



MILK CONSUMPTION IN UGANDA



Richard M. Ariong & Kenneth Otikal

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EXECUTIVE SUMMARY

This report articulates per capita milk consumption in Uganda. The study was an initiative of DDA in partnership with AgrInvest Uganda and FAO's Monitoring and Analysing Food and Agricultural Policies (MAFAP). The MAFAP programme works to create a consistent set of analyses that assess the effects of policies on agricultural value chains and on public expenditure in Africa for policymaking that is conducive to agricultural development. The assessment was conceived on a backdrop that Uganda has a high milk production but low domestic consumption of milk and milk products. The analysis relied on data of four panel surveys collected by from UBOS under the living standards measurement study supported by the World Bank.

Milk has significant benefit to human nutrition and can significantly contribute to meeting the body needs for various micronutrients such as calcium, selenium, riboflavin, vitamin B12 and vitamin B5. As such, WHO recommended that an adult being should consume at least 200 to 250 mill litres of milk per day to meet the body requirement nutrient intake of some micro-nutrients. In this study, we find that Uganda's population consumes milk at levels 68 percent (64 litres per capita) below the lower bound of 200 mill litres of milk per capita which also coincides with the DDA target.

Thus, the low consumption level of milk per dairy products calls for some interventions in Uganda to not only enhance consumption but also to reduce levels of malnutrition, and spur further growth in the dairy value chain which for the past 10 years has experienced export led growth and at the same time being affected by export barriers coupled with low domestic demand. Increasing domestic demand of milk/dairy products through consumption-based interventions is likely to benefit all actors in the dairy value chain.



1. INTRODUCTION

1.1 Background

Global policy is currently driven by agenda 2030 dubbed as the global sustainable development goals (SDGs). One of the priorities looks at global food security, elimination of hunger and malnutrition in the world. Governments and their development partners are investing towards the same. However, despite the efforts, global trends in the triple burden of malnutrition (including undernutrition, micronutrient deficiencies, and overweight/obesity) and non-communicable disease (NCD) continue to rise. Undernutrition and nutrition deficiencies are the most prevalent in the developing countries. Most of the worlds undernourished are found in Asia and Sub Sahara Africa. Public investment is needed to ensure that the poor and undernourished people can acquire food that is adequate in quantity (dietary energy) and quality (dietary diversity) (Muehlhoff, Bennett, & McMahon, 2013).

One of the foods with high nutritive value which can contribute to reduction of the triple burden is milk and its associated dairy products due to its high nutritive content. Milk contains numerous nutrients and can significantly contribute to meeting the body needs for calcium, magnesium, selenium, riboflavin, vitamin B12 and vitamin B5 (FAO, 2013). As such, it is recommended that an adult being consumes at least 200 to 250 litres of milk per year to meet the body requirement nutrient intake of some micro-nutrients (FAO, 2013). However, the recommendation can vary by country depending on the dietary guidelines of a country or region. Much as billions of people around the world consume milk and dairy products every day, there are also billions of the poor who do not consume milk every day due to resource constraints.

Global milk production has registered growth and the outlook for 2021-2030 indicates that production is expected to grow further with India and Pakistan being the key drivers (OECD/FAO, 2021). Countries with the high global stake (production, and exports) in the dairy industry include New Zealand, the European Union countries, and the US and these also have the highest per capita consumption of milk (Fig. 1) which has been steady for decades while global growth is being driven by countries in Asia, Africa, and South Americas.

