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International Agricultural Trade and Policy Center

**A DESCRIPTIVE ANALYSIS OF EGYPT AND SAUDI ARABIA
WHO IMPORT UNITED STATES DAIRY PRODUCTS**

By

Xumin Zhang, Richard L. Kilmer, & Andrew Muhammad

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By

Xumin Zhang, Richard L. Kilmer and Andrew Muhammad¹

INTRODUCTION

World dairy production and trade have experienced increases during the last decade. World trade liberalization, elimination of non-tariff trade barriers, and reduction in dairy export subsidies have increased the United States (US) interest in world dairy markets. The US is in a good position to gain greater access to international dairy markets.

Information by country, which is considered to be a potential importer of U.S. dairy products, and by individual dairy products in the international markets is needed. The information is useful to individuals interested in developing export dairy markets and direct foreign investment in dairy industries in those countries. In the study, 25 dairy import countries were selected from around the world (Table 1). Two countries in North Africa and Middle East, Egypt and Saudi Arabia, are covered in this paper.

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Table 1. Major importers of U.S. dairy products.

Canada Mexico	Central America	South America	Caribbean	European Union	East Asia	Southeast Asia	North Africa & Middle East
Canada	Guatemala	Chile	Bahamas	Netherlands	Hong Kong	Indonesia	Egypt
Mexico	Honduras	Colombia	Bermuda	United Kingdom	Japan	Malaysia	Saudi Arabia
	Panama	Venezuela	Dominican Republic		South Korea	Philippines	
			Jamaica			Thailand	
			Trinidad & Tobago			Vietnam	

The following paper covers a descriptive analysis for each individual country about the macroeconomic conditions, milk and dairy production, consumption, imports, the US share of the dairy imports, dairy trade policies, and how these factors have changed overtime. The information in this report can provide a starting point for individuals interested in exploring exports to and direct investment opportunities in Egypt and Saudi Arabia.

OVERVIEW

World Dairy Production

World production of cow milk increased in the period 1991 to 2001 at an average annual rate of 0.5 percent. In the period 1991 to 1993, world production of milk trended downward from 469,969,290 metric tons in 1991 to 460,185,174 metric tons in 1993 (Table 1). Since then, world production of fresh milk has experienced continuous increases through 2001. In 2001, the world production of cow milk totaled 494,074,772 metric tons, a 1.4 percent increase, compared to 2000 (487,216,313 metric tons) (Table 1). Milk production in Egypt and Saudi Arabia totaled 2,610,000 metric tons in 2001 (Table 2), or 0.5 percent of the total world production.

Overall, in the period 1991 to 2001, world butter production increased at an average annual rate of 0.6 percent. Significant decreases occurred in the period 1991 to 1994 when world butter production decreased from 7,230,211 metric tons in 1991 to 6,626,853 metric tons in 1994, for an average annual decrease of –2.9 percent. Since then, world butter production trended upward through 2001, increasing at an average annual rate of 2.1 percent. World butter production in 2001 was about 7,639,830 metric tons, which was up 3.8 percent from butter production in 2000 (7,361,928 metric tons) (Table 1). Butter production in Egypt and Saudi Arabia totaled 99,300 metric tons in 2001 (Table 2), and accounted for less than 1.3 percent of the world butter production (Table 1).

Table 1. World milk and selected dairy products production, 1991 through 2001.

Year	Cow Milk, Whole, Fresh	Butter and Ghee	Cheese (All Kinds)	Whole Milk, Dry	Skim Milk, Dry	Dry Whey
Metric Tons						
1991	469,969,290	7,230,211	14,273,176	2,278,421	3,790,059	1,591,469
1992	460,815,550	7,069,007	13,924,948	2,223,634	3,383,613	1,719,527
1993	460,185,174	6,949,108	14,092,319	2,190,812	3,435,523	1,704,052
1994	461,308,188	6,626,853	14,413,909	2,299,879	3,469,588	1,721,392
1995	463,742,780	6,654,099	14,534,298	2,297,568	3,471,565	1,808,545
1996	465,750,719	6,728,324	14,895,164	2,256,240	3,359,823	1,825,342
1997	468,198,514	6,824,872	15,182,338	2,347,216	3,390,716	1,797,683
1998	475,397,193	6,931,101	15,531,190	2,424,612	3,260,097	1,875,487
1999	480,762,511	7,140,653	15,874,743	2,425,512	3,400,623	1,876,269
2000	487,216,313	7,361,928	16,451,548	2,509,210	3,401,153	1,927,189
2001	494,074,772	7,639,830	16,821,541	2,633,776	3,374,176	1,960,928
Average Annual Growth (%)						
1991-2001	0.5	0.6	1.7	1.5	-1.1	2.2

Source: FAO Statistical Databases, 2002

In the period 1991 to 2001, world cheese production increased at an average annual rate of 1.7 percent (Table 1). Particularly in the period 1992 to 2001, world cheese production experienced a continuous increase through 2001, from 13,924,948 metric tons in 1992 to 16,821,541 metric tons in 2001, for an average annual increase rate of 2.1 percent (Table 1). Cheese production in Egypt totaled 480,000 metric tons in 2001 (Table

2), and accounted for 2.9 percent of the world total cheese production in 2001 (Table 1).

No cheese was produced in Saudi Arabia.

Table 2. Egypt and Saudi Arabia milk and dairy products production in 2001.

	Cow Milk, Whole, Fresh	Butter and Ghee	Cheese (All Kinds)	Whole Milk, Dry	Skim Milk, Dry	Dry Whey ^a
Metric Tons						
MIDDLE EAST & NORTH AFRICA						
Egypt	1,870,000	96,700	480,000	---	---	---
Saudi Arabia	740,000	2,600	---	---	---	---
TOTAL	2,610,000	99,300	480,000	---	---	---

^a Whey production in milk equivalent metric tons was not available.

Source: FAO Statistical Databases, 2002.

World production of dry whole milk increased in the period 1991 to 2001 at an average annual rate of 1.5 percent (Table 1). World dry whole milk production fluctuated in the period 1991 to 1996, ranging from a high of 2,299,879 metric tons in 1994 to a low of 2,190,812 metric tons in 1993 (Table 1). Since then, world dry whole milk production has trended upward through 2001. In the period 1996 to 2001, world dry whole milk production increased at an average annual rate of 3.2 percent. In 2001, world dry whole milk production totaled 2,633,776 metric tons, which was up 5.0 percent from 2000 (Table 1). However, there was no dry whole milk production in Egypt or Saudi Arabia in 2001.

World dry skim milk production (nonfat dry milk or skim milk powder) has exceeded dry whole milk production during the period 1991 through 2001 (Table 1). However, in

the period 1991 to 2001, world dry skim milk production trended downward, for an average annual decrease rate of -1.1 percent (Table 1). World dry skim milk production experienced fluctuations in the period 1991 to 2001, ranging from a high of 3,790,059 metric tons in 1991 to a low of 3,260,097 metric tons in 1998 (Table 1). Overall, between 1991 and 2001, world dry skim milk production decreased 415,883 metric tons. In 2001, world dry skim milk production totaled 3,374,176 metric tons, which was down 0.8 percent from 2000 (Table 1). However, there was no dry skim milk production in Egypt or Saudi Arabia in 2001.

The most growth in the production of milk and its products has occurred in the dry whey market. From 1991 to 2001, the average annual growth in world dry whey production has been 2.2 percent, with periods of increases and decreases (Table 1). World dry whey production trended upward through 2001, from 1,591,469 metric tons in 1991 to 1,960,928 metric tons in 2001, for an overall increase of 369,459 metric tons (Table 1). However, there was no dry whey production in Egypt or Saudi Arabia in the year 2001.

World Imports of Dairy Products

World imports of dairy products in milk equivalent metric tons increased at an average annual growth rate about 2.6 percent in the period 1991 to 2001. In the period 1991 to 1995, world imports of dairy products increased continuously from 52,405,310 metric tons in 1991 to 62,616,493 metric tons in 1995 (Table 3). Although decreases occurred in 1996, 1998, and 2001, world imports of dairy products trended upward through 2001, peaking at 68,138,509 metric tons in 2000 (Table 3). Between 1991 and 2001, world imports of dairy products increased 14,715,220 metric tons, from 52,405,310 metric tons in 1991 to 67,120,530 metric tons in 2001, for an overall increase of 28.1 percent. Total dairy imports (in milk equivalent metric tons) into Egypt and Saudi Arabia were 1,638,709 metric tons (Table 4), which accounted for 2.4 percent of the world total dairy imports (67,120,530 metric tons, Table 3) in 2001.

In the period 1991 to 2001, world butter imports decreased at an average annual rate of -0.1 percent. Between 1991 and 2001, world butter imports decreased 52,311 metric tons, reaching a low in 1996 of 1,203,892 metric tons (Table 3). A significant decrease occurred in 1994 when world butter imports decreased from 1,454,129 metric tons in 1993 to 1,288,247 metric tons in 1994, for an annual decrease of -11.4 percent. Since then, world butter imports fluctuated through 2001, ranging from a high of 1,368,933 metric tons in 1995 to a low of 1,203,892 metric tons in 1996 (Table 3). World butter imports in 2001 were 1,280,750 metric tons, which was up 1.5 percent from total world butter imports in 2000 (1,261,586 metric tons) (Table 3). Butter imports into Egypt

and Saudi Arabia totaled 68,433 metric tons in 2001 (Table 4), which was about 5.3 percent of the world butter imports (1,280,750 metric tons, Table 3) in 2001.

