



# Survey on: Consumption Patterns, and Marketing System of Milk and Dairy Products in Logar Province, Afghanistan

Mohammad Aman Ahmadzai<sup>1\*</sup>, Anayatullah Haidary<sup>2</sup>, Qiamudin Shinwari<sup>3</sup>

<sup>1</sup>Department of Clinic, Faculty of Veterinary Sciences, Helmand University, 3902 Peace Watt, Lashkar Gah, Helmand, Afghanistan. Email: amanahmadzai50@gmail.com

<sup>2</sup>Department of Para Clinic, Faculty of Veterinary Sciences, Helmand University, 3902 Peace Watt, Lashkar Gah, Helmand, Afghanistan. Email: anayatullahhaidary73@gmail.com

<sup>3</sup>Department of Para Clinic, Faculty of Veterinary Sciences, Helmand University, 3902 Peace Watt, Lashkar Gah, Helmand, Afghanistan. Email: qiamudinshinwari@gmail.com

\*Correspondence: amanahmadzai50@gmail.com

## Data of the Article

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## Keywords

Milk Consumption,  
Dairy Products,  
Marketing System,  
Household Farmers,  
Logar Province.

Despite Logar's proximity to Kabul and the high demand for dairy due to urbanization and population growth, many farmers do not fully supply their milk to the market. This study highlights the significant role of household milk production in meeting both consumption and market needs. The survey included 300 household farmers, from both rural and urban areas of Baraki Barak, Pul-i-Alam, and Mohammad Agha districts of Logar province. The data were collected through a face-to-face interview using a questionnaire. The randomization procedure was used to collect the sample from the population, and for data analyzing, statistical software like, Statistical Package for the Social Sciences software and Minitab Statistical software were used. The results revealed that while the average amount of milk sold was 2.87 liters in rural areas and 3.02 liters in urban areas the average daily consumption per household was 5 liters in rural areas and 5.7 liters in urban areas. Using both official and informal marketing channels milk was the most popular dairy product followed by yogurt and butter. However, the dairy marketing system remained inadequate even with sufficient production. Addressing current marketing challenges is crucial to improving household farmers livelihoods and more effectively meeting urban demand. It is advised that governments and non-governmental organizations assist farmers by making investments in infrastructure for sales transportation and collection. In order to strengthen market systems and raise the income of rural and urban household farmers in Logar province more through research should be done to examine the opportunities and problems in the local dairy industry.

## 1. Introduction

In Afghanistan, most consumers prefer locally produced milk and dairy products. According to Naeimi & Almas (2021), 50% of consumers choose local dairy products, 35% prefer imported ones, while 15% are not interested in consuming dairy products at all. The average annual milk consumption per person is relatively low, at only 66 kg per year (Hamidi, 2010). For rural women, dairy farming is a vital source of income, and in many areas

of Afghanistan, more women than men are engaged in the dairy sector (Grace, 2004). Interestingly, in regions with high milk production, dairy consumption tends to be lower, as farmers are more focused on selling their milk and milk products rather than consuming them (Dizon, Herforth, & Wang, 2019). Women play a central role in the processing of dairy products, converting milk into yogurt, butter, and ghee. Consumption of milk and dairy products rises in the winter (Aalemi, Anwar, & Chen, 2019). The market for milk and dairy products

is substantial despite Afghanistan’s dairy production sectors lack of development (Raziq, Tareen, & Verdier, 2011). According to Srinivas et al. (2014), markets in densely populated areas typically make more money than those in less populated areas. Many of these national trends are reflected in the situation of Logar province. There are few dairy marketing opportunities and most farmers do not have sufficient access to markets (Mukhtar, Ashkar, & Azizi, 2021). Only a small amount of milk is kept for family consumption and the majority is sold. Typically milk sales revenue is utilized to cover basic household necessities of life (Naeimi & Almas, 2021).

The purpose of this study is to clarify on the types of dairy products that local farmers process and sell as well as the daily milk consumption and sales per household.

