

**DESKTOP STUDY  
INTO  
DEMAND  
FOR  
DAIRY PRODUCTS**

Final Report

For

**Dairy Supply Chain Forum**

Submitted by

**Agra CEAS Consulting**

Telephone: +44 (0)1233 812181

Fax: +44 (0)1233 813309

E-mail: [info@ceasc.com](mailto:info@ceasc.com)

[www.ceasc.com](http://www.ceasc.com)

Job No 2175/EO/October 2004



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## S1. Executive summary

The Dairy Supply Chain Forum commissioned Agra CEAS to carry out a desktop study into the demand for milk and dairy products. The aim of this piece of research was to provide a broad overview of the current demand for dairy products and a guide to future possible demand changes, on which further pieces of research can be commissioned to evaluate certain areas of demand in more detail. Specifically, this research looked at the: factors affecting consumer demand for milk and dairy products; current demand dairy patterns and trends; likely impact of policy on dairy demand patterns; and future market evolution for milk and dairy product demand.

### S1.1. Factors affecting consumer demand for milk and dairy products

Consumption of milk and dairy products has been increasing on a global level as a result of both a *growing population* and increases in per capita consumption. It is generally recognised that economic factors such as *higher consumer income* and *declining retail prices* for milk and dairy products over recent decades, relative to other foods, have caused most of this increase in per capita consumption:

- Income. While global food demand (especially in developing countries) increases with income, the total share of a household's budget spent on food generally falls as incomes rise, while the budget share spent on services rises. In addition, changes in income also affect the composition of demand. This is particularly so in higher income countries where rising income levels generally result in a more diverse diet - as income rises, consumers shift some consumption away from lower value staple products to higher value products.
- Price of milk and dairy products. Although the proportion of a household's budget spent on food decreases with income, wealthier countries tend to be less responsive to changes in food prices. For example, data available for the UK suggests that a 1% change in the price for dairy products *per se* would be expected to result in a 0.3% change in demand. However, this varies significantly according to product, with available UK data suggesting, for example, that demand for cheese is more responsive to price changes than liquid milk. In addition, the relative price of dairy products to other competing (i.e. substitute) or complementary products is an important factor affecting demand.

Secondary factors, other than population growth, income and price, have also affected per capita consumption, particularly in higher income countries. These include *demographic and socio-economic factors* (such as ageing population, decreasing household sizes, urbanisation, increase in the number of working women, etc.) and *food preferences and consumer attitudes* (including health and nutritional

issues, food safety, quality (e.g. freshness, taste, branding), production ethics (e.g. environment, animal welfare), etc.).

### **S1.2. Current dairy demand patterns and trends**

In the majority of developed countries, per capita consumption of dairy products is generally high and therefore, food availability and affordability concerns have largely been superseded by consumers' concerns about food quality and other food attributes. Per capita consumption of dairy products in less developed countries is generally lower, with demand largely being fuelled by high population and income growth, but also the impact of urbanisation and the development of fast food, changes in lifestyles, expansion of cold storage facilities and improved product shelf life.

Overall demand for dairy products within the EU-15 has generally matured, with some of the consumption of traditional dairy products (such as liquid milk, butter and condensed milk) being replaced by growing demand for innovative value-added products (such as certain cheeses, yoghurt and fermented products). This trend is characteristic of the demand in developed countries as consumer purchasing decisions are driven more by demographic and socio-economic characteristics and food preferences and consumer attitudes relative to income and price. In contrast, in Eastern Europe and the new EU Member States, demand for dairy products is increasing to EU-15 levels as these countries come out of transition.

### **S1.3. Likely impact of policy on dairy demand patterns**

Changes in policy at all levels are expected to have a huge impact on demand for milk and dairy products:

- The likely impact of WTO on world dairy trade and demand patterns. Recent analysis suggests that world prices and import demand for dairy products will increase significantly as a result of *increasing market access*. In volume terms, world import demand is likely to increase for cheese, butter and SMP and fall slightly for WMP. In value terms, import demand is likely to increase for all dairy products. The EU, US and Japan are likely to absorb most of this increased import demand with dairy product exports likely to increase from Australia, New Zealand and Argentina.

Recent analysis also suggests that *reducing export subsidies* will lower the availability of dairy products for export. This in turn will result in lower export volumes and increases in world dairy product prices (particularly SMP and WMP). In value terms, increased world dairy product prices are expected to more than compensate for the likely decrease in the volume of exports. For Australia, New

Zealand and Argentina, the gross value of milk and dairy product production is expected to increase, while the gross value of milk and dairy product production is forecast to fall in the EU and remain relatively unchanged in the US.

- The impact of CAP reform on demand. Butter intervention price reductions are expected to result in lower butter production over the medium term. As a result, EU domestic demand for butter is likely to increase very slightly, reaching some 0.4% above forecast Agenda 2000 levels by 2010.

Cheaper butterfat is likely to be channelled, together with scarce protein, into the production of other fresh dairy products. As a consequence cheese production is expected to fall and cheese prices are expected to increase from forecast Agenda 2000 levels, by 2010. This is likely to result in a slight reduction in consumption.

Higher quantities of milk proteins expected to be channelled into the production of fresh dairy products and the smaller quantities of SMP that are likely to be produced as a co-product of the butter production process, are likely to significantly affect SMP production. Despite lower internal SMP prices, this lower availability and the assumed reduction in internal aid for consumption is likely to result in a decline in domestic use.

- The impact of future UK food legislation and measures with respect to obesity. Although the debate on obesity is relatively mature, there is little information or research on what the likely impacts of future obesity-related legislation, on dairy products or otherwise, might be. It is likely that while some milk and dairy products will be positively affected by any future obesity-related legislation, others will be negatively affected. The protein and calcium content of milk and dairy products is likely to be perceived well, whereas the fat content of milk and dairy products may not be perceived well.

#### **S1.4. Future market evolution**

Consumption of milk and milk products in developed countries is expected to show only limited growth (0.5% per annum) over the period to 2013. This is because current levels of consumption of milk and milk products are near saturation and as a result any growth in consumption is expected to be marginal and mainly associated with limited population growth and changes in the type and form of dairy products consumed. While these countries are likely to continue to represent an important share of world consumption in the period to 2010, according to the FAO they are anticipated to account for only 13% of total world milk demand growth.

For countries in transition (including the Former Soviet Union and Eastern European countries), limited growth (0.9% per annum) compared with 1999 levels is projected (however, this would be a substantial improvement over the 1990s). According to the FAO, the countries in transition are expected to account for 10% of the estimated increase in world demand to 2010.

Developing countries are forecast to show the strongest growth in demand for milk and milk products, projected to grow at a rate of 2.5% per annum (broadly a continuation of the growth rate during the 1990s). Consumption is expected to grow fastest in Asia, accounting for just over a half (52%) of world demand growth. Latin America and the Caribbean are expected to account for about a fifth (18%) of world demand growth, primarily because of government food assistance programmes in Brazil and Mexico. Africa is expected to have the smallest increase in demand, with demand actually forecast to grow at a slower rate than population growth in many countries in this region.

In the medium-term, future demand and consumption patterns in the UK are expected to follow existing trends, which are generally being driven by evolving consumer preferences and food attitudes rather than population growth, income and price. Although consumption forecasts are not carried out at the UK level, it is likely that the future evolution of UK dairy demand will be more or less in line with forecast trends for the EU-15.

In this respect, consumption of innovated, value added products are likely to continue to negatively affect the consumption of some of the traditional dairy products. However, demand for differentiated traditional dairy products is likely to continue to increase, particularly for those used in the food service and industrial sectors. In addition, evolving tastes and fashions will require more complex products.



## 1. Introduction

The Dairy Supply Chain Forum commissioned Agra CEAS to carry out a desktop study into the demand for milk and dairy products. The aim of this piece of research was to provide a broad overview of the current demand for dairy products and a guide to future possible demand changes, on which further pieces of research can be commissioned to evaluate certain areas of demand in more detail.

Section 2 provides an overview of the major determinants of demand for milk and dairy products at the world, EU and UK level. Based on these determinants of demand, Section 3 provides a descriptive outline of the current demand patterns and trends over the past five years for the major dairy products (including both commodity type products and value added (novel) products) at the world, EU and UK level. In describing these demand patterns and trends, reference is made to detailed balance sheets for the major products and detailed consumption data over the past five years, which are presented in Section 6.

In describing the various factors affecting demand for milk and dairy products in Section 2, no consideration has been given to the impact of policy on consumption. Changes in policy at all levels can have a huge impact on demand for any product. Section 4 therefore provides an overview of the likely impact of WTO on world dairy trade and demand patterns (Section 4.1), the likely impact of CAP reform on demand (Section 4.2) and the likely impact of future UK food legislation and measures with respect to obesity (Section 4.3).

Finally, Section 5 provides a descriptive outline of forecast demand patterns and trends over the next decade for the major dairy products (including both commodity type products and value added (novel) products) at the world, EU and UK level. In describing these demand patterns and trends, reference is made to detailed forecasts for the major products, which are presented in Section 6.4.



## 2. Factors affecting consumer demand for milk and dairy products

### 2.1. Introduction

Consumption of milk and dairy products has been increasing on a global level as a result of both a *growing population* and increases in per capita consumption. It is generally recognised that economic factors such as *higher consumer income* and *declining retail prices* for milk and dairy products over recent decades, relative to other foods, have caused most of this increase in per capita consumption (see for example Jacobson and Outlaw, 1995). Secondary factors other than population growth, income and price have also affected per capita consumption, particularly in higher income countries. These include *demographic and socio-economic factors* and *food preferences and consumer attitudes*. This Section provides an overview of these major determinants of demand for milk and dairy products at the world, EU and UK level.

### 2.2. Income

Changes in consumer demand for food *per se* at the global level are largely income driven. Food in general is considered in economic terms as a '*normal*' good, meaning that an increase in income brings about an increase in food expenditures. Studies indicate that with an expected large growth in population and income levels, developing countries are likely to account for the majority of future increases in global food demand (see for example Andersen, Pandya-Lorch, and Rosegrant (1999); Cranfield, et al. (1998)).

While global food demand, especially in developing countries, is expected to increase with income, the total share of a household's budget spent on food generally falls as incomes rise, while the budget share spent on services rises (known as the *Engel effect*). In a recent study, results indicate that low-income countries spend 47% of their total expenditures on food, while richer countries spend around 13% on food (see Table 2.1).

This study also quantified the proportion of a household's in low, middle and high-income countries, which is spent on dairy products. This ranged from less than 1% of total household expenditure being spent on dairy products in low income countries to around 13-14% in middle and high-income countries.

**Table 2.1: Budget share and income elasticity of aggregate food and dairy consumption**

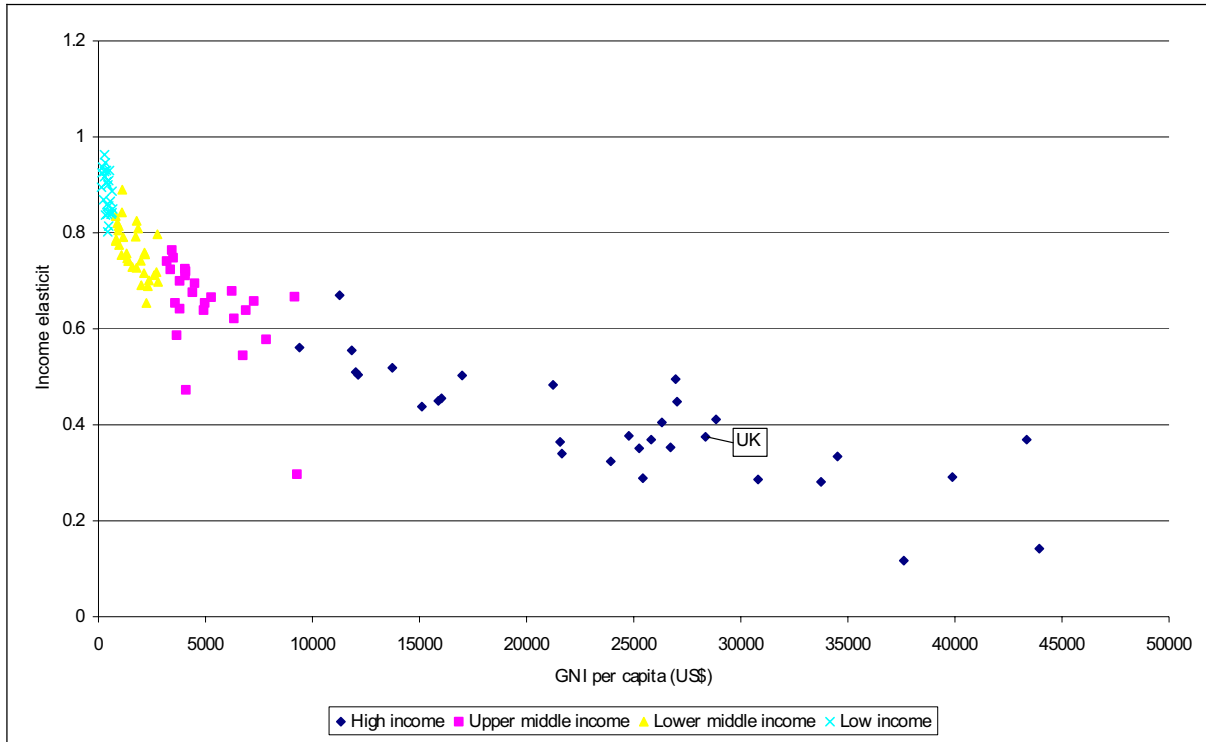
	Food		Dairy	
	Budget Share	Income Elasticity	Budget Share	Income Elasticity
Low Income <sup>1</sup> (<15% US level)	0.47	0.73	0.09	0.93
Middle Income <sup>1</sup> (15-50% US level)	0.29	0.58	0.13	0.71
High Income <sup>1</sup> (>50% US level)	0.13	0.29	0.14	0.35

<sup>1</sup> compared to US consumption levels

Source: Regmi, et al. 2001

Although the proportion of a household's budget that is spent on food (including milk and dairy products) tends to decrease with income, an analysis of USDA (2004) data for aggregated dairy product elasticity in selected countries (see Table 6.64, Table 6.65, Table 6.66, Table 6.67 in the data section) demonstrates that low-income countries exhibit a greater responsiveness (i.e. they have higher income elasticities<sup>1</sup>) to changes in income levels, compared with higher income countries (i.e. they have lower income elasticities) (Figure 2.1). In other words, as income changes, poorer countries make larger changes in the consumption of food (including milk and dairy products) than wealthier countries.

