Exploring the Camel Milk Market in Oman: Trends, Challenges, and Opportunities for Growth

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Abstract- ***This study examines the camel milk market in Oman, the Gulf Cooperation Council (GCC) region, and globally, focusing on production, consumption trends, and market dynamics. Camel milk, recognized for its nutritional value and health benefits, has gained prominence as a sustainable alternative to traditional dairy. The research highlights the market segmentation, key drivers of growth, and challenges in production and trade, including high costs and limited processing capabilities. It explores the potential for market expansion, consumer preferences, and the role of innovative marketing strategies. Findings emphasize the importance of fostering camel milk production, enhancing export capabilities, and addressing production challenges to capitalize on the growing global demand. Recommendations include the development of a strong branding strategy for Oman's camel milk products and increased investment in research and infrastructure to boost production efficiency and competitiveness.***

Indexed Terms- ***Consumption Trends, Market Growth, Marketing Strategies, Production Challenges, Nutritional Value.***

I. INTRODUCTION

Oman's economy is primarily driven by its oil and gas sector, which accounts for a significant portion of its GDP and government revenue. However, the country has been actively working on diversifying its economy to reduce its dependence on oil. Here are some key points about Oman's economy: Oil and Gas: The oil sector remains the backbone of Oman's economy, contributing heavily to its GDP and export earnings. (Peterson and Cristal.2024.)

Diversification Efforts: Oman has been implementing policies to diversify its economy, focusing on sectors like tourism, logistics, manufacturing, and fisheries. These efforts are part of the government's Vision 2040 plan, which aims to create a more sustainable and diversified economic base.

GDP and Growth: As of 2024, Oman's GDP is estimated to be around $108.93 billion (nominal) and $207.6 billion (PPP)1. The GDP growth rate has been modest, with a forecasted growth of 1.2% in 20241.

Employment and Inflation: The unemployment rate in Oman is relatively low, and inflation has been kept under control, with a rate of 0.95% in 20231.

Trade: Oman's main export partners include China, India, and South Korea, while its main import partners are the United Arab Emirates, Saudi Arabia, and India. Human Development: Oman has made significant strides in improving its Human Development Index (HDI), which was 0.819 in 2022, indicating a very high level of human development.

These efforts and indicators show that Oman is on a path towards economic diversification and sustainable growth.

A project was proposed for the establishment of a camel farm project underpinning by meat production and milk processing plant and encompassing other aspects of the value chain. One of the objectives of this project is to support camel breeding as part of a semi-intensive production system as an alternative to traditional pastoral systems prevalent in Oman. The project intends to profit from the approximate actual 65,000 camels that Oman's farmers and breeders own. About 60% of them reside in the Dhofar governorate. According to a feasibility study the ministry commissioned, a contemporary camel farm would have an automated milk system in addition to other

cutting-edge fertility and nutrition control techniques. Additional corporate components include a slaughterhouse, a specific facility for processing camel milk and milk products, a fodder plant for roughage production, and a stable for camel fattening. Apart from camel meat that is refrigerated or frozen, the project aims to generate pasteurized milk, cream yoghurt, and cheese.

Beginning in February 2022, Al Morooj Dairy Company would sell camel milk under the "Watani" brand, a Ministry of Agriculture, Fisheries, and Water Resources (MAFWR) official said. *(Muscat Daily, 2022)*

In Oman, the daily milk production of camels can vary significantly based on several factors, including the breed of the camel, feeding conditions, and management practices. Generally, camels are known to produce between 2.5 kg to 6 kg of milk per day under typical conditions. However, with optimal feeding and care, some camels can yield up to 15 kg per day

II. OBJECTIVE OF THE STUDY

The main objective of the study is to evaluate the camel milk products markets in the world, the GULF stated and Oman.

III. COMPREHENSIVE ANALYSIS OF CAMEL MILK MARKETING

3.1 Regional Overview of Camel Milk

The camel is considered as one of the most important and ecologically harmless domesticated animals in the dry region of Asia and Africa. Camels have considerable economic importance not only as a draught animal, but also for their milk and its by-products. They can produce a significant amount of milk from poor feed as compared to any other dairy species. This characteristic, in addition to the growing recognition of the economic value, and health benefits of camel milk make it a center of attention for people, particularly in arid- and semi-arid areas. Moreover, camel milk is a highly nutritious medium permissive for the growth of many diverse bacterial species. These bacterial populations are mainly grouped into pathogenic, spoilage, and technologically relevant bacteria.

During the last 50 years, a fundamental shift has occurred in the way of housing and managing the camels. Today, in some countries, the extensive or nomadic production system for camels has been become semi-intensive or intensive modern well-organized farms and industries. Camels were known as “ships of the desert” commonly used as a means of transport for thousands of years, carrying up to 600 lbs. on their backs. Currently, they are mainly considered for their milk and meat production, in particular, their milk. Camel milk contributed to the non-bovine milk production with a total amount of 2.7 million tons in 2016. Since the quantity and quality of milk production are highly dependent on the housing and management of animals, intensive production systems are currently being set up. All the world over, camel milk has proved to be suitable for producing various derived products with significant nutritional value. (*Rahmeh et al. 2019.)*

Although most of the camel milk is consumed raw or fermented by the local community, this milk and its by-products are now being promoted in the market and have considerable economic importance internationally due to the following properties:

(i) It has specific nutritional features and health benefits.
(ii) Camels possess exceptional adaptation to poor quality and quantity of feed, and they can produce a significant amount of milk during the whole year, even during the dry season. Milk yield in camels is approximately 4-5 liters/day.[1]
(iii) It has a long lactation period of about 12 months, but it may last up to 24 months depending on the farming and breeding systems.
(iv) It can significantly contribute to the national revenues as the total production of camel milk was estimated to be 1.3 million tons, with the global trade of $10 billion per year;
(v) Machine milking of dromedaries is now used to improve camel milk production. (*Al-Zoreky and Al-Otaibi. 2015)*

In the near future, a higher amount of camel milk is expected to be available to the dairy industry. There are indications of the potential for growth of this

market in the future and that camel milk manufacturers will dramatically expand. (*Al-Ashqar, 2015.)*

Camel milk is one of the most nutritious dairy beverages, which includes natural probiotics in it. Camel milk helps improve systemic immunity and gastrointestinal health. The drink has low-fat content, which is only about 2 to 3%, as compared to cow dairy, and thus, is expected to attract more health-conscious consumers who are checking their calorie intake. In addition, it aids infants and children, as it is the closest substitute for breast milk. In various nations in the Middle East and Africa, it is used to feed undernourished children.

Camel milk products are expensive as compared to the traditional cattle dairy items due to high production costs. Camelicious, UAE, sells milk for USD 13 per liter in Europe, whereas the cow dairy drink costs around USD 0.40 per liter. Similarly, Desert Farms offers USD 35 per liter in the U.S., while cow milk is priced at around USD 0.80 per liter. The high price of camel milk products as compared to other counterparts could hamper market growth in the coming years. Accordingly, there is a high need for a promotional campaign to encourage consuming it.