Table 3. World dairy imports, 1991 through 2000.

Year	Milk Equivalent	Butter	Cheese	Dry Whole Milk	Dry Skim Milk	Dry Whey
Metric Tons						
1991	52,405,310	1,333,061	2,127,089	1,115,052	1,664,905	627,884
1992	55,385,703	1,376,590	2,230,616	1,073,993	1,821,565	657,822
1993	55,463,235	1,454,129	2,222,401	1,059,341	1,843,592	645,911
1994	57,759,324	1,288,247	2,461,275	1,161,280	1,773,160	713,385
1995	62,616,493	1,368,933	2,468,786	1,525,707	1,890,674	783,249
1996	59,844,367	1,203,892	2,688,552	1,281,604	1,716,935	838,526
1997	62,626,024	1,321,235	2,843,580	1,357,158	1,727,457	862,943
1998	62,478,356	1,213,138	2,786,286	1,401,542	1,607,154	915,807
1999	66,593,229	1,217,796	2,887,650	1,439,868	1,879,505	998,073
2000	68,138,509	1,261,586	3,093,644	1,418,968	1,805,896	1,067,210
2001	67,120,530	1,280,750	3,354,503	1,351,083	1,577,319	1,165,912
Average Annual Growth (%)						
1991-2001	2.6	-0.1	4.7	2.6	-0.2	6.5

Source: FAO Statistical Databases, 2002.

In the period 1991 to 2001, world cheese imports increased at an average annual rate of 4.7 percent (Table 3). Except for 1993 and 1998, world cheese imports experienced continuous increases, from 2,127,089 metric tons in 1991 to 3,354,503 metric tons in

2001 (Table 3), for an overall increase of 57.9 percent from 1991. In 2001, world cheese imports were up 8.4 percent from 2000 (Table 3). Egypt and Saudi Arabia imported 76,186 metric tons of cheese in 2001 (Table 4), which was about 2.3 percent of the world total cheese imports in 2001 (3,354,503 metric tons, Table 3).

Table 4. Egypt and Saudi Arabia dairy imports in 2001.

	Milk Equivalent	Butter	Cheese	Dry Whole Milk	Dry Skim Milk	Dry Whey
Metric Tons						
MIDDLE EAST & NORTH AFRICA						
Egypt	583,455	45,431	9,068	3,967	19,714	4,548
Saudi Arabia	1,055,254	23,002	67,118	44,793	34,000	1,149
TOTAL	1,638,709	68,433	76,186	48,760	53,714	5,697

Source: FAO Statistical Databases, 2002.

World imports of dry whole milk increased in the period 1991 to 2001 at an average annual rate of 2.6 percent. World dry whole milk imports fluctuated in the period 1991 to 2001, ranging from a high of 1,525,707 metric tons in 1995 to a low of 1,059,341 metric tons in 1993 (Table 3). World dry whole milk imports trended downward in the period 1995 to 2001, for an average annual rate of –1.7 percent. In 2001, world dry whole milk imports totaled 1,351,083 metric tons, down from 1,418,968 metric tons in 2000 (Table 3). Dry whole milk imports into Egypt and Saudi Arabia totaled 48,760 metric tons (Table 4), accounting for about 3.6 percent of the world total dry whole milk imports in 2001 (1,351,083 metric tons, Table 3).

World dry skim milk imports (nonfat dry milk or skim milk powder) have exceeded dry whole milk imports in the last decade (Table 3). However, in the period 1991 to 2001, world dry skim milk imports trended downward, for an average annual decrease rate of -0.2 percent (Table 3). World dry skim milk imports fluctuated, ranging from a high of 1,890,674 metric tons in 1995 to a low of 1,577,319 metric tons in 2001 (Table 3). Overall, between 1991 and 2001, world dry skim milk imports decreased 87,586 metric tons. In 2001, world dry skim milk imports totaled 1,577,319 metric tons, which was down 12.7 percent from 2000 (Table 3). Total dry skim milk imports into Egypt and Saudi Arabia were 53,714 metric tons (Table 4), accounting for 3.4 percent of the world total dry skim milk imports (1,577,319 metric tons, Table 3) in 2001.

The most growth in world dairy imports has occurred in the dry whey market. From 1991 to 2001, average annual growth in world dry whey imports was 6.5 percent (Table 3). Except for 1993, world dry whey imports increased continuously from 627,884 metric tons in 1991 to 1,165,912 metric tons in 2001 (Table 3). Dry whey imported into Egypt and Saudi Arabia totaled 5,697 metric tons in 2001, accounting for about 0.5 percent of the world total dry whey imports in 2001 (Table 1).

The rest of this paper covers the following information for Egypt and Saudi Arabia: macroeconomic conditions, milk and dairy production, consumption, imports, the US share of the dairy imports, dairy trade policies, and how these factors have changed overtime.

EGYPT

Overview of Egypt

Egypt is located in the northeastern corner of Africa, bordered on the north by the Mediterranean Sea, on the east by Israel and the Red Sea, on the south by Sudan and on the west by Libya. The total area of Egypt is 1,001,450 square kilometers, slightly larger than three times the size of New Mexico. In 2001, the population was estimated to be 70.71 million, with a 1.66 percent growth rate (CIA World Factbook, 2002).

Egypt is one of the most healthy and prosperous economies in Africa. The Egyptian economy is a mixture of agriculture, light industry, and services. In the 1990s, despite having to service a foreign debt that was more than double the national budget, Egypt improved its macroeconomic performance by following IMF advice on fiscal, monetary, and structural reform policies. The reforms include the lifting of price controls, the reduction of subsidies, and the liberalization on trade and investment. These reforms have resulted in a more liberalized economy and good economic practices. However, in the past few years, the reform has been slowed. Excessive spending on national infrastructure projects has widened budget deficits again. Monetary pressures have increased since September 11, 2001 due to the declining in tourism, Suez Canal tolls, and exports. Devaluation of the Egyptian pound in the past year has also increased the burden. In 2001, Egypt's gross domestic product (GDP) was approximately \$258 billion (purchasing power parity), with a per-capita purchasing power parity of \$3,700. Real GDP growth slipped to one percent in 2002, down from three percent in 2001. Agriculture accounted for 14 percent of total GDP (CIA World Factbook, 2002).

Egypt's total exports in 2001 were 7.1 billion, of which the US received 15 percent. Egypt's total imports in 2001 were 164 billion, of which the US shipped 18 percent. The US is one of Egypt's most important trading partners. Other trading partners are the EU, the Middle East and Asian countries (CIA World Factbook, 2002). The US and Egyptian Partnership for Economic Growth & Development was signed in 1994. It was an important milestone in the two countries' relationship. In July 1999, Egypt and the United States signed the Trade and Investment Framework Agreement (TIFA) as a preliminary step towards a Free Trade Agreement (American Chamber of Commerce in Egypt, 2002).

Dairy Industry in Egypt

Production of Dairy Products

In Egypt, animal production accounted for about 30 percent of the total agriculture in the 1990s. Among total animal production, milk and dairy production accounted for about 30 percent. Like many other countries in the Middle East, Egypt has a dairy industry dominated by small scale, on farm production and consumption. Although dairy production has increased through the last decade, almost 90 percent of milking animals are still owned by farmers with an average size of one hectare, and three or four animals (IMES Consulting, 1998). These small-scale dairy farms account for about 70 percent of Egypt's milk production. Most of the milk produced is consumed or processed at home, often into a type of cottage cheese, while the cream is separated for local sale or for storage in the form of butter ghee (IMES Consulting, 1998).

More than half of the milk production was produced by buffaloes in the 1990s (Table 1). Egyptian fresh cow milk production in 2000 was 1,638,400 metric tons. Its buffalo milk production was 2,030,305 metric tons in that year (Table 1). Egypt's milk production has been steadily increasing in the 1990s but still falls short of demand (USDA-FAS, 2001). In 2000, there were about 1.32 million milking cows in Egypt. However, milk production per cow was very low. One reason for this low productivity is the varying availability of feed. The average milk production per cow per year was about 1,240 kilograms in 2000 (FAO Statistics, 2002). Buffaloes and local baladi cows are the main dairy animals. Although buffaloes produce less milk as cows, Egyptians like buffalo milk because of its white color, distinctive flavor, and higher fat content (IMES Consulting, 1998).

In 2000, Egypt's dairy product self-sufficiency (including buffalo milk) was about 90 percent, and the rest was imported from abroad, mainly in the form of milk powder. The increase in milk production in the 1990s was mostly due to the expansion of modern dairy farms that utilize high yielding imported cows (USDA-FAS, 2001). Large-scale farms with a relatively large number of dairy cows were established in the late 1990s. Because of their advanced technology, well-trained personnel, and higher milk yield, their milk production increased. In the late 1990s, the commercial farm system accounted for an estimated 15 percent of total milk production (USDA-FAS, 2001). Large commercial dairy farms mostly sell their milk to the leading processing companies. In the late 1990s, in spite of the establishment of these new factories, about 65 percent of Egypt's dairy production still occurred in the "non-market" economy sector (IMES Consulting, 1998).