<sup>1</sup> Income elasticities are defined as the percentage change in quantity demanded with respect to a one percent change in income.



**Figure 2.1: Income elasticities for aggregate dairy products in selected countries**

Source: USDA ERS, World Bank, Agra CEAS calculations.

Table 2.1 provides income elasticities for average aggregate food consumption as well as dairy consumption in low, middle and high-income countries. In low-income countries it was found that for every 1% change in income, there would be a 0.93% change in the demand for dairy products. This compares to a 0.35% change in the demand for dairy products for every 1% change in income in high-income countries. Comparing these income elasticities to those for aggregate food demand also in Table 2.1, it can be seen that demand for dairy products is more responsive to changes in income. In other words, changes in income tend to have a greater impact on the demand for dairy products than they do for food products in general.

In addition to its impact on *aggregate* demand, changes in income levels also affect the *composition* of demand. This is particularly so in higher income countries where rising income levels generally result in a more diverse diet (Cranfield, et al., 1998). As income rises, consumers shift some consumption away from lower value staple products to higher value dairy products. In high-income countries, income induced substitutions may lead to greater consumption of processed high-value products, or the consumption of newer and foreign varieties that are perceived to be of better quality. This is demonstrated in variability of income elasticities between the different milk and dairy products presented in Table 6.68.

Looking at the impact of income on the demand for milk and dairy products in the UK, Table 2.2 shows that demand for cheese (particularly processed cheese), yoghurt and butter is relatively responsive to changes in income. For every 1% change in income, the data suggests that cheese consumption would change by 0.23% (a change of 0.22% for natural cheese and a 0.32% change in processed cheese consumption), yoghurt consumption would change by 0.19% and butter consumption would change by 0.20%. In contrast, liquid milk has a negative value, indicating that it is an *inferior* good. This means that as income rises demand for liquid milk actually falls because consumers switch to purchasing more substitute products which are of perceived higher value or better quality. For example, these products may be other dairy products (such as flavoured milks and fermented dairy drinks) or non-dairy products (such as mineral waters or carbonated soft drinks).

**Table 2.2: Income elasticities and standard errors for UK milk and dairy demand, 1998-2000**

	Budget share (%)	Income elasticities	Standard error	Lower 90% confidence limit	Upper 90% confidence limit
Milk and cream	1.26	0.05	0.03	0.01	0.10
Of which:					
Liquid	0.35	-0.17	0.06	-0.27	-0.07
Yoghurt	0.23	0.19	0.06	0.10	0.29
Cheese	0.46	0.23	0.05	0.15	0.32
Of which:					
Natural cheese	0.41	0.32	0.08	0.19	0.44
Processed cheese	0.05	0.32	0.08	0.19	0.44
Fats	0.35	0.06	0.04	0.00	0.13
Of which:					
Butter	0.11	0.20	0.06	0.11	0.30

Source: Defra

## 2.3. Price

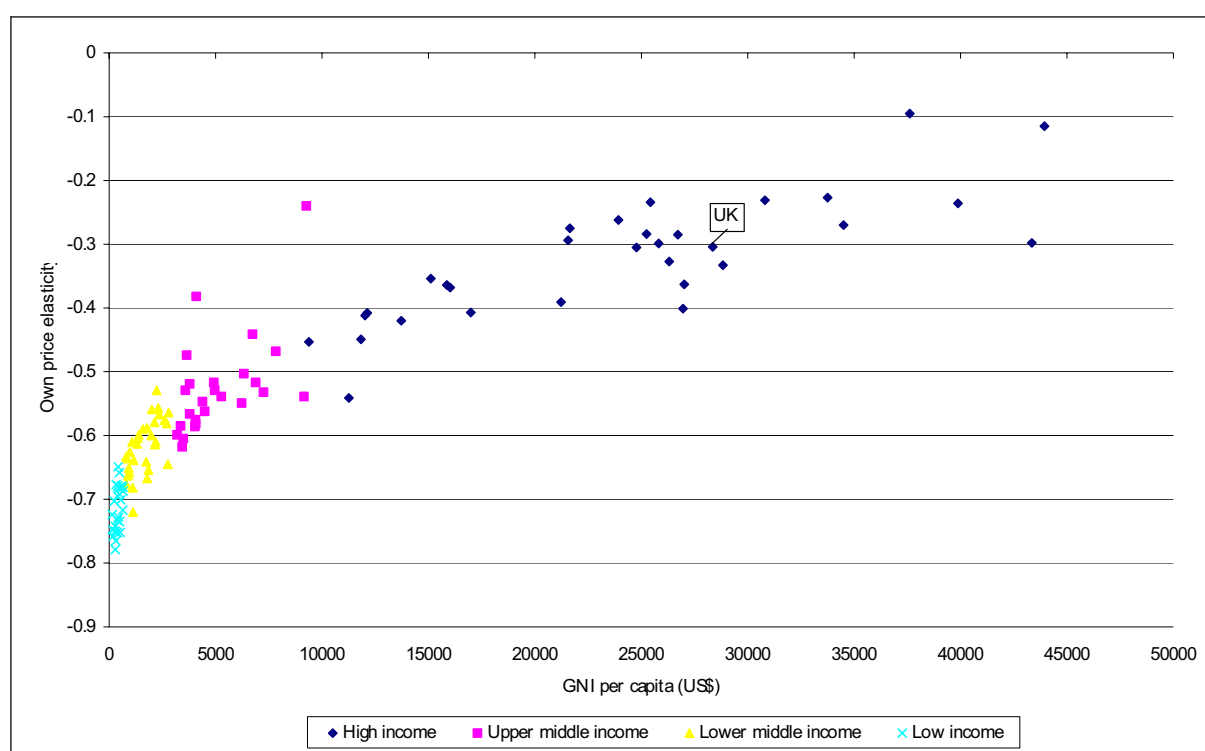
The price for milk and dairy products, relative to other foods, is a significant factor determining demand (Jacobson and Outlaw, 1995). The impact of price on demand for milk and dairy products can be demonstrated quantitatively using own-price elasticities and cross-price elasticities.

### 2.3.1. Price of milk and dairy products

Own price elasticities represent the impact on sales volume as a result of a 1% change in price. An analysis of USDA (2004) data for aggregated dairy product own

price elasticities in selected countries (see Table 6.64, Table 6.65, Table 6.66, Table 6.67 in the data section) demonstrates that low-income countries exhibit a greater responsiveness (i.e. they have lower own price elasticities) to changes in retail price levels, compared with higher income countries (i.e. they have higher own price elasticities) (Figure 2.2).

As demonstrated in Figure 2.2, own price elasticities for dairy products are negative since sales decline when prices increase. Thus, although the proportion of a household's budget which is spent on food decreases with income, wealthier countries are less responsive to changes in food prices (Theil, Chung, and Seale, 1989). For the UK, the USDA data suggests that a 1% change in the price for dairy products per se would result in a 0.3% change in demand. This is comparable with that of other northern EU Member States.



**Figure 2.2: Own price elasticities for aggregate dairy products in selected countries**

Source: USDA ERS, World Bank, Agra CEAS calculations.

An analysis of own-price elasticities produced by FAPRI (2004) (see Table 6.69 in the data section) by product type (namely milk, butter, cheese, non-fat dry milk and whole milk powder) demonstrates varying responsiveness to changes in retail price levels. At the EU level, demand is expected to fall by a greater amount as a result of a 1% increase in the retail price for butter (-0.3%) and whole milk powder (-0.27%). Non-fat dry milk and cheese is less responsive with reductions of -0.24% and -0.18% as

a result of a 1% increase in the retail price. In contrast, demand for liquid milk is relatively unresponsive to changes in retail prices, with the data indicating a –0.07 reduction in demand as a result of a 1% increase in retail prices.

Table 2.3 provides own-price elasticities for a selection of milk and dairy products for the UK. In comparison, a similar trend can be observed to that of the EU with demand for cheese being more responsive to price changes than liquid milk. Specifically, the data shows that a 1% increase in the retail price of cheese will result in a –0.35% reduction in demand. This compares to a reduction of –0.17% in the demand for milk as a result of a 1% increase in its retail price.

**Table 2.3: Own price elasticities and standard errors for UK milk and dairy demand, 1998-2000**

	Budget share (%)	Own price elasticities <sup>1</sup>	Standard error	Lower 90% confidence limit	Upper 90% confidence limit
Milk and cream	1.32	-0.36	0.13	-0.56	-0.15
Of which:					
Liquid	0.95	-0.17	0.17	-0.45	0.11
Cheese	0.46	-0.35	0.15	-0.60	-0.10

<sup>1</sup>Homogeneity and symmetry imposed

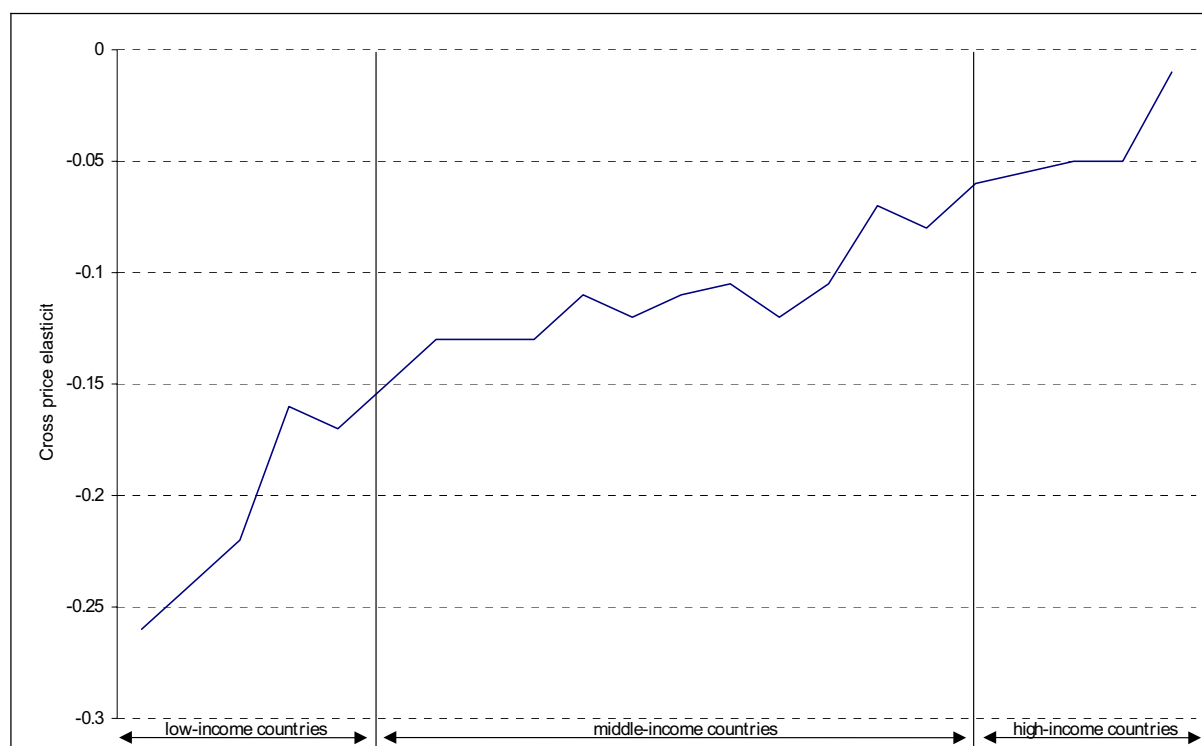
Source: Defra

### 2.3.2. Price of substitute and complementary products

The relative price of dairy products to other *competing* (i.e. *substitute*) or *complementary* products is an important factor affecting demand. For example, other drinks provide a substitute for liquid milk, margarine provides a substitute for butter and meat provides a protein substitute for cheese. Thus the relative price for substitute products greatly affect the purchasing behaviour of consumers.

There are also a number of complementary food products, where a change in price will have a direct impact on the demand for certain dairy products. For example, bread and butter, breakfast cereals and milk and pizzas and cheese are all complementary products. Figure 2.3 shows cross-price elasticity for aggregated dairy products in response to changes in cereal price by low, middle and high-income countries. In this example, dairy products are complementary for cereals in all countries. As with other elasticities, poorer countries are more price responsive than wealthier countries to changes in food prices (Theil, Chung, and Seale, 1989).





