			
Milk powder	 Plastic sachet *90, 250, 500 g*				 Tin container *250, 400, 500, 900, 2000, 2500 g*
Butter	 Paper *250, 500 g*				 Plastic container *250 g*

Source: On-the-ground dairy channel visits, expert interviews

Companies **choose packaging based on the positioning of their brand,** e.g. Brookside branded products are not sold in pouches whereas Molo Milk owned by Brookside is only sold in plastic pouch

Tetrapak is the most expensive and most **premium** type of packaging

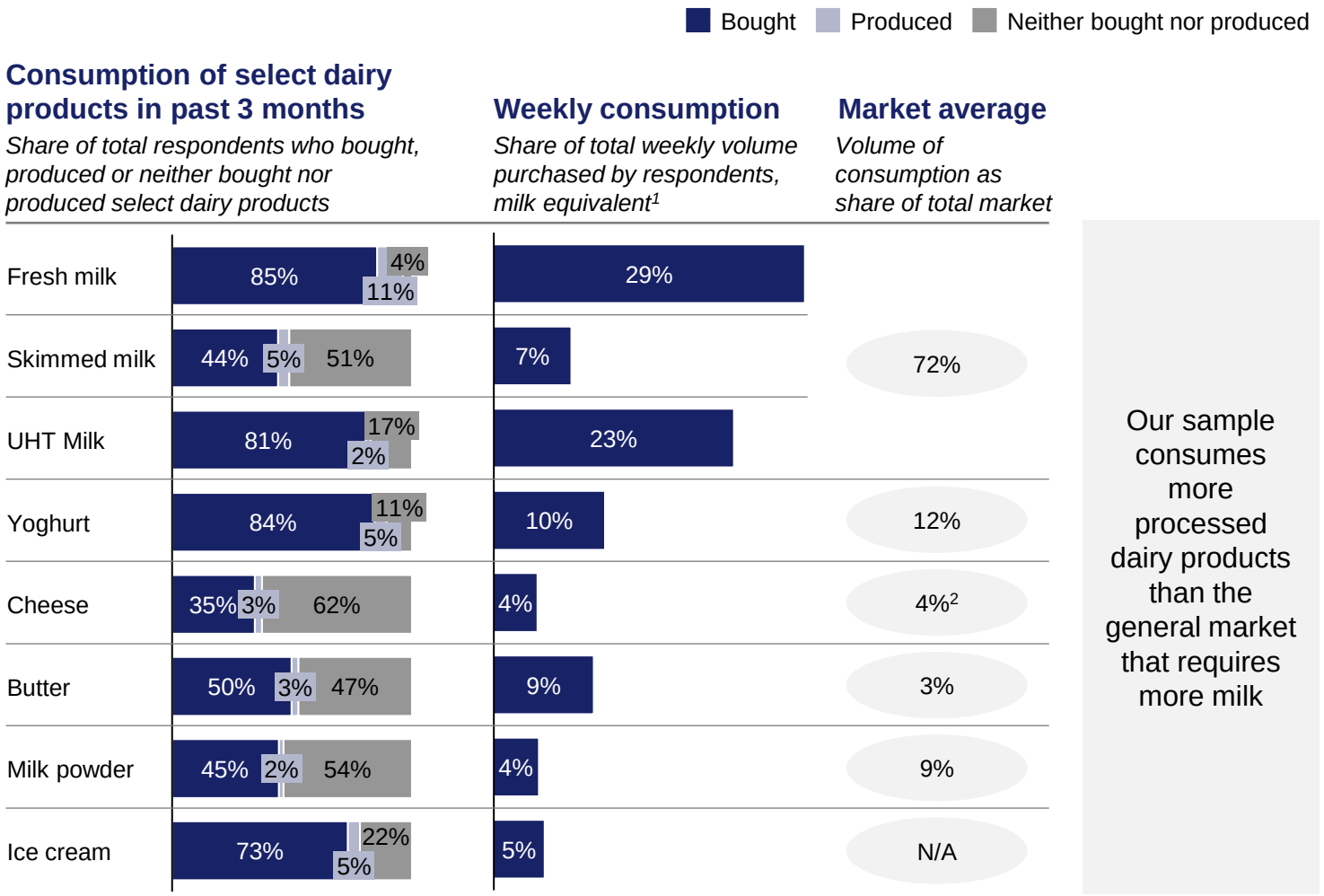
Different packaging sizes (e.g., 450 ml instead of 500 ml) usually **appear with new entrants** to allow for lower prices

Agenda

1. East African regional dairy trade flows
2. Kenyan dairy market demand
3. Kenyan dairy value chain and competitive landscape
4. **Potential opportunities**

- Impact and mitigation for small holder farmers and other vulnerable groups
- Potential partnerships

Most survey respondents consume fresh milk, UHT, yoghurt and ice cream



Our sample consumes more processed dairy products than the general market that requires more milk

1. All volumes were converted into milk equivalents (i.e. how many kg of milk needed to produce 1kg of processed product) in order to be able to compare volumes
2. Includes other products such as ghee, whey powder and ice cream

Source: Sagaci consumer survey

Fresh and **UHT milk** (80+% of all respondents), **yoghurt** (84%) and **ice cream** (73%) are **most consumed dairy products**

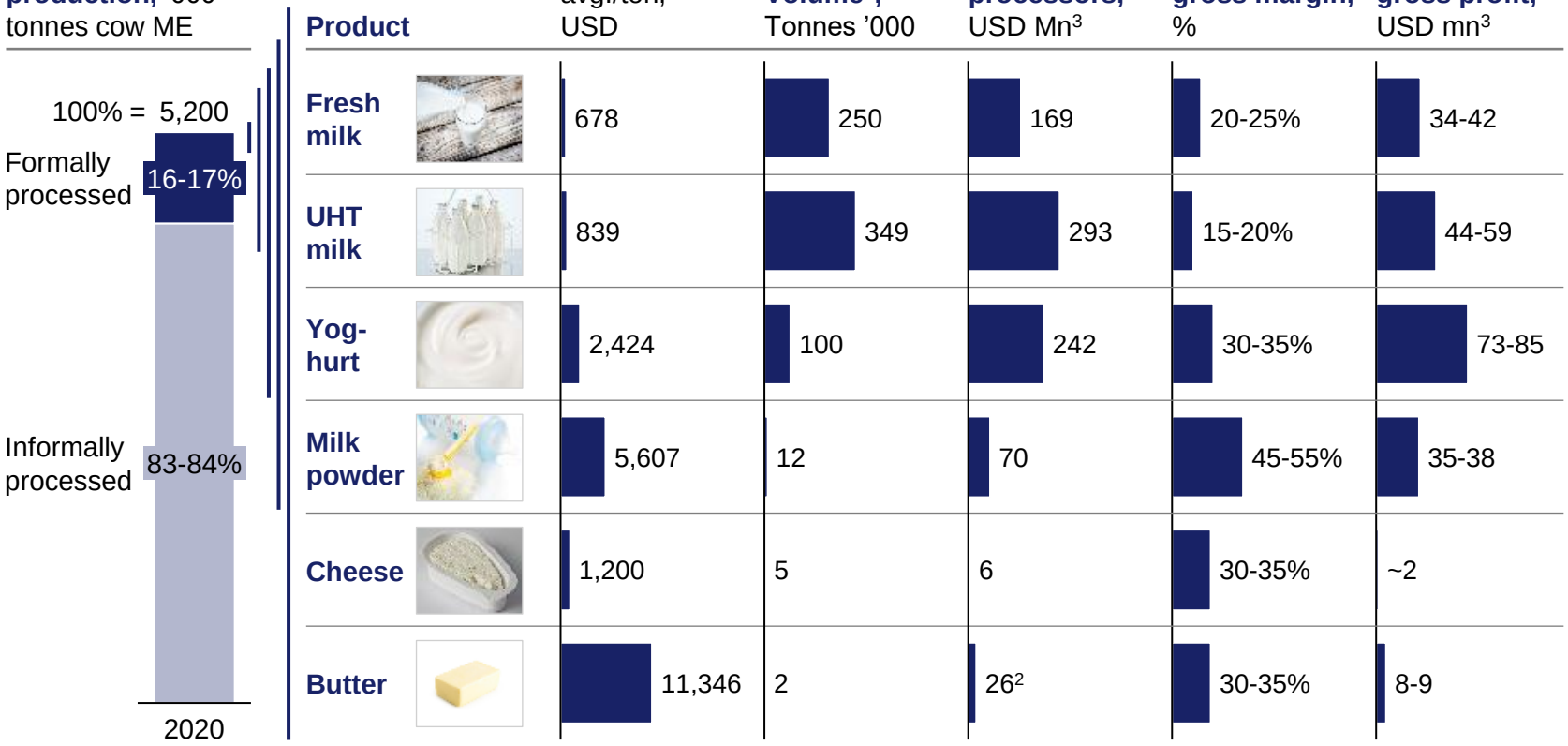
Weekly consumption of **butter is also relatively high**