Table 1. Egypt milk and selected dairy products production, 1991 through 2000.

Year	Cow Milk, Whole, Fresh	Buffalo Milk	Butter and Ghee ^a	Cheese ^a (All Kinds)	Skim Milk, Dry	Whey ^{a,b}
Metric Tons						
1991	994,000	1,325,000	82,650	272,750	----	884,100
1992	995,000	1,420,940	85,625	275,500	----	889,000
1993	998,000	1,555,929	89,675	281,500	----	903,000
1994	1,172,000	1,417,000	81,600	323,000	----	1,029,000
1995	1,271,700	1,358,000	77,225	343,750	----	1,088,500
1996	1,298,038	1,623,992	84,375	371,250	----	1,165,500
1997	1,324,376	1,889,983	91,125	400,000	----	1,246,000
1998	1,351,880	2,022,380	91,375	427,000	----	1,323,000
1999	1,596,880	2,018,200	96,050	464,250	----	1,452,500
2000	1,638,400	2,030,305	96,700	466,000	----	1,452,500

^a. Made from both cow milk and buffalo milk.

^b. Whey production in milk equivalent pounds.

Source: FAO Statistical Databases, 2002.

Following the imposition of a 45 percent safeguard duty on milk powder imports in October 2000, fluid milk prices increased. This price increase caused an increase in milk production. In 2001, fresh cow milk production was 1,679,360 metric tons, and buffalo milk production was 2,050,610 metric tons (FAO Statistics, 2002). The safeguard protection made milk production a more profitable industry. Dairy farms are being encouraged to improve and expand their operations. Some producers are also establishing milk collection centers to expand milk purchases from small farmers. A low interest loan program was also launched by the Ministry of Agriculture and was directed to milk producers and processors in order to improve their operations (USDA-FAS, 2001).

About 50 percent of Egypt's total milk production is utilized in commercial cheese and ultra high temperature (UHT) milk production while the rest is used at the farm level,

such as cattle feeding, processing to dairy products for direct sale, and direct consumption at the farm. In 2000, Egypt's total cheese production was 466,000 metric tons (Table 1). The most important type of cheese produced in Egypt is feta cheese. Feta production makes up about 75 percent of the cheese produced and consumed in Egypt. Although Egypt's cheese production has steadily increased in the 1990s, the production still falls short of demand (USDA-FAS, 2001).

In 2000, Egypt produced 96,700 metric tons butter and ghee (Table 1). However, a very small quantity of butter was produced on a commercial scale, less than 10,000 metric tons (USDA-FAS, 2001). The bulk of butter production was produced by farmers for home consumption. Due to the lack of refrigeration in the country which is used to convert butter to butter oil and ghee, the Egypt's butter industry is weak (USDA-FAS, 2001).

Egypt produces virtually no milk powder. Imported skim milk powder and whey powder is used mainly for the production of feta cheese, yogurt and ice cream. However, Egypt produces fresh whey for the production of processed dairy products. There are also small quantities of whey utilized in the production of chocolate and pastries. In the 1990s, the whey production in Egypt increased steadily by about six percent annually (FAO Statistics, 2002). In 2000, Egypt produced 1,452,500 metric tons of whey (in milk equivalent pounds) (Table 1).

Demand for Dairy Products

Although new private and public dairy factories were established in the past decades, about 65 percent of Egypt's dairy production still occurs in the "non-market" economy

sector (IMES Consulting, 1998). The so-called artisan sector produces artisan products, which are unbranded and generally sold loose. Traditionally, the consumption of liquid milk was not very common in Egypt. In the 1990s the amount of liquid milk consumed increased. Ultra high temperature (UHT) milk, pasteurized milk and flavored milk production increased, as the demand for liquid milk increased in the 1990s. In addition, modern dairy factories were launching campaigns in the media especially on TV to promote their products as a clean and healthy source of milk products (USDA-FAS, 2001). Increasing concerns of children health has also caused liquid milk consumption to increase.

In the 1990s, per-capita milk consumption increased at a rate of 2.7 percent on average every year. The increase was mainly due to the increase of whole milk consumption, which increased at a rate of 3.6 percent in the 1990s (Table 2). In 2000, total milk consumption per-capita was 61.3 kilograms (Table 2). Skimmed milk consumption decreased slightly, with -0.3 percent on average in the 1990s (Table 2). Between 1991 and 2000, per-capita skim milk consumption decreased 1.27 kilograms, reaching a trough in 1995 at 21.81 kilograms. Per-capita consumption of liquid milk increased at such a rate was mainly because of the movement in the population from rural to urban locations, where milk supply is unstable. Processed milk, dominated by ultra high temperature (UHT) milk, is growing slowly but remains of secondary importance in recent years (IMES Consulting, 1998).

More than half of the buffalo and cow milk are consumed in the form of cheese and ghee. Total cheese consumed in 2000 was 475,689 metric tons (FAO Statistics, 2002). Per-capita cheese consumption was 7.01 kilograms in 2000 (Table 2). Cheese is an

important part of the Egyptian diet. Most of the people eat cheese every day. Feta cheese is the most popular and least expensive type of cheese available. The hard cheese known as “Romi” and processed cheese known as “Nisto” are also among the popular cheeses consumed in Egypt. Consumption of cheddar and mozzarella cheese is also rising due to the increased number of fast food restaurants (QSR) currently operating in Egypt (USDA-FAS, 2001). In the 1990s, per-capita cheese consumption increased at a rate of 3.3 percent on average every year (Table 2).

Table 2. Per-capita consumption of dairy products in Egypt, 1991 through 2000.

Year	All Milk ^{a,b}	Butter ^b	Cheese ^b	Skim Milk ^{a,b}	Whole Milk ^{a,b}	Whey ^{a,b}
Kilograms						
1991	48.38	2.25	5.27	26.92	41.71	15.39
1992	48.85	2.21	5.12	27.07	42.69	15.17
1993	49.85	2.29	5.16	26.78	44.38	15.12
1994	48.67	2.23	5.62	23.33	45.12	16.97
1995	48.45	2.11	5.78	21.81	45.31	17.76
1996	52.61	2.26	6.03	23.77	49.15	18.81
1997	56.30	2.08	6.43	24.65	52.82	19.74
1998	57.94	1.95	6.68	24.58	54.36	20.56
1999	61.37	2.09	7.12	26.08	57.28	22.36
2000	61.30	2.07	7.01	25.65	57.36	22.19
Average Annual Growth (%)						
1991-2000	2.7	-0.8	3.3	-0.3	3.6	4.2

^a. Included food and other uses, such as cattle feed.

^b. Made from both cow milk and buffalo milk.

Source: FAO Statistical Databases, 2002.

Because Egyptians prefer buffalo milk to cow milk, buffalo milk is also used to produce other dairy products, such as butter, cheese, and whey. Egyptians prefer butter made from buffalo milk to butter made from cow milk due to its distinctive flavor

(USDA-FAS, 2001). Butter is normally consumed among more affluent consumers, and mostly sold at up-scale supermarkets. In Egypt, butter, like butter ghee, is used in cooking and baking rather than being spread on bread in the Western manner (USDA-FAS, 2001). Due to the lack of refrigeration facilities, both locally produced and imported butter are melted and stored in the form of butter ghee, which can be kept without refrigeration for nine to twelve months. In the 1990s, per-capita butter consumption decreased slightly, with a rate of -0.8 percent per year (Table 2). Per-capita butter consumption fluctuated in the 1990s. Between 1991 and 2000, per-capita butter consumption decreased 0.18 kilograms, reaching a trough in 1998 at 1.95 kilograms (Table 2).

The growth in per-capita whey consumption was relatively strong in the 1990s. The average increase was 4.2 percent annually (Table 2). Most whey is processed for manufacturing purposes.

Imports of Dairy Products

Egypt has achieved 90 percent self-sufficiency in dairy products (including cow milk and buffalo milk) in recent years (USDA-FAS, 2001). However, although only about ten percent of dairy products need to be imported every year, Egypt is still one of the important dairy importers in the world. In 2000, Egypt ranked 26th in total dairy products imported (in milk equivalent pounds) (Table 3). Its share of world imports of dairy products was about one percent. For individual dairy products, Egypt ranked 7th and 30th in imports of butter and cheese respectively (Tables 4 and 5). Its share of world imports in butter and cheese was 0.4 percent and 3.5 percent respectively (FAO Statistics, 2002).

In 2000, Egypt ranked 23rd and 30th in imports of dry skim milk and whey respectively (Tables 6 and 7). Its share of world imports in dry skim milk was 1.1 percent in 2000. However, imports of whey were 4,007 metric tons in 2000, only about 0.3 percent of the world imports of whey (USDA-FAS, 2002).