**Figure 2.3: Cross-price elasticity for aggregated dairy products in response to changes in cereal price**

Source: ERS/USDA estimates based on 1996 International Comparison Project data

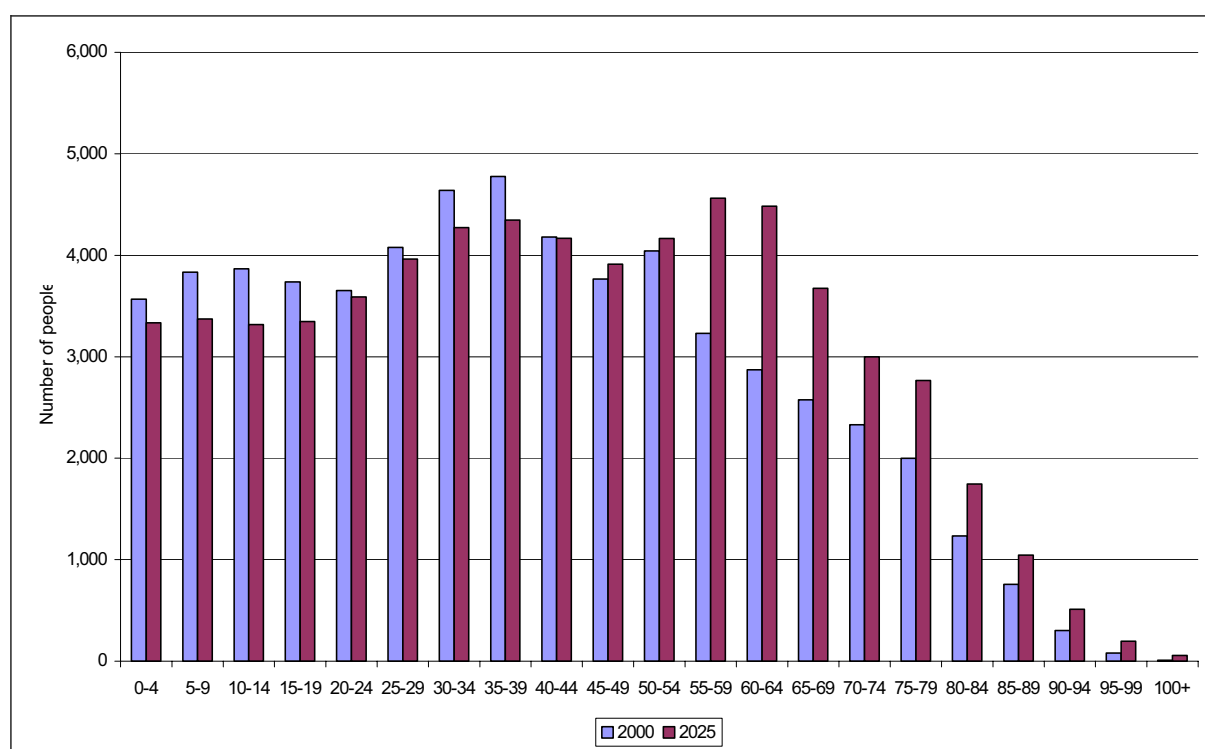
## 2.4. Demographic and socio-economic factors

### 2.4.1. Ageing population

There are a number of demographic and socio-economic factors that significantly affect the demand for milk and dairy products. These include age, household size, the participation of women in the workforce, race, religion, etc. However, one of the main factors affecting demand over time has been the change in demographic structure brought about by an ageing of the population in most regions of the world (which has resulted from a fall in both birth and death rates), particularly in the higher income countries.

Demographic studies have forecast that for most regions of the world, particularly higher income countries, the age profile of the population will continue to get older. World Bank studies indicate that since the 1970s, the number of individuals below 14 years of age declined in countries across all income levels and that this age group currently accounts for over 30% of the population in developing countries and 19% in developed countries (Mori and Dyck, 2001). Consistent with trends in developed countries and the rest of the EU, the UK has an ageing population. In 2000, 19% of

the population was below 14 years of age and this population group is likely to fall to 16% by 2025 (Figure 2.4).



**Figure 2.4: Age distribution of UK population, 2000 and 2025 ('000)**

Source: IDB, 2004, Agra CEAS calculation.

As consumers of different ages differ in their demands for milk and dairy and products, any change in the age distribution of consumers will have large implications for overall demand and consumption patterns for individual milk and dairy products. In the UK, for example, consumption of butter and fresh and ripened cheese is higher in older age groups whereas consumption of block cheese is higher in lower age groups (Mintel, 2003).

### 2.4.2. Urbanisation and household structure

At the global level, there has been a marked shift in the urban–rural population balance, which is likely to continue and further have a significant impact on the demand for milk and dairy products. Virtually all population growth between 2000 and 2030 is expected to be urban. Urbanisation is expected to proceed slowly in many developed and transition countries, where the vast majority of the population is already living in urban areas, while urban population growth in sub-Saharan Africa and Asia is forecast to increase at a rate of nearly 5% per year. In Latin America, traditionally the most urbanised developing region, urban populations are forecast

to increase at a rate of more than 2% annually (FAO 2003). Urbanisation has a number of implications for the overall demand for milk and dairy products:

- Given different lifestyles, *calorie requirements* of urban and rural residents differ (Clark, Huberman, and Lindert, 1995), with sedentary urban lifestyles requiring fewer calories to maintain a given body weight. This has been illustrated by a study on British food between 1770 and 1850, a period of rapid urbanisation (Clark, Huberman, and Lindert, 1995). This found that despite a 65% increase in income per person during this period, food consumption per person may have stagnated or even declined, whereas a increase in demand would have otherwise been expected.
- *Food availability and an individual's ability to purchase food* differ in urban and rural areas (Wu, 1999). Given the subsistence nature of agriculture in many developing countries, the composition of food consumption in rural areas is generally constrained by an individual's ability to sell their produce as well as purchase other food (Regmi and Dyck 2001). For example, in China rural households still produce up to 50% of their own food on average. In contrast, urban households do not tend to produce any of their food requirements and as such urbanisation has the effect of increasing the availability and the selection of food in the market. Recent studies have shown that urbanisation appears to have a greater impact on composition rather than the overall level of per capita food consumption. For example, a study of food consumption in Asian countries between 1960 and 1988 shows that urbanisation leads to significantly reduced urban demand for staple food products (Huang & David, 1993).
- Urbanisation also means a *higher female participation in the work force* (Kennedy and Reardon, 1994), with a resulting shift in consumer purchasing behaviour away from traditional time-intensive food preparations towards pre-cooked convenience food at home, or fast food and snacks eaten away from home. Studies have indicated that increased opportunity cost of women's time increases the demand for non-traditional 'fast food' in many countries food (Regmi and Dyck 2001).
- Parallel to this higher female participation in the work force, urbanisation has also resulted in *changing the structure of the household*, particularly in high-income countries. There has been an increase in the proportion of households consisting of a single person or composed of double salary couples without children. In households with children, the number of children has also declined. As a result, the composition of commodity type milk and dairy products demanded has tended to change (not only in terms of the share of food expenditure, but also in

terms of an absolute decline in per capita consumption) in preference for value added, branded products as disposable income rises. Although this may not result in a change in the overall per capita consumption of milk and dairy products *per se*, it has a considerable impact on the composition of demand (Gehlhar and Coyle 2001).

## **2.5. Food preferences and consumer attitudes**

Food preferences and consumer attitudes are progressively gaining in importance as a significant determinant of demand for milk and dairy products, particularly in high-income countries as consumers become more affluent and more educated.

- *Health and nutritional issues* have become important factors in determining the overall demand as well as the composition of demand for milk and dairy products. Demand is progressively becoming orientated towards more natural products, with a reduction in the demand for products which are perceived to be 'unhealthy' (e.g. fats). In the UK, for example, health consciousness increases with income and age and women tend to be more health conscious than men (Intel, 2003).
- *Food safety* has emerged as an important global issue with international trade and public health implications. In recent years, food safety incidents have seriously affected consumer attitudes towards food, which in turn has led to significant changes in food consumption and purchasing patterns. For example, following the EU BSE outbreak in 2000, consumption of cheese as a protein substitute to beef and veal increased in many Member States.
- *Quality* (including factors such as taste, freshness, branding and packaging) is an important factor driving purchasing decisions for milk and dairy products, particularly as consumers become more affluent and educated. This drive towards quality products has tended to result in a shift in demand from commodity type products to value added products.
- *Production ethics* are receiving more attention from consumers when making their purchasing decisions, particularly in higher income countries. Concern about the environment and animal welfare has grown considerably, resulting in an increasing demand for milk and dairy products that are perceived by consumers to be more 'environmentally' and 'animal-friendly'. These include organic, welfare friendly and locally produced milk and dairy products. Research has found that gender, age, educational level and socio-economic status (Harper and Henson, 2001) are important factors determining the purchasing

decisions for such products. For example, young, educated women of a higher socio-economic status tend to be more concerned about production ethics.



## 3. Current demand patterns and trends

### 3.1. Introduction

This Section provides a descriptive outline of the current demand patterns and trends over the past five years for the major dairy products (including both commodity type products and value added (novel) products) at the world, EU and UK level. In describing these demand patterns and trends, reference is made to detailed balance sheets for the major products and detailed consumption data over the past five years, which are presented in Section 6.

### 3.2. World

In recent years, global demand for dairy products has increased. As discussed in Section 2.2, one of the main factors driving world milk and dairy consumption demand is income. World gross domestic product (GDP) growth is currently forecast at around 4% for 2005/06, while in the key import markets of Asia, GDP growth remains high with forecast current GDP increases ranging from around 8% for China to 5.4% for the ASIAN-4 countries (Thailand, Indonesia, Malaysia, and Philippines).

Consequently, global import demand for dairy products is currently strong and exerting pressure on available exportable supplies, although the weakness of the dollar in 2004 has increased import costs. At present, global prices of major dairy commodities are strong (and likely to remain so), but past price cycles suggest that once above \$2,000/ton, import demand for dairy products starts to decline. There are indications that strong commodity prices are starting to impact import demand in Russia (frequently cited as a critical factor in influencing global butter prices), with imports of butterfat down 24% in the first quarter of 2004 compared to the same period in 2003 (USDA FAS, 2004).

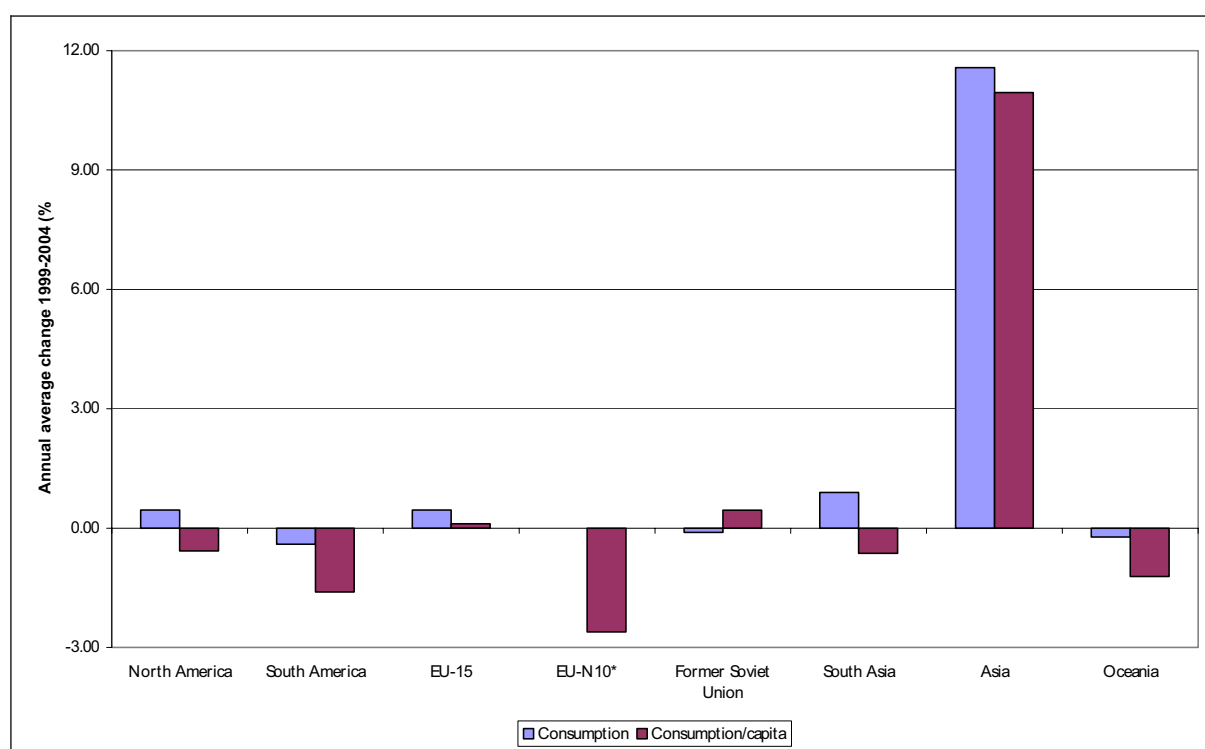
#### 3.2.1. Liquid milk consumption

The largest market for liquid milk is South Asia and North America with total annual consumption currently at 34.5 million tonnes and 34.3 million tonnes, respectively. The EU-15 liquid milk market is slightly smaller at 30.0 million tonnes. Full liquid milk consumption data for all regions is presented in Table 6.40.

Looking at consumption of liquid milk on a per capita basis, consumption is generally higher in developed countries. Per capita consumption is the highest in Oceania at 98.7 Kg/capita, closely followed by North America (79.6 Kg/capita), the EU-15 (78.4 Kg/capita) and the EU-N10 (76.2 Kg/capita). However, these figures conceal large variations in per capita consumption between countries with some Northern

European countries, for example, having per capita consumption of liquid milk in excess of 100 Kg/capita (e.g. the UK at 112.3 Kg/capita). In a number of developed countries, demand for liquid milk has ceased to grow as consumers have become increasingly concerned about adverse health effects of too much fat in their diets and as substitute products have become increasingly available (Figure 3.1). Consumers in Europe and North America have shown a growing preference for semi-skimmed types of milk and other substitute and reduced calorie products.

In contrast, developing countries tend to have the lowest per capita consumption of liquid milk, although per capita consumption is generally increasing by greater amounts each year as a result of growing urbanisation and increases in income. The principal area of growth over the past five years has been in Asia (Figure 3.1) where liquid milk consumption has risen by an average of 11.6% per annum, replacing reconstituted milk products of the past, although per capita consumption remains the lowest in the world at 9.3 Kg/capita.



**Figure 3.1: World<sup>1</sup> regional Liquid milk consumption (% annual average change 1999-2004)**

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Note: \* EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Sources: USDA-FAS, ZMP, Agra CEAS calculations.