The consumer survey includes a number of biases:

- Split of rural (49%) vs. urban (51%) is different from national average (28% vs. 72%)
- Share of people with fridges (59%) is higher than national average (9%)
- Share of formal consumption (65%) is higher than national average (16-17%)

Yoghurt, UHT, milk powder and fresh milk currently hold the largest potential value pools for processors

2020 ESTIMATES



Product	Processor selling price[1], avg./ton, USD	Volume[2], Tonnes '000	Tot. market revenue of formal processors, USD Mn[3]	Average processor gross margin, %	Tot. market processor gross profit, USD mn[3]
Fresh milk	678	250	169	20-25%	34-42
UHT milk	839	349	293	15-20%	44-59
Yog-hurt	2,424	100	242	30-35%	73-85
Milk powder	5,607	12	70	45-55%	35-38
Cheese	1,200	5	6	30-35%	~2
Butter	11,346	2	26[2]	30-35%	8-9

1. Average processor selling prices based on the estimation that retailer costs and margins (incl. distribution) amount to ~20-23% of consumer prices
2. Volumes were calculated based on expert inputs for market shares (30% fresh milk, 42% UHT, 12% yoghurt, 9% milk powder, 4% cheese and other, 3% butter) and converted using milk equivalents (Me) (1L milk needed/kg for all milk products, 1L Me/kg for yoghurt, 6L Me/kg for milk powder; 7L Me/kg for cheese; 11L Me/kg for butter)
3. Refers to potential revenue and gross profit, taking also into account revenue and profit that could be earned if all imports were substituted with local production (especially relevant for milk powder as currently no local producer); margin is based on averages given by experts

Source: Expert interviews, primary research

Key insights

- **Yoghurt is the highest potential value pool,** consumers are willing to pay a premium, e.g., for flavor, health benefits
- **UHT also represents a large potential profit pool**, due to higher margins than fresh milk and growing demand
- **Milk powder represents medium potential profit pool**, but consumers are reluctant to consume more, citing health and safety concerns
- **Fresh milk remains a good value pool,** as consumers like the taste

Yoghurt and UHT are potentially promising growth categories, but there may be opportunities across all products

ESTIMATES

Promising growth category

Share of people wanting to buy more

Product	Gross profit growth[1]: Est. tot. processor gross profit 2020, USD Mn	Gross profit growth[1]: Exp. tot. processor gross profit 2025[2], USD Mn	Gross profit growth[1]: CAGR 2020-25, %	Survey data: Willingness to buy more	Expert inputs
Fresh milk 	34-42	34-49	2-3	Consumers like the taste of fresh milk more than any other kind, however it is difficult to store	Smaller processors are entering the market, localizing production and increasing consumption
UHT milk 	44-59	53-82	6-7	UHT has longer shelf-life that benefits consumers	UHT expected to grow faster than fresh milk, taking over some of the latter's market share
Yoghurt 	73-85	130-186	15-17	Yoghurt is increasingly popular in Kenya, both from health-conscious adults and from the youth	Yoghurt perceived as a healthy snack, providing a lot of opportunity as youth is fastest growing segment
Milk powder 	35-38	29-42	1-2	Consumers do not like the taste, product is expensive and has perceived health concerns	Consumers perceive high levels of chemicals in powder; high production cost resulting from high wastage in the process
Cheese 	~2	~2	0	Cheese is not very popular amongst Kenyans and is very expensive	Cheese used to be popular with older generations but not so much with younger ones
Butter 	8-9	6-10	0-2	Butter is consumed more amongst the survey respondents but still not very popular	Butter is perceived as a high-end, expensive product and mostly used in the hospitality sector

1. Refers to potential gross profit, taking also into account revenue and profit that could be earned if all imports were substituted with local production (especially relevant for milk powder as currently no local producer)
2. Lower band of total process gross profit estimates a 20% reduction in processor margins due to increased competition in the market; upper band of total processor gross profit does not change current processor margins

Source: Euromonitor, Expert interviews

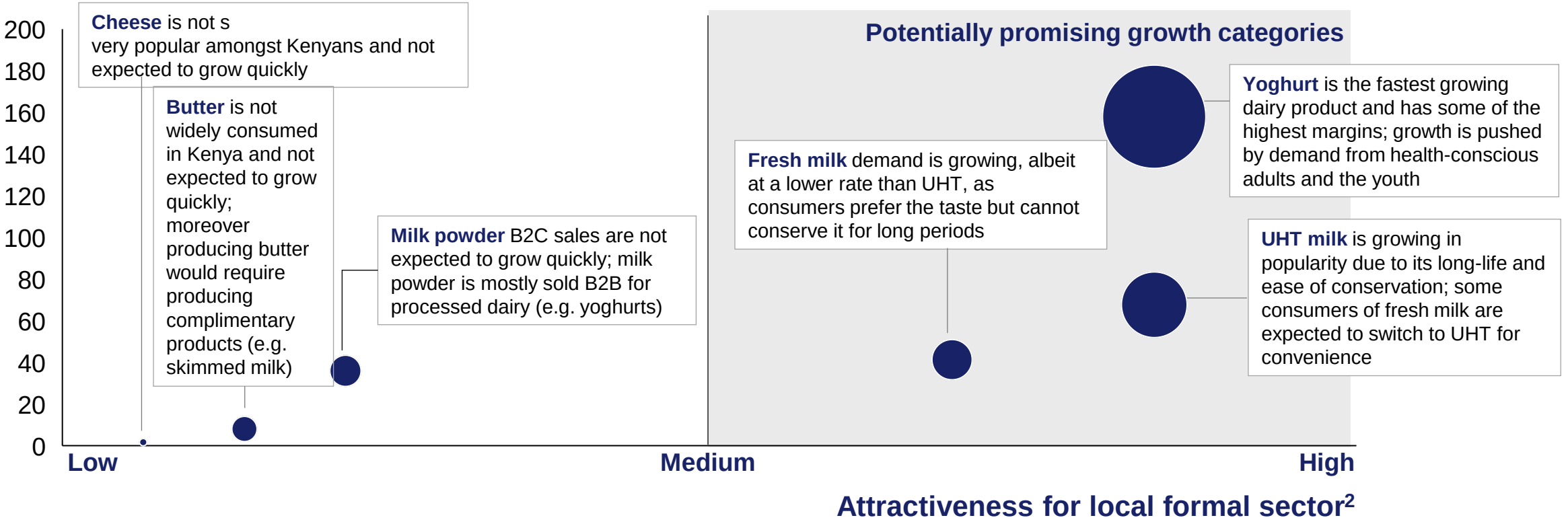
UHT milk, fresh milk and yoghurt represent potentially attractive opportunities for the local market

ESTIMATES

Exp. yearly B2C growth rate, %

Prioritization of product categories

Estimated formal processor gross profit 2025[1], USD Mn



1. Refers to expected gross profit of formal dairy processors made via formal distribution channels (established entities)
2. Refers to the likelihood of population purchasing dairy products in the formal sector taking up these products, based on expert inputs and Sagaci consumer survey

Source: Euromonitor, Expert interviews

Opportunities on the dairy market

		Key findings
Brand posi-tioning	**Producing better value, 'reliable and safe' dairy**	**Safety is a growing concern amongst consumers,** according to Euromonitor Consumers are willing to pay a premium for **dairy quality and safety** (e.g. aflatoxin certificates) **Consumption of dairy is expected to increase** if products become cheaper (46% of respondents who want to buy more find price is the biggest obstacle)
1	**Yoghurt**	**Yoghurt has highest expected growth rate of any dairy product** (~15-17% p.a.) and highest total expected gross producer profits (~170 Mn in 2025)[2] **According to Euromonitor and experts, yoghurts are perceived as healthy,** thus growing at a fast pace; **flavoured yoghurts** are increasingly popular amongst youth **Exports to ME could be an opportunity** (esp. UAE, Oman, Kuwait, Qatar, Bahrain) if yoghurts could be produced at lower prices than the current Kenyan market
2	**UHT and fresh milk**	**Fresh and UHT milk continue to be popular** among consumers (e.g. 57% of consumers want to drink more fresh milk,16% more UHT) who like the taste of fresh milk and ease of conserving UHT **According to experts, demand for UHT is expected to grow faster than fresh milk**, as people without fridge choose UHT for convenience
3	**New product varieties**	**Increasing number of adults want healthy dairy products** (low-fat, lactose free, natural yoghurt) according to experts and Euromonitor **Increasing number of youth interested in flavoured milk** (incl. UHT milk, yoghurt, mala) according to experts and Euromonitor