## 2. Materials and Methods

### 2.1. Design and Study Area

This cross-sectional survey was carried out in three

districts (Baraki Barak, Pul-i-Alam, and Mohammad Agha) of Logar province. Both, rural and urban areas of these districts were involved in the survey. From the target population, 300 participants were chosen as a representative sample. Participant had to be actively involved in daily dairy production activities and possess at least one lactating animal such as sheep, goats or cattle in order to be eligible for this study. Additionally, respondents were selected based on their willingness to provide reliable information regarding consumption behavior, product sales, processing practices, and marketing channels. The study further accounted for differences between rural and urban households in terms of infrastructure access, transportation challenges, and availability of cold-chain services. Prior to the interview, participants were informed about the research objectives, data confidentiality, and voluntary participation, and verbal consent was obtained accordingly. The sociodemographic information of the households is presented in the following table:

**Table 1:** Household Categorization Based on Sociodemographic Characteristics.

Gender		Age		Areas		Education Background				
		Min	Max			Un- educated	Can read and write	FA/FSc	BA/BSc	Above
Male	Female	20y	60y	Rural	Urban	Un- educated	Can read and write	FA/FSc	BA/BSc	Above

(Constantinescu et al. 2019).

In conclusion, a sample size of 300 respondents was both practical and methodologically sound for a cross-sectional survey of this nature. It ensures statistical validity, allows for meaningful generalizations to the broader population, and captures a diverse range of demographic characteristics across rural and urban areas. This balanced approach not only enhances the reliability of the findings but also aligns with standard practices in similar research settings, making it an appropriate and effective choice for achieving the study’s objectives.

### 2.2. Sampling Method and Data Collection

This study utilized a structured questionnaire and systematic random sampling to gather comprehensive data from 300 milk-producing farmers aged 20 and above. By focusing on key districts with high dairy production, the research effectively captured household milk consumption, sales quantities, and marketing practices. The inclusion of sociodemographic factors further enriched the analysis, providing valuable

insights into the dairy farming sector in a region where it plays a crucial economic role. This approach ensured a reliable understanding of the dairy marketing system in Logar province. The strategic selection of accessible and safer districts with significant dairy activity, combined with systematic random sampling, ensured the collection of valid and representative data. Despite security challenges limiting access to some areas, focusing on these districts allowed the study to capture key aspects of dairy marketing, market access, and sales dynamics that reflect broader provincial trends. This approach provided a reliable foundation for assessing and understanding the dairy sector in Logar province.

### 2.3. Data Analysis

For data analyzing, we used the Statistical Package for the Social Sciences (SPSS) software and Minitab Statistical software. Continuous data were expressed as mean and standard deviation, while categorical data were expressed as frequencies and percentages.

### 3. Result and Discussion

#### 3.1. Household Farmers Related Information

In this research, which involved interviews with 300 household farmers, the results of their sociodemographic information are presented in the table 2:

Most of the respondents in the survey were 30 – 40 years old who knew and understood the work of livestock accurately. The findings indicated that there were fewer female household farmers compared to their male counterparts. Research conducted by Gebre & Gebremedhin (2019) emphasizes that a considerable segment of urban ecosystem services, particularly relating to milk and dairy products, comes from rural

areas, where small-scale household farmers are more engaged in livestock production. Gender significantly influences these activities, with Phanchung et al. (2002) noting that women mainly handle duties like milking, processing milk, feeding, preparing feed, and gathering fodder. A study in Kenya by Walton et al. (2012) revealed that focused training initiatives, particularly for women, resulted in higher milk output. Conversely, female farmers in Afghanistan have not received similar attention. Furthermore, prior literature also describes that various elements, including education, availability of loans, access to extension services, size of land, number of livestock, distance to market hubs, engagement in off-farm employment, and household size, influence farmers’ participation in dairy hubs.