There are fundamental differences between the nutritional make up of camel whole milk and whole cow milk. Table 1

Table 1 Camel Milk vs Cow Milk

Camel Milk	Cow Milk
Lower lactose making it easier for lactose intolerant people to digest and consume	Higher lactose
No A1 beta-casein & beta-lacto globulin and is usually well tolerated by people with cow milk protein allergy	Contains A1 beta-casein & beta-lacto globulin known to cause cow milk protein allergy
lower cholesterol and saturated fat for better heart health	More cholesterol and saturated fat
Less calories per glass for easier weight management	More calories per glass
More unsaturated fatty acids which are essential for human nutrition	Less unsaturated fatty acids
3 to 5 times more Vitamin C, more Vitamin A and essential B vitamins	Lower vitamin content
Higher concentration of minerals like calcium, potassium, iron, zinc, phosphorus, copper, sodium and magnesium	Lower concentration of many minerals

Source: Camelicious USA, Camelicious.com

Many manufacturers of camel milk-based products are spread out worldwide; for example, Desert Farms (US), Camel Milk Victoria (Australia), Vital Camel Milk (Kenya), Camel Milk UK (UK), Wang Yuan Camel Milk (China), and Camel Milk Australia (Australia). Large camel farms are being established, and increased funding for camel research is noticed. Moreover, a wide variety of camel milk-derived products are now available in the market, including various new dairy products, such as pasteurized milk, fermented milk, flavored milk, butter, cheese, powder milk, ice-cream, and milk tea. As a specific example, Bactrian camel milk is used for making cheese, butter, and yogurt in Mongolia. Al-Saleh et. Al, 2011. Traditional fermented camel milk is produced and consumed in several countries, such as, Shubat (Turkey, Kazakhstan, and Turkmenistan), Suusac (Eastern Africa, Kenya, and Somalia), and Garis (Sudan and Somalia). Despite the effort made by researchers to produce yogurt from camel milk, the manufacturing of this by-product needs more study due to the fact that camel milk does not easily coagulate. *Al-Zoreky and Al-Otaibi, 2015.* In Dubai, a

coffee shop business specializing in different hot, cold drinks, and pastries made with fresh camel milk called "Café 2go" was set up recently. Since 2011, it has expanded successfully to 10 locations in Dubai and Pakistan and is soon to be opened in Oman and Saudi Arabia. In Oman, Oman's first and finest camel milk café (Majlis Café) was established, it is located in Oman Avenues Mall. It offers camel milk and camel products. It offers camel burger, camel hotdogs, an array of hot and cold beverages made with rich camel milk, in addition to Omani halwa made with camel milk. The milk features a slight nutty, smoky flavor that pairs well with almost all the beverages on offer. The café also sells camel milk chocolates.

Furthermore, camel milk utilization is not limited anymore to the producer region only, but it is now marketed overseas also. It has recently been exported from the United Arab Emirates to the European Union, (*Nagy et.al. 2013)*. Furthermore, recent studies have investigated the optimization of fermentation processes. (*Baubekova et al. 2015*.) In addition, cheese-production from camel milk. (*Konuspayeva et al. 2014.)*

The GCC camel dairy market was worth US$ 472.8 Million in 2019. Camels play a vital role in various communities of the GCC region because of their adaptability to the high temperatures, scarce agricultural areas and insignificant amounts of precipitation. In recent years, camel dairy farming has evolved as an alternative to traditional dairy farming in the GCC region, as the latter requires large amounts of electricity and water for the maintenance of cattle. In comparison with cow milk, camel milk is considered more nutritious in nature owing to the higher amounts of iron, copper, sodium, potassium, magnesium, manganese, and vitamin A and C. Moreover, camel milk is endowed with a high content of potent immunoglobulin, which assists consumers suffering from allergies, autism, and heart and immunity disorders. Additionally, as camel milk is a natural probiotic, it promotes healthy bacterial growth in the gut, thereby aiding digestion. Moreover, the presence of lacto-ferrin helps in protecting the body from viral as well as bacterial infections.

Camel milk is often referred to as a complete meal since it has ample nutrients to sustain an individual throughout the day. Because of this, it was used to support nomads and herders while traveling long distances in ancient times. As opposed to the rest of the world, the GCC region has had the advantage of consuming camel milk and camel dairy products for decades. This can be attributed to the presence of many camels in the region which has proliferated with the passage of time. GCC countries such as Saudi Arabia, UAE, Oman and Qatar have abundance of camels owing to the animals' physiological peculiarities linked to their adaptation ability to harsh conditions of the desert. The dromedary camel is one of the most important livestock animals in semi-arid areas of the GCC region. This makes the raw material procurement process easier for camel milk processing companies. Other factors driving the demand of camel milk in the GCC region include increasing health awareness among the consumers, large diabetic population, increasing export market, numerous new product launches, etc.

The GCC camel dairy market has witnessed significant growth in the last few years, catalyzed by the health benefits of camel milk that are increasingly being recognized by the consumers. It has garnered attention particularly among lactose-intolerant and diabetic people as it contains a lower amount of lactose and higher amount of insulin that is imminent for regulating type 1 diabetes. Rising health awareness in the GCC region, especially in the UAE and Saudi Arabia has led to a surge in the sales of healthy food products. The urban population in these regions is continuously increasing, whereas the expanding number of Western emigrants is influencing dietary habits. These trends are expected to drive the camel dairy market in the GCC region over the coming years as camel milk and milk products are considered to be healthier than other forms of dairy products. Looking forward, IMARC Group expects the GCC camel dairy market to exhibit moderate growth during the next five years. *IMARC GROUP, 2020.*

In 2020 the top exporter of camel milk was New Zealand with an export value of US$ 440M, and the top importer of camel milk was United States with an import value of USD 258M. The top producer of camel milk in 2019 was Kenya with a production value of USD 1.17M.

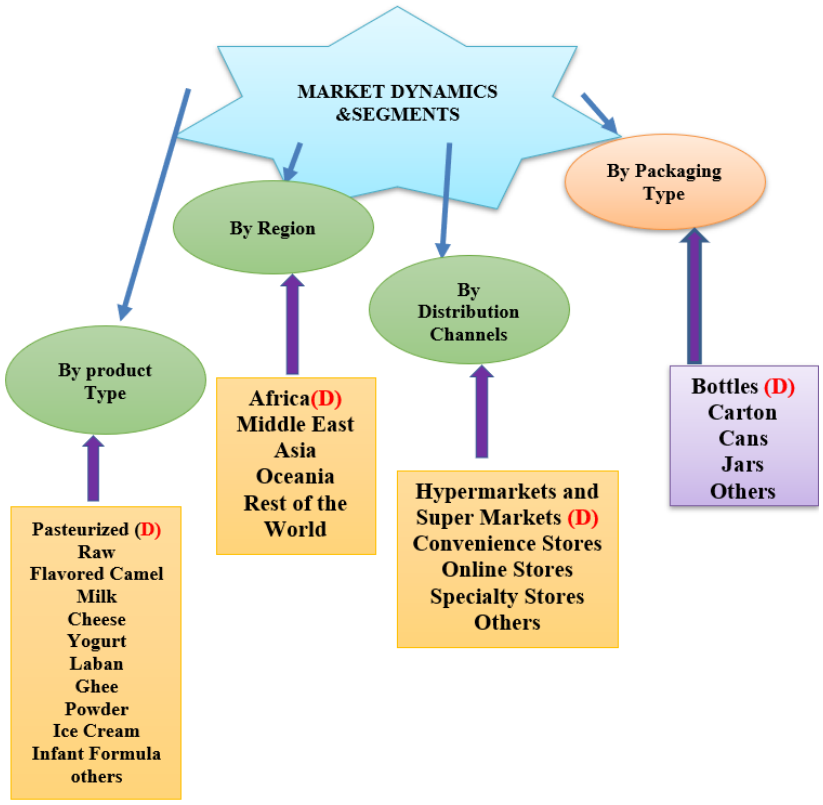
3.2 Product and Market Segmentation

The global camel dairy market reached a value of US$ 2.3 Billion in 2020. The price of camel milk is significantly higher compared to traditional cow milk, owing to the fact that camel milk production is lower than cow milk, and camel breeding costs are also higher compared to that of cows. Its immense health benefits, however, significantly outweigh the higher prices. (*IMARC Group. 2020.)*

In the GCC and other parts of the world, the camel dairy market is segmented as follows: Figure 1.