Table 3. Selected countries' total dairy imports (in milk equivalent) and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Belgium	3,709,566	4	3,661,389	4	3,936,039	5	4,054,076	5	4,434,830	5
China	1,285,203	13	1,584,260	10	1,531,064	14	1,909,979	10	2,243,373	8
Egypt	561,316	24	526,262	23	520,811	25	729,027	24	616,963	26
France	3,158,352	5	3,582,977	5	3,966,796	4	4,313,597	4	4,685,094	4
Germany	4,673,712	3	4,796,523	3	4,669,373	3	4,554,466	3	5,024,699	3
Italy	5,210,317	2	5,430,128	2	5,543,997	2	5,509,023	2	5,467,815	2
Mexico	1,912,993	8	2,121,080	8	2,021,171	7	2,217,376	7	2,310,820	7
Netherlands	6,385,562	1	6,061,069	1	5,633,207	1	7,113,321	1	6,297,773	1
Spain	1,450,968	11	1,583,212	11	1,652,153	11	1,661,739	12	1,918,970	10
UK	2,393,522	6	2,476,914	7	2,537,039	6	2,667,275	6	2,710,840	6
USA	1,380,531	12	1,466,204	12	1,873,207	8	1,953,107	9	1,953,940	9
Total	32,122,042	----	33,290,018	----	33,884,857	----	36,682,986	----	37,665,117	----
World	59,844,367	----	62,626,024	----	62,478,356	----	66,593,229	----	68,138,509	----

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Table 4. Selected countries' total butter imports and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Belgium	100,015	5	103,759	5	101,137	4	100,491	4	112,073	4
Egypt	50,225	7	37,759	8	35,253	9	43,115	8	44,141	7
France	109,919	4	137,381	3	133,670	2	129,819	1	148,302	1
Germany	132,955	1	156,822	2	134,930	1	123,476	2	131,121	2
Italy	48,315	8	52,087	7	60,124	7	46,864	7	41,167	8
Mexico	18,529	14	24,793	9	27,325	10	34,047	9	34,078	9
Morocco	28,050	9	16,457	15	22,104	12	19,818	12	27,357	10
Netherlands	68,782	6	94,022	6	69,879	6	96,933	5	86,887	5
Russian	125,810	2	169,698	1	83,053	5	53,200	6	53,857	6
UK	111,619	3	101,210	4	109,287	3	122,076	3	122,922	3
Total	794,219	---	893,988	---	776,762	---	752,009	---	801,905	---
World	1,203,892	---	1,321,235	---	1,213,138	---	1,217,796	---	1,261,586	---

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Table 5. Selected countries' total cheese imports and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Belgium	176,745	4	186,681	5	197,185	4	199,602	5	208,949	5
Egypt	14,626	27	15,698	26	14,226	27	16,393	27	13,020	30
France	151,238	7	153,718	7	167,326	7	188,472	6	213,138	4
Germany	458,261	1	476,361	1	441,518	1	417,503	1	424,721	1
Greece	50,747	12	68,059	11	94,838	9	67,341	11	76,944	10
Italy	294,875	2	305,861	2	305,419	2	318,681	2	347,233	5
Japan	164,164	5	171,407	6	183,448	5	186,905	7	205,123	6
Netherlands	92,067	9	84,895	9	100,869	8	116,845	8	122,438	8
Spain	81,511	10	81,046	10	86,363	10	94,223	9	104,688	9
UK	258,704	3	261,775	3	249,191	3	272,312	3	268,613	3
USA	154,764	6	142,793	8	170,557	6	203,042	4	192,342	7
Total	1,897,702	---	1,948,294	---	2,010,940	---	2,081,319	---	2,177,209	---
World	2,688,552	---	2,843,580	---	2,786,286	---	2,887,650	---	3,093,644	---

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Table 6. Selected countries' total dry skim milk imports and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Algeria	58,468	9	78,893	5	87,040	4	71,272	8	91,339	5
Belgium	51,781	12	43,521	11	43,155	13	45,150	15	71,900	9
China	37,975	15	40,945	13	44,813	12	51,150	13	56,862	10
Egypt	17,240	25	15,532	24	17,698	24	25,787	21	19,424	23
France	33,446	18	28,453	20	42,636	14	63,791	9	84,735	6
Indonesia	45,916	14	41,034	12	33,133	18	98,348	5	82,574	7
Italy	126,614	3	127,504	3	126,494	2	121,779	3	109,008	4
Malaysia	78,151	5	75,000	6	59,596	6	71,879	7	74,721	8
Mexico	126,700	2	132,849	2	102,600	3	125,137	2	129,078	2
Netherlands	216,085	1	224,214	1	162,459	1	230,438	1	205,379	1
Philippines	83,704	4	98,050	4	77,637	5	86,729	6	111,455	3
Total	876,080	---	905,995	---	797,261	---	991,460	---	1,036,475	---
World	1,716,935	---	1,727,457	---	1,607,154	---	1,879,505	---	1,805,896	---

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Table 7. Selected countries' total whey imports and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Belgium	52,959	4	55,759	3	58,099	3	54,842	4	56,299	5
Canada	43,224	6	36,554	10	37,996	9	48,375	6	62,441	3
China	72,882	2	89,359	2	78,819	2	97,717	2	140,057	2
Egypt	1,645	34	1,743	34	1,777	36	2,888	30	4,007	30
France	29,238	10	40,931	7	50,588	5	49,463	5	59,048	4
Germany	66,975	3	45,070	5	48,759	6	46,114	7	40,077	9
Italy	40,845	7	37,598	8	42,637	8	37,584	10	42,029	8
Japan	32,343	9	37,481	9	37,351	10	41,157	9	39,522	10
Mexico	48,636	5	49,174	4	56,642	4	55,947	3	55,031	6
Netherlands	251,310	1	217,543	1	248,474	1	292,637	1	252,099	1
Spain	37,147	8	43,362	6	44,869	7	44,225	8	49,109	7
Total	677,204	----	654,574	----	706,011	----	770,949	----	799,719	----
World	886,132	----	902,409	----	973,881	----	1,054,173	----	1,124,090	----

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Prior to 1993, Egypt banned almost all dairy product imports, but since its trade liberalization, dairy imports have come to account for about ten percent of total dairy consumption. The percentage has been even larger in the commercial market. The main dairy imports are butter, butter ghee, cheese and milk powder.

For the period 1991 to 2000, total imports of dairy products in milk equivalent pounds increased on average 0.3 percent (Table 8). The growth rate was insignificant, mainly due to the substitution of local dairy production for imports. However, during the first half of the 1990s, Egypt's dairy imports experienced an increase of 132,936 metric tons, from 479,529 metric tons in 1991 to 612,465 metric tons in 1995 (Table 8). However, in the period 1996 to 1998, as the domestic production increased, dairy imports decreased from 612,465 metric tons in 1995 to 520,811 metric tons in 1998 (Table 8). In 2000, Egypt imported 616,963 metric tons dairy products (Table 8).

Imports of dairy products, such as feta cheese, fell rapidly. In the 1990s, imports of cheese into Egypt decreased at an average rate of -8.8 percent annually (Table 8). A significant decline occurred in the 1995 to 1996 period, where cheese imports decreased from 21,877 metric tons in 1995 to 16,622 metric tons in 1996, for a 24 percent decrease (FAO Statistics, 2002). The decrease was mainly due to increases in international cheese prices. In 2000, cheese imports decreased to 13,020 metric tons from 16,393 metric tons in 1999, due to the devaluation of the Egyptian pound, which made imports more expensive (USDA-FAS, 2001).

A very small amount of butter is produced in Egypt on a commercial scale (USDA-FAS, 2002). Egypt imported relatively large quantities of butter in the 1990s, although the growth rate was only 1.1 percent annually (Table 8). In 2000, Egypt ranked 7th in total

world butter imports, with the amount of 44,141 metric tons (Table 8). The peak of butter imports was in 1996 when Egypt imported 50,225 metric tons. The following decrease in Egypt's butter imports was due to the significant increase in imported butter prices. Total butter imports in 1997 declined drastically to 37,759 metric tons (Table 8), or about 25 percent lower than the previous year.

Table 8. Egypt dairy imports, 1991 through 2000.

Year	Milk Equivalent	Butter	Cheese	Dry Skim Milk	Whey
Metric Tons					
1991	479,529	27,893	27,673	20,090	---
1992	600,800	44,198	22,006	24,758	---
1993	603,352	49,130	19,087	20,734	---
1994	601,018	49,940	21,877	12,993	265
1995	612,465	48,816	16,622	12,237	915
1996	561,316	50,225	14,626	17,240	1,645
1997	526,262	37,759	14,698	15,532	1,743
1998	520,811	35,253	14,226	17,689	1,777
1999	729,027	43,115	16,393	25,787	2,888
2000	616,963	44,141	13,020	19,424	4,007
Average Annual Growth (%) 1991-2000	0.3	1.1	-8.8	6.6	72.4 ^a

^a Whey imports average annual growth rate (%) 1994 through 2000.

Source: FAO Statistical Databases, 2002.

