

Evaluate the Trend of Imported Milk and Milk Products in Ethiopia

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Abstract: Ethiopia is a front line on the population of livestock in Africa whereas low productivity of the cattle's, the country was imported different types of dairy products from different countries. To identify types of dairy products imported and estimate the tendency of future importation, information was collected from Ethiopia revenue and custom authority data base. The data were categorized by type of products and import year. 2344 data were collected and analyzed using SPSS software (2016), Microsoft excel and the result present in bar graph, percentage and table. The result indicate that Ethiopia has imported over 24.11 million liters of dairy products from 69 countries from 2009 - 2018 and the country has spent over 2.615 billion Ethiopian birr. The present study indicate that the three leading importers continent were European, Asia and African countries, these continents contribute to 76.04%, 12.38% and 7.48%; respectively. Netherlands, France and New Zealand were the three top leaders in importing the dairy products. These countries contribute 21.77%, 15.34% and 9.41%, from total products imported in 2009 to 2018, respectively. Finally, in 2018 import growth rate was decreased by 31.17% as compare with 2017. Attention shall give for those products which show increments in the year 2018.

Key words: Dairy Products • Gross Weight • Import • Year • Total Expense

INTRODUCTION

Ethiopia has the largest livestock populations in Africa with a national herd estimated cattle population in Ethiopia is about 57.83 million. Out of 57.83 million cattle the female cattle constitute about 55.38% (32.0 million) and the remaining 44.55% (25.83 million) are male cattle. From the total cattle in the country 98.59% (57.01million) are local breeds and remaining are hybrid and exotic breeds that accounted for about 1.19% (706, 793) and 0.14% (109, 733), respectively [1]. Ethiopia holds large potential for dairy development particularly Ethiopian highlands possess a high potential for with diverse topographic and climatic conditions favorable for dairying [2].

Dairy products in Ethiopia are channeled to consumers through formal and informal marketing systems [3, 4, 6]. From the total milk produced by Ethiopian dairy cows, only 68% is used for human consumption. The remaining 32% is fed to calves or wasted on the farm. And 6.6% of the milk for human consumption leaves the farm in liquid form, either shipped

for processing or sold as raw milk on the informal market to neighbors or nearby urban households, kiosks, shops and restaurants. The rest of the milk is consumed or processed at home [7]. According to research done by Land O'Lakes [8], in 2010 the raw milk price in kiosks and pasteurized milk price in supermarkets in 2015 in Addis Ababa was 0.94 and 1.02 EUR; respectively.

The formal marketing system appeared to be expanding during the last decade with private farms entering the dairy processing. The informal market directly delivers dairy products by producers to consumer (immediate neighborhood or sales to itinerant traders or individuals in nearby towns). Generally, the low marketability of milk and milk products pose limitations on possibilities of exploring distant but rewarding markets. Therefore, improving position of dairy farmers to actively engage in markets and improve traditional processing techniques are important dairy value chain challenges of the country [7].

Ethiopia has imports a significant amount of dairy products from foreign countries and decreasing this will reduce foreign currency spending on imports.

Over the next five years the government is not only aiming at a decrease in dairy imports, but is also working on a dairy policy that will result in the export of dairy products. The total volume of milk produced has gradually increased over the last 15 years from less than 1 billion liters to 3.0 billion liters in 2014/15. However, Milk processing plants in the country are process dairy products under their capacity due to lack of quality milk supply. The Government has plans to almost double domestic milk production between 2015 and 2020 [7].