- Based on the product type, the market has been segmented as raw camel milk, pasteurized camel milk, flavored camel milk, camel milk cheese, camel milk yoghurt, camel milk laban, camel milk ghee, camel milk ice cream, camel milk powder, camel milk infant formula and others. Amongst these, pasteurized camel milk represents the leading product category, accounting for around a third of the total.
- Based on distribution channel, the market has been segmented as supermarkets and hypermarkets (which account for the largest share) convenience stores, specialty stores, online stores and others.
- Based on the packaging type, the market has been segmented as cartons, bottles, cans, jars and others. Bottles, currently dominate the GCC camel dairy market, accounting for the largest share.
- Based on region, the market has been segmented into Middle East, Africa, Asia, Oceania and rest of the world.
- The global camel milk powder market is segmented based on type and application. *Based on type*, the camel milk powder market is segmented into full cream milk powder and skimmed milk powder. *Based on application the market* is segmented into infant formula, dressings and condiments, frozen desserts, and others. Figure 1.

Figure 1 Global Camel Dairy Market Dynamics and Segments



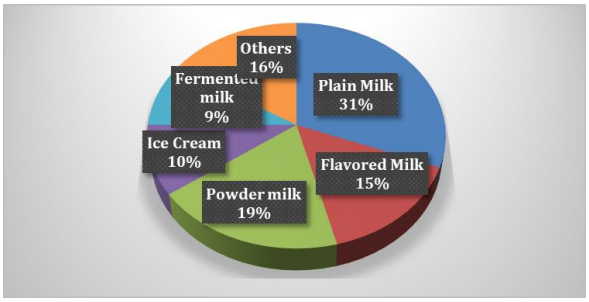
Source: IMARC

3.3 Market Leadership and Competitive Dynamics

Camel milk is conventionally consumed in raw or fermented forms, which could have hazardous health effects, for example, camels could be infected with tuberculosis without clear sign of infection, and thus it will affect consumer's health. However, with the growing number of urban consumers, manufacturers are diversifying their offerings to cater to this population. Ice cream, flavored beverage, chocolate, and sweets are gaining popularity among nations including markets in Saudi Arabia, UAE, Kazakhstan, Morocco, Algeria, India, Egypt, Mauritania, and Australia. Thus, the market has a wide opportunity in terms of product innovation owing to increasing demand in the emerging and untapped markets.

The global camel milk share by camel milk products is shown in figure 2, plain milk constitutes 31 %, flavored milk 15%, camel powder milk (full cream or skimmed) 19%, ice cream 10%, fermented milk 9% and others 16%.

Figure 2 Global Camel Milk Product's Share, by Product in 2019



Source: Grand view Research. 2020.

Offline distribution channel accounted for more than 80% of the global camel milk products market revenue. Consumers prefer to purchase dairy products owing to their short shelf life and daily requirements. Among the offline distribution channels, large retailers such as supermarkets & hypermarkets accounted for the major share owing to the wide product range and attractive discounts. These stores, such as Whole Foods Market, have streamlined the distribution and expanded the reach of camel milk dairy products across the world.

On the other hand, the online distribution channel is anticipated to expand at the fastest CAGR of 8.6% from 2020 to 2027. A variety of features including several value-added services such as discounted prices, cash-on-delivery, and paybacks offered by e-retailers as well as product return facilities are expected to promote the growth of online channels in the upcoming years.

Camel powder milk is produced in different countries; it is made into powder without heat or freezing to protect the unique nutritional properties of the milk as well as the natural color, flavor and consistency of fresh milk.

Powdered milk provides these advantages when compared to liquid milk:

- Contains all the beneficial nutrients of liquid milk.
- Same fresh flavor and consistency as liquid milk.
- Comes with a shelf life of up to one year when stored in a cool, dry place. Liquid camel milk only has a shelf life of about 5 days.
- Enjoy the benefits of camel milk when traveling.

A Comprehensive Action Plan for the Development of Camel Breeding for 2020-2022 has been developed in the Turkestan region. According to the Comprehensive Plan, more than 3960 camels were additionally purchased in the cities of Arys, Kentau and Otyrar, Ordabasy, Suzak, Shardara regions, as a result of which it is planned to increase the volume of milk produced by 14,250 tons, or 15%. (*TRIDGE.com, 2021.*)

Camel dairy Smits is established in the Netherlands in 2006. In northwestern Germany, buyers will be able to purchase milk in the near future. The new plant is located in the Luneburg Hollow in Lower Saxony. It contains 60 one-humped and two-humped camels. Previously, they only sold milk within their area. Once the farm has received a European manufacturer's number, it can bottle pasteurized milk and sell it throughout Germany. The cost of one-liter bottle of camel milk is €11.

3.4 Market Size and Growth Projections

The global camel dairy market is expected to grow at a compound annual growth rate of 8.01% during 2019-2024, reaching levels worth more than US$ 8 bn by

2024, according to the Camel Dairy Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2019-2024 report from Research and Markets.com.

The global camel dairy market is currently being characterized by its numerous health benefits. The price of camel milk is significantly higher compared to traditional cow milk, because camel milk production is lower than cow milk, and camel breeding costs are also higher compared to that of cows. Its immense health benefits, however, significantly outweigh the higher prices.

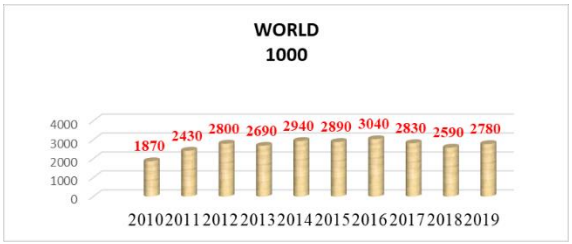
Camel milk is conventionally consumed in raw or fermented forms. However, with the growing number of urban consumers, manufacturers are diversifying their offerings to cater to this population. Ice cream, flavored beverage, chocolate, and sweets are gaining popularity among nations including markets in Saudi Arabia, UAE, Kazakhstan, Morocco, Algeria, India, Egypt, Mauritania, and Australia. Thus, the market has a wide opportunity in terms of product innovation owing to increasing demand in the emerging and untapped markets.

GCC countries such as Oman, Saudi Arabia, UAE and Qatar have abundance of camels owing to the animals' physiological peculiarities linked to their adaptation ability to harsh conditions of the desert. According to the estimates by IMARC Group, the GCC camel dairy market will exhibit moderate growth during the next five years.

Middle East and Africa dominated the market in 2019 with more than 60% share of the global revenue. Somalia, Kenya, Mali, Ethiopia, Saudi Arabia, and Niger are the major camel milk-producing countries in the world, where Somalia and Kenya accounted for over 60% of the production. Moreover, in terms of consumption, Saudi Arabia is the largest market in the world, where per capita consumption is around 33 liters per year. In addition, Somalia, Ethiopia, Sudan, and Kenya also have a high per capita consumption rate in the region.