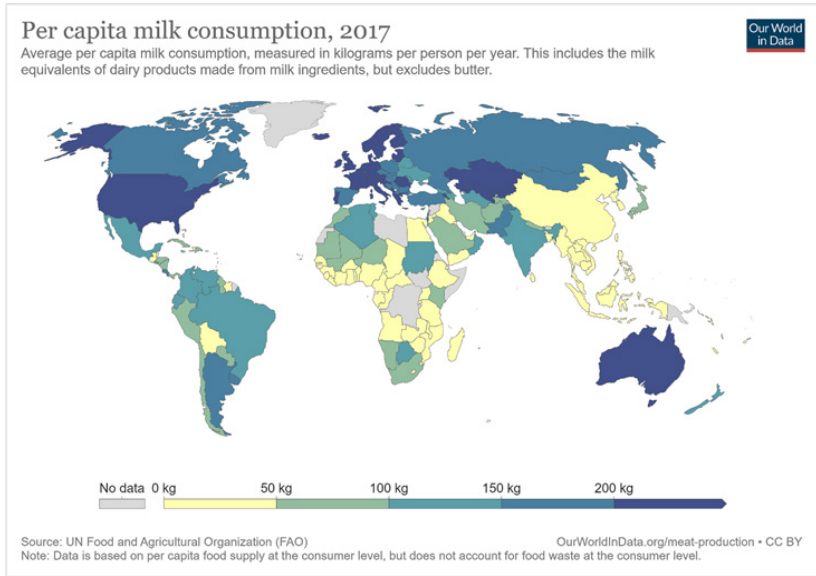


Figure 1: Global per capita milk consumption¹

Figure 2 shows that milk consumption (on annual per capita basis) is led by populations in Europe (at 210-220 Kg of milk) and Americas (160-170 Kgs). However, per capita milk consumption in East Africa (30-40Kgs) lags at the bottom significantly below the average per capita milk consumption for the world (75-90Kg) and typically within the average consumption trend in low-income countries (20-40kg/LDCs).

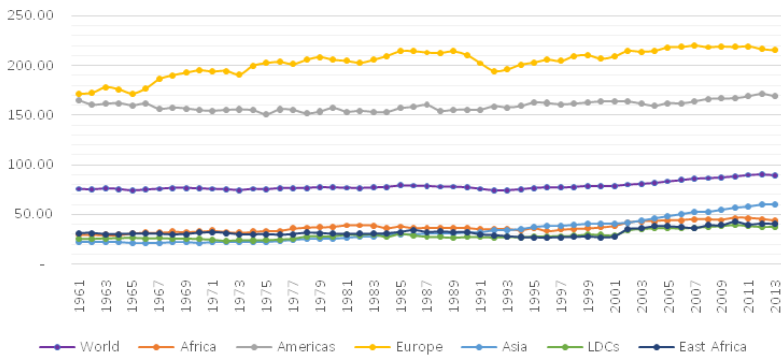


Figure 2: Trends in world milk per capita consumption for 1961-2013

Source, Milk consumption - Excluding Butter - (kg/capita/year) (FAO, 2020)

¹ <https://ourworldindata.org/grapher/per-capita-milk-consumption>

Whereas milk production has registered growth in Africa, consumption has lagged and still below WHO recommended levels of at least 200 litres per capita. Besides having the lowest per capita milk consumption, Africa has also registered the lowest growth in consumption of milk and dairy products over the past 50 years. The consumption pattern in low-income countries indicates that there is need for policy intervention to increase milk consumption not only to fight undernutrition and micronutrient deficiencies but also as part of the measures to broadly reduce food insecurity.

1.2 Milk consumption in Uganda

Much as Uganda has registered significant growth in milk production, consumption is still low. A big section of the Ugandan population consumes either processed milk which runs through the formal dairy value chain or unprocessed milk which is handled by the informal sector. Consumption in the informal value chain has partly contributed to difficulty in estimating actual milk consumption in Uganda. Based on FAO data (2020), per capita consumption of milk in Uganda is about 37 litres and milk consumption in EAC countries has generally not significantly increased in the past 50 years except for Kenya - which explains Uganda's huge reliance on Kenya as the key dairy export market. Figure 3 shows that annual per capita milk consumption in Uganda is about 40 Kgs while Kenya is estimated at about 100Kg. However, available data is not consistent and, in most cases, not up to date which calls for government of Uganda to invest in data and have a proper estimate Uganda's milk consumption.