As other African dairy products in Ethiopia milk is channeled to consumers through both formal and informal dairy marketing systems. 95% of the national milk is marketed through informal channels and is unprocessed [2] due to lack of dairy marketing policy in the country like payment of milk is not based on fat or protein content of milk rather payment is based on the volume of milk. In sub-Saharan Africa, dairy products are marketed through formal or informal systems. The formal system (which is usually controlled by government) includes organized collection, processing and distribution of fresh milk and other dairy products at official, government controlled prices. Informal marketing involves sales directly from producers to consumers or indirectly through itinerant traders and other intermediaries. Prices in the informal market are usually not controlled and tend to be higher than those in the formal system [9]. The informal market involves direct delivery of fresh milk by producers to consumer in the immediate neighborhood or sale to itinerant traders or individuals in nearby towns. The informal system is characterized by no licensing requirement to operate, low cost of operations, high producer price compared to formal market and no regulation of operations. Only 5% of the milk produced is marketed as liquid milk due to under development of infrastructures in rural areas [10]. Ethiopians consume less dairy products than other African countries and far less than the world consumption. The present national average capita consumption of milk is 19kg/year as compared to 27 kg for other African countries and 100kg to the world per capita consumption [11]. Out of the total annual milk production, 82.9% was used for household consumption, 6.61% was sold; only 0.43% used for wages in kind and the rest 10% was used for other purposes (for the production of butter, cheese and the likes). With respect to the utilization of butter, 60.69% of the produced was used for household consumption although considerable portion (36.23%) was sold. Most of the cheese produced was used for household consumption that is about 85.76% and the rest 2.94% was used for other purposes [12].

Statement of the Problem: Ethiopia is a front line on the population of livestock in Africa while low productivity of the cattle's due to so many reasons like poor genetic potential of the livestock resources, insufficient animal feed, disease and poor management practices are barriers for the country making fair benefit from its resource potential. As a result the country was imported different types of milk and milk products from different countries. The amount and types of milk and milk products imported in to the country was not well known by processors and investors also the market demand for the products also not recognized by the sector so it is vital to identify the type and amount of milk and milk products imported in to the country that help investor to participate on import substitute and save the amount of foreign exchange expenditure. It is assumed that the country loses its food security if the share of imported production in the total volume of consume production exceeds 20-25% [13]. The objective of the present study was to identify the types of milk and milk products imported and to estimate the tendency of future milk and milk product importation; This study is vital for milk processing industries and investors in identifying the type of milk and milk products, amount of import and in identifying major countries those export milk and milk products. Beside this it also indicates the demand of the products in each year in the country and the products which have high market demand also value if it's processed in the sense of value addition based on the required quality and quantity.

MATERIALS AND METHODS

Data Collection: Information on dairy products importation was collected from Ethiopia revenue and custom authority (ERCA) import commodity data base <http://www.erca.gov.et> [14]. The emphasis was on imported dairy products and its cost paid for CIF value and tax. The aim of the survey was to collect information on dairy products imported within ten years (2009 to 2018). The dairy products imported were categorized by type of products and month and year of imported. About 2344 data were collected and analysis for gross weight, net weight of products imported, cost, insurance and freight value (CIF value) and total tax and the trend of product importation.

Statistical Analysis: Data was analyzed by using SPSS software 23 version 16 [15]. Microsoft excel and the result present in bar graph, in percentage and in table.

RESULTS AND DISCUSSION

Even though Ethiopia has large number of cattle population in Africa, the country has imported over 24.11 million liters gross weight of milk and cream in different form, yogurt, cheese, butter, buttermilk, fats and oils derived from milk and whey and modified whey from 69 countries for the last ten years from 2009 - 2018 as the result the country has spent over 2.615 billion Ethiopian birr to import these dairy products. While in the study of Gezu and Zelalem [16] the country spent over 678.75 million Ethiopian birr to import various products of milk from 2006 to 2010. Average annual milk and dairy products import of the country was 2.411 million kg, the result is by far different from annual milk and dairy products import in Russian 2014 was 139 million kg [17]. Import is increased from about 3.1 million USD in the year 2001 to the level of 9.3 million in the year 2008, which is about 300% growth from what is has been in 2001[18] whereas in the present study imports of dairy products have strongly fluctuated over the year.

The present study indicate that the leading dairy importers continent were European, Asia, African, North and Central American, Australia and South America countries, these continents contribute about 76.04%, 12.38%, 7.48%, 4%, 0.07% and 0.02%; respectively. Netherlands, France, New Zealand, Switzerland, Ireland, Egypt, Germany, United States, Belgium and India were the ten top leaders countries in importing the dairy products in to the Ethiopia. These countries contribute 21.77%, 15.34%, 9.41%, 6.31%, 5.14%, 5%, 4.47%, 4%, 3.99% and 2.64% from total products imported in 2009 to 2018, respectively. Whereas the study of Gezu and Zelalem [16, the leading dairy importers countries from 2005 to 2009 were the United States, Mexico, Japan, Russia and the European Union-28. From the whole imported dairy products the expenditure on milk and cream in different form accounted for 84.69%, followed by different form of cheese, 8.46%, followed by whey and modified whey, 4.22%, followed by butter, 1.02%, followed by yogurt, 1% , then fats and oils derived from milk, 0.35% and buttermilk 0.26%. Similarly the expenditure on powdered milk accounted for 79.6%, followed by cream, 12.9% and cheese 4.3% [19].