Egypt has virtually no milk powder production. As a result, milk powder is imported every year to satisfy the domestic demand. Imported nonfat dry milk (NFDM) is used to supplement the erratic supply of domestic fluid milk. In addition, imported skim dry milk is used for the production of feta cheese, yogurt and ice cream (USDA-FAS, 2001). The growth rate of dry skim milk imports was 6.6 percent on average in the 1990s (Table 8).

Total imports of dry skim milk in 2000 declined about 25 percent from the previous year to 19,424 metric tons. The devaluation of the Egyptian pound against the US dollar and the general economy slowdown were the main reasons for the decline in dry skim milk imports (USDA-FAS, 2001).

The growth of whey imports was the most impressive among dairy product imports. For the period 1994 to 2000, total imports of whey increased on average 72.4 percent per year (Table 8). Whey powder is imported for the production of feta cheese, yogurt and ice cream as well as chocolate and pastries (USDA-FAS, 2001). In 2000, Egypt's total whey imports were 4,007 metric tons (Table 8).

Exports of Dairy Products from the U.S.

Despite the availability of the Dairy Export Incentive Program (DEIP), US dairy products were not price competitive in the Egyptian market in the 1990s. In recent years, the US hasn't exported butter to Egypt. The decrease in the market share of US products was mainly due to the high prices of US butter compared to that from New Zealand and Australia (USDA-FAS, 2001). The withdrawal of the Dairy Export Incentive Program (DEIP) was the main factor behind the decline of US butter exports to Egypt in recent years. Other factors affecting US butter exports to Egypt were the quality of packing cartons, the high moisture content, and the white color of US butter (USDA-FAS, 2001). Oceania countries and the EU are the major suppliers of butter imported into Egypt.

The EU is the main cheese supplier to Egypt. The prices of US cheese were higher than those from Oceania countries and the EU in the 1990s (USDA-FAS, 2001). Egyptian consumers are price sensitive, and the lack of price competitiveness continues

to be a major obstacle to US cheese (USDA-FAS, 2001). In 2000, the US exported only 76.5 metric tons of cheese into Egypt (Table 9). However, the US was the main supplier of nonfat dry milk to Egypt. All of U.S. sales were under the Dairy Export Incentive Program (DEIP) (USDA-FAS, 2001). In 2000, the US exported 3,445.4 metric tons of nonfat dry milk to Egypt. However, the Egyptian nonfat dry milk market is also price sensitive and competition has increased with the EU and Oceania countries. Poland and Sweden are also suppliers of nonfat dairy milk to Egypt (USDA-FAS, 2001).

Due to competition with the EU and Oceania countries, the US share is still low, even though US whey exports to Egypt increased in the 1990s. In 2000, the US exported 44.6 metric tons of whey into Egypt, with a 1.1 percent market share (Table 9).

Table 9. Selected dairy products exported from the US to Egypt, 1991 through 2000.

Year	Butter ^a	% of All Butter Imports ^b	Cheese ^a	% of All Cheese Imports ^b	Non-Fat Dry Milk ^a	% of All NFDM Imports ^b	Whey ^a	% of Whey Imports ^b
	Mt	%	Mt	%	Mt	%	Mt	%
1991	5788.3	20.8	9.9	0.0	0.0	0.0	0.0	---
1992	0.0	0.0	311.6	1.4	226.7	0.9	0.0	---
1993	1689.4	3.4	8.2	0.0	1094.5	5.3	0.0	---
1994	3275.1	6.6	75.6	0.4	1103.8	8.5	15.6	5.9
1995	5166.0	10.6	185.1	1.1	792.8	6.5	98.2	10.7
1996	74.6	0.1	110.9	0.8	972.7	5.6	35.9	2.2
1997	0.0	0.0	103.3	0.7	4345.8	28.0	36.9	2.1
1998	178.2	0.5	24.8	0.2	5311.0	30.0	0.0	0.0
1999	0.0	0.0	56.5	0.3	9239.4	35.8	38.5	1.3
2000	0.0	0.0	76.5	0.6	3445.4	17.7	44.6	1.1

^a Source: United States Department of Agriculture Foreign Agricultural Service, 2003.

^b Data from Table 8.

Trade Policy and Tariff

Egypt joined the WTO in 1995. In addition to participating actively in the WTO, Egypt is increasingly focusing on preferential trading agreements as a way to improving trade flows. Egypt initiated a stabilization program in the early 1990s, which has improved economic growth, and reduced inflation and unemployment (WTO, 1999). As a complement to the stabilization program, Egypt also started its trade liberalization and domestic reform in the early 1990s. Egypt has removed most non-tariff measures, decreased tariff protection, and liberalized foreign investment (WTO, 1999). Despite a series of tariff reductions, the Government of Egypt appeared to move in contradictory directions on import policy in 1998. For example, tariff rates on a number of products remain high. In addition, Egypt has increasingly moved de-restricted imports onto a list of articles requiring quality control inspection.

Since the liberalization of dairy imports in 1993, the imports of all kinds of dairy products have increased. However, applied tariffs on several dairy products, including non-fat dry milk, whey powder, grated cheese, cheeses, exceeded Egypt's WTO-bound rates in 2002. In 2002, duties on cheese packaged under 20 kilograms were 30 percent. Duties on cheese packaged over 20 kilograms were ten percent. Egypt was not meeting its commitment to phase down its tariffs on all cheese items, except fresh cheese, to 20 percent by the year 2004. Egypt's Uruguay Round bound tariff level for the year 2002 should be a maximum of 21 percent for all categories of cheese (USDA-FAS, 2003).

In 2002, tariffs on butter and butter oil were 15 percent for butter packaged up to 20 kilograms. Tariffs for other butter were five percent. Duties on milk and cream not containing sugar and packaged over 20 kilograms were 15 percent, plus five percent of

CIF value. Other nonfat dry milk not for immediate sale was levied a five percent of CIF value tariff. In addition, there is a three percent customs service fee and one percent sales tax applied across the board (USDA-FAS, 2003).

It is worth noting that the EU and Egyptian Partnership agreement was signed in June 2001. The Agreement will offer several important tariff concessions for European dairy suppliers when the Agreement is implemented (USDA-FAS, 2002). For example, Egypt will allow 2,000 metric tons tariff rate quota (TRQ) at 50 percent of the basic tariff for cheese and curd products from the EU. Butter, other fats and oils derived from milk in packages of more than 20 kilograms will enter Egypt without duty for two years after the Agreement is ratified (USDA-FAS, 2002).

SAUDI ARABIA

Overview of Saudi Arabia

Saudi Arabia is located in the Middle East, bordering in the north by Jordan, Iraq and Kuwait, in the east by the Persian Gulf, in the south by Yemen, and in the west by the Red Sea. Saudi Arabia, with a total area of 1,960,582 square kilometers, is the largest country in the Arabian Peninsula. The population was estimated to be 22.5 million, with a 3.27 percent of growth rate in 2001. About 42.7 percent of the population was under 14 years old in 2001 (CIA World Factbook, 2002).

Saudi Arabia is an oil-based economy with government controls over major economic activities. Saudi Arabia has the world's largest petroleum reserves and the world's fifth largest natural gas reserves. It ranks as the largest exporter of petroleum and plays a leading role in the Organization of Petroleum Exporting Countries (OPEC) (CIA World Factbook, 2002). Shortages of water, extreme temperatures, and rapid population growth hampered government efforts to increase self-sufficiency in agricultural products. In 2001, Saudi Arabia's gross domestic product (GDP) was \$241 billion (purchasing power parity), with per-capita purchasing power parity of \$10,600. Agriculture accounted for seven percent of its total GDP (CIA World Factbook, 2002).

To lessen its dependence on oil and increase employment opportunities for the increasing population, the government continues calling for private sector growth. Currently, Saudi Arabia's plans are to drive toward privatization, to accelerate toward integration into the global economy, and to further develop technical skills and employment (CIA World Factbook, 2002).

In 2001, Saudi Arabia's total exports were \$66.9 billion, of which the US received 17.4 percent. Saudi Arabia's total imports were \$29.7 billion, of which the US shipped 21.1 percent. The main trading Partners are the US, Japan, South Korea, and the EU (CIA World Factbook, 2002).

Dairy Industry in Saudi Arabia

Production of Dairy Products

Since the 1970s, the Saudi Arabian government has undertaken a program to develop the infrastructure required for agricultural growth. The agricultural sector has grown at an average annual rate of 8.7 percent since the 1970s. The sector has now become the largest non-petroleum sector in Saudi Arabia (US Department of State, 1998).

The dairy industry is new to Saudi Arabia. Industrial dairy processing began in the 1970s. Before the 1970s, there were hundreds of small traditional dairy operations in Saudi Arabia. The harsh weather conditions and the lack of adequate grazing land were the main reasons hampering the development of dairy farming in Saudi Arabia (Royal Embassy of Saudi Arabia, 1997). In 1973, the Saudi government introduced subsidies and interest free loans to encourage the development of its dairy industry. In the late 1970s, three large-scale commercial dairy farms, which were Al Matrood, Masstock Saudia and Al Safi, were established in Saudi Arabia (USDA-FAS, 1996). With the support from extensive government programs, there were over 60 specialized dairy farms established in the 1990s. Due to the less harsh climate for cattle, most of the dairy farms are large or medium scale and located in the Al Kharj area, outside Riyadh, the capital of

Saudi Arabia. The remainder are scattered throughout the country (Royal Embassy of Saudi Arabia, 1997).