**Table 2:** Results of Household Farmers’ Sociodemographic Information.

Gender		Age	Areas		Education background				
Male	Female		Rural	Urban	Un-educated	Can read and write	FA/FSc	BA/BSc	Above
281	19	Young (mostly)	186	114	108	102	55	35	0

#### 3.2. Milk and other Dairy Products Consumption by Household Farmers

##### 3.2.1. Average Daily Milk Consumption by Household Farmers

The data indicated that, on average, rural farming households consume 5 liters of milk per day. The highest recorded daily self-consumption was 20 liters, while the lowest was 1 liter. In comparison, urban households show slightly higher average self-consumption, with each farming family consuming approximately 5.7 liters of milk per day. In urban areas, the maximum daily self-consumption reached 28 liters, whereas the minimum was zero. A self-consumption level of zero suggested that some farming families either do not produce milk at all or choose to sell all of their milk rather than consume it themselves. A study by Yasin et al. (2020) in Sindh, Pakistan, found that out of 1,868 liters of cow’s milk produced, 915 liters were consumed domestically and 953 liters were sold, with each farming household consuming an average of 3.3 liters per day. Producer families in Ethiopia consumed between 0.5 and 5 liters of fresh milk per farm every day according to Lemma et al. (2017). Furthermore, research by Njarui et al. (2011) indicated that richer households had a higher frequency of milk and dairy product consumption compared to poorer families. Raw milk was favored over pasteurized, ultra-high temperature treated, or powdered milk due to its

affordability and better accessibility. In Pakistan, Sindh holds the highest annual per capita milk consumption at 246 kilograms, with Punjab at 132 kg, Baluchistan at 108 kg, and Khyber Pakhtunkhwa (KPK) at 86 kg (Sattar, 2020). On an international scale, Norwegians had an average consumption of 3.69 liters of flavored fermented milk per person in 2020 (Statista, 2023). The amount of milk consumed per person in Luxembourg rose from roughly 39 liters in 2010 to over 44.5 liters in 2019. In 2011, the lowest amount of fluid milk consumed per person was 32.9 liters (Statista, 2022).

##### 3.2.2. Types of Dairy Products Consumed by Farmers

Household farmers primarily utilized self-made dairy products, including milk, butter, cheese, yoghurt, ghee, qurot, and sharombi with milk and yoghurt being the most frequently consumed items by both rural and urban farmers. A study conducted by Fita, Beyene, & Hegde (2004) in Oromia revealed that households produced roughly 3 liters of milk per day with 0.5 liters set aside for personal consumption and 2.5 liters used for processing. 5.9 liters of fermented milk products with 1 – 2% fat were consumed per person in Sweden (Statista, 2023).

Both urban and rural regions show substantial consumption of milk, yoghurt, and sharombi, with rural areas exhibiting overall higher milk consumption, while the consumption of yoghurt and sharombi shows

only minor differences between the two settings. The data highlighted that farmers have a strong preference for milk and dairy products compared to other food

types. Consumption patterns of dairy products vary between regions. Table 3 and 4 present the volume and quantity of milk and dairy products.

**Table 3:** Daily Consumption of Various Products per Family in Rural Areas (kg & liters).

Variable	N	Mean	Standard Error Mean	Standard Deviation	Minimum	Median	Maximum
Milk (lit)	120	2.0000	0.0924	1.0125	1.0000	2.0000	5.0000
Butter (kg)	25	0.3880	0.0533	0.2666	0.1000	0.3000	1.0000
Cheese (kg)	2	0.3500	0.0500	0.0707	0.3000	0.3500	0.4000
Yoghurt (kg)	162	1.5000	0.0451	0.5738	0.5000	1.5000	3.0000
Ghee (kg)	7	0.2429	0.0528	0.1397	0.1000	0.2000	0.5000
Qurrot (kg)	4	0.3750	0.0750	0.1500	0.2000	0.4000	0.5000
Sharombi (lit)	38	1.500	0.112	0.688	0.500	1.500	3.000