North America is expected to expand at the fastest growth rate in the near future. The adoption of camel milk has been rising among the diabetic consumers of the U.S. and Canada owing to its low sugar content. As a result, companies of the industry are strengthening their supply in these nations through both offline and online retailers. Many of these stores offer frozen drinks rather than fresh ones. Camel milk production in the world had increased from about 1.9 million tons in 2010 to about 2.9 million tons in 2019, with an average annual growth of 1.5%. Figure 3

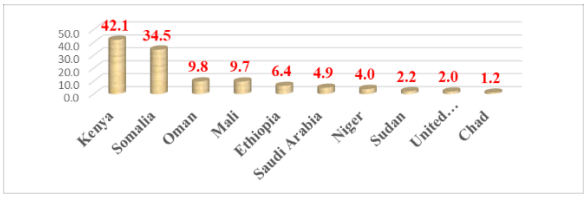
Figure 3 Camel Milk Production in the World During 2010-2019



Source: https://www.tridge.com/intelligences/camel-milk

Figure 4 shows the Camel Milk Production Share of the Largest 10 Producing Countries in The World in 2019. Kenia constitutes about 42.1% of the global production, then comes Somalia (34.5%) then Oman (9.8%)

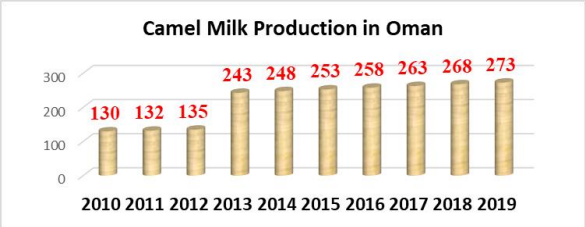
Figure 4 Camel Production Share of the Largest 10 Producing Countries in 2019 (%)



Source: https://www.tridge.com/intelligences/camel-milk

In Oman, camel milk had increased from 130 thousand tons in 2010 to 135 thousand tons in 2012, then it jumped to 243 thousand tons in 2013 and grew steadily during the next 6 years to reach 273 thousand tons in 2019 (at five thousand tons annually during 2013-2019). Figure 5.

Figure 5 Camel Milk Production in Oman During 2010-2019
(Thousand Tons)

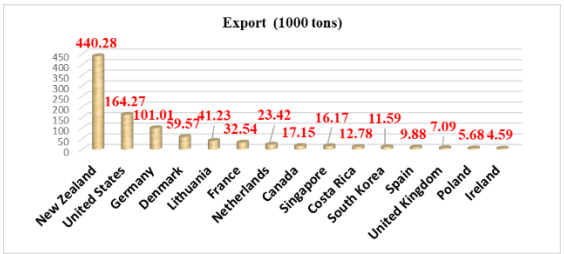


Source: National Center for Statistical Information. Statistical Yearbook, 2020

The main countries exporting/re-exporting camel milk are New Zealand, and then comes USA then Germany. Figure 6.

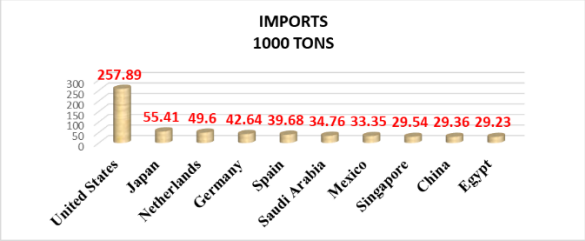
On the other hand, the main countries importing/re-exporting camel milk are New Zealand, USA then Germany. Figure 7.

Figure 6 The Main Exporting/Re-exporting Countries for Camel Milk in the World in 2019



Source: https://www.tridge.com/intelligences/camel-milk

Figure 7 The Main Importing Counties of Camel Milk in the World in 2019



Source: https://www.tridge.com/intelligences/camel-milk

UAE camel milk companies have increasingly turned to Asian e-commerce markets as they look to weather the impact of COVID-19. Almost 75 percent of UAE camel milk sales go to the Chinese market, and it is expected to an increase. The Camel Soap Factory, which sells beauty products based on camel milk, also view China as their major growth area with efforts underway to boost their e-commerce footprint. Greaves, 2020.

3.5 Key Growth Drivers and Influencing Factors

Camel farming and dairying are emerging kinds of agriculture. The global camel milk market is expected to grow at a CAGR of close to 7% during the period 2018-2022. Camel milk market is standing at the beginning of its promising growth curve; however, it must work towards pushing the production costs down to become more mainstream rather than niche, which will not be achieved by simply marketing the medicinal properties of the product.

The main marketing drivers for future growth are:

- The increasing camel milk production: The players in the market have increased the production of camel milk due to the rise in demand from consumers. With the rise in the number of dairies producing camel milk, various companies are investing in increasing the herd size of camels to increase the production of milk. Organizations such as the Australian Wild Camel Corporation is planning to increase its herd size from 450 camels to 2,500 camels over the next two years as the number of dairies producing camel milk has increased to 10 in Australia during the past two years.
- Health benefits and raising awareness: It is expected that the growing popularity of camel milk among diabetic patients will lead to an increase in investments in the market during the forecast period. Along with Australia, African countries such as Kenya and Ethiopia are focusing on increasing camel milk production, thus fueling the growth of the market.
- Camel milk powder is used as a potential preventative medicine for diabetes. According to the studies conducted by some researchers, camel milk has sufficient levels of insulin, which can help prevent and even treat type 1 and type 2 diabetes. Camel milk powder helps in providing immunity due to its high levels of proteins and other organic compounds. Since many of these compounds have antimicrobial properties, the consumption of camel

milk can improve human health by boosting the immune system.

- Players in the market are trying to capitalize on the increasing demand for camel milk among consumers by introducing new products based on camel milk, such as chocolates and ice creams. The demand is expected to remain high during the forecast period due to increasing awareness of the benefits of camel milk among consumers.
- Camel milk is finding extensive applications in food supplements, owing to its profile rich of necessary nutrients and health-promoting molecules.
- Over the past few years, dairy-caused allergies and the growing debate regarding the inherent benefits and disadvantages of consumption of cow milk and its products have made consumers look for alternative sources to traditional dairy products. One product that has been growing in popularity owing to this is camel milk.

3.6 Supply Chain Dynamics for Camel Milk Products

Camel milk is not a new product as it has been consumed in the Middle East for ages. However, it is only recently that it has inspired global interest. Owing to its significant health benefits (primarily for diabetes), the product has found traction especially in developed countries, such as the USA, parts of Europe, Singapore, and Australia. The global market, which was valued at about US$4.24 billion in 2017 is estimated to register a growth rate of about 7% during 2018-2022. (Normal Scenario). In the best Scenario, growth rate to be 10% and in the worst scenario growth rate will be 4%.

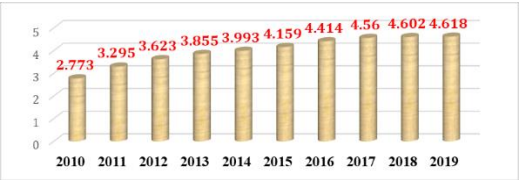
In response to the growing demand, several companies (especially across Australia) are entering the camel milk space and are increasing their investments in the sector. Similarly, Western Australia-based Good Earth dairy, had about 100 camels, and plans to expand to 3,300 camels by June 2020, which would help the dairy produce about 10,000 liters of camel milk per day.

International investments are also pouring into Australia's camel milk market. In 2017, UAE-based investors funded a US$6 million (AUD 8 million) pilot camel milk farm at Rochester, Australia. Several Chinese investors are also reported to be interested in investing in the camel milk business in that country

The number of populations in Oman had increased from 2.773 million in 2010 to 4.618 million in 2019. Figure 8. The annual growth rate was 2.3%.