The dairy cattle bred in Saudi Arabia are purebreds, primarily Holsteins. They are popular because of their high milk production and adaptability to a wide range of environmental conditions. The Holsteins in the Saudi dairy farms originally came from stock in the United States. A small number of Friesian cattle, another branch of the Holstein family, came from Europe. According to the Saudi Arabia Ministry of Agriculture and Water (MAW), there were 60,000 head of dairy cows on the commercial operations in 1997 (Royal Embassy of Saudi Arabia, 1997).

The dairy industry has grown rapidly in the 1990s, spurred by high prices for imported milk powder and increasing demand in domestic and export markets (USDA-FAS, 1996). There has been a trend toward concentration and consolidation in Saudi Arabia's dairy industry. In 2000, the five major processors of liquid milk in Saudi Arabia were Al-Marai, Al-Safi, National Agricultural Development Company (NADEC), Saudi Danish Dairy Co. (Sadafco), and Jamjoom Foremost. The first three produce fresh milk and have their own dairy farms, together accounting for about 70 percent of total raw milk production in Saudi Arabia. The latter two are recombining plants mainly using imported powder milk (U. S. Department of Commerce, 2000).

In the past three decades, the Saudi dairy industry has grown from small, scattered farms to massive operations, equipped with ultra modern dairy processing plants and large stocks of cattle. Due to the harsh climatic factors and limited pasture supply, milking cows subsist on grain feed alone. Large commercial dairy farms also produce their forage requirements under central pivot irrigation, and add it to concentrated alfalfa

hay, grain, soybean meal, corn, and cottonseed. Most of these concentrates are imported. In addition, large and medium size dairy farms have introduced air-cooling systems to maintain year-round temperature (USDA-FAS, 1996). As a result, milk production per cow can be maintained in the extreme hot summer. In 2000, the average annual milk production per cow was about 7,600 liters. The milk production per cow was near that of the US level and was one of the highest in the world (US Department of Commerce, 2000). Saudi Arabia increased their annual fresh milk production from 29,500 metric tons in 1970 to 709,000 metric tons in 2000 (FAO Statistics, 2002).

Table 1. Saudi Arabia milk and selected dairy products production, 1991 through 2000.

Year	Cow Milk, Whole, Fresh	Butter and Ghee	Cheese (All Kinds)	Whole Milk, Dry	Skim Milk, Dry	Whey
Metric Tons						
1991	283,950	1,102	----	----	----	----
1992	310,057	2,140	----	----	----	----
1993	349,045	2,515	----	----	----	----
1994	395,773	2,725	----	----	----	----
1995	428,103	2,827	----	----	----	----
1996	453,256	2,736	----	----	----	----
1997	510,503	2,762	----	----	----	----
1998	581,182	3,125	----	----	----	----
1999	601,000	3,608	----	----	----	----
2000	709,000	2,578	----	----	----	----

Source: FAO Statistical Databases, 2002.

In 2000, Saudi Arabia's fresh milk production was 709,000 metric tons (Table 1). Its butter and ghee production in 2000 was 2,578 metric tons (Table 1). Saudi Arabia was historically a net importer of dairy products. However, with the growth of its dairy industry, totally more than 60 percent of the Kingdom's dairy needs were met

domestically in the late 1990s (US Department of Commerce, 2000). The ultimate goal of the government is to achieve self-sufficiency in dairy products.

In the late 1990s, about 60 percent of all milk produced in Saudi Arabia was fermented into a product called Laban, a traditional Middle Eastern drink similar to natural drinking yoghurt, and 25 percent was pasteurized with the balance processed into yoghurt, cream, and labaneh, a fermented fat product (US Department of Commerce, 2000).

Demand for Dairy Products

The dairy industry is relatively new to Saudi Arabia. However, with the high growth rate of the population, which was about three percent every year in the latest decade, the demand for dairy products increased (USDA-FAS, 1996).

One of the main reasons behind the strong growth in liquid milk consumption is an increased level of awareness among consumers. In 1993, Saudi dairy producers established a Dairy Board. The Board conducted a nation-wide study with the College of Medicine at King Saudi University to determine the effects of low milk consumption on children under 16 years old, which accounted for over 50 percent of its population in that year. The study concluded that teenagers in the country showed calcium deficiency and loss of bone density. The Dairy Board used the result to appeal to teenagers to increase dairy consumption. In 1996, the Dairy Board ran an educational campaign, encouraging milk consumption during pregnancy, childhood, and adolescence. The Saudi government also supported the campaign. As a result, per-capita milk consumption increased from 83.41 kilograms in 1995 to 111.16 kilograms in 1996 (Table 2). In the 1990s, per-capita

milk consumption increased at an average rate of 7.2 percent, although fluctuated throughout the 1990s. Between the year 1992 and 2000, per-capita milk consumption increased 33.63 kilograms, reaching a peak in 1996 at 111.16 kilograms (Table 2). In 2000, per-capita milk consumption was 95.06 kilograms (Table 2), and total milk consumed amounted to about two million metric tons (FAO Statistics, 2002).

Table 2. Per-capita consumption of dairy products in Saudi Arabia, 1992 through 2000.

Year	All Milk ^a	Butter	Cheese	Skim Milk ^a	Whole Milk ^a	Whey ^a
	Kilograms					
1992	61.43	0.78	1.26	9.92	47.65	0.07
1993	57.47	0.70	1.02	12.29	42.82	0.06
1994	59.49	0.67	1.18	11.47	45.22	0.24
1995	83.41	1.34	2.71	11.74	58.35	0.20
1996	111.16	1.62	3.71	33.50	55.64	0.20
1997	89.72	1.32	2.43	20.52	57.15	0.40
1998	84.68	1.23	2.78	12.88	59.13	0.43
1999	90.91	1.68	3.63	14.04	56.85	0.42
2000	95.06	1.23	2.81	12.75	67.98	0.77
Average Annual Growth (%) 1992-2000	7.2	11.4	18.9	16.1	5.2	57.2

^a Included food and other uses, such as cattle feed.

Source: FAO Statistical Databases, 2002.

For whole cow milk, per-capita consumption increased from about 34 kilograms in 1975 to about 68 kilograms in 2000 (FAO Statistics, 2002). In the 1990s, the growth rate of per-capita whole milk consumption was about 5.2 percent (Table 2). Between the year 1992 and 2000, per-capita whole milk consumption increased 20.33 kilograms from 47.65 kilograms in 1992 to 67.98 kilograms in 2000. One significant increase occurred in 1995, when per-capita whole milk consumption increased 30 percent from the level of 1994. Another significant increase occurred in 2000, when the consumption increased 20

percent from the level of the previous year. However, per-capita skim milk consumption fluctuated significantly in the 1990s. Between the year 1992 and 2000, per-capita skim milk consumption increased 2.83 kilograms, from 9.92 kilograms in 1992 to 12.75 kilograms in 2000 (Table 2).

Due to the popularity of western style food and quick service restaurants among younger Saudis, growth in per-capita consumption of butter and cheese was relatively strong in the 1990s, with 11.4 and 18.9 percent respectively (Table 2). Between the year 1992 and 2000, per-capita butter consumption increased 0.45 kilograms, reaching a peak in 1999 at 1.68 kilograms (Table 2). In 2000, per-capita butter consumption was 1.23 kilograms (Table 2). Per-capita cheese consumption was cyclical in the 1990s, from 1.26 kilograms in 1992 to 2.81 kilograms in 2000, reaching peaks at 3.71 kilograms in 1996 and 3.63 kilograms in 1999 (Table 2). The increase in butter and cheese consumption is expected to continue in recent years.

Although whey consumption of whey was low in Saudi Arabia, growth in per-capita whey consumption continued to be strong, growing at a rate of 57.2 percent in the 1990s (Table 2). The supply of raw milk becoming greater than demand is one of the main factors encouraging fresh producers to expand ultra high temperature (UHT) milk processing and compete directly with the recombining plants. To reduce its production cost, the recombining plants had to find a cheaper substitute, such as whey and dry skim milk, to compete with the cheaper ultra high temperature (UHT) milk produced by the raw milk processors.

The demand for liquid dairy products is higher in summer and relatively lower in winter. Milk can be purchased in all retail outlets year round throughout the country.

Cheese and butter can be purchased in bulk from wholesalers or in retail packs from corner grocers or modern supermarkets (USDA-FAS, 1996). The Saudi Arabian Dairy Board estimates a four percent annual increase on average, in the demand of dairy products (US Department of Commerce, 2000). As the expansion of the dairy industry continues in Saudi Arabia, it is expected most of the increased demand can be fulfilled by the domestic industry in the next few years.

Imports of Dairy Products

Saudi Arabia was traditionally a net importer of dairy products. However, with the expansion of its dairy industry, Saudi Arabia almost achieved self-sufficiency in fresh milk in the late 1990s, and its self-sufficiency in all dairy products was about 60 percent. Raw milk has not been imported from abroad since the middle 1980s. As the dairy industry is developing, Saudi dairy producers also export their products to neighboring countries (Royal Embassy of Saudi Arabia, 1997).