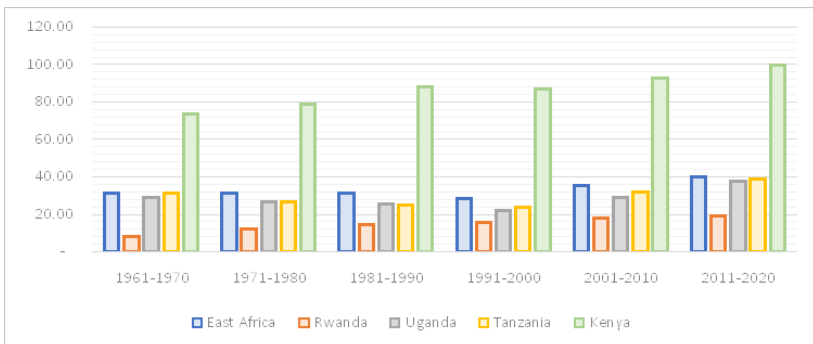


Figure 3: Average annual per capita milk consumption in East Africa

Data source: Source, Milk consumption - Excluding Butter - (kg/capita/year) (FAO, 2020)

Considering data gaps, DDA sought to assess the current state of milk consumption in Uganda with an aim to guide policy discourse on how to enhance milk consumption in Uganda ideally, as an effort to increase demand of domestic milk which has seen a surge in production, but growth has been threatened by low domestic consumption and trade restrictions in major export markets.

2. METHODOLOGY

2.1 Materials

Secondary panel data collected by Uganda Bureau of Statistics (UBOS) was used. The data, also known as the Living standards measurement study (LSMS), was supplied to DDA in long format for seven waves running from 2005 through 2019. The panel data had sample size data within a range of 3000 to 3300 households depending on the panel (Table 1). The data is collected from a representative sample across all the regions of the country.

The data on milk consumption was captured following the household food consumption approach which is one of the approaches of estimating prevalence of household food insecurity in a population. Household food consumption for a seven-day recall is a proxy indicator for calorific adequacy. The method looks at consumption of eight food groups by household members in the past 7 days prior to an inquiry. The food groups include starchy foods (Cereals, Roots, Tubers, and bananas), pulses, meats, milk/dairy product, sugars, vegetables, fruits, and oils and fats. Among the eight food groups, consumption of milk and dairy products is separately captured. Per the data, based on a seven-day recall, respondents gave information on the number of days they consumed various dairy products under the milk food category, and these were measured in various common local units which were then converted to litres equivalent.

Table 1: Sample size

Wave	Year/ Panel	Sample size
1	2005	3120
2	2010	2657
3	2011	2830
4	2013	3119
5	2015	3285
6	2018	3168
7	2019	3059

2.2 Method

To compute per capita milk consumption, annual household milk consumption was estimated from extrapolation of the estimated weekly milk consumption by all the household members and then, to estimate annual per capita milk consumption, the estimated quantity of milk consumed by all the household members was divided by the total number of household members.

$$\text{per capita milk}_{iht} = \sum_{i=1}^N \frac{\text{milk}_{ht}}{h_t}$$

Where: *per capita milk*_i denotes milk consumed by an individual *i* in household *h* in year *t* computed by dividing milk consumed by household *h* by household size *h* in year *t*. Household size $h \in \{1,2,3, \dots, N\}$.

3. RESULTS

3.1 Household characteristics

The surveyed households had members who were usually present for most of the year and most of the households were rural (76%) compared to the urban (24%). The average household size was seven household members for which many had lived in the household for about 11 months (Table 2).

Table 2: Characteristics of households

Variable	Percent of households	Mean
Resident status		
Usual present member	83.2	
Usual absent member	8.4	
Regular present member	2.0	
Regular absent member	4.7	
Guest	1.7	
Rural households	75.8	
Urban households	24.2	
Region		
Central	22.2	
Eastern	26.3	
Northern	27.8	
Western	23.7	
Household size		5.49 (3.20)
Number of months member lived in the household		11.1 (2.50)
Average age of household member		23.4 (19.32)

3.2 Milk consumption

Milk consumption at levels recommended by WHO/FAO translates to a daily milk intake of about 550 mill litres per day. Milk production has significantly increased in Uganda, but milk consumption has remained low.