Sanitized

1. Ultra-high-temperature milk; may also include ESL milk (Extended shelf life milk)
2. Growth and margin projections based on expert interviews

Source: Euromonitor, UN Comtrade, Expert interviews

Brand Positioning: Consumers seem to be increasingly concerned with dairy product safety

Several studies show that Kenyan dairy has higher levels of bacteria than international standards…

- Aflatoxins are a family of human carcinogens. These toxins are produced by certain fungi that can contaminate agricultural crops; they are passed on to dairy as cows feed on crops
- A 2018 study sampled 291 milk products every month for 1 year and found more than 50% exceeded EU authorized levels (50 ng/Kg)
- A study in 2020 found that 99.5% of milk sampled in Nairobi was contaminated

… making consumers increasingly concerned about the safety of dairy products

> There is also expected to be a rise in demand for processed and packaged milk products among middle to higher income consumers. This increasing popularity is expected to grow as a result of increased demand for quality and safe milk products
>
> **Euromonitor**

> I am only buying Bio Products because it's the only brand which I know complies with EU health standards
>
> **High income consumer**

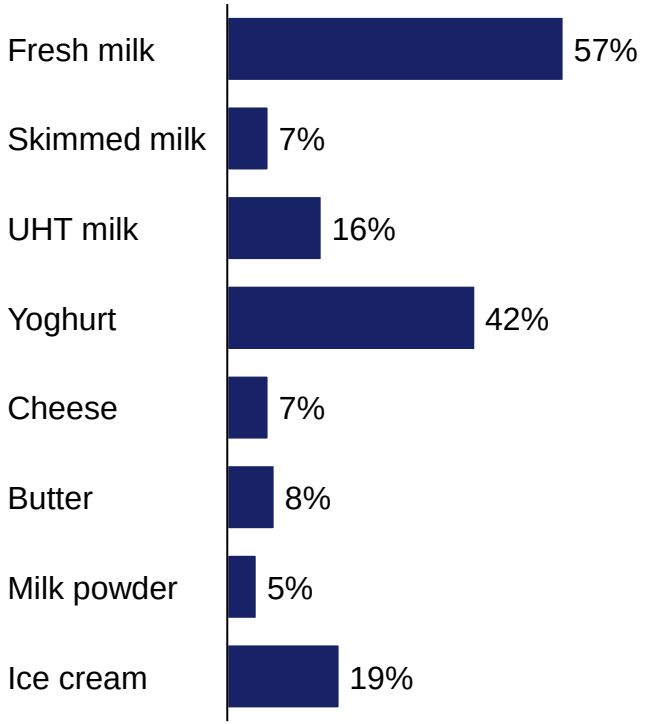
Based on expert interview, Kenyan consumers are **increasingly concerned** about consuming **high quality, safe dairy products** (e.g. aflatoxin free), which presents an **opportunity for brands marketing** themselves in this way

Source: Lindahl, J.F., Kagera, I.N. and Grace, D. (2018): Aflatoxin M1 levels in different marketed milk products in Nairobi, Kenya; Ahlberg, S. (2020): Aflatoxins: A food safety hazard in Kenyan dairy chains – prevalence, risks and assessment of a biocontrol solution; expert interviews

Brand Positioning: Survey respondents would be willing to buy more fresh milk, yoghurt and ice cream if they were less expensive and could be stored for longer

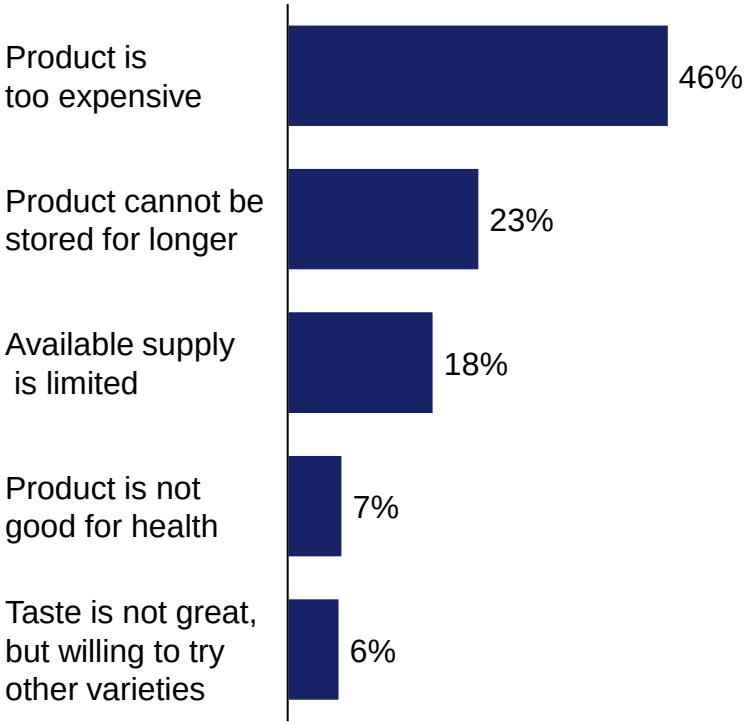
Products that consumers would want to buy more

Share of total respondents



Reasons why consumers do not buy larger quantities

Share of respondents who would want to buy more



57% of consumers would like to **buy more fresh milk**; **42%** would like to eat **more yoghurt, 19% more ice cream** and **16% more UHT**

High prices are the main reason preventing consumers from buying more dairy, followed by ability to store it and availability of supply

Providing **high value products** at **affordable prices** could be an **advantage**

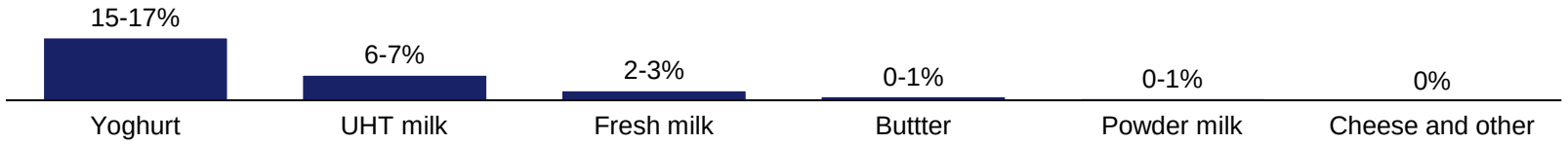
However, this **could result** in **competitive responses from existing brands.** In the past, some brands have **launched new (smaller size) product SKUs** at lower prices **in order to retain their market share**