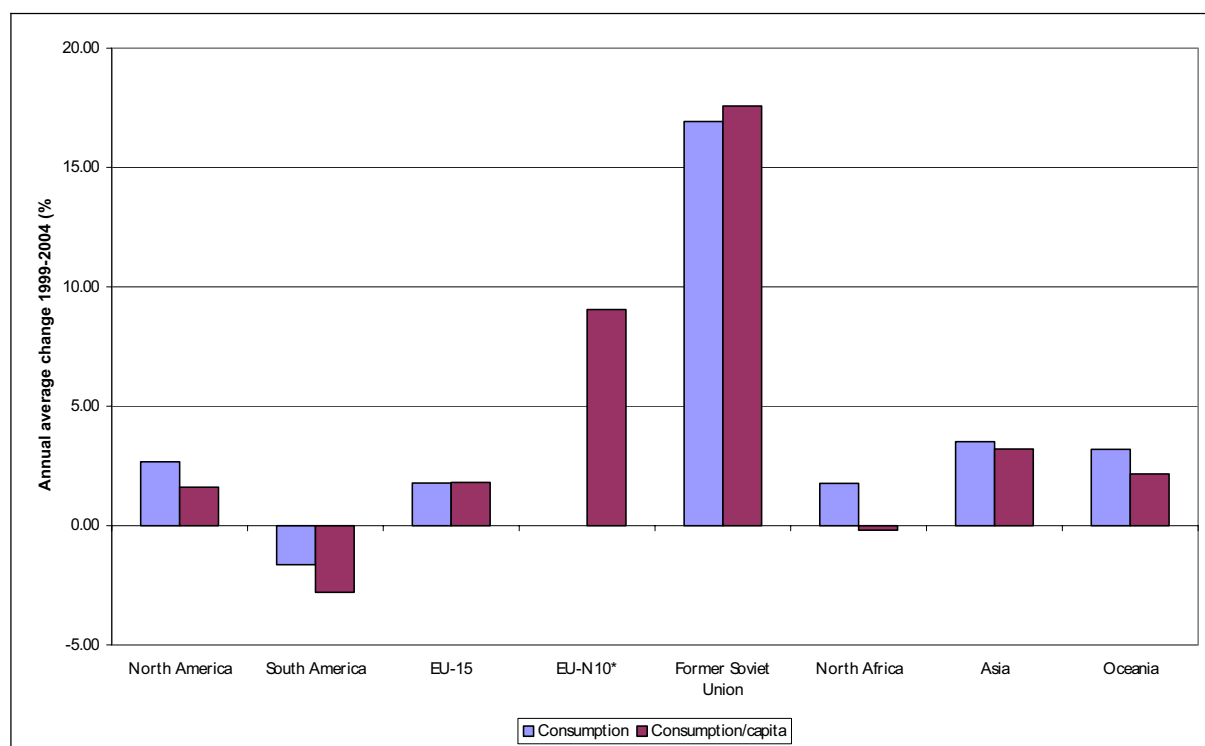
### 3.2.2. Cheese consumption

The EU-15 has by far the largest cheese market with total annual consumption currently at 7.2 million tonnes. North America has the next largest cheese market at 4.8 million tonnes. Full cheese consumption data for all regions is presented in Table 6.41.

As for liquid milk, per capita consumption of cheese is generally higher in developed countries. The EU-15 has notably the largest per capita consumption of cheese in the world at 18.9 Kg/capita. This is some 70% higher than in the next highest cheese consuming regions of the world (i.e. North America (11.1 Kg/capita) and Oceania (11.0 Kg/capita)). In developing countries consumption is particularly low, with per capita consumption of cheese at 1.7 Kg/capita in Asia and at 3.7 Kg/capita in South America.

The consumption of cheese has risen in almost all countries over the past five years (Figure 3.2). The greatest increases have occurred in the Former Soviet Union (17.6% per annum to 3.2 Kg/capita) and the EU-N10 (9.1% per annum to 9.7 Kg/capita) although consumption is just returning to pre-1990 levels following a collapse during the economic transition period. This recovery has been mainly driven by changes in the relative price for cheese *vis-à-vis* meat and meat products as well as increasing consumer affluence. In the EU-15, North America and Oceania there has been modest growth of around 2% per annum over the period as these markets, particularly the EU-15, are already relatively mature. Despite having the lowest consumption of cheese in the world, Asia has shown similar growth rates to these mature markets. This is because, like North Africa where consumption has remained fairly stable over the period, cheese is not considered part of the traditional diet. The reported 3.1% per annum increase in per capita consumption in Asia is predominantly due to the demand for cheese in the growing fast food sector.

The only region where cheese consumption fell over the period was South America (2.8% per annum), despite having one of the lowest consumption levels in the world. However, between 1990 and 1998 cheese consumption had already increased significantly, particularly for soft type cheeses (Sorensen, 2001).



**Figure 3.2: World<sup>1</sup> regional Cheese consumption (% annual average change 1999-2004)**

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Note: \* EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Sources: USDA-FAS, ZMP, Agra CEAS calculations.

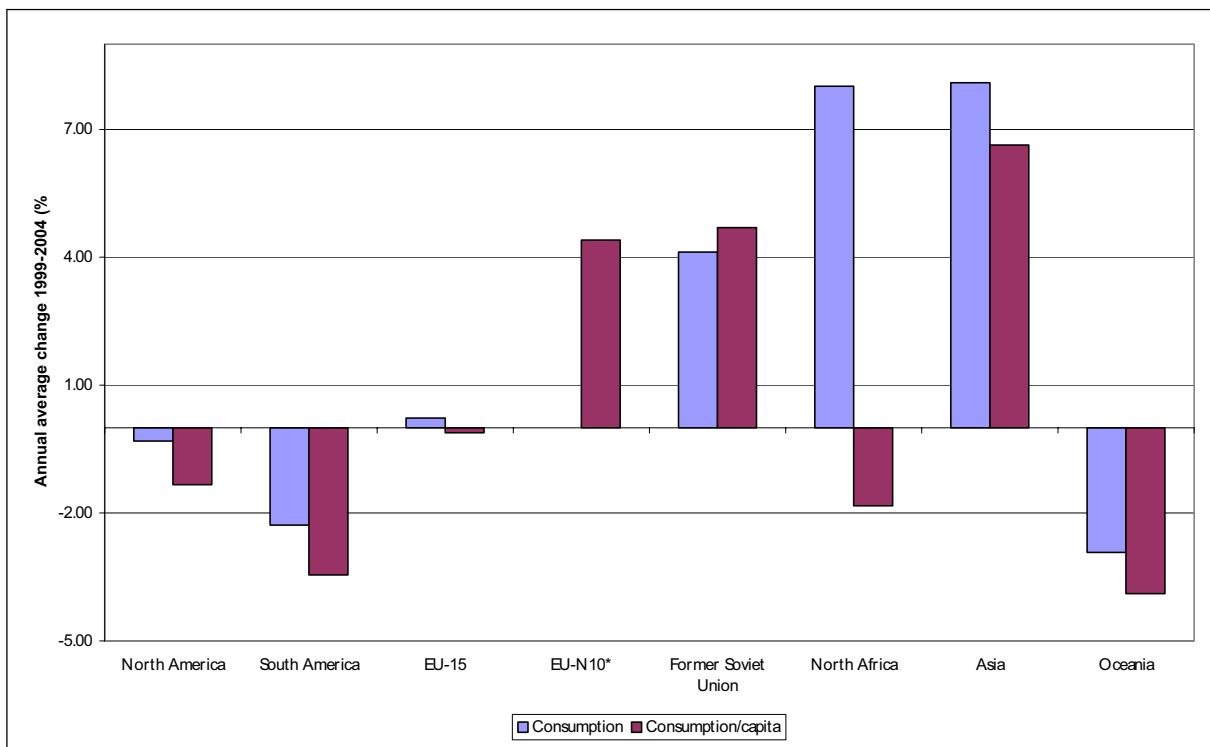
### 3.2.3. Butter consumption

Asia is the largest market for butter at 2.7 million tonnes, followed by the EU-15 at 1.8 million tonnes. South America, South Africa and Oceania have the smallest markets, each at less than 0.1 million tonnes. Full butter consumption data for all regions is presented in Table 6.42.

Consumption of butter tends to be at its highest in developed countries, in particular in the EU-15 where per capita consumption is currently 4.7 Kg/capita. Butter consumption is also fairly high in Oceania (3.2 Kg/capita) as well as in the EU-N10 (3.0 Kg/capita) and the Former Soviet Union (2.8 Kg/capita) where butter forms part of the traditional diet. In contrast, per capita consumption is at its lowest in South America (0.4 Kg/capita) and North Africa (0.7 Kg/capita).

In established markets, butter consumption has stagnated in recent years as eating habits have changed (e.g. reduction in the use of butter at breakfast as consumers change to cereals and other breakfast alternatives) and concerns about the fat

content of butter (and the possible link with increased cholesterol levels) have risen. This has been particularly so in Oceania where consumption has fallen over the past five years by 3.9% per annum. In the EU-15, demand has remained virtually unchanged over the period as consumption had already fallen during the 1980s and early 1990s. Despite these falling trends, butter consumption has been increasing in Asia (6.6% per annum to 2.2 Kg/capita) as a result of growing urbanisation and increases in income, and the Former Soviet Union (4.7% per annum to 2.8 Kg/capita) and EU-N10 (4.4% per annum to 3.0 Kg/capita) as consumption returns to pre-1990 levels (Figure 3.3).



**Figure 3.3: World<sup>1</sup> regional Butter consumption (% annual average change 1999-2004)**

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Note: \* EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

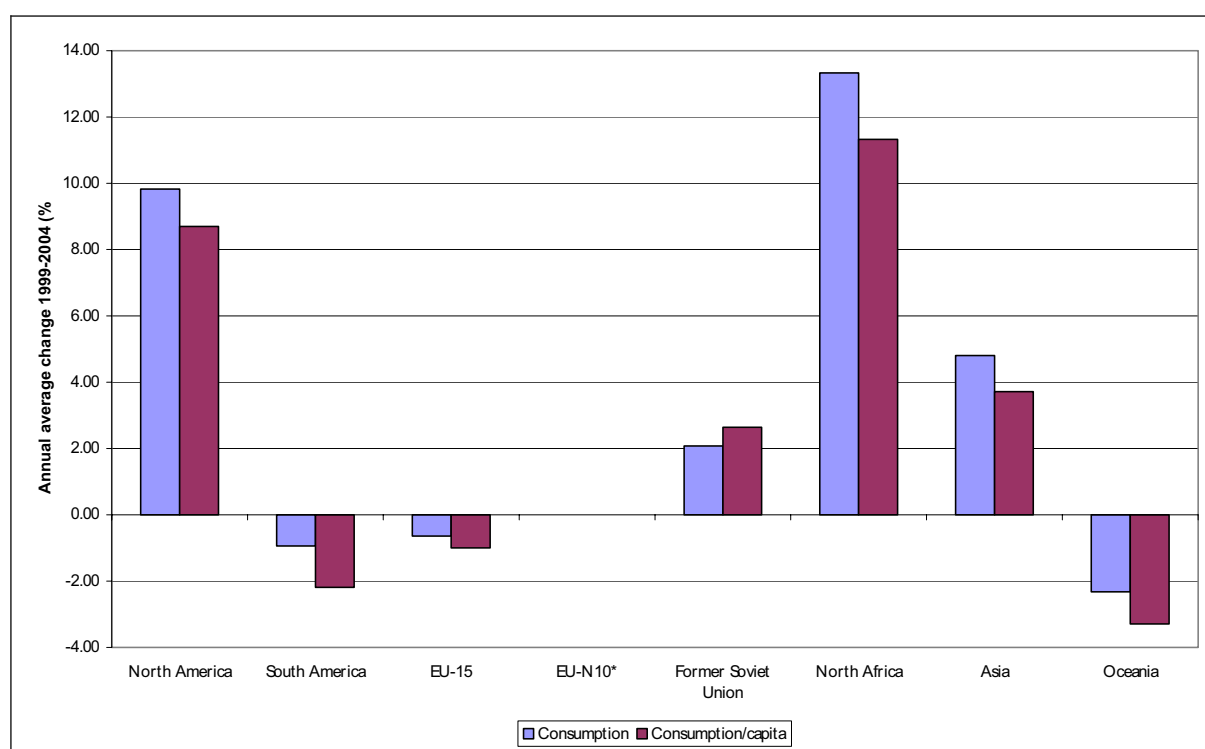
Sources: USDA-FAS, ZMP, Agra CEAS calculations.

### 3.2.4. Skimmed Milk Powder consumption

The largest skimmed milk powder markets in the world are North America, the EU-15 and Asia, each having a market of around 1 million tonnes. Full skimmed milk powder consumption data for all regions is presented in Table 6.43.

Per capita consumption for skimmed milk powder is generally higher in developed countries where it has a number of uses, particularly as an ingredient for value added dairy products. Demand is greatest in the EU-15 (2.5 Kg/capita), North America (2.4 Kg/capita) and Oceania (1.7 Kg/capita). Over the past five years per capita consumption has risen in North America by 8.7% per annum, mainly because of the use of internal disposal measures as an aid to reduce internal stocks. In the EU-15, there has been a slight decrease in demand over the period (average of 1.0% per annum), as consumption has not yet returned to pre-2000 levels following the BSE and FMD induced reduction in use for animal feed (IDF, 2003) (Figure 3.4).

Per capita consumption is generally lower in developing countries. The lowest per capita consumption is in Asia (0.3 Kg/capita) and South America at (0.5 Kg/capita), where in *absolute* terms consumption has remained virtually unchanged over the period. In contrast, per capita consumption in North Africa has grown significantly (11.3% per annum) over the period to 1.2 Kg/capita.