In 2000, Saudi Arabia ranked 17th among all importing countries in total dairy products imported (in milk equivalent pounds) (Table 3). The total dairy imports were 1.7 percent of the total world imports of dairy products (FAO Statistics, 2002). For butter and cheese, Saudi Arabia ranked twelfth and eleventh in 2000 (Tables 4 and 5). Its share of total world imports of butter and cheese was 1.8 percent and 2.4 percent respectively (FAO Statistics, 2002). Saudi Arabia ranked 12th and 17th in imports of dry whole milk and dry skim milk, respectively, in 2000 (Tables 6 and 7). Its share of total world imports of dry whole milk and dry skim milk was about 2.0 and 3.0 percent, respectively.

Table 3. Selected countries' total dairy imports (in milk equivalent) and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Belgium	3,709,566	4	3,661,389	4	3,936,039	5	4,054,076	5	4,434,830	5
China	1,285,203	13	1,584,260	10	1,531,064	14	1,909,979	10	2,243,373	8
France	3,158,352	5	3,582,977	5	3,966,796	4	4,313,597	4	4,685,094	4
Germany	4,673,712	3	4,796,523	3	4,669,373	3	4,554,466	3	5,024,699	3
Italy	5,210,317	2	5,430,128	2	5,543,997	2	5,509,023	2	5,467,815	2
Mexico	1,912,993	8	2,121,080	8	2,021,171	7	2,217,376	7	2,310,820	7
Netherlands	6,385,562	1	6,061,069	1	5,633,207	1	7,113,321	1	6,297,773	1
Saudi Arabia	1,197,431	16	952,952	19	837,579	21	1,077,742	18	1,129,033	17
Spain	1,450,968	11	1,583,212	11	1,652,153	11	1,661,739	12	1,918,970	10
UK	2,393,522	6	2,476,914	7	2,537,039	6	2,667,275	6	2,710,840	6
USA	1,380,531	12	1,466,204	12	1,873,207	8	1,953,107	9	1,953,940	9
Total	32,758,157	----	33,716,708	----	34,201,625	----	37,031,701	----	38,177,187	----
World	59,844,367	----	62,626,024	----	62,478,356	----	66,593,229	----	68,138,509	----

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Table 4. Selected countries' total butter imports and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Belgium	100,015	5	103,759	5	101,137	4	100,491	4	112,073	4
Egypt	50,225	7	37,759	8	35,253	9	43,115	8	44,141	7
France	109,919	4	137,381	3	133,670	2	129,819	1	148,302	1
Germany	132,955	1	156,822	2	134,930	1	123,476	2	131,121	2
Italy	48,315	8	52,087	7	60,124	7	46,864	7	41,167	8
Mexico	18,529	14	24,793	9	27,325	10	34,047	9	34,078	9
Morocco	28,050	9	16,457	15	22,104	12	19,818	12	27,357	10
Netherlands	68,782	6	94,022	6	69,879	6	96,933	5	86,887	5
Russian	125,810	2	169,698	1	83,053	5	53,200	6	53,857	6
Saudi Arabia	25,995	11	21,291	12	20,494	13	29,910	10	22,624	12
UK	111,619	3	101,210	4	109,287	3	122,076	3	122,922	3
Total	820,214	---	915,279	---	797,256	---	781,919	---	824,529	---
World	1,203,892	---	1,321,235	---	1,213,138	---	1,217,796	---	1,261,586	---

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Table 5. Selected countries' total cheese imports and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Belgium	176,745	4	186,681	5	197,185	4	199,602	5	208,949	5
France	151,238	7	153,718	7	167,326	7	188,472	6	213,138	4
Germany	458,261	1	476,361	1	441,518	1	417,503	1	424,721	1
Greece	50,747	12	68,059	11	94,838	9	67,341	11	76,944	10
Italy	294,875	2	305,861	2	305,419	2	318,681	2	347,233	5
Japan	164,164	5	171,407	6	183,448	5	186,905	7	205,123	6
Netherlands	92,067	9	84,895	9	100,869	8	116,845	8	122,438	8
Saudi Arabia	74,272	11	51,832	12	63,605	12	76,820	10	72,987	11
Spain	81,511	10	81,046	10	86,363	10	94,223	9	104,688	9
UK	258,704	3	261,775	3	249,191	3	272,312	3	268,613	3
USA	154,764	6	142,793	8	170,557	6	203,042	4	192,342	7
Total	1,957,348	---	1,984,428	---	2,060,319	---	2,141,746	---	2,237,176	---
World	2,688,552	---	2,843,580	---	2,786,286	---	2,887,650	---	3,093,644	---

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Table 6. Selected countries' total dry whole milk imports and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Algeria	67,865	3	88,882	2	103,724	2	105,507	2	96,340	2
Belgium	66,029	5	53,781	9	54,362	7	46,786	10	57,289	7
Brazil	115,586	1	101,169	1	133,742	1	145,983	1	108,609	1
China	58,981	7	68,234	5	62,598	5	83,985	4	83,011	4
Malaysia	53,152	9	66,000	6	44,857	12	54,203	6	57,696	6
Netherlands	94,413	2	77,736	3	71,376	4	101,713	3	89,672	3
Philippines	36,476	11	39,656	12	40,511	13	36,958	12	56,072	8
Saudi Arabia	32,287	15	35,708	14	33,814	15	33,814	15	43,048	12
Sri Lanka	35,027	12	37,364	13	48,788	10	48,308	9	49,070	9
Thailand	50,430	10	69,180	4	50,237	8	49,791	8	48,249	10
Venezuela	66,321	4	51,842	10	84,115	3	52,042	7	64,759	5
Total	676,567	---	689,552	---	728,124	---	759,090	---	753,815	---
World	1,281,604	---	1,357,158	---	1,401,542	---	1,439,868	---	1,418,968	---

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

Table 7. Selected countries' total dry skim milk imports and ranking, 1996 through 2000.

	1996		1997		1998		1999		2000	
	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank	Mt	Rank
Algeria	58,468	9	78,893	5	87,040	4	71,272	8	91,339	5
Belgium	51,781	12	43,521	11	43,155	13	45,150	15	71,900	9
China	37,975	15	40,945	13	44,813	12	51,150	13	56,862	10
France	33,446	18	28,453	20	42,636	14	63,791	9	84,735	6
Indonesia	45,916	14	41,034	12	33,133	18	98,348	5	82,574	7
Italy	126,614	3	127,504	3	126,494	2	121,779	3	109,008	4
Malaysia	78,151	5	75,000	6	59,596	6	71,879	7	74,721	8
Mexico	126,700	2	132,849	2	102,600	3	125,137	2	129,078	2
Netherlands	216,085	1	224,214	1	162,459	1	230,438	1	205,379	1
Philippines	83,704	4	98,050	4	77,637	5	86,729	6	111,455	3
Saudi Arabia	56,631	10	36,966	16	23,993	23	27,000	20	37,767	17
Total	915,471	---	927,429	---	803,556	---	992,673	---	1,054,818	---
World	1,716,935	---	1,727,457	---	1,607,154	---	1,879,505	---	1,805,896	---

Source: Food and Agricultural Organization of the United Nations Statistical Databases, 2002.

In the 1990s, Saudi Arabia's average growth rate of all dairy product imports (in milk equivalent pounds) was 15.2 percent (Table 8). However, the imports of dairy products fluctuated throughout the 1990s, ranging from 417,031 metric tons in 1993 to 1,197,431 metric tons in 1996. The main reasons behind this fluctuation were the outbreak of war and declining oil prices, which led to a slowdown in economic growth and a fall in dairy imports in the first half of 1990s (FAO, 1997). However, due to the growing demand for dairy products, although Saudi Arabia's dairy production grew rapidly, about 40 percent of total dairy consumption needed to be imported in the late 1990s. In 2000, Saudi Arabia's total dairy imports were 1,129,033 metric tons (Table 8).

Table 8. Saudi Arabia dairy imports, 1992 through 2000.

Year	Milk Equivalent	Butter	Cheese	Dry Whole Milk	Dry Skim Milk	Whey
Metric Tons						
1992	536,703	10,424	21,564	19,563	12,819	104
1993	417,031	9,149	18,500	13,373	17,266	83
1994	421,062	8,929	21,149	13,385	15,877	307
1995	839,044	20,065	54,085	38,441	20,923	267
1996	1,197,431	25,995	74,272	32,287	56,631	267
1997	952,592	21,291	51,832	35,708	36,966	566
1998	837,579	20,494	63,605	33,814	23,993	630
1999	1,077,742	29,910	76,820	33,814	27,000	630
2000	1,129,033	22,624	72,987	43,048	37,767	1,178
Average Annual Growth (%) 1992-2000	15.2	17.4	25.2	21.5	26.5	55.9

Source: FAO Statistical Databases, 2002.