Source: Sagaci consumer survey

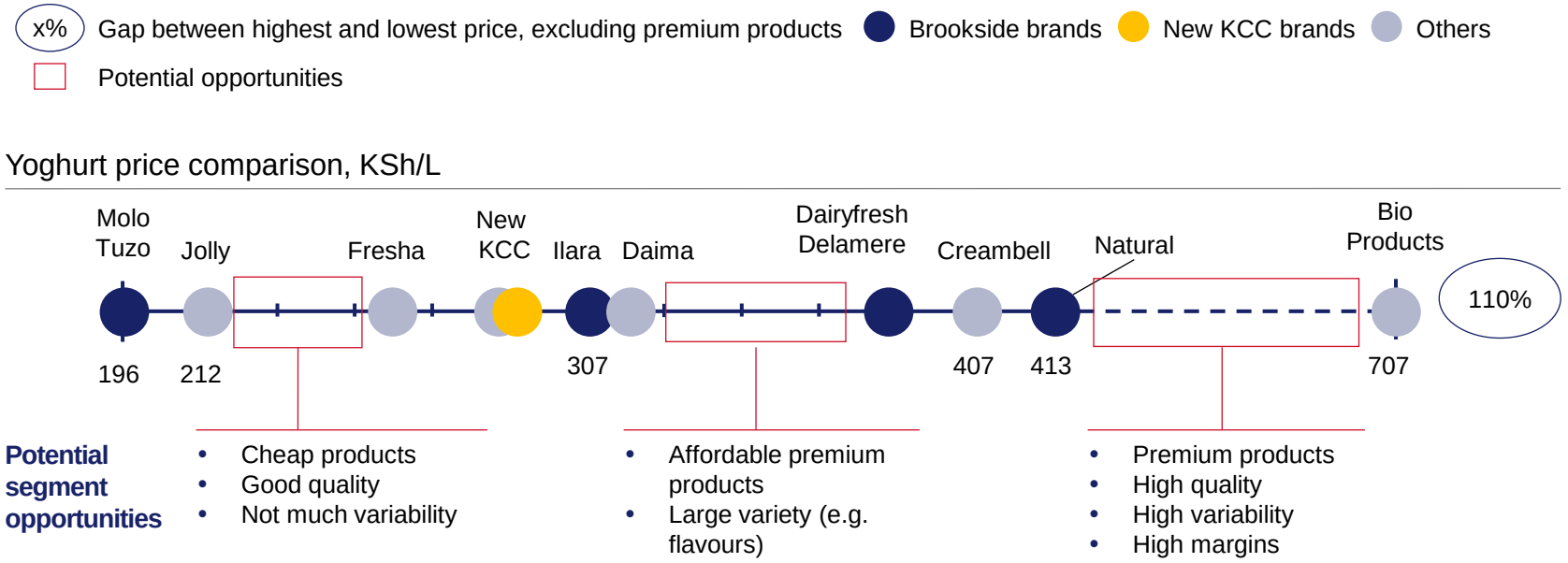
1. Yoghurt is expected to have the highest growth rate of dairy products

Yoghurt is expected to have highest growth rate among all dairy products…

Expected dairy product growth rate per annum 2020-25, %



…. and offers multiple segment opportunities



Source: Expert interviews, primary research at supermarkets

Yoghurt is expected to be the **highest growing processed dairy product** at **15-16% growth per annum** until 2025

The analysis of different yoghurt brands and prices shows **3 potential segment opportunities to consider**:

- **Cheap good-quality yoghurts** without much variability
- **Affordable premium products** offering a large variety of flavors
- **Premium, high-quality, high-margin products** in many different flavors

Moreover, **high pockets of growth** exist in **healthy yoghurts/mala for adults** (e.g. fat-free, lactose-free) and **flavored products for the youth**

1. Export opportunities for yoghurt could exist to UAE, Oman, Kuwait, Qatar and Bahrain if local production cost could be significantly reduced

Most attractive export markets

Potential ME and E. Africa export countries	Size of yoghurt trade surplus/ deficit, USD/ton	Average volume of yoghurt imports, Thousand tons	Top 3 import countries[1]	Average price of yoghurt imports[2], USD/ton
United Arab Emirates	-54.4	66.1		1,450
Oman	-59.6	59.7		1,181
Kuwait	-36.3	36.4		1,249
Qatar	-21.5	21.5		1,401
Bahrain	-8.8	9.4		1,979
Yemen	-1.4	1.4		593
Saudi Arabia	148.5	0.3		4,846
Dem. Rep. of the Congo	-0.2	0.2		1,847
United Rep. of Tanzania	-0.2	0.2		1,486
Sudan	-0.2	0.2		1,894
Uganda	0.4	0		1,313
Rwanda	0	0		2,418
Egypt	0.2	0		1,068

1. Top 3 import countries over past 5 years (2016-2020)
2. Includes transport but not tariffs

Source: UN Comtrade; Export.gov

UAE, Oman, Kuwait, Qatar and Bahrain could represent **attractive markets** for **yoghurt exports** as they have a **trade deficit** and high **volume of yoghurt imports**

However, **selling price of** yoghurts would need to be **<1,250 USD/ton including transport** and **insurance** costs. The **current average local producer price** in Kenya is ~**2,424 USD/ton**

Additionally, Gulf countries entered into the GCC Unified Customs Union, that eliminated tariffs for >400 products and reduced the others to 5% (excluding alcohol and tobacco)

In addition, **local health regulations/certifications** and **consumer preferences** may **greatly differ from one country to another**

Prices were **determined using UN Comtrade, reporting could be incomplete** and average 'real prices' of imports could differ

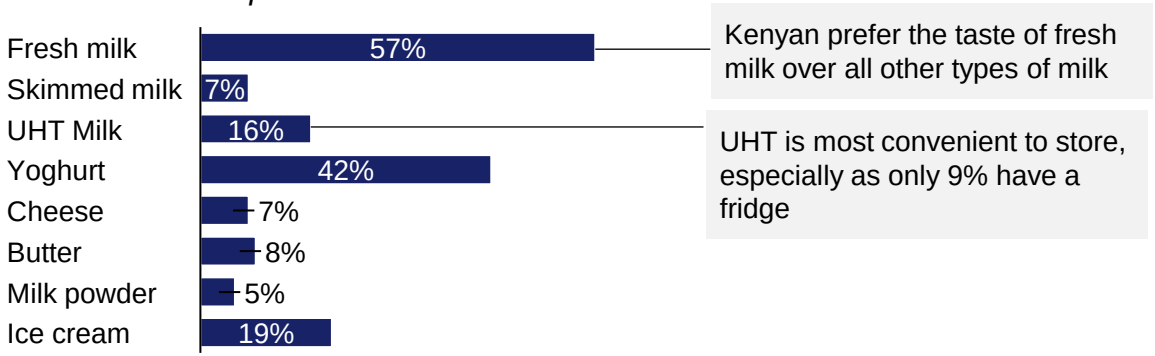
The **average Kenyan yoghurt price** does **not include** any **transport or insurance costs**

2. Consumers mostly want to buy more UHT and fresh milk, which are very competitive segments

Consumers would like to consume more fresh and UHT milk…

Share of people who would want to consume more of a specific dairy product according to consumer survey, n=813

Share of total respondents



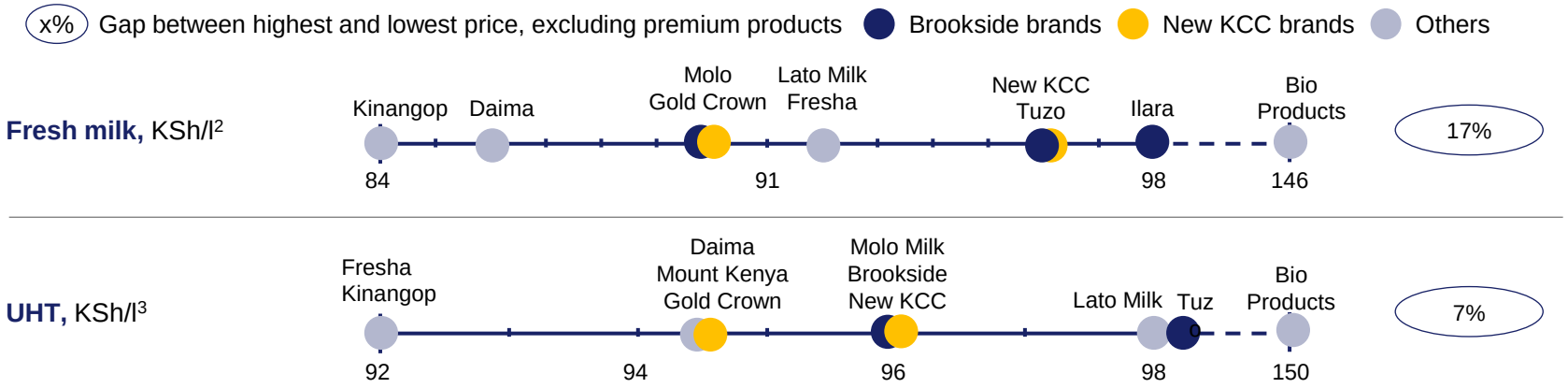
Kenyan prefer the taste of fresh milk over all other types of milk

UHT is most convenient to store, especially as only 9% have a fridge

"While people want to consume more fresh milk, most growth in sales will be in UHT, as it is easier to store for people without fridges and slightly more affordable. Some of the current sales of fresh milk will even switch to UHT"

Dairy expert

… however it may be hard to enter the segment as the market is already very competitive