**Figure 3.4: World<sup>1</sup> regional Skimmed Milk Powder consumption (% annual average change 1999-2004)**

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Note: \* No data for EU-N10.

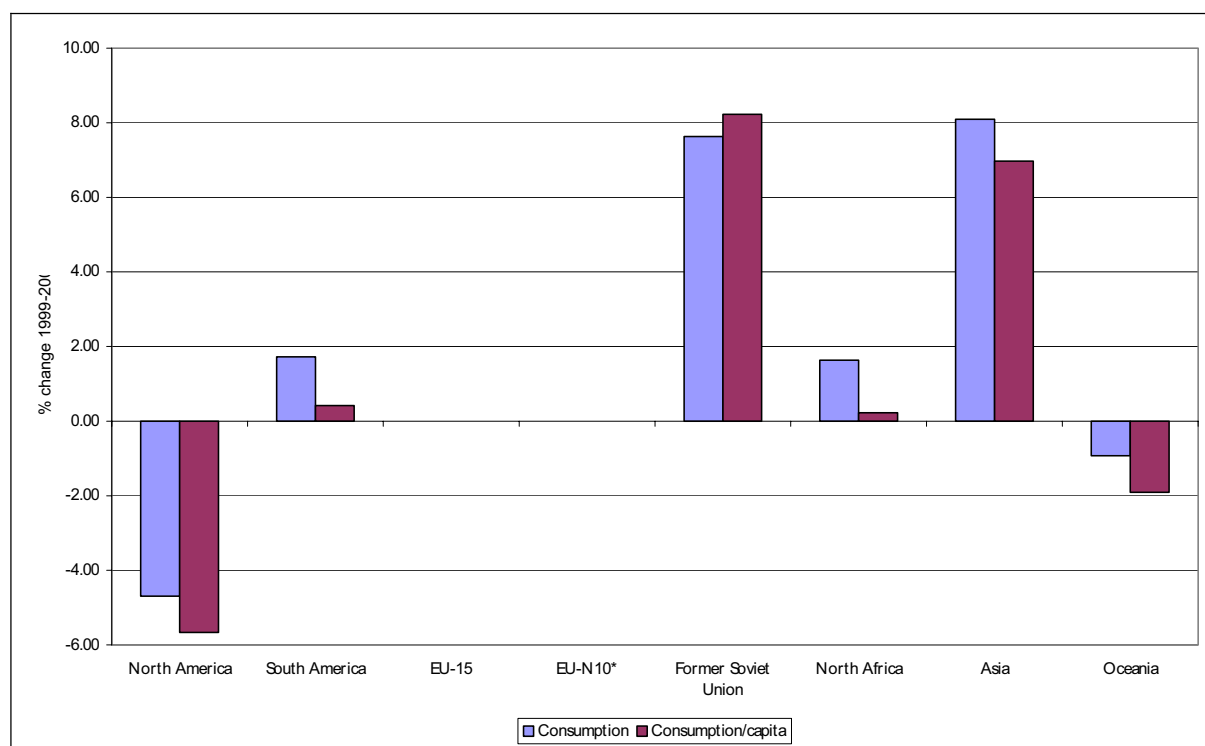
Sources: USDA-FAS, ZMP, Agra CEAS calculations.

### **3.2.5. Whole Milk Powder consumption**

The largest world markets for whole milk powder are Asia (1.02 million tonnes) and South America (0.75 million tonnes). Full whole milk powder consumption data for all regions is presented in Table 6.44.

Consumption of whole milk powder tends to be at its greatest in developing countries where fresh milk supplies are low, and where warm climatic conditions and a relatively undeveloped infrastructure for liquid milk distribution necessitate the use of whole milk powder for reconstitution into liquid milk and other low value products. Per capita consumption is at its greatest in North Africa (3.6 Kg/capita) and South America (2.2 Kg/capita). Although demand in Asia is currently relatively low at 0.3 Kg/capita, over the past five years consumption has been increasing by 7.0% per annum. A similar trend is evident in the Former Soviet Union where per capita consumption has increased by 8.2% per annum over the period to 0.7 Kg/capita (Figure 3.5).

In contrast, consumption of whole milk powder in developed countries is relatively low, as consumers tend to be more taste conscious. In addition, developed countries tend to have well-developed infrastructure and refrigeration for liquid milk distribution and storage. As a result, demand for whole milk powder in developed markets has been declining (Figure 3.5).



**Figure 3.5: World<sup>1</sup> regional Whole Milk Powder consumption (% annual average change 1999-2004)**

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

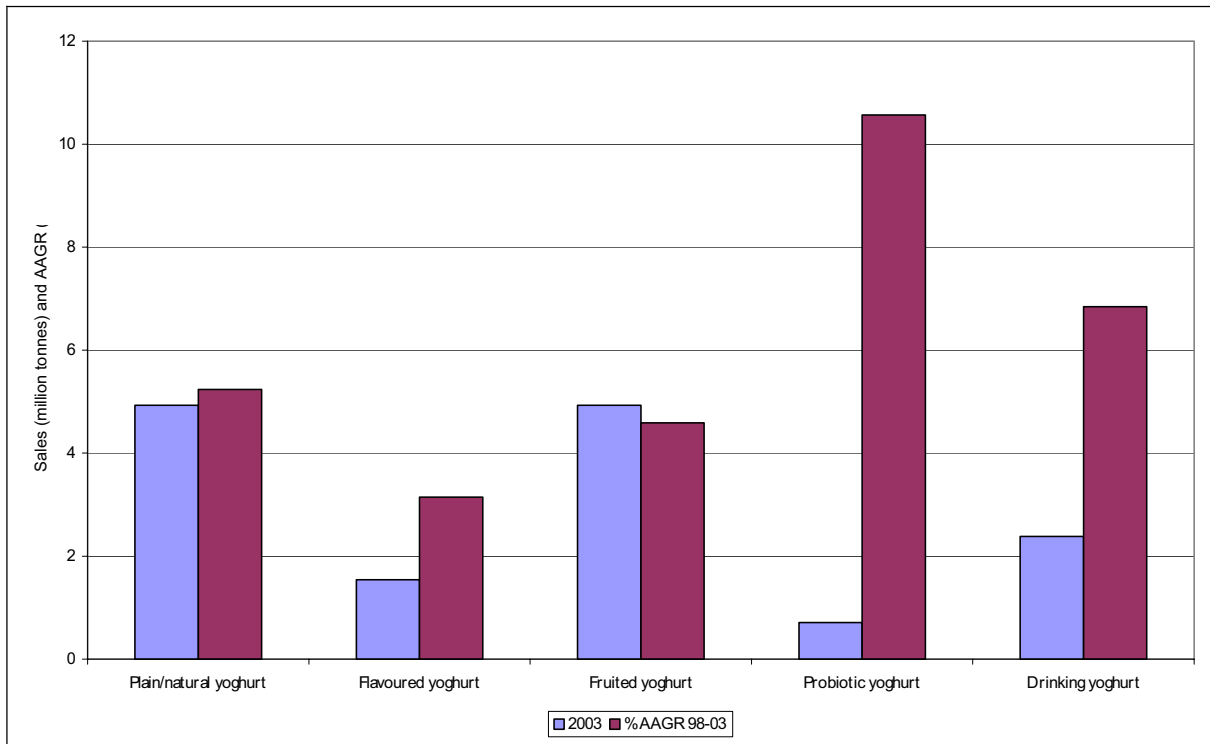
Note: \* No data for EU-15 and EU-N10\*.

Sources: USDA-FAS, ZMP, Agra CEAS calculations.

### 3.2.6. Yoghurt sales

The world market for yoghurt has grown by 5.2% per annum over the past five years to 14.5 million tonnes. Full yoghurt consumption data for all regions is presented in Table 6.46.

Just over two-thirds of yoghurt consumed is plain/natural yoghurt (4.93 million tonnes) and fruited yoghurt (4.93 million tonnes), with drinking yoghurt (2.38 million tonnes), flavoured yoghurt (1.54 million tonnes) and probiotic yoghurt (0.71 million tonnes) accounting for the remainder. The market for probiotic yoghurt is relatively new and currently has the fastest growing demand (10.6% per annum), followed by drinking yoghurt (6.8% per annum). Despite being having a relatively well established market, in absolute value the growth in demand for plain/natural yoghurt and fruited yoghurt is greatest (Figure 3.6).

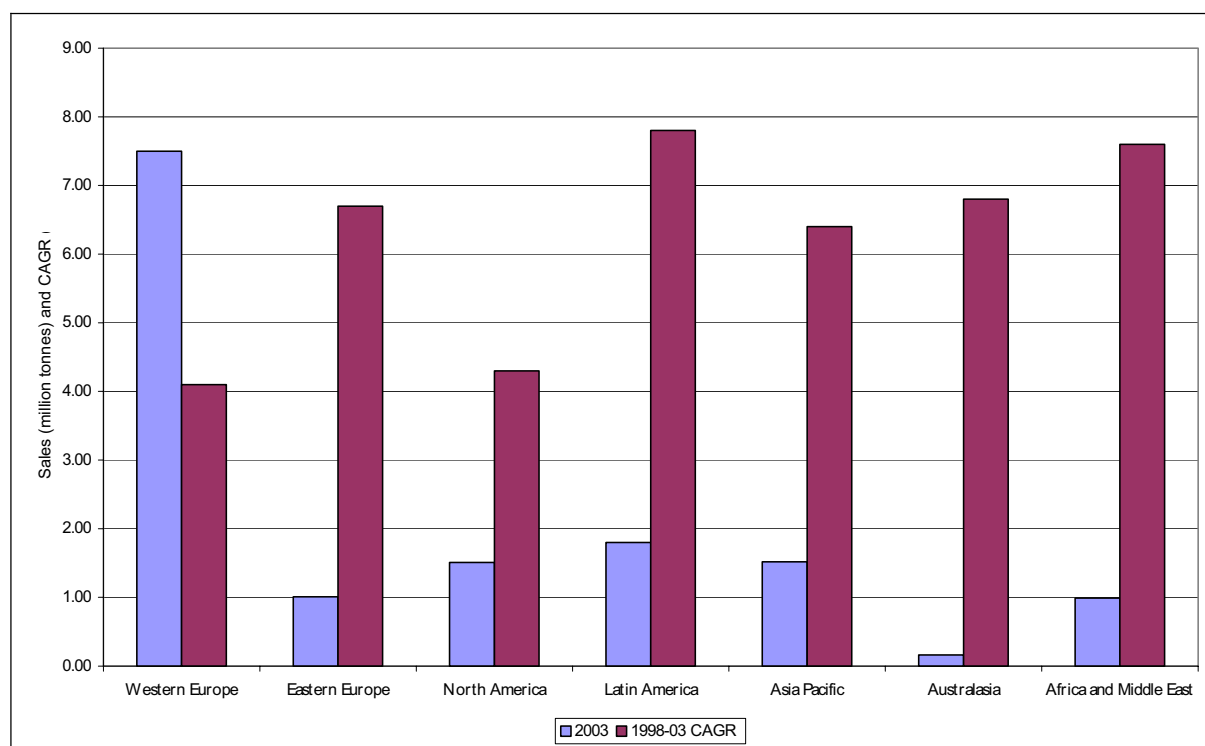


**Figure 3.6: World yoghurt sales by sub-type, 2003 (million tonnes) and per annum<sup>1</sup> 1998-2003 (%)**

Note: per annum<sup>1</sup> – Average Annual Growth Rate.

Source: Euromonitor 2004, Agra CEAS calculations.

Western Europe is the largest consumer of yoghurts in the world at 7.5 million tonnes, representing just over a half of the total global sales, with sales growing at 4.1% per annum over the past five years. The smallest market is Africa and the Middle East with total sales of just under 1.0 million tonnes. Demand for yoghurt continues to increase in all regions of the world, ranging from 4.3% per annum in North America to almost 8% per annum in Latin America, Africa and Middle East (Figure 3.7).



**Figure 3.7: World yoghurt sales, 2003 (million tonnes) and CAGR<sup>1</sup> 1998-2003 (%)**

Note: CAGR<sup>1</sup> – Compound Annual Growth Rate.

Source: Euromonitor 2004, Agra CEAS calculations.

### 3.2.7. Fermented dairy drink sales

Global consumption of fermented dairy drinks has increased over the past five years by 6.7% per annum to 1.2 billion litres. Although there is a vast difference in development of the fermented dairy drinks market both between and within regions, all regions are experiencing growing demand. Full fermented dairy drink consumption data for all regions is presented in Table 6.42.