Figure 8 Number of Population in Oman during 2010-2019

Million

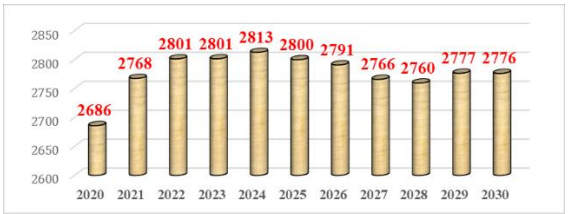


Source: National Center for Statistical Information. Statistical Yearbook, 2020

Annex 2 shows a summary of Oman economy data during 2010-2019. The GDP at market prices was OR 29.4 billion in 2019. It then increased from about OR 22 billion in 2010 to OR 31 Billion, in 2014. It then dropped for the next 3 years. Final consumption continued to increase during the selected period. The net exports were positive during the period 20102019 except in 2016 when it was negative. Net investment was the highest in 2012 (about OR 15), then continued dropping until it reaches OR 10.2 billion in 2019.

Figure 9 shows that the world expected production during the next 10 years will follow the same pattern as in the period 2010-2019. Production in 2030 will reach about 2.8 million tons (an average growth of 2.44% annually).

Figure 9 Expected Camel Milk World Production during 2020-2030



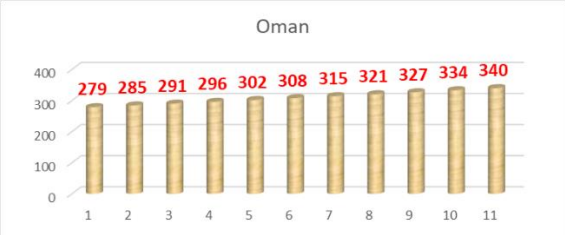
Source: Calculated by the researchers

In Oman, the expected production during the next 10 years is shown in figure 10. The growth rate for the

previous period was 2.3%, so the production in 2030 will reach about 340 thousand tons.

Figure 10 Expected Camel Milk Production in Oman during 2020-2030

Thousand tons



Source: Calculated by the consultants

While camel milk as a product is gaining popularity and acceptance globally, it is not without its share of challenges. Camel milk is the most expensive type of milk in the market. In the USA, Desert Farms sells one gallon of camel milk for US$144 (US$38 per liter), while it sells a one kg of camel milk powder for about US$370. In comparison, a gallon of cow milk sells for about US$ 3.50/liter in the USA. In Singapore, a liter of camel milk sells for about US$19 per liter (US$72 per gallon). In comparison, cow milk sells for about US$ 8 per gallon in Singapore. Similarly, camel milk in India costs about US$7 per liter and camel milk powder costs close to US$87 per kg, whereas cow milk retails for about US$0.6 per liter.

3.7 Demand Analysis for Camel Milk Products

Since there are no exports or imports of camel milk in Oman and no available data on waste in Oman, the per capita consumption is calculated by dividing the production on the number of populations during the period 2010-2019 and extrapolated the results to the period 2020-2030. Table 2.

Table 2 Per Capeta Consumption of Camel Milk in Oman During 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
PRODUCTION (1000 Tons)	130	132	135	243	248	253	258	263	268	273
Population (Million)	2.773	3.295	3.623	3.855	3.993	4.159	4.414	4.561	4.602	4.618
Consumption/Capita	21.33	24.96	26.84	15.86	16.10	16.44	17.11	17.34	17.17	16.92

Source: Calculated by the Researchers

The expected per capita consumption in Oman during the period 2020-2030 is shown in figure 11. The expected per capita consumption of camel milk during the period 2021-2030 will be increasing continuously from 54.7 liters/per capita in 2021 to 57.2 liters/capita in 2030.

Figure 11 Expected Growth of Per Capita Consumption of Camel Milk in Oman During 2020-2030

(Liter)

Source: Calculated by the Researchers

India, China and Russia are key markets, according to experts. China imports camel milk powder from Camelicious brand and transforms it into other dairy products, such as cheese.

Camel milk is an attraction to the number of people at global level due to two main attractions of consuming it. Firstly, camel milk acts as a natural pharmacy and secondly it helps in fighting with human health challenges like super bug, allergies and other leading diseases *(Clean Skin Camels, 2016).*

3.8 Global Camel Milk Demand in 2020

Table 3 shows the top 10 importing counties in the world (their share in 2020 was 61% of the global demand). Although USA is considered as the main importing country in the world, about 20%, had

decreased but its demand and the competition is strong. The highest demand 5-years growth was in South Korea (107.3%) and the competition is Strong, and then comes Netherland (15.8%), then France (7.3%).

Table 3 Camel Milk Demand in the World in 2020

Country	Share in Import	Import Value	5-Year Growth in Value	Import Quantity	Unit Price of Import	Revealed Comparative Advantage
		Million US$	%	Thousand Tons	US$/ton	
United States	20%	257.89	-13.17	40.1	6431	Strong
South Korea	11%	137.56	107.29	48.95	2810	Strong
Italy	5%	69.49	-1.557	40.77	1704	Medium
Egypt	5%	67.17	2.754	24.8	2708	Very Strong
Japan	4%	55.41	0.894	11.89	4660	Medium
France	4%	46.4	7.304	32.68	1420	Medium
Morocco	3%	43.98	1.296	16.13	2727	Very Strong
Germany	3%	42.65	2.064	67.15	635	Medium
Netherlands	3%	42.08	15.754	19.69	2137	Strong
Spain	3%	39.68	2.045	17.86	2222	Strong
total	61%	802.31		320.02		

Source: https://www.tridge.com/intelligences/camel-milk/import

Camel milk Industry in Australia is at better position than the camel milk market in Dubai, as Australia is the only international country with much access to wild camels that are disease free. According to Martin (2014), there are over 200 million potential milk consumers across the globe and the industry can stand at $10 billion in the near future. There is a rise in the demand for camel milk in the country, which is opening new horizons for the milk products as signified by the Australian Camel Dairies. This means that there is an opening for a new niche market that can prove profitable. In the past, the camel milk has been disapproved by the Australian health department as they claimed that as one cannot pasteurize camel milk, there is a chance that the milk would contain a lot of bacteria. This situation changed rapidly in 2014, when the health department started issuing licenses to the camel milk producers because of the modern technologies that were introduced in the industry that assisted in pasteurizing the camel milk (Martin, 2014). The ability to pasteurize milk opened new horizons for the camel dairies as the sale of milk for human consumption increased manifold.

IV. COMPETITIVE LANDSCAPE OF OMAN'S CAMEL MILK INDUSTRY

Players in the industry are diversifying their product lines in order to secure their profit margins. The production of camel milk requires high investments, and it has to compete with the well-established cattle's milk market, thus diverse product portfolio is important for the industry players.

There are no camel milk commercial processors in Oman; the natural produced milk is either consumed by the family, the guests, or in the wholesale markets and side of the road. There is only one local trading company named White Triangle Trading LLC sells camel milk powder and other products.

- Unite Arab Emirates

1. Emirates Industry for Camel Milk & Products - EICMP (Camelicious Brand)

Lifestyle camel milk

Long life camel milk

Ice cream

Powder Sachets

Camelicious, have their own in-house cheese production facility. In addition, camel infant formula is a close substitute for breast milk as it has similar lactose content. For instance, Camelicious supplies the powdered form products of camel milk to a children's hospital in Mexico for the lactose intolerant babies.

Over 35 years ago, the idea of a camel-milking facility was born at the Central Veterinary Research Laboratory (CVRL) in Dubai. After the completion of the research in 2003, Emirates Industry for Camel Milk & Products (EICMP) was established. By 2006, the milk production facility was completed and the first camel milk products under the brand name Camelicious hit the UAE shelves in August of the same year. With technology up to latest standards and 6,000+ camels, EICMP runs the most advanced and first fully integrated camel milk production facility in the world. The EICMP processing facility, housed within the camel farm, is the world's first sophisticated camel milking plant, incorporating state-of-the-art technology.