Milk and Cream in Different Form: Milk and Cream in different form includes concentrated milk and cream, sweetened milk and cream, unsweetened milk and cream, powder milk and other milk and cream in different forms. The present study indicate that Ethiopia has imported more than 19.43 million liters gross weight of milk and cream in different forms from 51 countries for the last ten

years since 2009 to 2018 and has spent over 2.23 billion Ethiopian birr to import the product. As the milk marketing system of the country is not well developed giving the large majority of smallholder milk producers, limited access to the market. According to Yilma [20], In 2010, less than seven percent of the annual milk production was estimated to be marketed at national level.

In average the country has imported over 1.943 million liters gross weight of milk and cream in different form per year. The country has spent 222.52 million Ethiopian birr per year to import this product.

Netherlands, New Zealand and Switzerland are the three top leading countries in importing the product during the observed period. About 26%, 10.82% and 7.8% of the total volume of the product that has been imported in to the country was from these three countries; respectively. From the total value of imported dairy products over the last decades, the share of import in manufacture of these products constituted about 81.46% was milk and cream in different form. As the result import of the products grows in 2018, the volumes of import of the products growth rate decreased substantially by 18.76% as compare to 2017.

Yogurt: The present study indicate that Ethiopia has imported over 0.278 million liters gross weight of yogurt from 17 countries for the last ten years since 2009 to 2018 and has spent over 26.38 million Ethiopian birr to import the products.

In average the country has imported over 0.028 million kilo gram gross weight of yogurt per year. The country has spent 2.64 million Ethiopian birr per year to import this product.

Spain, France and Germany are the three top leading countries in importing the product during the observed period. About 33.89%, 22.93% and 13.21% of the total volume of the product that has been imported in to the country was from these three countries; respectively. From the whole imported dairy products about 1% was covered by yogurt. In 2018, the volumes of import of the products growth rate decreased substantially by 50.19% as compare to 2017.

Cheese: It may include grated or powdered cheese, processed cheese, not grated or powdered, Blue-veined cheese and Fresh (unripened or uncured) cheese, including whey cheese and curd. This study indicate that Ethiopia has imported over 1.254 million liters gross weight of products from 41 countries for the last ten years since 2009 to 2018 and has spent over 222.20 million Ethiopian birr to import the products.

Table 1: Type of products and amount imported in year (in 000 liter/kilogram)

Year	Butter	Buttermilk	Cheese	Fats & Oil	Milk & Cream	Whey & Modify whey	Yogurt	Total
2009	32.84	0.31	83.38	0	1942.1	7.24	2065.88	4131.75
2010	4.7	0.98	93.88	1.31	3734.14	402.08	8.11	4245.19
2011	12.93	66.63	106.31	0.49	2035.15	17.22	14.66	2253.39
2012	11.45	48.72	102.73	0.57	1951.9	17.25	36.19	2168.81
2013	8.34	0.64	85.55	11.75	1341.55	17.87	12.21	1477.91
2014	38.94	18.1	177.37	24.41	1488.98	16.48	39.95	1804.22
2015	32.17	11.23	171.76	2.45	1304.95	268.38	38.89	1829.81
2016	24.32	5.58	212.84	3.34	2868.1	589.66	52.9	3756.74
2017	14.08	71.05	111.42	0	1072	822.65	38.05	2129.24
2018	10.65	1.89	78.59	13.23	1895.33	309.85	18.95	2328.49
Total	190.42	225.13	1223.83	57.55	19634.2	2468.68	2325.79	26125.55

Source 2009 to 2018 (ECRA)