Results in Table 3 show that the individual annual consumption was about 63 litres of milk which translates to about 170 mill litres of milk in a day. Based on these estimates, the findings reveal that individual milk consumption in Uganda is 68 percent less of the required dietary intake. The results further indicate that one person in Uganda consumes the recommend quantity of milk for about only two days in a week which explains low domestic milk consumption in terms of annual per capita or daily requirement. After adjusting the sample to only the population that reported consumption of milk, the results showed that the actual milk consuming population takes milk (77 Litres per capita) which is about 22% higher than the estimated national average.

Table 3: Milk consumption

Wave	Sample size (N)	per capita consumption (litres)	
		Based on entire HH sample	Based on only HH that consumed milk
2005	3120	44.10 (1.901)	92.67 (4.929)
2010	2657	-	-
2011	2830	-	-
2013	3119	46.64 (1.203)	80.47 (2.507)
2015	3285	-	-
2018	3168	52.95 (1.539)	90.82 (3.659)
2019	3059	62.72 (1.311)	76.54 (1.937)

Note: Values in parenthesis are standard errors; the years with lacking per capita consumption had missing data on household size which could not allow complete computation

The estimated per capita milk consumption of 63 litres is just about the same as 64 reported by DDA (2020). DDA target is to promote milk consumption and increase per capita consumption to 200 litres. Addressing constraints to milk access and consumption has a potential to triple domestic milk demand in Uganda if those not consuming are encouraged to consume milk.

3.3 Regional and Rural-Urban comparison

A regional comparison reveals that the highest per capita consumption is by the population in western region (77 Litres per capita) followed by Central region (71 Litres per capita) while Eastern region had the lowest consumption (48 Litres per capita) which is generally expected because Western and Central regions are also the leading producers of milk in Uganda while eastern and Northern are the lowest producers of milk² (Fig. 4).

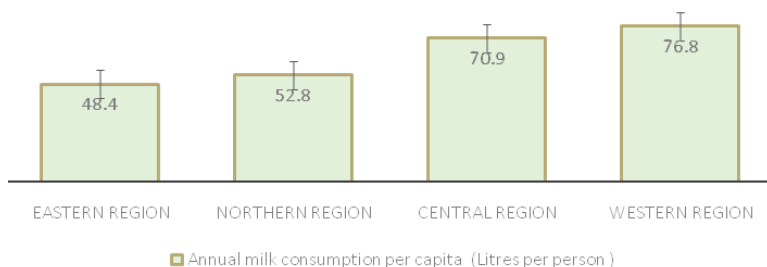


Figure 5: Regional comparison of annual per capita milk consumption

The trend graph shows that annual per capita milk consumption has registered some growth both at national and regional level and the increase at national level has changed by about 42% from the consumption level of 2005 vis-a-vi that of 2019.