Camelicious brand started selling camel milk in the UAE in 2006. It is exporting to countries including Kuwait, Jordan, the UK, Austria, Russia, India and Malaysia, according to its website.

In addition to milk and laban, the company also makes camel-milk cheese, labneh and ghee.
Camel milk products are relatively expensive as compared to the traditional cattle dairy items due to high production costs. Camelicious sells milk for US$ 13 per liter in Europe, whereas, the cow dairy drink costs around US$ 0.40 per liter. The other camel milk products prices sold online (including shipment costs) are: pure natural camel milk: US$ 90/400ml, Powder in pack of 24 sachets 5 gms each: US$134, skimmed powder in pack of 24 sachets 5 gms each: US$ 55.

"People are interested to have cheese from camel milk," says EICMP plant manager at Camelicious. "We got a very good response from the Russian market – so we will make cheese again,"

2. Al Ain Dairy (Camelait) , UAE

Al Ain Farms was the first dairy company established in the United Arab Emirates. After 38 illustrious years, today we are the largest integrated dairy company in the country, running four farms under our brand - the dairy business, the fresh juice business, the camel milk production, and the poultry section, producing fresh chicken and eggs. They have been awarded the ISO 22000 for Food Safety Management. The company is also fully HACCP compliant (Hazard Analysis Critical Control Points) in quality and food safety standards.

Camel milk ice cream and camel milk powder are two new products recently introduced into the market. In-demand lactose free milk is one of the products on the horizon slated for 2015.

The prices of camel milk products are, pure natural camel: US$ 2.0/500 ml, powder sachets: US$ 18/pack of 10 sachets 25 grs each.

- United States of America (USA)

1. Desert Farms

Desert Farm has now captured Middle East ancient knowledge and locked camel milk tight in a bottle. Desert Farms' camels is owned and managed by small family farms in the USA where the average herd is about six camels. All Desert Farms camels are pasture-raised and eat a complex diet of hay, grass and alfalfa pellets.

Containing only milk from USA-based camels and bottled entirely in America, Desert Farms - Camel Milk is available in several distinct varieties: Raw Camel Milk; Raw Camel Milk (Frozen); Camel milk powder; Raw Camel Milk Kefir; Pasteurized Camel Milk and Raw Camel Milk Colostrum. The price of camel milk powder (200 g pack) is $74, the price for fresh and frozen 16 oz is $18. In addition, Camel farm sells hump camel fat at $21 per 14 oz.

- Oceania (Australia)

1. Good Earth Dairy. West Australia

Organic Lactose-free Non-fat camel milk Powder

Camel milk

In 2015, Good Earth Dairy, West Australia's (WA) first commercial camel milk dairy, opened for business. The original dairy sits on about 800 hectares of land in Dandaragan, a two-hour drive north of Perth. Good Earth Dairy's mission is to create a sustainable, ethical agricultural industry focused on large-scale production of pure Australian camel milk within a thriving market. It is first commercial camel dairy Western Australia. Currently all produced milk from the pilot plant is selling out via over 50 camel owners throughout WA without any marketing. Plain full cream camel milk price is AUD $3 per liter (US$ 2.3)

- Asia

1. Aadvik Foods -India

New Delhi based company started its journey in 2016 with just one liter of camel milk. Today, it is procuring around 10,000 liters a month. Stating that the market for such dairy products has started to pick up not just in India but globally as well, and since the milk in the liquid form is highly perishable, the company packaged camel milk (deep freeze), which helped extend its shelf life up to 60 days in frozen form and nine months in powdered form. The company has since entered into making value-added camel milk products such as milk powder, chocolates and skin care items, these products have high demand.

The company routes its product range via e-commerce platforms such as Amazon, eBay, Flipkart, Bigbasket, Shopclues, Snapdeal and Doodhwala extensively.

The company started selling pasteurized camel milk at US$ 8/liter. It has now fallen to US$ 5.3/liter. The milk powder was priced at US$ 100/kg two years ago. This has slipped to US$ 73.44/kg at present."

2. Amul camel milk-India

Amul the Indian originated company who have its dairy business flourished all over the nation as well as in many international markets too have now announced the launch of camel milk's ice cream and milk powder.

The company produce camel milk powder US$ 8.5/200 gr with a shelf life of 8 months, the price on milk is US$ 0.36/100 ml, skimmed milk US$ 0.32/500 ml, Camel milk chocolate bars US$ 1.5, with shelf life of 12 months.

Earlier Amul had introduced the fresh camel milk, advertising mostly the cooling properties as well as the long life of the milk in to the Indian Dairy market.

- Europe

1. Camel Dairy Farm Smits- Netherland

Capsules with camel milk Powder 60 pieces. €10,50

420gr Camel milk powder in plastic jar
€67,50

420gr Camel milk powder in sealed plastic bag
€65,50

Camel milk is new in the Netherlands since 2006. Camel Dairy Farm Smits was the first and only camel dairy farm in Europe. Dutch camel milk tastes about the same as cow's milk. Some people find that camel milk that tastes saltier and spicier than cow's milk. Cows and camels eat mostly grass. This grass largely determines the taste of the milk. The company also produces camel milk powder and capsules. Camel milk powder has a shelf life of 1 year, if stored in a dry place. The milk powder can be supplied in jars or bags of 420 grams, of which about 21 glasses of camel milk can be extracted from. In addition, it is possible to order a test sample of 80 grams. Not everyone will like the taste of the camel milk powder, so the company can add cocoa powder or a fresh vanilla bean. In the company's shop, it is possible to order a fresh vanilla bean with camel milk powder.

Instead of drinking the camel milk, it is also possible to take capsules filled with milk powder. These

capsules are made from HPMC capsules and filled with 100% pure camel milk from the camels of Camel Dairy Smits. For a noticeable effect, it is recommended to take the capsules for at least three months, 2 to 3 capsules per day with a glass of water. The capsules have a two-year shelf life and must be kept dry.

V. PRODUCTION PROCESS ANALYSIS AND ADOPTION OF GLOBALLY ACCEPTED BEST PRACTICES IN CAMEL MILK SECTOR

One humped camel (Camelus dromedarius) breeds have been shown to have good genetic potential to produce milk. Camel milk not only is cost-effective in terms of feed conversion but also has the additional advantage of longer lactation period and unique adaptation mechanisms for warm arid and semiarid regions. The key features of camel milk in comparison with other milk are low fat with high content of unsaturated and long-chain fatty acid. The proteins are rich in lactoferrin and lysozymes, but deficient in β-lactoglobulin. It has a higher percentage of total salts, free calcium, protective proteins and vitamin C, and some of the microminerals, viz iron, copper and zinc. Physicochemical properties of camel milk are also unique and useful for food processing. The shelf life of raw camel milk is 8–9 h, which can be increased up to 18–20 h through activation of camel lactoperoxidase system. Heat stability of camel milk is shown to be highest at pH 6.8, and it ferments relatively slowly compared to the cattle milk.

Middle East and Africa dominated the market in 2019 with more than 60% share of the global revenue. Somalia, Kenya, Mali, Ethiopia, Saudi Arabia, and Niger are the major camel milk-producing countries in the world, where Somalia and Kenya accounted for over 60% of the production. Moreover, in terms of consumption, Saudi Arabia is the largest market in the world, where per capita consumption is around 33 liters per year. In addition, Somalia, Ethiopia, Sudan, and Kenya also have a high per capita consumption rate in the region.