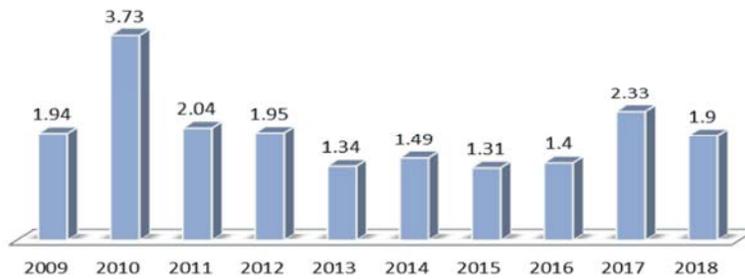


Fig. 1: Imported Milk and cream in different form (million liters) 2009-2018

Source 2009 to 2018 (ECRA)

Table 2: Top ten countries imported milk and cream

Rank	Country	Gross weight (000 lt)	Total expenses (Million ETH Birr)	%
1	Netherlands	5.051	615.68	26
2	New Zealand	2.103	215.86	10.82
3	Switzerland	1.515	391.56	7.8
4	France	1.257	112.8	6.47
5	Ireland	1.239	215.34	6.37
6	United States	932	50.4	4.8
7	Germany	913	74.63	4.7
8	Egypt	894	56.43	4.6
9	Belgium	820	52.71	4.22
10	India	634	37.44	3.26

Source 2009 to 2018 (ECRA)

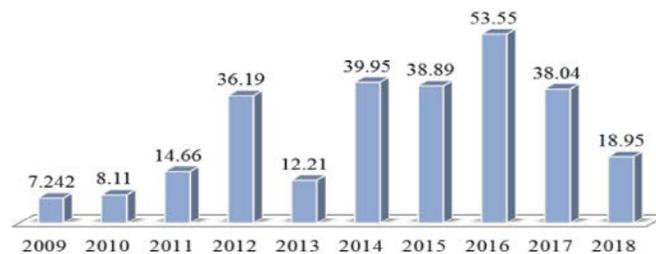


Fig. 2: Imported Yogurt (1000 liters) 2009-2018

Source 2009 to 2018 (ECRA)

In average the country has imported over 0.1254 million kilo gram gross weight of cheese per year. The country has spent 22.22 million Ethiopian birr per year to import this product.

Egypt, France and Netherland are the three top leading countries in importing the product during the observed period. About 23.81%, 15.98% and 11.27% of the total volume of the product that has been imported in

Table 3: Top ten countries imported yogurt

Rank	Country	Gross weight (000 kg)	Total expenses (Million ETH Birr)	%
1	Spain	90.77	8.16	33.89
2	France	61.41	5	22.93
3	Germany	35.37	3.58	13.21
4	Greece	23.00	4.06	8.59
5	South Africa	18.86	1.04	7.04
6	Italy	15.78	1.93	5.89
7	Netherlands	13.26	1.36	4.95
8	Israel	3.00	0.35	1.12
9	Switzerland	1.80	0.35	0.67
10	Croatia	1.72	0.12	0.64

Source 2009 to 2018 (ECRA)

Table 4: Top ten countries imported cheese

Rank	Country	Gross weight (000 lt)	Total expenses (Million ETH Birr)	%
1	Egypt	298.57	43.43	23.81
2	France	200.42	29.44	15.98
3	Netherlands	141.28	0.03	11.27
4	Italy	106.11	35.8	8.46
5	Turkey	99.10	23.96	7.9
6	Germany	65.32	9.05	5.21
7	Denmark	56.05	10.31	4.47
8	Belgium	49.91	6.53	3.98
9	Saudi Arabia	46.74	5.38	3.73
10	United Arab Emirates	44.43	2.83	3.54

Source 2009 to 2018 (ECRA)

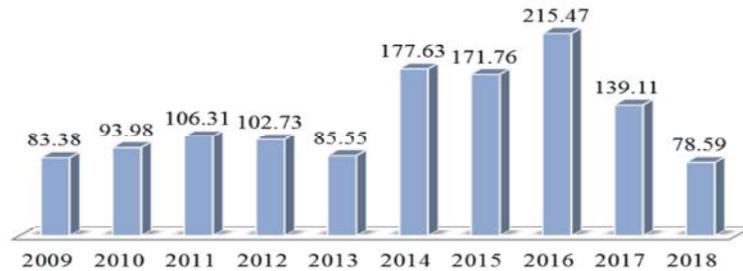


Fig. 3: Imported cheese (1000 kg) 2009-2018

Source 2009 to 2018 (ECRA)