**Table 4:** Daily Consumption of Various Products per Family in Urban Areas (kg & liters).

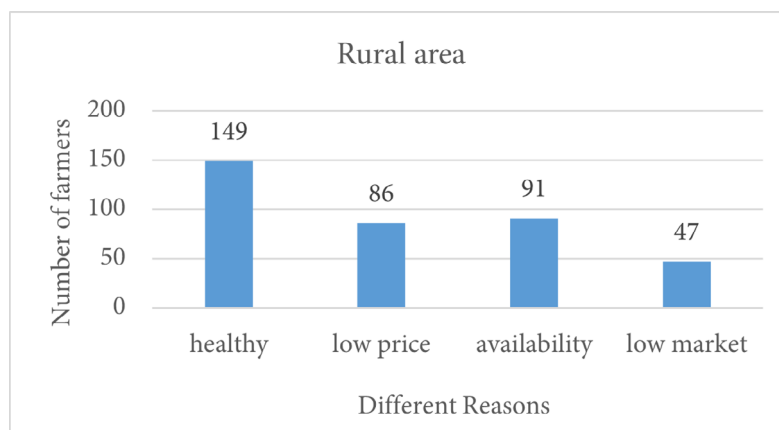
Variable	N	Mean	Standard Error Mean	Standard Deviation	Minimum	Median	Maximum
Milk (lit)	109	1.7982	0.0684	0.7140	0.5000	2.0000	4.0000
Butter (kg)	36	0.4139	0.0352	0.2113	0.1000	0.5000	1.1000
Cheese (kg)	9	0.3000	0.0624	0.1871	0.1000	0.2000	0.6000
Yoghurt (kg)	90	1.6000	0.0791	0.7503	0.5000	1.5000	3.0000
Ghee (kg)	7	0.2286	0.0565	0.1496	0.1000	0.2000	0.5000
Qurrot (kg)	10	0.3400	0.0400	0.1265	0.2000	0.3000	0.5000
Sharombi (lit)	52	1.702	0.104	0.749	0.500	2.000	3.000

In China, the most frequently consumed dairy items are milk, yoghurt, and ice cream, while the popularity of milk powder is waning due to improved availability of fresh milk. Cheese is still rarely consumed at home because it has not yet been widely integrated into traditional meals (Fuller et al., 2004). In India, milk primarily features in popular drinks and in the creation of traditional dairy products such as clarified butter, yoghurt and cottage cheese, which are often made at home. Moreover, consumers in rural areas typically spend less on milk and dairy products compared to those in urban areas, who allocate a slightly larger portion of their food budget to these goods (Nozaki, 2017). Research by Njarui et al. (2011) in eastern Kenya showed that raw milk is the most favored dairy product, consumed by 99% of rural and 84% of urban households. Most farmers produce more milk than they consume

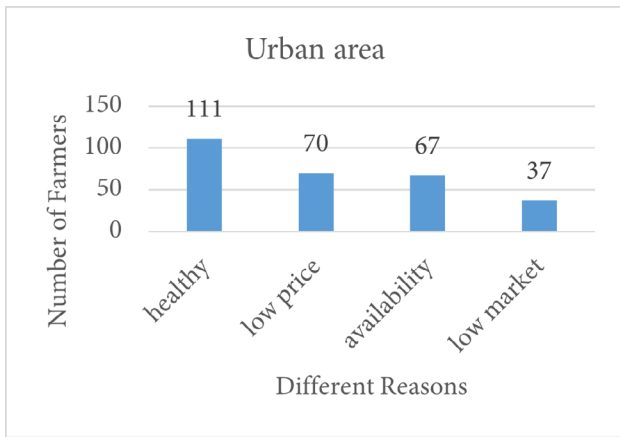
daily, allowing them to sell the surplus. Many wish to increase their annual dairy consumption. Häslér et al. (2018) found that food consumption scores were higher among households owning dairy cattle, with 26% drinking raw milk and 54% consuming fermented milk regularly or occasionally.