North America is expected to expand at the fastest growth rate over the forecast period. The adoption of camel milk has been rising among the diabetic consumers of the U.S. and Canada owing to its low sugar content. As a result, companies of the industry are strengthening their supply in these nations through both offline and online retailers. The majority of these stores offer frozen drinks rather than fresh ones.

Key camel milk products manufacturers include Camelicious; Desert Farms, Inc.; The Camel Milk Co.; VITAL CAMEL MILK LTD; Camel Dairy Farm Smits; Al Ain Farms; Tiviski Pvt Ltd.; UK Camel Milk Ltd.; Aadvik Foods; and QCamel. The producers are expected to expand their production capacity in the upcoming years by increasing their herd size in order to meet the rising demand. Furthermore, emerging markets such as the U.S., China, India, and Russia are expected to widen the scope for the manufacturers in the upcoming years.

Moreover, companies have been expanding their portfolio in order to increase their consumer base. For instance, in November 2019, Aadvik Foods launched a powder form of camel milk. This powder is made by using the freeze-drying process, which preserves the naturally occurring properties of the milk. The company is also planning to add sugar-free chocolates in its portfolio in the upcoming years.

The Global Camel Milk Market is currently enjoying staggering growth rate owing to the rising global population, increased yields, and improved logistics and supply chain across the globe. Though environment concerns still loom strong over the feasibility of the Camel Milk Market, the Global Camel Milk Market is expected to continue it strong upward move with a high CAGR year-on-year.

The global camel dairy market reached a value of US$ 2.3 Billion in 2020. The price of camel milk is significantly higher compared to traditional cow milk, owing to the fact that camel milk production is lower than cow milk, and camel breeding costs are also higher compared to that of cows. Its immense health benefits, however, significantly outweigh the higher prices.

Some camel milk products have problems in processing. Processing camel milk into cheese is Difficult. Its properties result in formation of a less firm coagulum and lower yield during cheese

processing. Such low efficiency of cheese processing trials is reported by Bornaz et al. Moreover, butter processing from camel milk faces another problem; butter is not a traditional product made from camel milk and is difficult to produce by using the same technology of production as for butter from bovine milk. The somewhat higher melting point of camel milk fat (41–43∘C) makes it difficult to churn the cream at temperatures 10–14∘C, which is the optimum churning temperature for bovine milk. Processing of camel milk into butter is also difficult because camel milk shows little tendency to cream up due to deficiency of the protein agglutinin, small fat globule size, and a thicker fat globular membrane. *Farah, Z. 2020*. Camel milk is reported to have a higher proportion of long chain fatty acids and a lower amount of short chain fatty acids. The high melting point of camel milk butter can be attributed to the high proportion of long chain fatty acids in the fatty acid profile. However, butter can be made from camel milk under optimum conditions of churning temperature and agitation method. *Berhe et al. 2013*. reported that vigorous shaking of fermented camel milk in a vertical direction instead of the traditional back- and fro-agitation method at a relatively high churning temperature (22-23∘C) was able to extract butter from camel milk with a fat recovery efficiency of 80%.

Yoghurt processing from camel milk face another problem, manufacturing of yoghurt or other fermented products from camel milk are reported to be difficult. Dromedary milk coagulum does not have a desirable curd formation and firmness and the curd is instead fragile and heterogeneous and consists of dispersed flakes. The problem with camel milk yoghurt is thus the thin consistency and weak texture of the product. Yoghurt texture is a very important parameter that affects the appearance, mouth feel, and overall acceptability. Camel milk has been reported to be not easily fermentable because of its antibacterial properties mainly due to the presence of protective proteins. However, growth of commercial starter cultures in camel milk has been found to be possible. The acidification rate in camel milk was, however, lower than in bovine milk. *Al-Saleh et al. 2011*.

VI. AVERAGE ANNUAL UNIT PRICE OF IMPORTS IN THE MAIM CAMEL MILK IMPORTING COUNTRIES

Table 5 shows the import prices of camel milk by the main camel milk importers in the world. The highest price in 2020 was in USA (US$6501/ton), then comes Japan (US$4414/ton), then South Korea (US$2937)

Table 4 Import Prices of Camel Milk by the Main Camel Importers in the World

Country	Unit Price of Import
	US$/ton
United States	6501
South Korea	2937
Italy	1796
Egypt	2918
Japan	4414
France	1428
Morocco	2838
Germany	635
Netherlands	1670
Spain	2222

Monthly Prices

Figure 12 shows the monthly distribution of camel milk imported price in selected countries in 2020. The prices fluctuate all through the year. Prices increase from Jan to April then drop for the next three months (may to July) to increase in august (US$/ton 3340), then drops to US$/ton 2869 in December.

Figure 12 Monthly Prices of Camel Milk in Selected Countries in 2019

Annex 3

VII. COMPETITORS EXPORTING PRODUCTS INTO OMAN FROM OTHER COUNTRIES INCLUDING COUNTRIES FROM ASIA.

The value of exports of commodity group 0405 "Butter and other fats and oils derived from milk; dairy spreads." from Oman totaled $ 287 thousand in 2018. Sales of commodity group 0405 from Oman decreased by 81% in value terms compared to 2017. Exports of commodity group 0405 decreased by $ 1.3 million (cumulative exports of commodity group 0405 from Oman amounted $1.59 million in 2017). Trend Economy,
https://trendeconomy.com/data/h2/Oman/0405
Exports of commodity group 0405 amounted to 0.119% of total sales of group "" from Oman in 2018 (the value of exports of commodity group from Oman amounted to $240 million in 2018). The share of exports of commodity group 0405 in sales of commodity group from Oman lowered by 0.46 p.p. compared to 2017 (it was 0.579% in 2017, and exports of commodity group from Oman were $274 million).

Top export destinations of "Butter and other fats and oils derived from milk; dairy spreads." from Oman in 2018:

- Qatar with a share of 92% (265 thousand US$)
- Saudi Arabia with a share of 4.06% (11.7 thousand US$)
- United Arab Emirates with a share of 3.57% (10.2 thousand US$)
- China - 374 US$
- Denmark - 80 US$

The value of imports of commodity group 0405 "Butter and other fats and oils derived from milk; dairy spreads." to Oman totaled $ 38 million in 2018. Sales of commodity group 0405 to Oman went up by 137% compared to 2017: imports of commodity group 0405 "Butter and other fats and oils derived from milk; dairy spreads." went up by $ 22 million (the value of imports of commodity group 0405 to Oman was equal to $16.2 million in 2017)

Imports of commodity group 0405 "Butter and other fats and oils derived from milk; dairy spreads." accounted for 0.149% of total import flow to Oman (in 2018, total imports to Oman amounted to $ 25 billion). The share of commodity group 0405 in total imports to Oman increased by 0.087 p.p. compared to 2017 (it was 0.061% in 2017 and cumulative imports to Oman were equal to $ 26 billion).

Imports of commodity group 0405 reached 5.28% of total imports of group "" to Oman in 2018 (imports of commodity group to Oman totaled $727 million in 2018). The share of purchases of commodity group 0405 in total imports of commodity group to Oman increased by 2.67 % compared to 2017 (it was 2.6% in 2017, and imports of commodity group to Oman accounted for $622 million).