Source: Sagaci consumer survey, primary research in supermarkets

Kenyans prefer the **taste of fresh milk** over all other types of milk (e.g. skimmed, UHT, powder)

As consumers are **most concerned** by **price** and **ease of storage, experts** expect that **UHT sales would grow fastest** as the product has a **competitive price compared to fresh milk** but is **more convenient to store**

However, there is **high competition** in the **fresh milk and UHT segments**. Entering as a **new, more affordable brand** could **trigger competitive responses** from existing players

2. UHT/ fresh milk export opportunities could exist in UAE, Oman, Qatar, and Bahrain if local production cost could be significantly reduced

Most attractive export markets

Potential ME and E. Africa export countries	Average size of milk trade surplus/ deficit, Thousand tons	Average volume of milk imports, Thousand tons	Top 3 import countries[1]	Average price of milk imports, USD/ton
United Arab Emirates	-68.2	110.9		1,194
Oman	-44.7	45.9		997
Qatar	-26.4	26.4		1,218
Bahrain	-15.0	19.0		1,111
Yemen	-7.3	7.3		608
United Rep. of Tanzania	-5.3	5.3		793
Dem. Rep. of the Congo	-3.7	3.7		954
Sudan	-0.1	0.1		1,885
Rwanda	2.8	1.6		796
Kuwait	3.0	47.1		1,153
Egypt	12.3	0.5		1,543
Uganda	53.6	2.8		317
Saudi Arabia	205.9	16.5		2,247

1. Top 3 import countries over past 5 years (2016-2020)

Source: UN Comtrade

UAE, Oman, Kuwait, Qatar and Bahrain could represent **attractive markets** for **milk exports** as they have a **trade deficit** and high **volume of milk import**

However, **selling price of** milk would need to be **<1,000 USD/ton including transport** and **insurance** costs. The **current average local producer price** in Kenya is **~760 USD/ton,** which is cheaper than in the Middle East, but without transport

In addition, **local health regulations/certifications** and **consumer preferences** may **greatly differ from one country to another**

Prices were **determined using UN Comtrade, reporting could be incomplete** and average 'real prices' of imports could differ

The **average Kenyan milk price** does **not include** any **transport or insurance costs**

3. Health and flavoured product sub-segments are new growing consumer trends

Health conscious adults are increasingly turning to dairy products, perceived as healthy…

- **Rise in 'healthy' dairy products** in recent years **including lactose-free and fat-free products**
- **Kenya Bureau of Standards** recently pushed **dairy processors to publish lactose levels** in dairy products

> Health conscious people want low-fat products that only large processors can manufacture
>
> **Dairy expert**

> "According to medical research, 39 percent of Kenyans unknowingly suffer lactose intolerance"
>
> **Business Daily**

… while youth are interested in flavoured dairy

- **Youth prefer flavoured dairy products**, which are available mostly in supermarkets
- **Some brands** (incl. Brookside) **use cartoon characters** on their products to be more attractive to children and youth

> The young population (e.g. children in schools) is drinking more flavoured milk and consumption is growing
>
> **Dairy expert**

Source: Expert interviews, Euromonitor, mystery shopping, Food Business Africa (2020): The dairy industry in Kenya: production capabilities, investments, innovations and trends

Two **important consumer trends** could help **shape a new product line** going forward:

1. Consumers **perceive dairy products as healthy** and are **turning to even healthier options** within the dairy market (e.g. lactose-free, fat-free, natural yoghurt)
2. A large segment of the **youth** are **drinking flavored and sometimes sweetened dairy**, increasing dairy consumption of youth overall (incl. milk, yoghurt, mala)

Agenda

1. East African regional dairy trade flows
2. Kenyan dairy market demand
3. Kenyan dairy value chain and competitive landscape
4. Potential opportunities

Impact and mitigation for small holder farmers and other vulnerable groups

- Potential partnerships

Agenda

1. East African regional dairy trade flows
2. Kenyan dairy market demand
3. Kenyan dairy value chain and competitive landscape
4. Potential opportunities

- Impact and mitigation for small holder farmers and other vulnerable groups

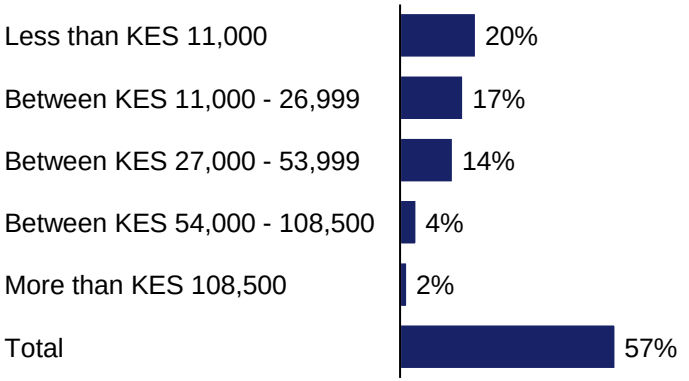
Potential partnerships

Backup

85% of people surveyed buy fresh milk regularly and 57% would like to buy more; most cannot buy more because it is too expensive or not available

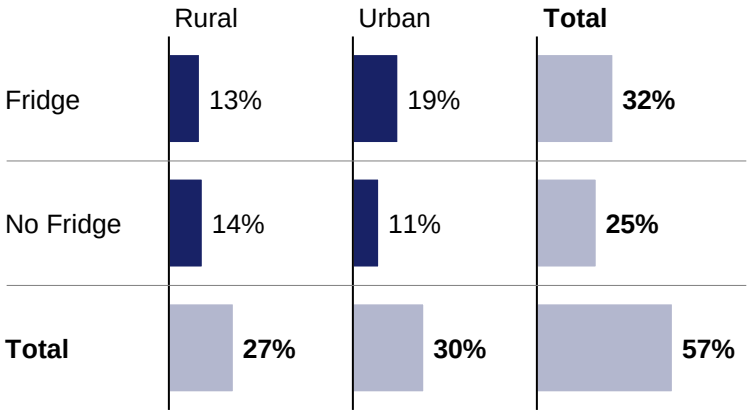
Share of people who would want to consume more fresh milk broken down by income brackets

Share of total respondents



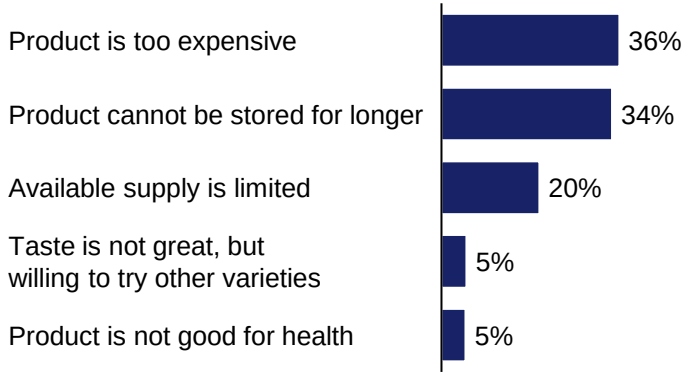
Share of people who would want to consume more fresh milk broken down by location and fridge ownership

Share of total respondents[1]



Reasons why people do not consume the quantity they would like

Share of respondents wanting to buy more fresh milk



- 85% of respondents bought fresh milk in the past 3 months, with a slightly higher proportion of urban dwellers (90%) than rural (81%)
- 57% of respondents said they would like to buy higher quantities of fresh milk
- The highest proportion is amongst people that earn less than 54k KES/month – they represent 89% of all the people who would like to buy more

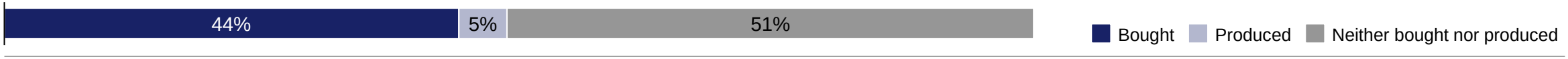
- People with a fridge (32%) and urban dwellers (30%) are slightly more likely to want to buy more than other segments

- Of the people who would like to but cannot buy more fresh milk, 36% find it is too expensive, 34% cannot store it for long enough and 20% do not find enough quantities
  - People without fridges find storage and price even more constraining
- Very few people do not buy or produce fresh milk (4%); the main reason is that they do not like the taste (2% of respondents)