**3.2.3. Farmer Attitudes Toward Increasing Milk Consumption**

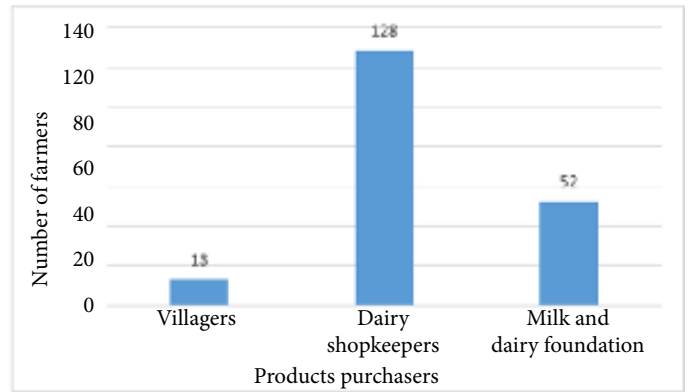
A majority of farmers (89.5%) expressed a desire to increase their milk consumption. They cited health benefits, affordability, consistent availability, and limited market opportunities for selling as the main reasons for wanting to consume more milk. Overall, most farmers in both rural and urban areas were willing to raise their milk intake.



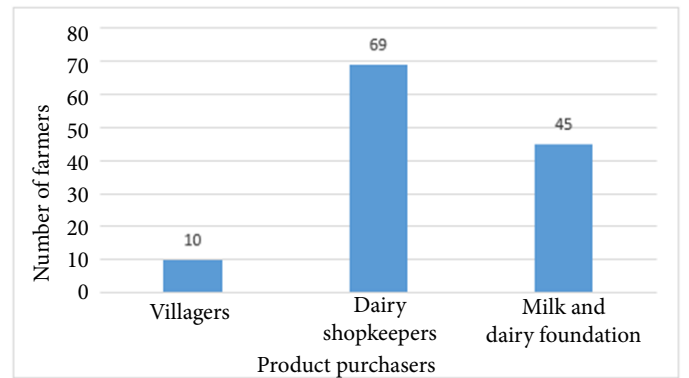
**Figure1:** Factors Contributing to the Rise in Milk Consumption in Rural Area.



**Figure 2:** Factors Contributing to the Rise in Milk Consumption in Urban Area.



**Figure 3:** The Primary Buyers of the Products in Rural Area.



**Figure 4:** The Primary Buyers of the Products in Urban Area.

Although Bangladesh, similar to many East Asian nations, does not have a well-established milk-drinking culture. To replicate this success, farmers in Bangladesh must improve their farming practices to boost milk and dairy product sales, as recommended by Gouttenoire, Cournut, & Ingrand (2013).

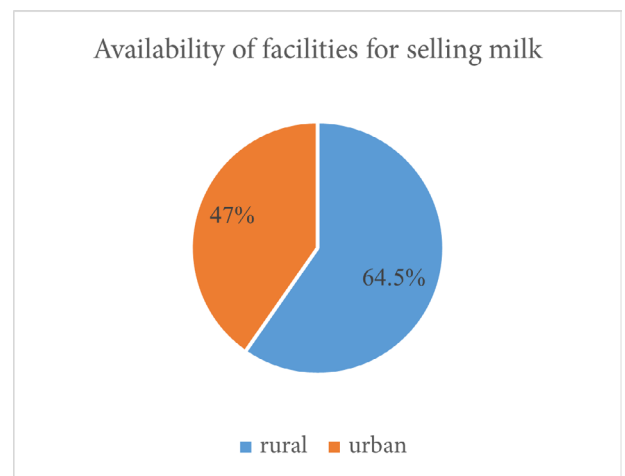
### 3.3. Milk and Other Dairy Products' Marketing System for Household Farmers

Most household farmers in both rural and urban areas relied on informal marketing channels for their products, with 75.3% using informal systems and only 24.7% engaging in formal marketing. A study in Jimma Town, Ethiopia, showed that most farmers sell milk directly to retailers and consumers through informal marketing channels, which significantly increase small farmers' incomes (Duguma & Janssens, 2014; Kumar, 2010). Research conducted in Pakistan underscored the necessity of enhancing milk marketing systems to foster more competitive markets that assist farmers in better resource mobilization (Garcia, Mahmood, & Hemme, 2003). Surveys revealed that a limited number of organizations consistently acquire milk products from farmers – 81% in rural areas and 71% in urban regions – with the majority depending on private buyers. In Uganda, the growth of the dairy industry is primarily driven by the private sector, with villagers, dairy shopkeepers, and dairy foundations serving as the main purchasers; dairy shopkeepers constitute the largest segment in both rural and urban areas.