² Milk production in Uganda, <https://dda.go.ug/dairydata.php#header2-1g>

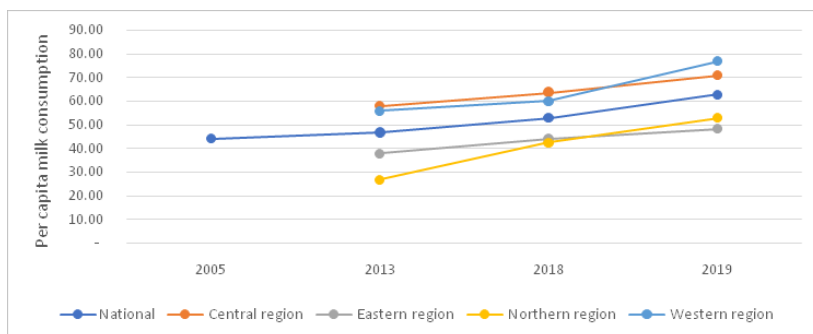


Figure 4: Comparison of regional per capita consumption of milk in Uganda

Additionally, among various factors such as age, rural/urban divide, and household size, income and relative price levels are the major driver of milk consumption (FAO, 2013). Considering the most recent panel (2019), a comparison of the rural vs urban dwellers reveals that per capita milk consumption is significantly higher among the urban compared to rural residents (Table 4). The consumption in urban areas is 24 percent higher than the national average while consumption in rural areas is 9 percent lower than the national average. Considering a household size of 6 in the rural households and 5 in the urban households, it is likely that the consumption divide is more explained by income and less by household size.

Table 4: Milk consumption in the rural and urban areas

Year	Mean annual per capita consumption (Litres per person) P stat	Rural	Urban	
2005	44.1 (1.901)	-	-	
2013	46.6 (1.203)	81.1 (3.504)	76.4 (5.708)	0.0262
2018	53.0 (1.539)	50.3 (1.971)	60.0 (2.085)	0.0048
2019	62.7 (1.311)	57.2 (1.500)	77.6 (2.771)	0.0000

Note: Values in parenthesis are standard errors

4. CONCLUSION

One of the key drivers of milk consumption is income level. Milk consumption is generally low in low-income countries, yet they also suffer higher prevalence of malnutrition compared to middle income and high-income countries. Uganda has registered gains in milk production, but milk consumption is still low. In East Africa community, Kenya has the highest per capita milk consumption and perhaps it is not surprising since it is a low-middle income country. This study estimated the current per capita milk consumption in Uganda to guide evidence-based policy dialogue. dialogues with dairy stakeholders.

The findings show that annual per capita milk consumption in Uganda currently stands at about 63 litres and the consumption is significantly higher in the urban areas compared to the rural areas. It is also found that consumption is highest in the Western region and lowest in the Eastern and Northern region. The Western region is characterised with high milk production compared to other areas and significant investments in milk consumption programmes. Generally, the annual per capita consumption is about 68 percent less than the recommended annual milk consumption.

Thus, the low consumption level of milk per dairy products calls for some government interventions to not only enhance consumption but also to reduce levels of malnutrition, and spur further growth in the dairy value chain which for the past 10 years has experienced export led growth and at the same time being affected by export barriers coupled with low domestic demand. Increasing domestic demand of milk/dairy products through consumption-based interventions is likely to benefit all actors in the dairy value chain.

- There is need to improve milk consumption culture through sensitization of the population on the benefits off milk consumption. This should be coupled with a school milk feeding programme as one of the long-term pathways to changing mindset and culturing the young to take milk from childhood.
- Make processed milk affordable through favourable taxation/ VAT extended to several dairy products especially pasteurized milk, long life milk, and powdered milk.

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ANNEX

Respondent characteristics

Variable	Percent of households (2019)
Sex of respondent	
Male	48.1
Female	51.9
Relation of respondent to head	
Household head	19
Spouse	12.2
Child of head (son/daughter)	50.6
Grand child	12.1
Parent of head/spouse	0.4
Sibling	0.9
Nephew/niece	1.4
Other relative	2.1
Non-relative	1.1

Regional comparison of per capita milk consumption

Region	Mean annual per capita milk consumption						
	2019	Sta. Error	Min	Max	2018	2013	2005
Overall	62.737	1.311	0	1170	52.953 (1.539)	46.635 (1.203)	44.096 (1.096)
Central	70.897	2.695	0	884	63.759 (4.090)	58.060 (3.792)	
Eastern	48.366	1.989	0	728	44.067 (1.740)	37.837 (2.258)	
Northern	52.789	2.720	0	1170	42.426 (2.970)	26.977 (2.432)	
Western	76.787	2.784	0	1098.5	59.833 (2.507)	55.875 (2.421)	



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Dairy Development Authority
Kafu Road, Nakasero.
P. O. Box xx, Kampala, Uganda
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