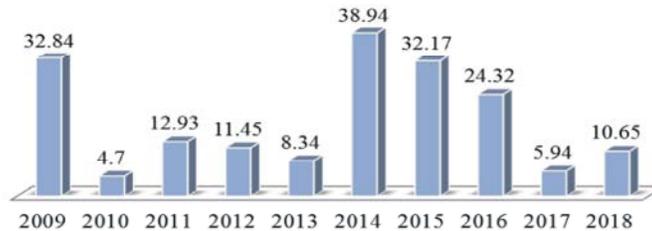


Fig. 4: Imported butter (1000 kg) 2009-2018

Source 2009 to 2018 (ECRA)

to the country was from these three countries; respectively. From the whole imported dairy products about 8.46% was covered by type of cheese. The product amount importation growth rate was decreased by 43.5% from 2017 to 2018.

Butter: The present study indicated that Ethiopia has imported over 0.183 million kilo gram gross weight of butter from 24 countries for the last ten years since 2009 to 2018 and the country has spent more than 26.764 million Ethiopian birr to import the products.

Table 5: Top ten countries imported butter

Rank	Country	Gross weight (000 lt)	Total expenses (Million ETH birr)	%
1	Belgium	50.82	5.94	27.88
2	France	44.71	6.83	24.53
3	Denmark	18.89	3.29	10.36
4	Netherlands	18.51	2.62	10.15
5	South Africa	13.84	2.21	7.6
6	Ukraine	9.14	1.05	5.02
7	United States	7.11	1.04	3.9
8	Turkey	4	0.63	2.19
9	United Kingdom	3.73	0.80	2.05
10	Germany	3.15	0.47	1.73

Source 2009 to 2018 (ECRA)

Table 6: Top ten countries imported buttermilk

Rank	Country	Gross weight (000 lt)	Total expenses (Million ETH Birr)	%
1	Yemen	89.89	2.17	48.34
2	Thailand	28.89	0.83	15.53
3	Malaysia	21.5	0.44	11.56
4	France	16.75	1.47	9.01
5	Germany	10.47	0.83	5.63
6	Egypt	7.15	0.16	3.85
7	Denmark	3.73	0.36	2
8	Grenada	1.58	0.09	0.85
9	South Africa	1.36	0.05	0.73
10	Oman	1.17	0.05	0.63

Source 2009 to 2018 (ECRA)

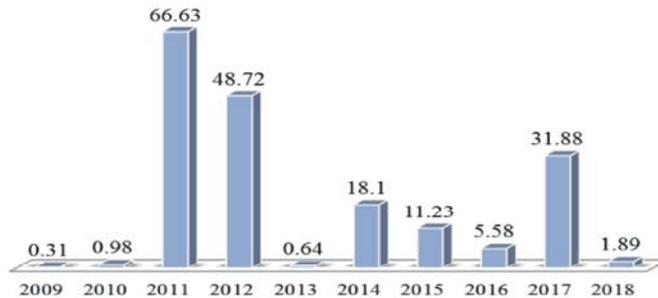


Fig. 5: Imported buttermilk (1000 liters) 2009-2018

Source 2009 to 2018 (ECRA)

In average the country has imported over 0.01823 million kilo gram gross weight of cheese per year. The country has spent 2.68 million Ethiopian birr per year to import the product.

Belgium, France and Denmark are the three top leading countries in importing the product during the observed period. About 27.88%, 24.53% and 10.36% of the total volume of the product that has been imported in to the country was from these three countries; respectively. From the whole imported dairy products about 0.76% was covered by butter. The product amount importation growth rate was increased substantially by 79.24% from 2017 to 2018.

Butter Milk: Ethiopia has imported over 0.186 million liters gross weight of buttermilk from 19 countries for the last ten years since 2009 to 2018 and has spent over 6.7214 million Ethiopian birr to import the products.