#### 3.3.1. Access to Marketing Channels and Cooperatives

In general, farmers from both rural and urban areas had comparable main buyers. The key buyers of their products are depicted in figures 3 and 4:

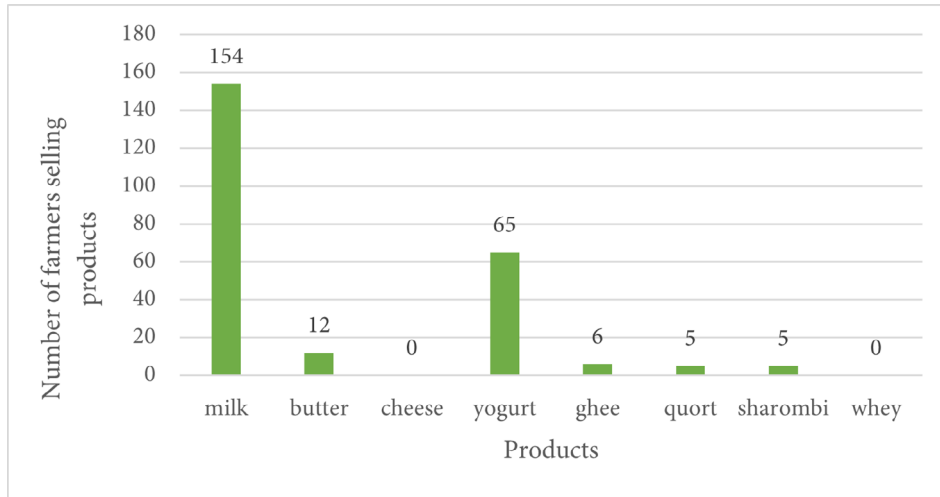
The findings indicated that 41% of household producers in rural areas and 59% in urban areas have access to cooperatives for marketing their products, with rural farmers experiencing more limited access. In total, 58% of farmers have resources to sell their milk and dairy products, and the majority are interested in selling. Key issues identified included low milk production, inadequate prices, and the distance to markets. The proportion of farmers with selling resources is represented in figure 5:



**Figure 5:** Percentage of Farmers with Access to Milk Selling Facilities.

According to IIRR (2015), small-scale farmers can sell milk by establishing collection centers. Ghosh & Maharjan (2002) found cooperative marketing to be more effective than other channels. Improved milk processing technology and a well-organized marketing system are recommended to enhance dairy production and sales for the long term (Duguma & Janssens, 2014).

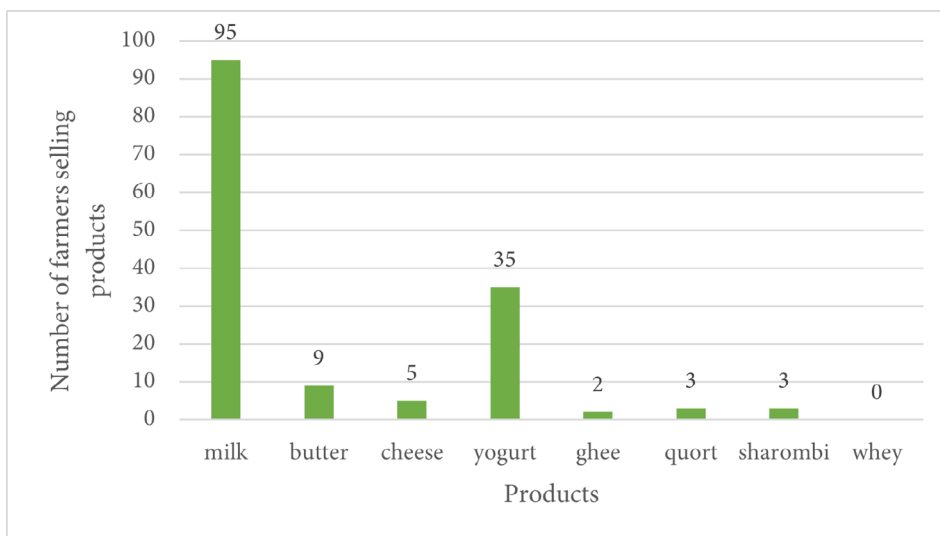
In rural areas, milk was the top-selling product among farmers, followed by yogurt, while in urban areas, butter ranks third. The sales ratios of milk and dairy products were similar in both rural and urban areas. The ratio of selling milk and dairy products is shown in figures 6,7:



**Figure 6:** Proportion of Milk and Dairy Products sold in Rural Areas.

The study by Ryoba & Kurwijila (1995) showed that milk is commonly sold in forms such as sour milk, butter or ghee, and some cheese. However, low production levels and limited market opportunities result in small

quantities of milk being sold per household. According to FAO (2021), the seasonal variation in milk supply restricts the marketing of dairy products in many developing countries.



**Figure 7:** Proportion of Milk and Dairy Products Sold in Urban Areas.

### 3.3.2. Volume and Sales of Milk and Dairy Products

Most producers sold a large quantity of milk daily, followed by yoghurt and then sharombi. On average, each household farmer sold about 2.87 liters of milk

per day, which is more than the amount sold of other dairy products. Each household farmer sold an average of 1.4 kg of yoghurt and 1.25 liters of sharombi daily. In urban areas, the average daily milk sold per household reached 3.02 liters, making it the top-selling product.

Additionally, urban farmers sold about 1.32 kg of yogurt and 1.25 liters of sharombi every day. Across both rural and urban settings, butter, ghee, and qurot were the least sold products. Notably, rural households sold

more yoghurt but less milk compared to their urban counterparts, while sharombi sold remain consistent in both areas. The specific quantities are presented in the tables 5, 6:

**Table 5:** Volume of Milk and Dairy Products Sold in Rural Areas (in liters and kilograms).

Variable	N	Mean	Standard Deviation	Minimum	Median	Maximum
Milk (lit)	155	2.877	1.571	0.000	3.000	9.000
Butter (kg)	12	0.742	0.493	0.300	0.500	2.000
Cheese (kg)	1	0.000000	*	0.000000	0.000000	0.000000
Yoghurt (kg)	68	1.4118	0.7430	0.00000	1.5000	3.0000
Ghee (kg)	6	0.383	0.271	0.100	0.400	0.800
Qurot (kg)	5	0.600	0.394	0.100	0.500	1.000
Sharombi (lit)	4	1.250	0.289	1.000	1.250	1.500
Whey (lit)	1	0.000000	*	0.000000	0.000000	0.000000

**Table 6:** Volume of Milk and Dairy Products Sold in Urban Areas (in liters and kilograms).

Variable	N	Mean	Standard Deviation	Minimum	Median	Maximum
Milk (lit)	96	3.021	1.497	0.000	3.000	8.000
Butter (kg)	9	0.711	0.535	0.200	0.500	2.000
Cheese (kg)	5	0.800	0.274	0.500	1.000	1.000
Yoghurt (kg)	34	1.324	0.895	0.000	1.000	5.000
Ghee (kg)	2	0.2500	0.0707	0.2000	0.2500	0.3000
Qurot (kg)	3	0.633	0.321	0.400	0.500	1.000
Sharombi (lit)	4	1.250	0.645	0.500	1.250	2.000
Whey (lit)	1	0.000000	*	0.000000	0.000000	0.000000

A survey by Gebeyehu et al. (2010) in Oromia found that each household produces an average of 1.4 kg of butter weekly, with 86% of the output sold and the remaining consumed at home. Banda et al. (2021) highlighted that smallholder dairy farming plays a key role in supporting household income, food, nutrition security, and overall resilience. In Peninsular Malaysia, Suntharalingam (2019) reported that 91% of milk is sold in raw or fresh form without processing, while only 9% is transformed into value-added products such as yogurt, flavored milk, and ghee.