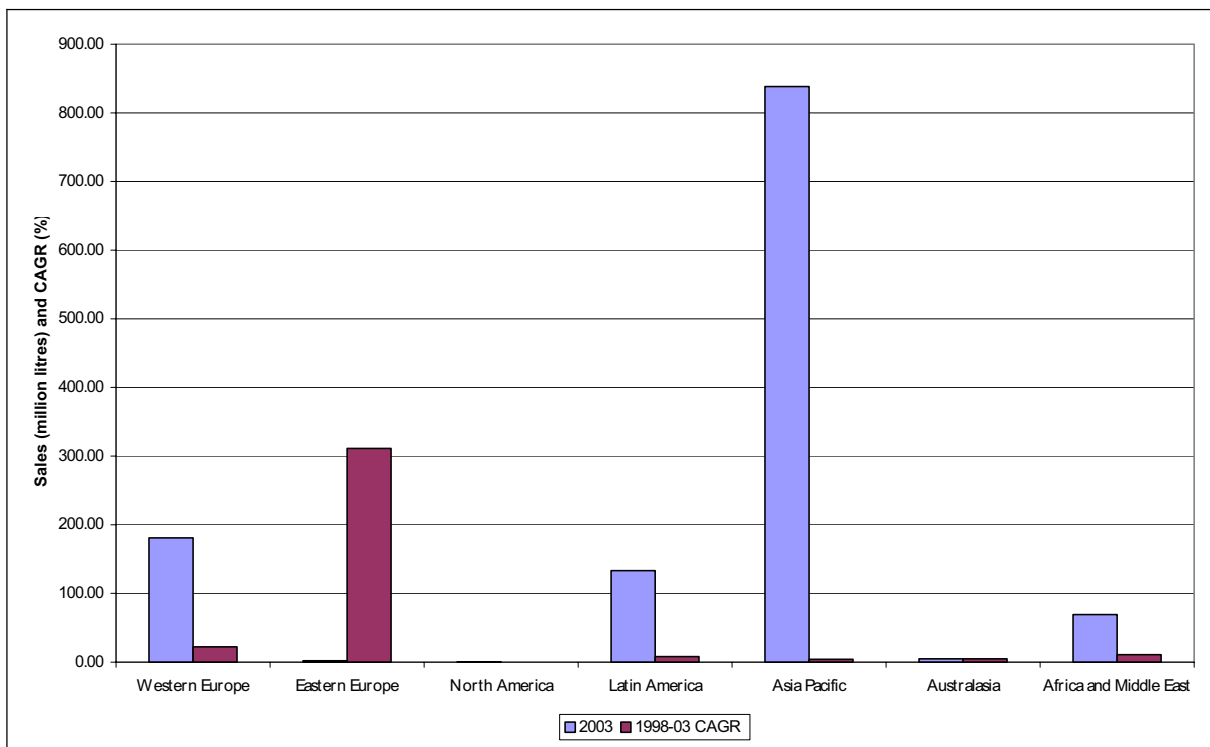
The largest market for fermented dairy drinks, with 68.2% of total global sales volume, is the Asia Pacific region at 838 million litres. Within the Asian Pacific region, Japan and South Korea account for the majority of this demand (68%) (see Table 6.50). In addition to the impact of urbanisation and rising incomes, the main factor responsible for the evolution of this demand is reported to be because a symptomatic relaxation against 'pollinosis' is admitted (IDF, 2003).

Western Europe and Latin America also have well established developing markets with a total volume of 181.0 million litres (14.7% share) and 133.2 million litres (10.8% share), respectively (Figure 3.8). In contrast, the market for fermented dairy drinks is



relatively undeveloped in North America (0.4 million litres) and Eastern Europe (2.0 million), where sales account for less than 0.5% of world demand.

The Eastern European market for fermented dairy drinks has experienced the fastest percentage growth over the past five years (311.2% per annum), although this has been from an extremely low consumption level. In absolute terms, the market for fermented dairy drinks has grown considerably in Western Europe (22.2% per annum to 181.0 million litres) and the Asia Pacific region (4.1% per annum to at 838 million litres) (Figure 3.8).



**Figure 3.8: World fermented dairy drink sales, 2003 (million litres) and CAGR<sup>1</sup> (%)**

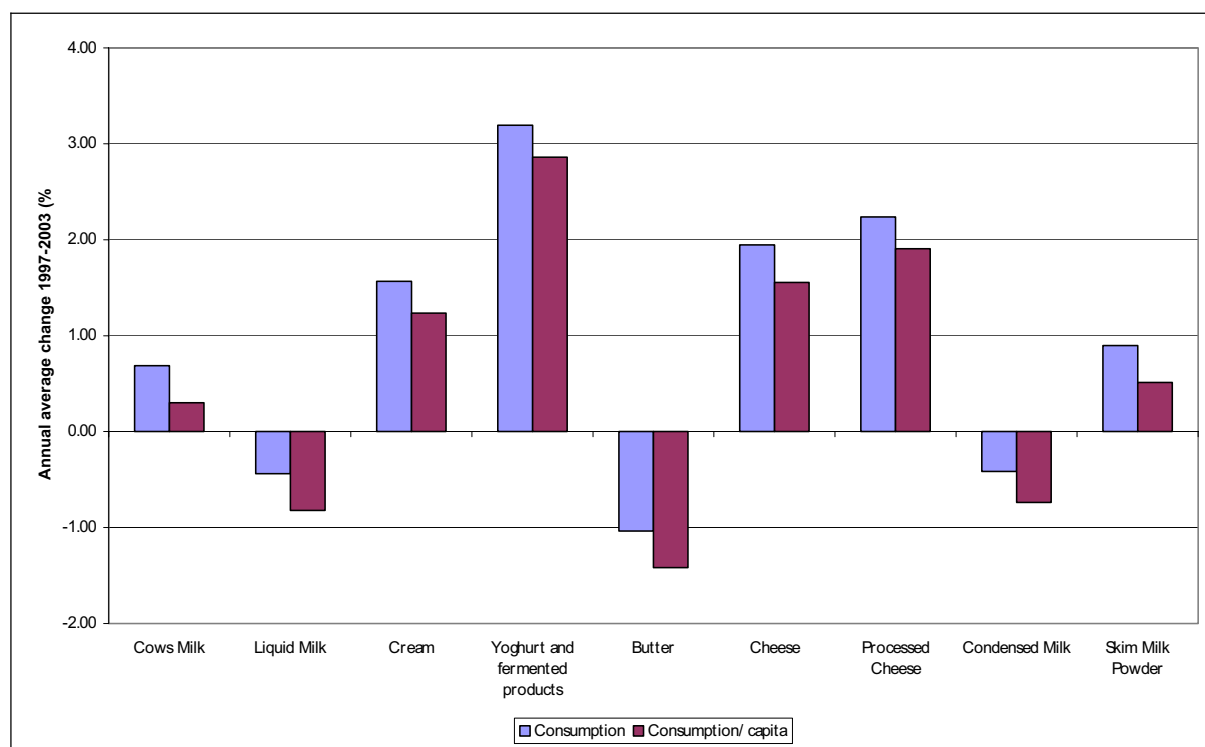
Note: CAGR<sup>1</sup> – Compound Annual Growth Rate 1998-2003.

Source: Euromonitor 2004, Agra CEAS calculations.

### 3.3. EU

Overall demand for dairy products within the EU-15 has generally matured, with some of the consumption of traditional dairy products (such as liquid milk, butter and condensed milk) being replaced by growing demand for innovative value-added products (such as certain cheeses, yoghurt and fermented products). As discussed in Section 2, this trend is characteristic of the demand for milk and dairy products in developed countries as consumer purchasing decisions are driven more by demographic and socio-economic characteristics and food preferences and consumer attitudes relative to income and price. In contrast, in Eastern Europe and the new EU Member States, demand for dairy products is increasing to EU-15 levels as these countries come out of transition.

This sub-section of the Report provides a descriptive outline of the current demand patterns and trends over the past five years for the major dairy products (including both commodity type products and value added (novel) products) at the EU-15 (and UK level) (Section 3.3.1) as well as for Eastern Europe and the new Member States (Section 3.3.2).



**Figure 3.9: EU-15 dairy consumption (% annual average change 1997-2003)**

Sources: ZMP, Agra CEAS calculations.

### 3.3.1. EU-15 (and UK)

#### 3.3.1.1. Liquid milk

EU-15 liquid milk consumption decreased by 0.4% per annum over the period to 29.2 million tonnes in 2003, with per capita consumption decreasing by 0.8% per annum to 76.5 Kg/capita. Condensed milk consumption decreased by a similar amount (0.7% per annum) to 2.5 Kg/capita (see Figure 3.9 and Table 6.51).

In contrast, per capita consumption of liquid milk in the UK fell by a slightly greater amount (1.03% per annum) over the period to 110.9 Kg/capita (see Table 6.52). Similarly, condensed milk use (including domestic consumption, manufacturing and feed use) decreased by a greater amount (1.74% per annum) to 127,500 tonnes (see Table 6.37).

This relative stability in the demand for liquid milk at the UK (and EU) level tends to conceal the striking changes that are actually taking place within this market. Demand for liquid milk of differing fat contents has changed dramatically over time, with the demand for whole milk falling at the expense of lower fat (semi-skimmed and skimmed) milk (Table 3.1).

**Table 3.1: UK household purchases of liquid milk by type (% of total purchases<sup>2</sup>)**

	Whole	Semi-skimmed	Skimmed
1998	35.4	50.6	12.9
1999	33.9	52.2	13.0
2000	32.3	52.9	13.8
2001	30.3	53.7	14.9
2002	28.8	54.6	15.4
2003	27.3	57.2	15.5
% change 98/03	-22.9	13.0	20.2

Source: TNS

The demise of the doorstep delivery of liquid milk in the UK has had a significant impact on demand. Various studies quantifying the impact of this switch on consumption have estimated that as milk moves from the doorstep to retail, consumption decreases from anywhere between 12% to 30% (see for example: Skeldon, 1997; Bird, 1997; DIN, 1997). One factor contributing towards this fall in milk purchase is the change in how milk is packaged for retail sales. Retailers require milk to be sold in metric containers. Research has demonstrated that the volume change from using 1 litre containers instead of the traditional 2 pint (1.137 litres) containers is ignored by shoppers. This cuts milk volume by nearly 14% (DIN, 1997). In

<sup>2</sup> The remaining share of this market is satisfied by other milks, which include UHT and sterilised milk

addition to increased competition from other drinks, Skeldon (1997) acknowledges the influence of a number of other factors which include: less wastage in that more milk is delivered to the doorstep than the consumer previously required; the reduction in the amount of home cooking and baking necessitates less milk; and when milk runs out consumers tend to make do without it until the next shop.

In the last decade consumption of innovative value added liquid milk products has increased, with demand growing for (branded) flavoured milk drinks, (branded) extended shelf-life fresh milk (e.g. Arla Food's Cravendale), organic milk and vitamin and mineral enriched milk (Fearne and Bates, 2000).

### **3.3.1.2. Cream**

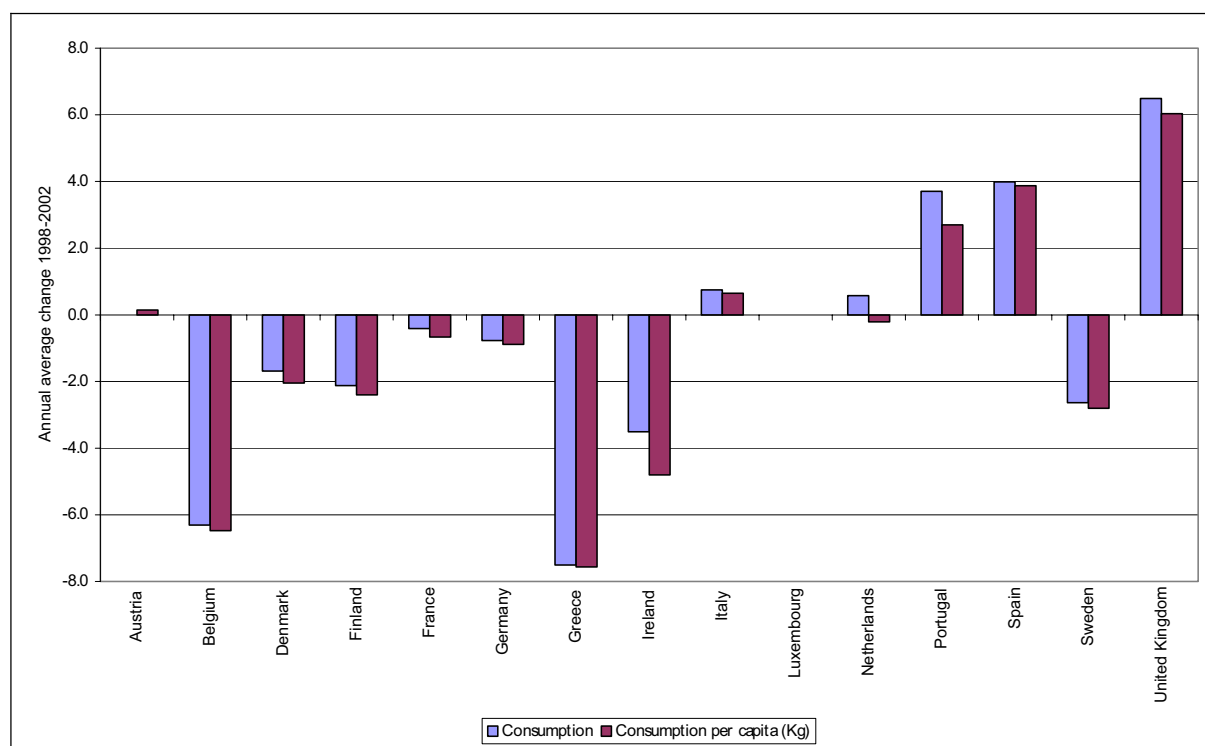
Total consumption of cream in the EU-15 increased by 1.6% per annum over the period to 1.70 million tonnes in 2002. Per capita consumption increased by 1.2% per annum to 4.47 Kg/capita in 2002 (see Figure 3.9 and Table 6.51).

At the UK level, demand (including domestic consumption, manufacturing and feed use) decreased at a slightly lower rate, by 0.8% per year over the period to 181,760 tonnes (see Table 6.36). Double cream continues to be the most demanded type, but there has been growing demand for organic cream and crème fraîche (Fearne and Bates, 2000). In addition, cream has been increasingly demanded for use in prepared desserts (Mintel, 2000).

### **3.3.1.3. Butter consumption**

Butter consumption in the EU-15 decreased by 1.04% per annum over the period to 1.66 million tonnes in 2003, and per capita consumption has decreased by 1.42% per annum to 4.35 Kg/capita (see Figure 3.9 and Table 6.51). The largest consumers of butter are France (8.1 Kg/capita), Germany (6.5 Kg/capita) and Austria (5.0Kg/capita). In contrast butter consumption is lowest in Greece (0.7 Kg/capita), Spain (0.9 Kg/capita), Sweden (1.4 Kg/capita) and Denmark (1.7 Kg/capita) (see Figure 3.9 Table 6.53).