In average the country has imported over 0.0186 million kilo gram gross weight of cheese per year. The country has spent 6.7214 million Ethiopian birr per year to import this product.

Yemen, Thailand and Malaysia are the three top leading countries in importing the product during the observed period. About 48.34%, 15.53% and 11.56% of the total volume of the product that has been imported in to the country was from these three

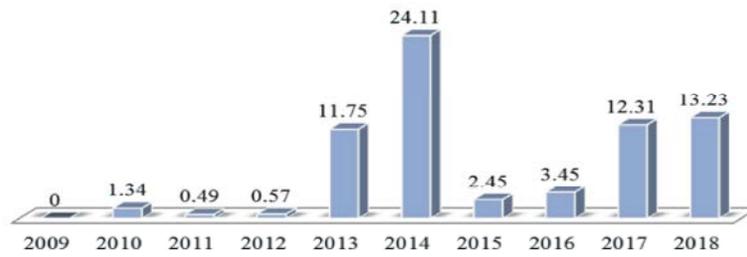


Fig. 6: Imported fats and oils derived from milk 2010-2018
Source 2009 to 2018 (ECRA)

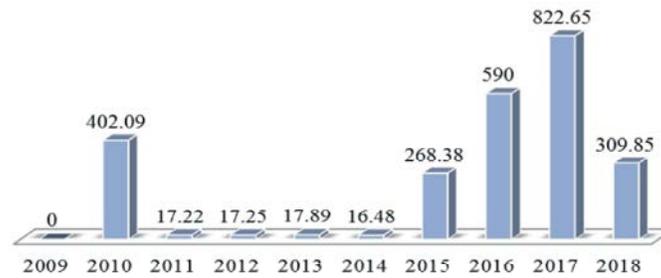


Fig. 7: Imported whey and modified whey (1000 kg)
Source 2009 to 2018 (ECRA)

Table 7: Top ten countries imported fats and oils derived from milk

Rank	Country	Gross weight (000 lt)	Total expenses (Million ETH Birr)	%
1	Belgium	15.55	2.29	22.27
2	Germany	14	2	19.51
3	Netherlands	10.67	1.46	15.29
4	France	8.93	1.19	12.8
5	Egypt	7	0	9.52
6	Poland	6	1	8.9
7	Thailand	2.53	0.01	3.62
8	United Arab Emirates	2.38	0.07	3.4
9	Denmark	1.75	0.25	2.51
10	South Africa	0.97	0.11	1.39

Source 2009 to 2018 (ECRA)

countries; respectively. From the whole imported dairy products about 0.76% was covered by butter. The product amount importation growth rate was grown substantially by 79.24% from 2017 to 2018.

Fats and Oils Derived from Milk: Ethiopia has imported over 67498.62 liters gross weight of fats and oils derived from milk from 18 countries for the last ten years since 2010 to 2018 and the country has spent more than 9.44 million Ethiopian birr to import the products.

In average the country has imported over 7772.88 kilo gram gross weight of fats and oils derived from milk per year. The country has spent 1.05 million Ethiopian birr per year to import this product.

Belgium, Germany and Netherlands are the three top leading countries in importing the product during the

observed period. About 22.27%, 19.51% and 12.80% of the total volume of the product that has been imported in to the country was from these three countries; respectively. From the whole imported dairy products about 0.76% was covered by fats and oils derived from milk. The product amount importation growth rate was grown substantially by 7.47% from 2017 to 2018.

Whey and Modified Whey: Ethiopia has imported over 2.46 million liters gross weight of whey and modified whey from 7 countries for the last ten years since 2010 to 2018 and has spent more than 110.885 million Ethiopian birr to import the product.

In average the country has imported over 0.274 million kilo gram gross weight of cheese per year. The country has spent 12.321 million Ethiopian birr per year to import this product.