Farmers used diverse channels to sell their milk and dairy products, such as cooperatives, collection centers, villagers, shopkeepers, bazaars, supermarkets, and dairy centers. Although most farmers in both rural and urban areas did not sell milk within their own villages, a small percentage do, with urban farmers selling slightly more within villages than their rural counterparts. According to van der Lee et al. (2020), low dairy production in Ethiopia and Kenya is largely due to unstable and limited market opportunities. Similarly, Artukoglu & Olgun (2008) reported that 47.2% of farm-produced milk is sold to street vendors, 36.11% to small-scale processors, 10.1% directly to consumers, and only 6.6% to dairy factories. Saikia (2020) stated that, farmers prefer supplying milk through primary dairy cooperative societies due to stable prices and

access to support schemes, selling through vendors often proves more commercially beneficial.

Farmers sold an average of 4 liters of milk per day in urban areas and 3.3 liters in rural areas. Likewise, research conducted in Sindh, Pakistan (Yasin et al., 2020) revealed that from a total milk production of 1868 liters, 953 liters were sold and 915 liters were consumed, suggesting that each household sells around 3.7 liters of milk daily.

Considering the overall review of the results and discussions, future research should utilize inferential statistical methods like correlation or regression analyses to investigate the connections between milk consumption, household size, and market accessibility.

### 3.4. Study Limitations

Limitations of this study include seasonal variation in milk availability, security-based access constraint in some districts, and the lack of laboratory-based quality testing parameters.

### 3.5. Policy Implications

Strengthening rural milk collection centers and improving cold-chain logistics could reduce spoilage, stabilize product quality, and ensure fair pricing for

household farmers. Targeted investments in cooling facilities and reliable transportation systems would minimize post-harvest losses and increase market access, particularly in remote areas. Government support and public-private partnerships can further enhance dairy processing capacity, create rural employment opportunities, and contribute to a more efficient and sustainable dairy marketing system in Logar province.

#### 4. Conclusion

The study focused on analyzing the consumption habits and marketing methods of milk and dairy products among rural and urban household farmers in Logar province, Afghanistan. Families of rural farmers consumed an average of 5 liters of milk every day, while urban households had a daily consumption averaging 5.7 liters. They exclusively consumed dairy products that they processed themselves, such as milk, butter, cheese, yoghurt, ghee, qurot, and sharombi. In both rural and urban settings, milk, yoghurt, and sharombi were the most frequently consumed items. The majority of farmers relied on informal marketing channels, with only a small number using formal systems. Most rural and urban farmers marketed their milk and dairy products within villages and local markets. Rural farmers were observed to sell a greater quantity of products in their villages and markets, than urban farmers. The types of products sold included milk, butter, cheese, yoghurt, ghee, qurot, and sharombi. Milk topped the list as the most sold item, followed by yoghurt and then butter. They marketed their products to cooperatives, milk collection centers, local villages, and shopkeepers, often transporting products to various dairy centers. In rural regions, each farmer typically sold 4.7 liters of milk daily, compared to 5.06 liters sold by each farmer in urban areas. In urban settings, 58% of products did not offer milk to the market, while 42% did. The primary sales were made to a limited number of cooperatives and shopkeepers.

#### 5. Recommendations

1. Develop rural dairy cooperatives, improve cold storage and transport infrastructure to enhance market access, stabilize prices, and reduce spoilage.
2. Provide women-focused training in dairy processing and hygiene to boost household production efficiency.

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#### 5.2. Ethical Considerations

In line with ethical guidelines, consent both verbal and in writing was acquired from all participants before the collection of data.

#### 5.3. Conflict of Interest

The authors state that they have no conflicts of interest concerning the research, authorship, or publication of this article.

#### 5.4. Data Availability

The data collected for this study's conclusions is not available to the public.

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