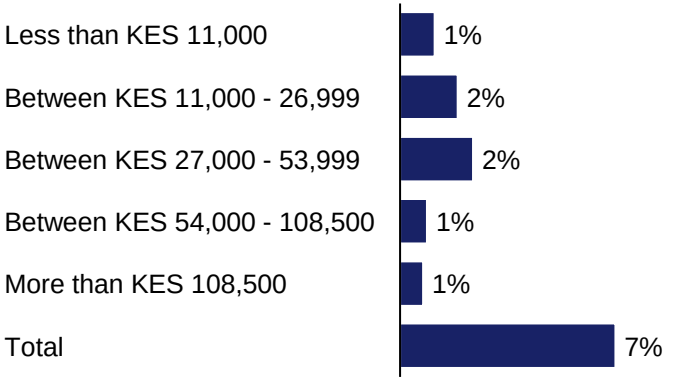
1. 13% fridge and rural means that out of the survey respondents, 13% would like to buy more fresh milk, live in rural areas and own a fridge

Source: Consumer survey

Only 44% of people surveyed buy skimmed milk regularly; only 7% would like to buy more, the majority with fridges



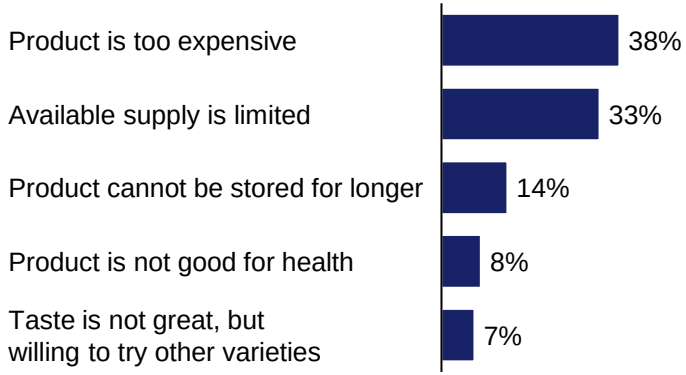
Share of people who would want to consume more skimmed milk broken down by income brackets
Share of total respondents



Share of people who would want to consume more skimmed milk broken down by location and fridge ownership
Share of total respondents

	Rural	Urban	**Total**
Fridge	3%	2%	**5%**
No Fridge	1%	1%	**1%**
Total	**4%**	**3%**	**7%**

Reasons why people do not consume the quantity they would like
Share of respondents wanting to buy more skimmed milk



- 44% of respondents bought skimmed milk in the past 3 months; but 51% neither bought nor consumed it
  - Overall, urban dwellers and people who own a fridge are slightly most likely to buy skimmed milk
- Only 7% of all respondents said they would like to buy higher quantities of skimmed milk
  - 77% of those who would like to buy more skimmed milk earn <54k Ksh per month

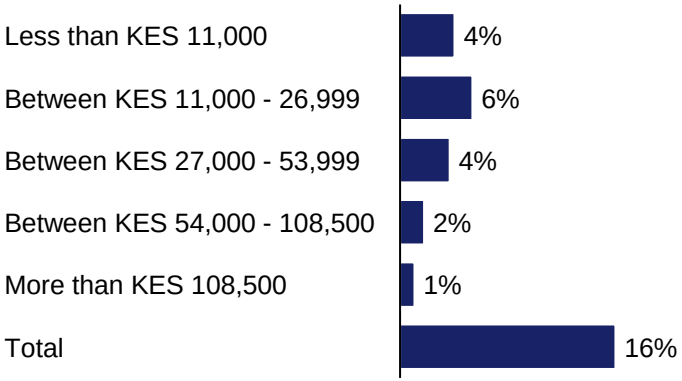
- People with a fridge (32%) and urban dwellers (30%) are slightly more likely to want to buy more than other segments

- Of the people who would like to but cannot buy more fresh milk, 38% find it is too expensive, 33% do not find enough quantities and 14% cannot store it for long enough
  - People without fridges find price even more constraining
- 51% of people do not buy or produce skimmed milk
  - The main reasons are that they do not like the taste or are not interested (55% of respondents to the question), however 24% of those who have not bought it are still willing to try it

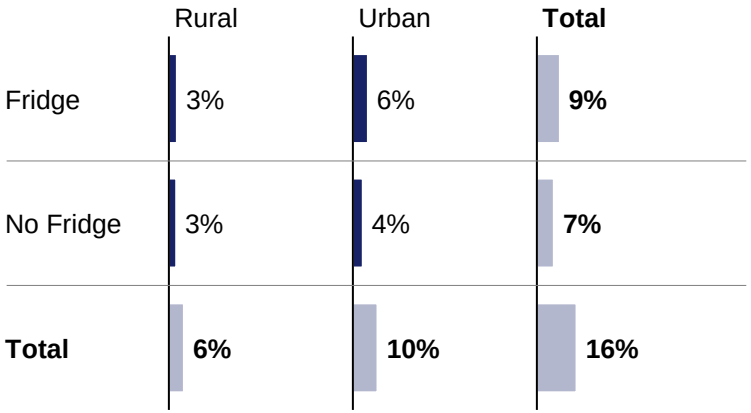
Source: Consumer survey

81% of people surveyed buy UHT milk regularly but only 16% would like to buy more; most cannot buy more as it is too expensive or not available

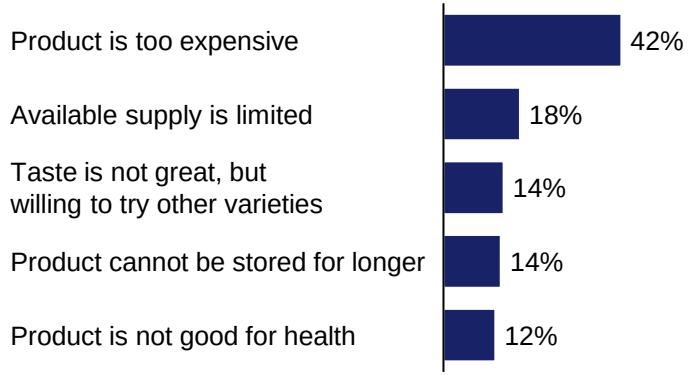
Share of people who would want to consume more UHT milk broken down by income brackets
Share of total respondents



Share of people who would want to consume more UHT milk broken down by location and fridge ownership
Share of total respondents



Reasons why people do not consume the quantity they would like
Share of respondents wanting to buy more UHT milk



- 81% of respondents bought UHT milk in the past 3 months, with a slightly higher proportion of urban dwellers (86%) than rural (75%)
  - 22% of rural dwellers had not bought nor produced UHT vs. 12% for urban dwellers
- 16% of respondents said they would like to buy higher quantities of UHT milk
- The highest proportion is amongst people that earn less than 54k KES/month – they represent 82% of all the people who would like to buy more

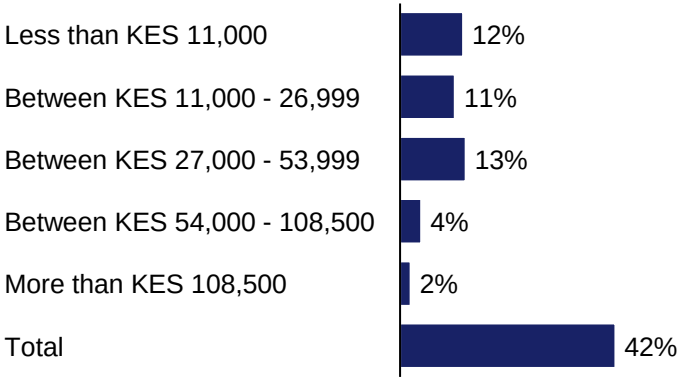
- Urban dwellers (10%) and people with a fridge (9%) are slightly more likely to want to buy more than other segments

- Of the people who would like to but cannot buy more UHT, 42% find it is too expensive, 18% do not find enough quantities and 14% do not like the taste
  - Supply is slightly more of an issue for rural people
- 17% of people do not buy or produce UHT
  - The main reasons are that they do not like the taste (31% of respondents to the question) or cannot afford it (23% of respondents)