Per capita consumption has decreased fastest in Greece (7.6% per annum to 0.7 Kg/capita), Belgium (6.5% per annum to 5.0 Kg/capita) and Ireland (4.8% per annum to 2.8 Kg/capita) (see Figure 3.10). However, in a number of countries demand has been on the increase, including Spain (3.9% per annum to 0.9 Kg/capita), Portugal (2.7% per annum to 1.9 Kg/capita) and the UK where demand has risen fastest (6.0% per annum to 3.6 Kg/capita).



**Figure 3.10: EU-15 butter consumption (% annual average change 1997-2003)**

Note: No data for Luxembourg.

Sources: ZMP, Agra CEAS calculations.

Although the UK has shown the fastest increase in consumption in recent years, consumption has been in long-term decline since the 1960s. This long-term reduction has largely been driven by health concerns, and the availability of lower fat substitute products, namely margarine. However, the long-term decline of this mature market has been arrested by a high level of market segmentation and product development (e.g. spreadable butter, organic butter, flavoured butter and regional butter), with a shift away from health consciousness back towards taste (Retail Intelligence, 1999) and its pure and natural qualities (Fearne and Bates, 2000).

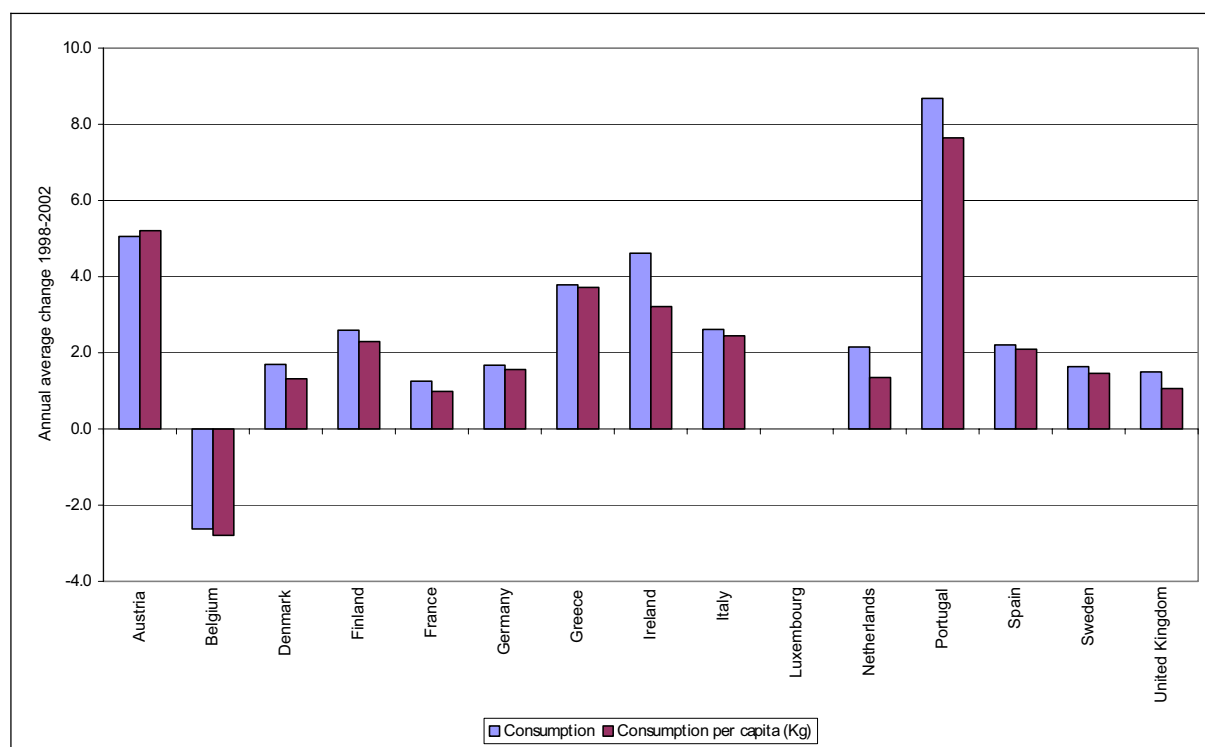
### 3.3.1.4. Cheese consumption

Cheese consumption in the EU-15 increased by 1.95% per annum over the period, from 6.6 million tonnes in 1998 to 7.2 million tonnes in 2003, with per capita consumption increasing by 1.6% per annum to 18.9 Kg/capita. Processed cheese consumption represents 6.3% of total cheese consumption (1.2 Kg/capita) and has grown by a slightly greater rate (1.9% per annum) (see Figure 3.9 and Table 6.51).

The largest consumers of cheese are Greece (27.5 Kg/capita), France (24.6 Kg/capita) and Germany (21.7 Kg/capita). In contrast cheese consumption is lowest

in Spain (9.1 Kg/capita), the UK and Portugal (both 10.2 Kg/capita) and Ireland (10.3 Kg/capita) (see Table 6.54).

Cheese consumption has increased in all Member States over the period, with the exception of Belgium where it fell by slightly by 2.8% per annum to 15.7 Kg/capita (although over the longer-term consumption has been increasing. The fastest rate of growth in consumption has occurred in Portugal (7.6% per annum to 10.2 Kg/capita) and Austria (5.2% per annum to 19.0 Kg/capita) (see Figure 3.11 and Table 6.54).



**Figure 3.11: EU-15 cheese consumption (% annual average change 1997-2003)**

Note: No data for Luxembourg.

Sources: ZMP, Agra CEAS calculations.

Table 3.2 provides an overview of recent trends in cheese consumption in individual EU-15 Member States.

**Table 3.2: Recent trends in cheese consumption in EU-15 Member States**

Member state	Characteristics
Austria	Between 1990 and 1999 Austrians displayed increasing preference for semi-hard cheeses and fresh cheeses. The increase in the demand for semi-hard cheese indicates that innovation and variety can boost the market.
Belgium	Hard and semi-hard cheeses, such as Gouda, Edam and Emmental, are still the most consumed cheeses, though soft and processed cheeses have become more popular. Consumption of fresh cheese forms 25% of the non-processed cheese consumption.
Denmark	About 75% of the consumed cheeses are hard and semi-hard cheeses (e.g. Danbo and Havarti). Despite the increasing popularity of organically produced cheeses, less than 10% of the consumed cheese per capita is organic (but this is expected to increase).
Finland	Hard and semi-hard cheeses remain the most consumed cheeses. The 'Finlandia' is still the most popular cheese among Finnish consumers. Consumption of processed cheese has increased sharply in the past decade, mainly due to an enlarged product range and increased imports. On average 20% of cheese consumed in 1999 was imported.
France	Between 1990 and 1999 the consumption of non-processed cheese increased by 0.9kg per capita (3.9%). Most of this increase came from hard and semi-hard cheese. The consumption per capita is split evenly between hard/semi-hard, soft and fresh (plus a small amount of blue and processed cheese).
Germany	Semi-hard types have shown the strongest long-term growth. Traditional products like Harzer (produced from skim milk), quark, and processed cheese are stagnating. Consumption of cream cheese is growing due to increase in the freshly prepared sandwich market. Mozzarella and Feta are also growing due to the increasing popularity of the Mediterranean diet.
Greece	Feta accounts for the vast majority of Greek cheese consumption.
Ireland	Cheddar accounts for the vast majority of Irish cheese consumption. Processed cheese consumption is also substantial.
Netherlands	Most of the consumed cheese is hard or semi-hard – especially Gouda, Maasdam and Edam. Increasing consumption of branded cheese. Consumption of low fat and no-fat cheese also increasing, particularly amongst the young.
Spain	Hard and semi-hard cheeses are still the most consumed, but Mozzarella and other fresh cheeses have increased significantly (due mainly to the increase in the popularity of Italian foods).
Sweden	Consumption of hard and semi-hard cheese makes up about 85% of total consumption. Consumption of blue, soft, fresh and processed cheeses has increased.
United Kingdom	The growth in popularity of Italian food has boosted cheese consumption overall. Growth in the UK sandwich market has also increased consumption (as has the trend towards lighter foods and increased snacking). Increased incomes have also widened the range of cheeses consumed in the UK. Shoppers have become more willing to explore stronger flavours, premium brands, and more unusual lines (mainly imported).

Source: Sorensen, 2001

In the UK, consumption patterns are unique in that a large proportion of cheese consumed consists of traditional core commodity type hard pressed cheeses.

Cheddar accounts for more than half of the UK's total cheese consumption (Table 3.3). However, general trends in the cheese market over recent years indicate an increasing trend in the consumption of, for example, mature cheeses, flavoured cheeses, speciality cheeses and mozzarella (Fearne and Bates, 2000).

**Table 3.3: Household purchases of cheese by type, 2003**

	<b>% of total purchases</b>
Cheddar	51.2
Cheshire	1.0
Cottage Cheese	3.1
Double Gloucester	1.6
Edam	1.6
Leicester/Red Leicester	3.6
Processed cheese slices	2.7
Processed cheese spread	4.2
Soft White Cheese	9.1
All Others	21.9

Source: TNS

### **3.3.1.5. Skimmed Milk Powder**

According to ZMP data, total EU-15 skimmed milk powder consumption increased by 0.9% per annum to 950,000 tonnes in 2002 with per capita consumption increased by 0.5% per annum, to 2.49 Kg/capita (see Figure 3.9 and Table 6.51).

In the UK, domestic use (including domestic consumption, manufacturing and feed use) increased by a greater amount (4.7% per annum) to 75,400 tonnes (see Table 6.39). One of the reasons for this increase above that of the EU-15 level is that demand for animal feed was relatively less affected in the UK, following the EU outbreak of BSE in 2000, than in other Member States.

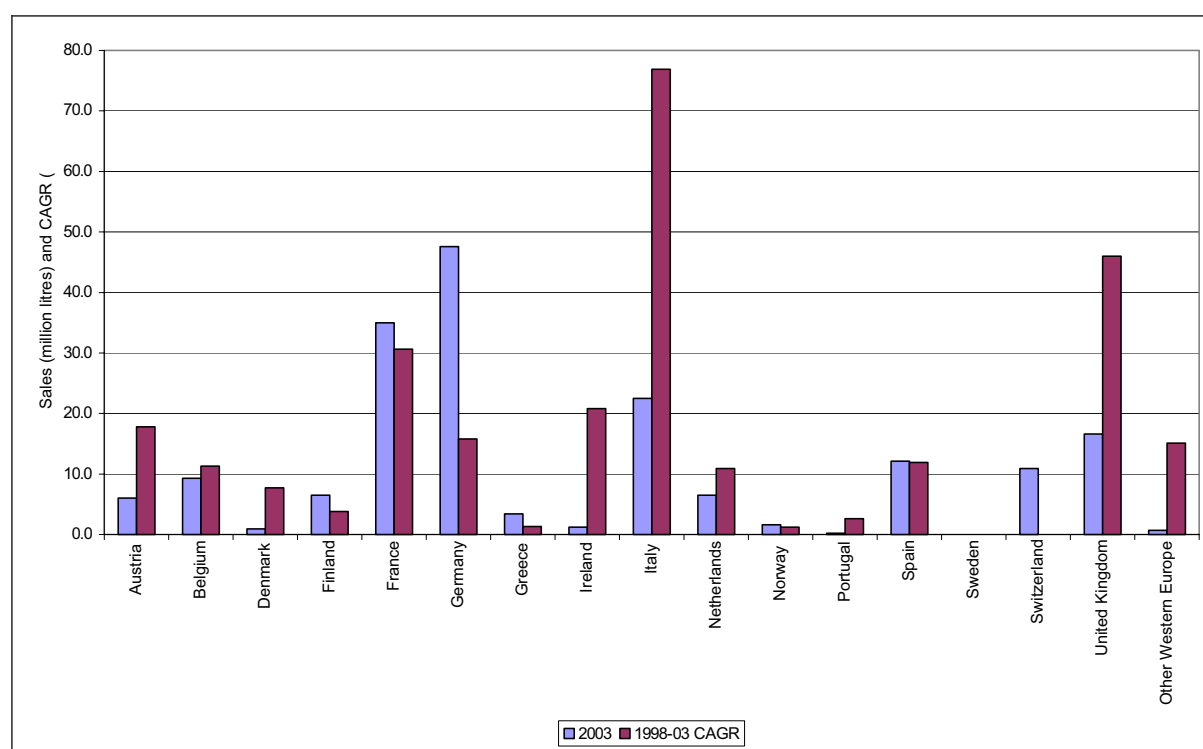
### **3.3.1.6. Yoghurt and fermented dairy drinks**

Yoghurt and fermented dairy drinks consumption in the EU-15 increased by 3.1% per annum over the period to 6.7 million tonnes in 2002, with per capita consumption increasing by 2.9% per annum to 17.6 Kg/capita. Fermented dairy drinks sales in Western Europe increased by 22.2% per annum between to reach 181.0 million litres in 2003 (14.7% global sales volume share).

The largest market for fermented dairy drinks by sales volume is Germany (47.6 million litres), followed by France (35.0 million litres), Italy (22.5 million litres) and the UK (16.6 million litres). Together, these three countries account for around two-thirds of western European sales volume. The fastest rate of growth in sales volume has



occurred in Italy (76.9% per annum), the UK (46.0% per annum) and France (30.6% per annum) (see Figure 3.12 and Table 6.55).



**Figure 3.12: Western Europe fermented dairy drink sales, 2003 (million litres) and CAGR<sup>1</sup> (%)**

Note: CAGR<sup>1</sup> – Compound Annual Growth Rate 1998-2003.

Source: Euromonitor 2004, Agra CEAS calculations.

In the UK, continual new product development and a blurring between yoghurts and other chilled desserts have driven the high annual growth in consumption. In this respect, the yoghurt market has been segmented by need (health, indulgence, diet, etc.), target market (children, women, household, etc.) and product (organic, fermented, probiotic, etc.) (Fearne and Bates, 2000).