Table 8: Top ten countries imported whey and modified whey

Rank	Country	Gross weight (000 lt)	Total expenses (Million ETH Birr)	%
1	France	2048.67	92	83.22
2	Turkey	185.21	7.39	7.52
3	New Zealand	154.28	8.49	6.27
4	Poland	37.26	1.60	1.51
5	Belgium	24.7	1	1.01
6	Czech Republic	4.08	0	0.17
7	Saudi Arabia	3.04	0.05	0.12
8	Jordan	2.04	0.09	0.08
9	India	1.53	0.22	0.06
10	Australia	0.62	0.08	0.03
11	Japan	0.35	0.004	0.01

Source 2009 to 2018 (ECRA)

Table 9: Ice cream import 2016 to 2017

Rank	Country	Gross weight (1000 lt)	Total expenses (Million ETB)	%
1	Italy	21.98	1.217	34.61
2	United Arab Emirates	19.38	1.883	30.51
3	Turkey	6.9	0.862	10.86
4	Indonesia	5.27	0.593	8.29
5	Saudi Arabia	2.86	0.747	4.51
6	Egypt	2.6	0.263	4.03
7	China	2, 32	0.258	3.65
8	United Kingdom	0.81	0.114	1.27
9	Iceland	0.65	0.132	1.03
10	Netherlands	0.44	0.061	0.68

Source 2016 to 2017 (ECRA)

France, Turkey and New Zealand are the three top leading countries in importing the product during the observed period. About 83.22%, 7.52% and 6.27% of the total volume of the product that has been imported in to the country was from these three countries; respectively. From the whole imported dairy products about 10.32% was covered by whey and modified whey. The product amount importation growth rate was grown down substantially by 62.34% from 2017 to 2018.

Ice Cream: Ethiopia has imported over 63, 504.89 liters gross weight of ice cream from 13 countries from 2016 to 2017 and has spent more than 6.155 million Ethiopian birr to import the product.

In average the country has imported over 31752.45 liters gross weight of ice cream per year. The country has spent 3.077 million Ethiopian birr per year to import this product.

Italy, United Arab Emirates and Turkey are the three top leading countries in importing the product during the observed period. About 34.61%, 30.51% and 10.86% of the total volume of the product that has been imported in to the country was from these three countries;

respectively. The product amount importation growth rate was grown down substantially by 16.24% from 2016 to 2017.

CONCLUSION

Ethiopia is among the few countries in African as well as in the world known for its livestock resources. According to present study in the last ten years Ethiopia had imported different types of milk and milk products from 69 countries in the world; 29 European, 21 Asian, 13 African countries, 3 North and Central American, 2 South American and 1 Australia countries. In the entire years more than 24.11 million liters gross weight of milk and milk products has imported into the country and had expend more than 2.615 billion Eth birr. Products like butter and fats and oils derived from milk have shown a substantially decreased in year 2018 as compared with 2017. However, it couldn't indicate that dairy products import is decreasing in near future.

Finally, our country dairy products importation 2018 was decreased by 31.17% as compare with the products imported year (2017). The result may not due to effort on

import substitution but may due to lack of foreign currency exchange of the country. So attention shall give for import substitution especially for those products which show increments in the year 2018 like butter and fats and oils derived from milk.

Recommendation: Some of the imported milk and milk products such as milk and cream in solid form, cheese, yogurt, butter and fats and oils derived from milk which will require special attention and activities to satisfy a huge demand of the country.

This business opportunity has significant importance to large scale milk processing industries on the pipe line of dairy sectors in Ethiopia and other new investors who have interested on dairy products are focusing on milk and milk products and play great role on import substitution.

This study also predict and recommend milk and milk products import substitution have an opportunity as the dairy products have high demand on market. Even they may contribute for country to save the expense of foreign exchange to import dairy products.

Improving position of dairy farmers to actively engage in markets and improve traditional processing techniques are important dairy value chain challenges of the country

Government is focusing at a decrease in dairy imports, also working on a dairy policy that will result in the export of dairy products.

Capacity building is necessary on dairy products processors through training to improve the quality of dairy and dairy products.

Make policy and develop laws to prevent unlicensed/informal milk and milk product traders.

Encourage and support the dairy processor to have their own dairy farm that can able them to process in their full capacity.

Create a strong linkage and awareness along the dairy value chain to kept the quality of milk

Making quality based payment policy and conduct regular assessment to enhance the dairy industries. Therefore, all stakeholders who have working in the dairy sector should give special attention and support to emerge a sector dramatically.

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