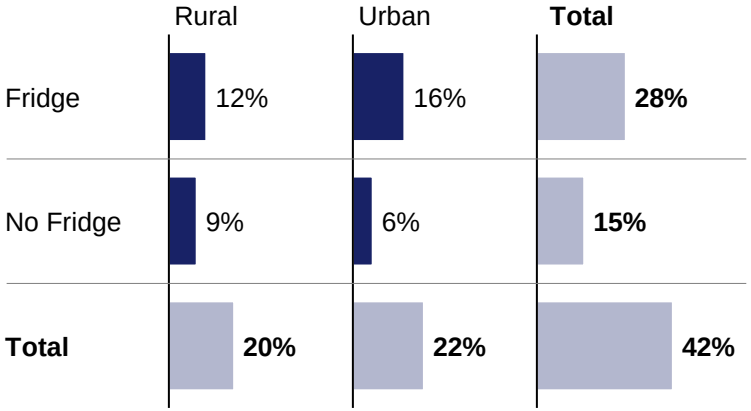
Source: Consumer survey

84% of people surveyed buy yoghurt regularly and 42% would like to buy more; price is the most important factor preventing people from buying more

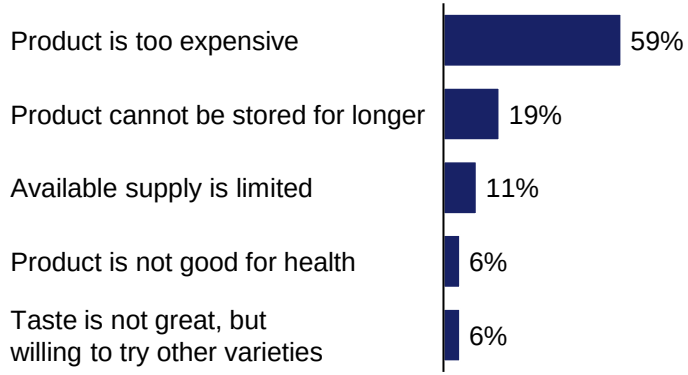
Share of people who would want to consume more yoghurt broken down by income brackets
Share of total respondents



Share of people who would want to consume more yoghurt broken down by location and fridge ownership
Share of total respondents



Reasons why people do not consume the quantity they would like
Share of respondents wanting to buy more yoghurt



- 84% of respondents bought yoghurt in the past 3 months
- 42% of respondents said they would like to buy higher quantities of yoghurt
- The highest proportion is amongst people that earn less than 54k KES/month – they represent 85% of all the people who would like to buy more

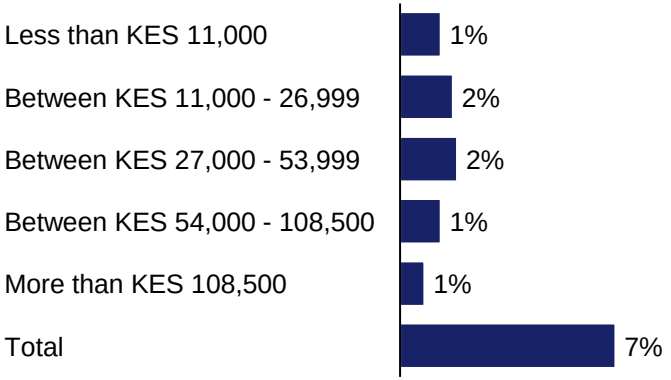
- Urban dwellers (22%) and people with a fridge (28%) are slightly more likely to want to buy more than other segments
  - People with fridges are more likely to want to buy more yoghurt than people without a fridge (47% of people with fridges want to buy more vs. 36% of people without a fridge)

- Of the people who would like to but cannot buy more yoghurt, ~60% find it is too expensive, 19% cannot store it for long enough and 10% find that supply is limited
  - Price is slightly more of an issue for rural people and storage concerns are slightly more important for those without fridges
- 11% of people do not buy or produce yoghurt because they cannot afford it(44% of respondents to the question

Source: Consumer survey

35% of people surveyed buy cheese regularly and only 7% would like to buy more; 60% of people find that cheese is too expensive to buy

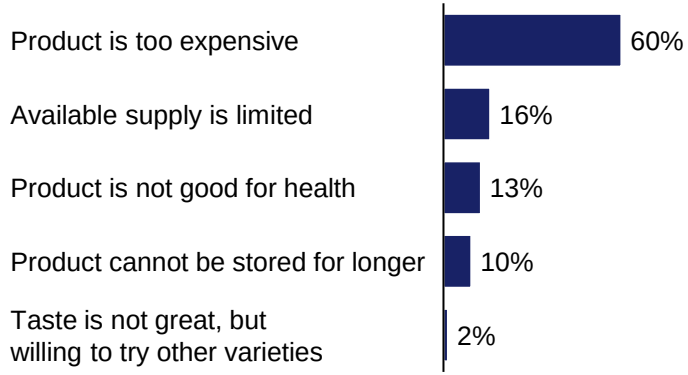
Share of people who would want to consume more cheese broken down by income brackets
Share of total respondents



Share of people who would want to consume more cheese broken down by location and fridge ownership
Share of total respondents

	Rural	Urban	Total
Fridge	2%	3%	**5%**
No Fridge	1%	1%	**2%**
Total	**3%**	**4%**	**7%**

Reasons why people do not consume the quantity they would like
Share of respondents wanting to buy more cheese



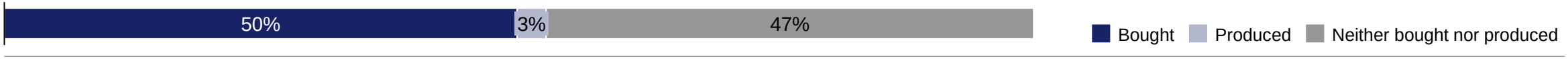
- Only 35% of respondents bought cheese in the past 3 months, with a slightly higher proportion of urban dwellers (36%) than rural (33%)
  - Only 22% of those without a fridge had bought cheese in the past 3 months vs. 43% of those with a fridge
- 7% of respondents said they would like to buy higher quantities of cheese
- The highest proportion is amongst people that earn less than 54k KES/month – they represent 70% of all the people who would like to buy more

- People with a fridge (5%) are slightly more likely to want to buy more than other segments

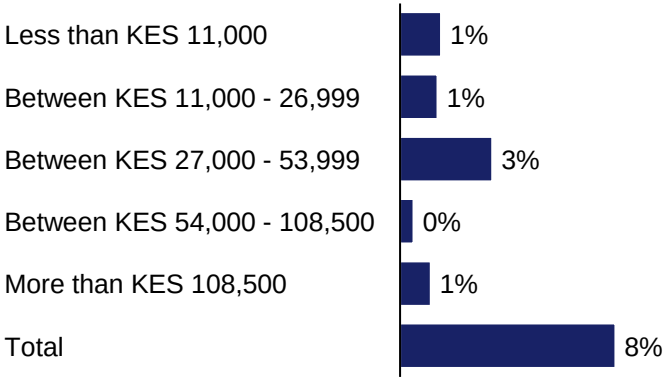
- Of the people who would like to but cannot buy more cheese, 60% find it is too expensive and 16% do not find enough quantities
  - Supply is slightly more of an issue for those without a fridge
- 62% of people do not buy or produce cheese
  - The main reasons are that they find it too expensive (34% of respondents to the question) or do not like the taste (30% of respondents)

Source: Consumer survey

50% of people surveyed buy butter regularly but only 8% would like to buy more; most cannot buy more because it is too expensive or not available



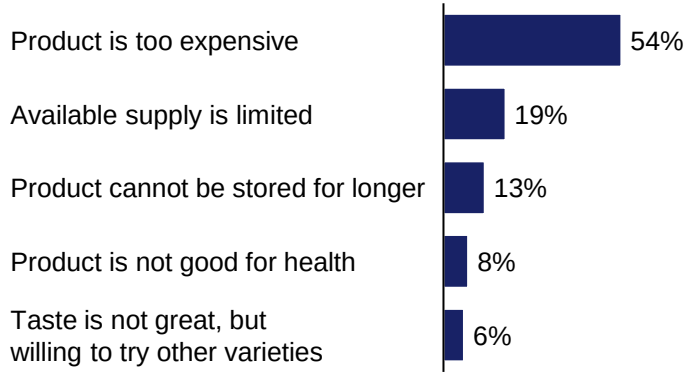
Share of people who would want to consume more butter broken down by income brackets
Share of total respondents



Share of people who would want to consume more butter broken down by location and fridge ownership
Share of total respondents

	Rural	Urban	**Total**
Fridge	2%	4%	**6%**
No Fridge	1%	1%	**2%**
Total	**2%**	**5%**	**8%**

Reasons why people do not consume the quantity they would like
Share of respondents wanting to buy more butter