Although Saudi Arabia produced a certain amount of butter and ghee in the 1990s to satisfy its increasing consumer's needs, Saudi Arabia still imported a relatively large

amount of butter in the 1990s. The growth rate of butter imports was 17.4 percent per year in the 1990s. As with total dairy product imports, butter imports fluctuated in the 1990s, ranging from 8,929 metric tons in 1994 to 29,910 metric tons in 1999 (Table 8). In 2000, Saudi Arabia imported 22,624 metric tons butter from other countries (Table 8).

Due to the popularity of western style fast food, the growth of quick service restaurants (QSR) has been significant in recent years. Cheese is an important ingredient of western fast food.

Due to the lack of domestic production, cheese imports increased in the 1990s, with a growth rate of 25.2 percent per year (Table 8). Between 1992 and 2000, cheese imports increased 51,426 metric tons, reaching a peak in 1999 at 76,820 metric tons (Table 8). In 2000, Saudi Arabia imported 72,987 metric tons cheese (Table 8).

The bulk of milk powder imports are utilized to manufacture liquid milk, cream, yoghurt, laban, and cheese. Dry whole milk imports increased during the 1990s at an average annual growth rate of 21.5 percent. Between 1992 and 2000, dry whole milk imports increased 23,485 metric tons, reaching a high of 43,048 metric tons in 2000 and a low of 13,373 metric tons in 1993 (Table 8).

The quantity of dry skim milk imports increased in the 1990s. The growth rate was about 26.5 percent (Table 8). Due to supporting programs launched by the government in the early 1990s, the increase of fresh milk consumption caused the demand for milk powder to decrease. As a result, the imports of skim milk powder decreased in the early 1990s, from 68,519 metric tons in 1990 to 15,877 metric tons in 1994, an average decrease of about 20 percent in the period 1990 to 1994 (FAO Statistics, 2002). In addition, an increase in dry milk prices narrowed the price difference between fresh milk

and milk powder, forcing at least two dry milk processors to stop powdered milk imports and buy fresh milk from small dairy farmers in 1995 (USDA-FAS, 1996).

The growth of whey imports was the most impressive among dairy product imports. The growth rate was 55.9 percent on average in the 1990s (Table 8). However, in the 1990s, whey imports started from a very low level, 104 metric tons in 1992 and 83 metric tons in 1993 (Table). In 2000, Saudi Arabia's whey imports were 1,178 metric tons in 2000 (Table 8). Saudi Arabia also re-exports whey to neighboring countries, such as Iran and Yemen.

Exports of Dairy Products from the U.S.

In the 1990s, Saudi Arabia did not import many dairy products from the US. The US share was very small in the majority of dairy products. Most of the butter imports were from the EU before the 1990s. However, during the 1990s, competition from Oceania countries reduced the EU dominance. The US was the fourth largest supplier after the EU, Australia, and New Zealand in the 1990s (FAO, 1997).

The European Union was the most important supplier of cheese to Saudi Arabia and the Middle East Region in the 1990s. The US share of cheese imports ranked fourth in the 1990s, following the EU, Australia, and New Zealand. In 2000, the US exported 741.2 metric tons of cheese to Saudi Arabia (Table 9).

Table 9. Selected dairy products exported from the US to Saudi Arabia, 1992 through 2000.

Year	Butter ^a	% of All Butter Imports ^b	Cheese ^a	% of All Cheese Imports ^b	Whole Dry Milk ^a	% of All WDM Imports ^b	Non- Fat Dry Milk ^a	% of All NFDM Imports ^b	Whey ^a	% of Whey Imports ^b
	Mt	%	Mt	%	Mt	%	Mt	%	Mt	%
1992	152.8	1.5	122.0	0.6	2,706.0	9.3	702.7	5.5	520.2	500.2 ^c
1993	50.1	0.5	293.9	1.6	1,810.8	12.2	863.1	5.0	118.2	142.4 ^c
1994	56.9	0.6	367.7	1.7	1,626.9	12.2	349.8	2.2	47.0	15.3
1995	171.2	0.9	804.3	1.5	2,248.0	5.8	91.7	0.4	62.6	23.4
1996	156.7	0.6	816.9	1.1	9.8	0.0	304.3	0.5	44.3	16.6
1997	144.5	0.7	793.9	1.5	1.2	0.0	1,179.7	3.2	142.7	25.2
1998	116.6	0.6	517.0	0.8	40.5	0.1	867.6	3.6	16.5	2.6
1999	0.0	0.0	441.4	0.6	19.1	0.1	2,107.9	7.8	0.0	0.0
2000	80.3	0.4	741.2	1.0	0.0	0.0	448.6	1.2	20.0	1.7

^a Source: United States Department of Agriculture Foreign Agricultural Service, 2003.

^b Data from Table 8.

^c The reason for this discrepancy is unknown and needs further analysis.

Saudi Arabia imports milk powder to recombine fluid milk and produce other dairy products. The market share of US whole dry milk trended downward in the 1990s. In the period 1992 to 1999, the US whole dry milk imports reached a low of 1.2 metric tons in 1997 and a high of 2,706 metric tons in 1992 (Table 9). In 2000, Saudi Arabia did not import whole dry milk from the US (Table 9).

In 1999, the share of US nonfat dry milk was about 7.8 percent (Table 9). However, the imports dropped to 448.6 metric tons in 2000, due to price competition from the EU. In the 1990s, the EU and the US were the main suppliers of nonfat dry milk to Saudi Arabia (Royal Embassy of Saudi Arabia, 1997). Because the Saudi Arabian market was highly price sensitive, lower priced imports from Eastern Europe and the Commonwealth of Independent States (CIS) have increased during the 1990's (FAO, 1997).

The market share of US whey imports into Saudi Arabia declined in the 1990s (Table 9). In 2000, the US share was 1.7 percent, or 20 metric tons (Table 9). It is worth noting that the US was the leading dairy cow supplier to Saudi Arabia, followed by Germany in the 1990s.

Trade Policy and Tariff

Saudi Arabia has set a framework for a free market economy. The oil and government sectors are the engines of the economy. In keeping with the government policy to encourage an open economy, there are few trade barriers and foreign exchange controls (US Department of State, 1998).

Saudi Arabia started to negotiate for the WTO accession in 1993 (WTO, 2003). In the process of negotiating accession to the WTO, the government has admitted that global

trade is a vital component of its economy, and Saudi Arabia would promote international cooperation in economic matters and to actively participate in multilateral and regional economic institutions (WTO, 2003).

Although Saudi Arabia's current trade policies are relatively open and liberal, a number of regulations have the potential to restrict entry of US exports and investments. Saudi Arabia requires licenses to import agricultural products. The import licensing requirements protect Saudi Arabian industries. In addition, there are health and sanitation regulations for all imported foods. Saudi Arabia maintains regulations on product labeling and country of origin marking. The restrictions on shelf life labeling standards make it difficult for some US food producers to compete in the Saudi market. The pre-shipment inspection, known as the International Conformity Certification Program (ICCP), is designed to protect Saudi Arabian consumers from shoddy foreign products. The ICCP has elements that can be barriers to free trade. It adds inspection costs to imported consumer goods, may delay shipments to Saudi Arabia, and can increase exporter overhead (US Department of State, 1998).

Tariffs are mostly ad valorem. Following the tariff reduction in May 2001, most imported goods are subject to custom duties ranging between zero to five percent. Most basic necessities are duty free, including sugar, rice, tea, barley, corn, and drugs. Import duties on condensed milk, powdered milk, and milk products, such as butter and cheese, are 12 percent (USDA, 1996).

SUMMARY

Over the last decade, the total world dairy imports increased. Since the establishment of the UR GATT in 1995, the share of EU dairy exports has declined, due in part to the impact of export subsidy limitations. As trade barriers and export subsidy levels are further phased down and world demand increases, the US is in a good position to gain greater access to the international markets. Although Australia and New Zealand are expected to be the primary gainers from the new trade environment, the US has the production capacity to be a major world supplier (Washington, 2000).

The Egyptian commercial dairy market is expected to expand. Although the primary suppliers of dairy products to the Egyptian market are the European Union and New Zealand, some opportunities for US dairy producers still exist. Egyptian importers of dairy products have a high regard for U.S. products. For cheese, there is growing segment of consumers where quality comes before price considerations when buying cheese (USDA-FAS, 2002). In addition, the Trade and Investment Framework Agreement (TIFA), which was signed in 1999, is a preliminary step to enhance the trade between the US and Egypt (American Chamber of Commerce in Egypt, 2002). US dairy exporters may benefit from the establishment of this agreement.

The Saudi Arabia government has set a goal to achieve self-sufficient in dairy products. In order to do this, the government offers incentives to domestic dairy producers. Saudi Arabia is the most active and generous country in doing those programs in the Middle East and North African Region (FAO, 1997). Changing government attitude and policy has affected dairy imports in the 1990s. The future of dairy products imported into Saudi Arabia also depends on its economic factors, such as the oil price.

Given that the external factors do not change much, there are still opportunities for the US dairy producers. Unfortunately, as milk production is growing in the country, a significant increase in dairy product imports is unlikely; however, Saudi Arabia is expected to remain an important importer of dairy products for the US. The major US opportunities will be in butter and cheese.

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