Top trading partners (import of "Butter and other fats and oils derived from milk; dairy spreads.") of Oman in 2018:

3. United Arab Emirates with a share of 42% (16.2 million US$)
4. Saudi Arabia with a share of 37% (14.2 million US$)
5. India with a share of 12.7% (4.89 million US$)
6. Belgium with a share of 3.09% (1.19 million US$)
7. Malaysia with a share of 1.59% (611 thousand US$)
8. France - 306 thousand US$
9. New Zealand - 290 thousand US$
10. Singapore - 199 thousand US$
11. United Kingdom - 181 thousand US$
12. China - 97 thousand US$

VIII. HANDLING CHARGES IN OMAN

8.1 OMAN AIR SATS CARGO

CARGO HANDLING CHARGES WITH EFFECT FROM 1st APRIL 2018
Notes:

1. Rates for handling charges are based on Gross Weight or Chargeable Weight whichever is higher
2. All charges will be rounded off to the nearest 100bz at each charge level
3. Special cargo consist of dangerous goods (DG), live animals (AVI), perishable cargo (PER), pharmaceutical cargo (PIL), diplomatic mail (DIP), valuable cargo (VAL), courier (COU), heavy cargo (HEA), vulnerable cargo (VUN) and human Remains (HUM).
4. Cargo with any individual pieces weighing more than 150kg will be constituted as heavy cargo (HEA).

5. No outside labor will be allowed to handle cargo in Oman Air SATS Cargo terminal
6. Acceptance cutoff time is as below: a. DG cargo – 6hrs before flight departure b. All other cargo – 4hrs before flight departure
7. Free storage charge 24hr for all cargo.

Oman Air Sats:

The following are cargo-handling exports charges with effect from 1April, 2018

Table 5 Oman Air Export SATS Cargo

	List Of Charges	Rate per KG (OMR)	Minimum Charge (OMR)
	Mandatory charges		
	Handling Charges		
1a	All cargo and courier except those mentioned in lb	0.026	3.380
12b	Military Mail	0.031	3.100
2	Special cargo handling fee	0.010	8.000
3	Loading and Unloading charges	0.007	0.600
4	Late acceptance charge (after acceptance cut off time)	0.015	23.000
5	Military mail documentation charges	7.000 per Air Waybill per flight	
	Storage Charge per kg per day after free period		
6	All Cargo	0.019	1.830
	Documentation Charges (for Air Waybill issued by Oman Air SATS)		
7	Air Waybill fee	0.830 per Air Waybill	
8	Documentation fee	1.830 per Air Waybill	
9	Barcode labels	0.030 per label	0.990
10	Electronic Manifest Submission Charges	0.500 per MAWB	
	On *request Charges*		
11	Re-Labeling charges	0.030 per label	7.610
12	Air Waybill amendment	3.800 per Air Waybill	
13	Cargo Disposal charge - excluding DGR	0.024	18.150
14	Supply of Manpower		
14a	Skilled staff	25.960 per hour or part thereof	
14b	Unskilled staff	15.580 per hour or part thereof	
14c	Driver/equipment operator	17.350 per hour or part thereof	

Other Charges

List Of Charges	Rate	Remarks

a. Folder Facility	374.300 per year	On Request
b. ID Card Change	3.800 per card per year	On Request Charge applies to issuance of additional cards, renewal of additional cards, replacement of lost ID cards

Source: Oman Air SATS

8.2 Sea Handling Charges from Oman:
Documents required for customs clearance:
Commercial shipment

- Commercial invoice
- Packing list
- Authorization for export customs clearance

Personal effects
- Packing list
- Authorization for export customs clearance

Transit time and Line services
Find below transit time and routing for the main destinations from Sohar.

ASIA	Transit time	Services	T/S port
Singapore	20	CIMEX	Direct
Jakarta	22	CIMEX + feeder	Singapore
TianjinXingang	22	GULF FEEDER + FAL	JEBEL ALI
EUROPE	Transit time	Services	T/S port
Mersin	17	Feeder + MEGEM	Jebel Ali
Malta	24	Feeder + MEDEX	Jebel Ali
Genoa	30	Feeder + MEDEX	Jebel Ali
Hamburg	35	Feeder + EPIC	Jebel Ali
AFRICA	Transit time	Services	T/S port
Mombasa	15	Feeder + SWAX2	Jebel Ali
Mogadishu	20	Feeder + NOURA	Jebel Ali
Durban	26	Feeder + MIDAS2	Jebel Ali
Apapa	41	Feeder + MIDAS1	Jebel Ali
AMERICAS	Transit time	Services	T/S port
New York	32	Feeder + INDAMEX	Mundra
Long Beach	46	CIMEX + PSX	Yantian
Santos	58	Feeder + Med Express + SIRIUS	JEBEL ALI + Malta

8.3 Demurrage and Detention Tariffs

- Detention & Demurrage charges will be applicable for shipments wherein customers have exceeded the standard free time applicable both in the import & export cycles.
- Demurrage: This charge will be levied when the Customer holds CMA CGM equipment inside the terminal for longer than the agreed free days and is applicable to all containers that remain at the terminal longer than the agreed free time.

- Detention: Detention charges will be levied when the Customer holds CMA CGM equipment outside the terminal longer than the agreed free time: it is applicable throughout the duration of Customer's possession of CMA CGM container(s) in his custody, and until its safe return to CMA CGM.
- Free time, Detention & Demurrage charges, terms, and conditions vary from one country to another; please refer to each country's specific tariffs for specific information. In case of booking cancellation, no free time is applicable.
- Merchant must bear customs clearance and is responsible of customs clearance. Delays of achievement of customs clearance are the burden of merchant, as per CMA CGM BL's terms and conditions #26.

IX. RECOMMENDATIONS

- Brand Development: Establish a unique, recognizable brand for Omani camel milk products that emphasizes quality, health benefits, and cultural heritage. This can enhance consumer trust and market appeal.
- Market Expansion: Focus on penetrating international markets by leveraging the growing global demand for camel milk and its derivatives, particularly in health-conscious and lactose-intolerant consumer segments.
- Research Investment: Allocate resources to research and development in camel breeding, milk production technologies, and product diversification to improve efficiency and reduce production costs.
- Infrastructure Enhancement: Develop modern processing facilities and cold storage systems to ensure the quality and shelf life of camel milk products, facilitating larger-scale distribution.
- Government Support: Advocate for policy measures, subsidies, and incentives to support camel farming and dairy production as part of Oman's economic diversification efforts.
- Consumer Awareness Campaigns: Launch educational initiatives highlighting the nutritional and health benefits of camel milk to increase local and international demand.
- Partnerships and Collaborations: Collaborate with international camel milk producers and distributors to adopt best practices, expand market reach, and strengthen supply chains.
- Sustainability Practices: Promote eco-friendly and sustainable camel farming practices to align with global sustainability trends and appeal to environmentally conscious consumers.
- Product Innovation: Develop and introduce innovative products such as flavored milk, yogurt, cheese, and powdered camel milk to cater to diverse consumer preferences.
- Export Strategy: Formulate a robust export strategy targeting high-demand regions such as North America, Europe, and Asia, supported by competitive pricing and marketing efforts.

CONCLUSION

The camel milk market in Oman holds significant potential, driven by its nutritional benefits, adaptability to arid conditions, and growing global demand. Despite challenges such as high production costs, limited processing infrastructure, and market competition, Oman is well-positioned to become a key player in the camel dairy industry. Strategic investments in branding, product innovation, and export capabilities can unlock new opportunities for growth. By addressing production inefficiencies and enhancing consumer awareness, Oman can strengthen its presence in both regional and international markets. A collaborative approach involving stakeholders, government support, and research-driven solutions will be pivotal in ensuring the long-term sustainability and success of the camel milk industry. This study underscores the importance of leveraging Oman's unique resources to create a thriving sector that contributes to economic diversification and global trade.

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