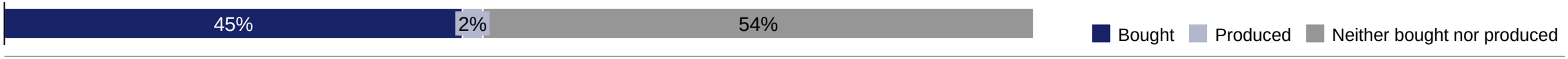
- Only 50% of respondents bought butter in the past 3 months, with a slightly higher proportion of urban dwellers (53%) than rural (47%)
  - 50% of rural dwellers had not bought nor produced butter vs. 45% for urban
- Only 8% of respondents said they would like to buy higher quantities of butter
- The highest proportion is amongst people that earn 27k - 54k KES/month – they represent 43% of all the people who would like to buy more

- Urban dwellers (5%) and people with a fridge (6%) are slightly more likely to want to buy more than other segments; this can be explained by the fact that butter must be refrigerated in order to be conserved

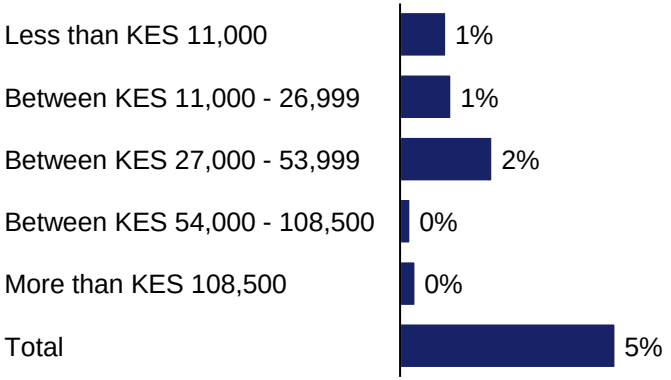
- Of the people who would like to but cannot buy more butter, 54% find it is too expensive, 19% do not find enough quantities and 13% cannot store it
- 47% of people do not buy or produce butter
  - The main reasons are that they cannot afford it (45% of respondents to the question), do not like the taste (19%) or simply have never tried it (18%)

Source: Consumer survey

45% of people surveyed buy milk powder regularly but only 5% would like to buy more; most find it too expensive and some are concerned about health



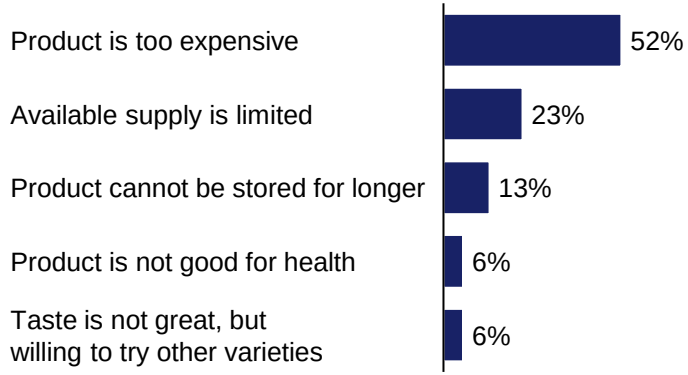
Share of people who would want to consume more milk powder broken down by income brackets
Share of total respondents



Share of people who would want to consume more milk powder broken down by location and fridge ownership
Share of total respondents

	Rural	Urban	**Total**
Fridge	1%	2%	**4%**
No Fridge	1%	1%	**1%**
Total	**2%**	**3%**	**5%**

Reasons why people do not consume the quantity they would like
Share of respondents wanting to buy more milk powder



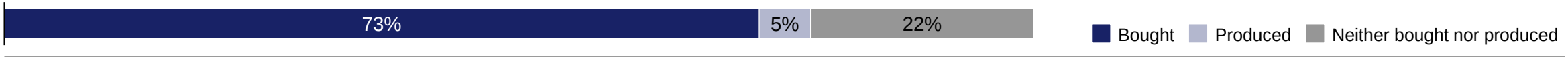
- 45% of respondents bought milk powder in the past 3 months
  - Only 35% of people without a fridge bought milk powder in the past 3 months
- Only 5% of respondents said they would like to buy higher quantities of milk powder
- The highest proportion is amongst people that earn 27k - 54k KES/month – they represent 43% of all the people who would like to buy more

- People with a fridge (4%) are most likely to want to buy more than other segments

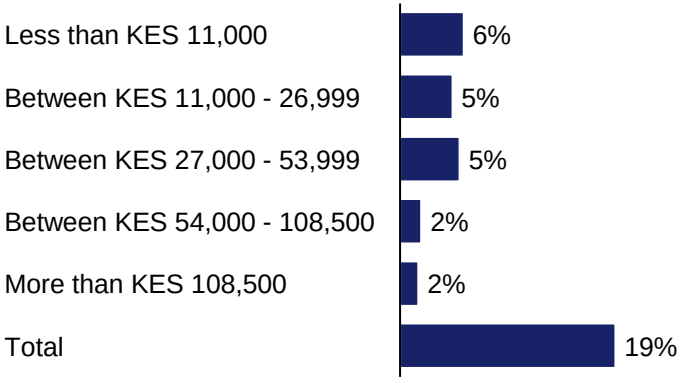
- Of the people who would like to but cannot buy more milk powder, 52% find it is too expensive, and 23% cannot access it
  - Supply is slightly more of an issue for rural people
- 54% of people do not buy or produce milk powder
  - The main reasons are that they do not like the taste (32% of respondents to the question), cannot afford it (24%) or consider it unhealthy (16%)

Source: Consumer survey

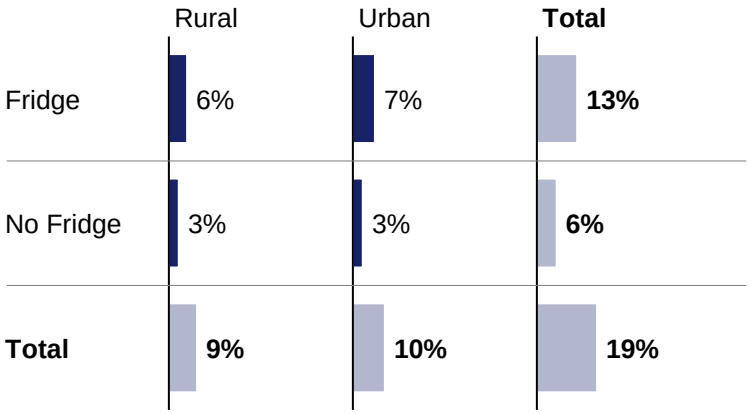
73% of people surveyed buy ice cream regularly and 19% would like to buy more; most fin the product too expensive



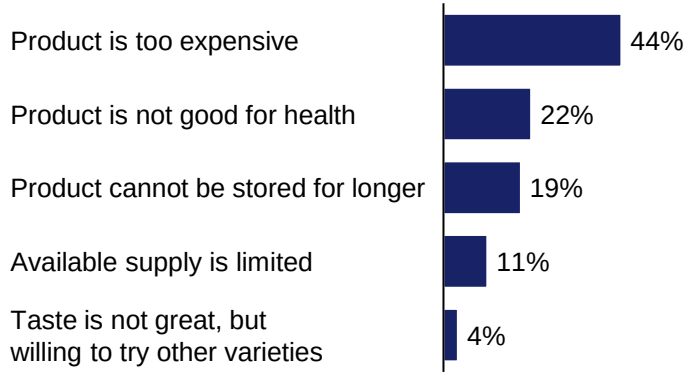
Share of people who would want to consume more ice cream broken down by income brackets
Share of total respondents



Share of people who would want to consume more ice cream broken down by location and fridge ownership
Share of total respondents



Reasons why people do not consume the quantity they would like
Share of respondents wanting to buy more ice cream



- 73% of respondents bought ice cream in the past 3 months
- 19% of respondents said they would like to buy higher quantities of ice cream
- The highest proportion is amongst people that earn less than 54k KES/month – they represent 82% of all the people who would like to buy more

- People with a fridge (13%) are slightly more likely to want to buy more than other segments

- Of the people who would like to but cannot buy more ice cream, 44% find it is too expensive, 22% are concerned about the health impact and 19% cannot store it
  - Price and health impacts are slightly more of an issue for urban people
- 22% of people do not buy or produce ice cream
  - The main reasons are that think it is unhealthy (38% of respondents to the question) or cannot afford it (30% of respondents)

Source: Consumer survey