### 3.3.1.7. Impact of distribution channels

As discussed in Section 2.4, changing demographic and socio-economic factors have resulted in a higher female participation in the work force, changing household structure, etc., which have had a huge impact on the purchasing decisions of consumers of milk and dairy products. Accordingly, the relative importance of the various sales channels has been changing over time.

At the Western European level, foodservice sales have increased at a rate of between 2.5% and 5% (approximately twice the rate of retail food sales growth) and

is estimated to account for between 30% and 40% of all food sales (Promar, 2002). Looking specifically at cheese distribution, GIRA (2003) estimate that food service and industrial uses account for about a third of all sales in the EU-15. In comparison, sales through these outlets are significantly lower in Central and Eastern European countries (less than 10%). Retail is the main outlet in all regions, accounting for about two-thirds of sales in the EU-15.

Table 3.4 provides estimates of the relative strength of the various sales channels in selected Western European markets for cheese in 2002 and 2015. In all countries industrial use and food service sales<sup>3</sup> are expected to gain an increasing share of sales over the time, at the expense of retail.

**Table 3.4: Estimated changes in sales channel in selected EU countries**

Country	Year	Industrial % <sup>4</sup>	Retail %	Foodservice %
UK	2002	17	60	23
	2015	25	45	30
France	2002	5	60	35
	2015	6	58	35
Germany	2002	7	69	24
	2015	20	50	30
Sweden	2002	10	70	28
	2015	20	55	30
Italy	2002	5	70	28
	2015	15	55	30

Source: Promar, 2003

The speed of transition away from retail is highly dependent on the products and markets concerned. In France, where cheese sales are steeped in tradition and dominated by specialists, change is likely to be slow. In contrast, change in the UK, where pre-packed mild cheeses which dominate the market are sold via multiple retailers, change is likely to occur more rapidly (Promar, 2002).

Changes in distribution by sales channel have a large impact on consumption. In the UK, for example, the retail sales channel is predicted to reduce in relative importance (in terms of volume), whereas industrial and foodservice use is predicted to expand. For branded products such changes will have significant consequences for demand since they appear most at risk from market channels alterations.

<sup>3</sup> with the exception of France where food service sales are expected to remain constant

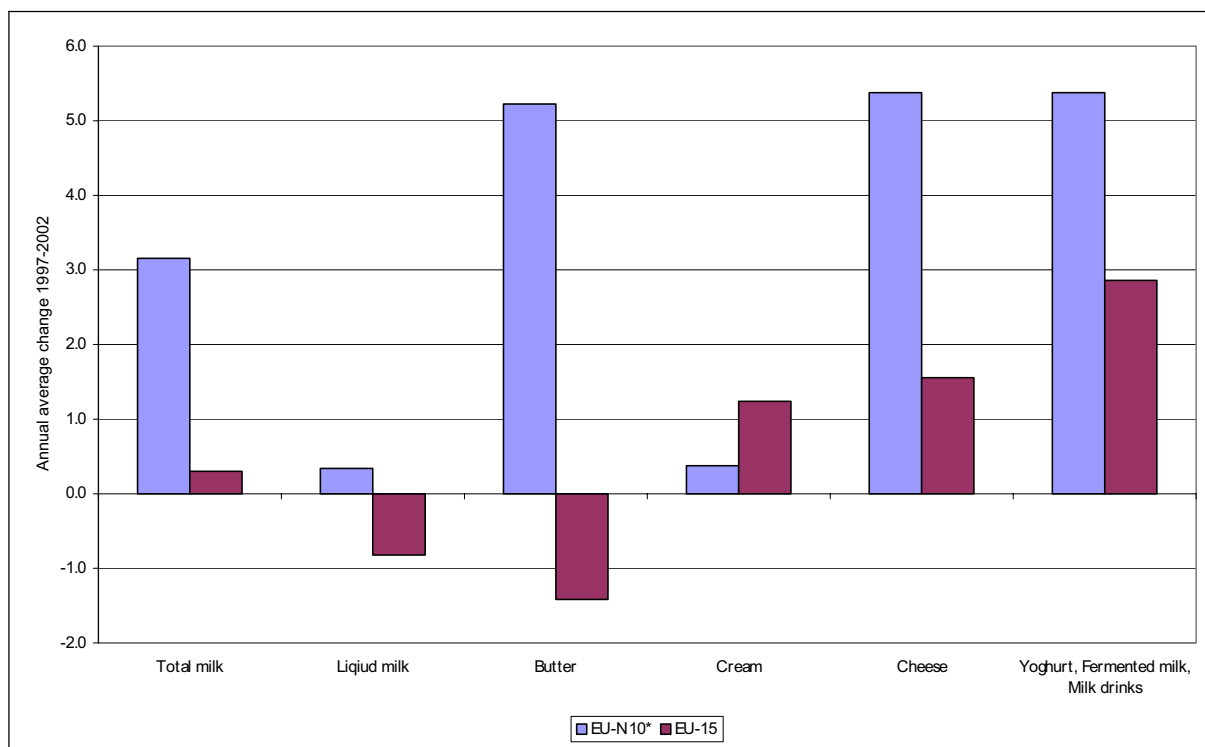
<sup>4</sup> Industrial uses of dairy include processing into food products for later sale. This includes pizza and bakery products that can be sold later via retail. Retail is for direct product sales only.

### 3.3.2. New EU Member States

In general, the consumption of milk and dairy products in Eastern Europe (i.e. the new EU Member States and Bulgaria and Romania) declined during the 1990s, although demand for high value products such as cheese increased. In contrast to the EU-15 milk and dairy product per capita consumption is much lower.

Total milk and dairy product consumption in Eastern Europe and the new EU Member States increased by 3.2% per annum over the period to an average of 186.2 Kg/capita (2000) (see Figure 3.13 and Table 6.56). The largest consumers of milk and dairy products are Estonia (239.8 Kg/capita), Slovenia (222.2 Kg/capita) and Slovakia (203.6 Kg/capita). In contrast milk and dairy product consumption is lowest in Poland (123.2 Kg/capita), Bulgaria (163.8 Kg/capita) and Latvia (172.5 Kg/capita) (see Table 6.57).

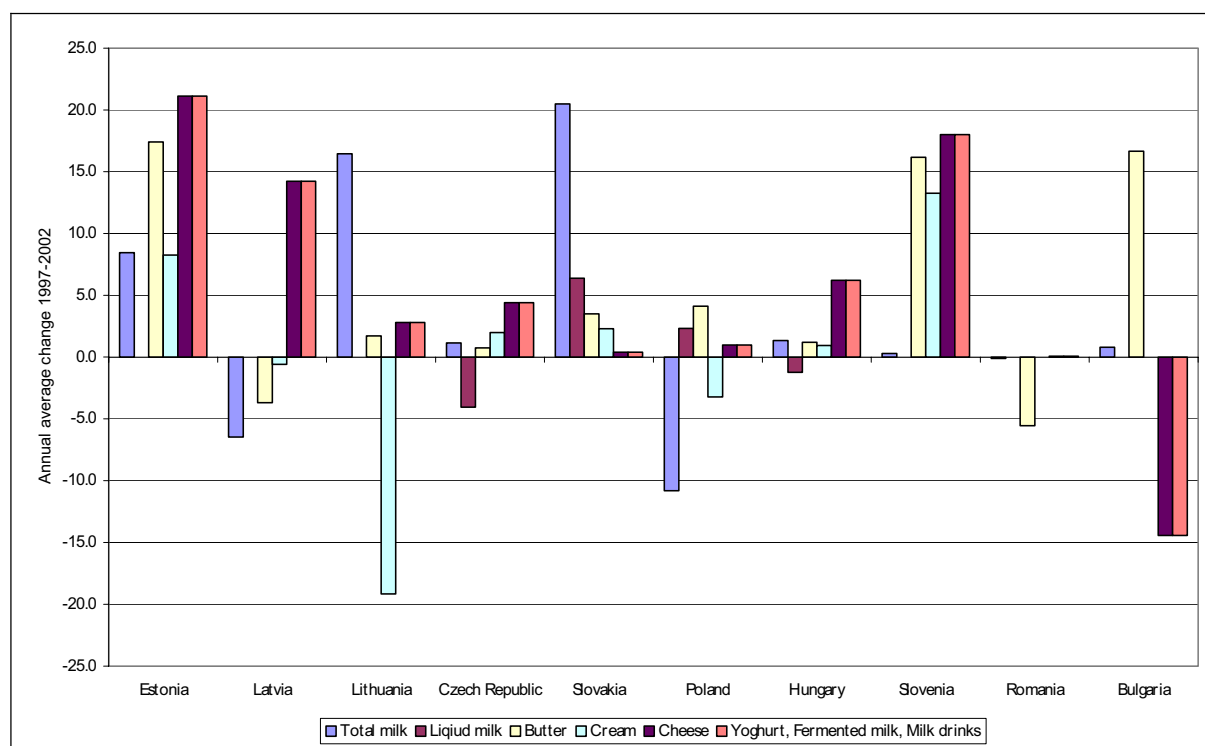
As shown in Figure 3.13, consumption of all milk and dairy products over the period 1997-2002 has increased. The fastest rate of growth in consumption has occurred in Slovakia (20.5% per annum to 203.6 Kg/capita) and Lithuania (16.4% per annum to 181.6 Kg/capita). However, per capita consumption has decreased fastest in Poland (10.8% per annum to 123.2 Kg/capita) and Latvia (6.5% per annum to 172.5 Kg/capita) (see Figure 3.14 and Table 6.57).



**Figure 3.13: EU-25\* dairy product consumption per capita (% annual average change 1997-2002)**

Note: \* EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Sources: ZMP, FAO Agrostat, Agra CEAS calculations.



**Figure 3.14: EU-N10\* dairy product consumption per capita (% annual average change 1997-2002)**

Note: \* EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Sources: ZMP, FAO Agrostat, Agra CEAS calculations.

### 3.3.2.1. Liquid milk consumption

Liquid milk consumption is thought to have increased by 0.3% per annum to 76.2 Kg/capita (see Figure 3.13 and Table 6.56). Limited data is available by country as there is still a large number of subsistence farms producing milk for personal consumption. Consumption data is available for Slovakia (84.9 Kg/capita), Hungary (81.0 Kg/capita), the Czech Republic (75.2 Kg/capita) and Poland (62.7 Kg/capita). Over the period under analysis, consumption increased in the Czech Republic (6.4% per annum) and Slovakia (2.3% per annum), but decreased in Poland (4.1% per annum) and Hungary (1.2% per annum) (see Figure 3.14 and Table 6.58).

### 3.3.2.2. Butter consumption

Butter consumption declined in the CEEC-10 during the 1990s, with the exception of Estonia. However, since 1997 total butter consumption the new EU Member States (and Romania and Bulgaria) has increased by 5.2% per annum to an average of 3.1 Kg/capita (see Figure 3.13 and Table 6.56).

In general, butter consumption in the lower income countries of the region is below the EU-15 average. In contrast, in the higher income countries of the region (such as Poland and the Czech Republic, but also in Estonia), butter consumption is equivalent to the EU-15 average. In this respect, the largest consumers of butter are Estonia (6.5 Kg/capita), the Czech Republic (4.5 Kg/capita) and Poland (4.1 Kg/capita) and the lowest consumers of butter are in Bulgaria and Romania (both 0.3 Kg/capita) (see Table 6.59).

The fastest rate of growth in per capita consumption has occurred in Estonia (17.4% per annum to 6.5 Kg/capita), Bulgaria (16.7% per annum to 0.3 Kg/capita) and Slovenia (16.2% per annum to 0.9 Kg/capita). Per capita consumption has decreased in only in Romania (5.6% per annum to 0.3 Kg/capita) and Latvia (3.7% per annum to 1.9 Kg/capita) over the period (see Figure 3.14).

### **3.3.2.3. Cream consumption**

Total cream consumption in Eastern Europe and the new EU Member States increased by 0.4% per annum over the period 1997-2002 to an average of 5.2 Kg/capita (see Figure 3.13 and Table 6.56). The largest consumers of cream are Slovenia (8.0 Kg/capita), where consumption has increased by the greatest amount (13.3% per annum) over the period, Latvia (7.1 Kg/capita) and Hungary (6.6 Kg/capita). In contrast cream consumption almost non-existent in Bulgaria and Romania and low in Lithuania (2.1 Kg/capita), where consumption has fallen significantly (19.2% per annum), and Estonia (2.2 Kg/capita), although this market has shown an 8.2% per annum increase in recent years (see Table 6.60 and Figure 3.14).

### **3.3.2.4. Cheese consumption**

Total cheese consumption in Eastern Europe and the new EU Member States increased by 5.4% per annum over the period 1997-2002 to an average of 9.7 Kg/capita (see Figure 3.13 and Table 6.56). Consumption of cheese tends to be at its greatest in the more wealthy countries. The largest consumers are Estonia (13.1 Kg/capita), the Czech Republic (10.6 Kg/capita) and Poland (10.1 Kg/capita). In contrast, consumption tends to be lowest in the less wealthy countries, particularly Romania (1.8 Kg/capita), Latvia (3.9 Kg/capita) and Lithuania (5.0 Kg/capita) (see Table 6.61).

However, cheese consumption has increased in all countries over the period, except Bulgaria where per capita consumption decreased by 14.4% per annum to 4.5 Kg/capita. The fastest rate of growth has occurred in Estonia (21.1% per annum to 13.1 Kg/capita), Slovenia (18.0% per annum to 9.4 Kg/capita) and Latvia (14.2% per annum to 3.9 Kg/capita) (see Figure 3.14).

### **3.3.2.5. Yoghurt, fermented milk and fermented dairy drinks**

As disposal income levels increase, total yoghurt, fermented milk and fermented dairy drinks consumption in Eastern Europe and the new EU Member States have increased. Over the period 1997-2002 consumption has increased by 5.4% per annum to an average of 10.3 Kg/capita (see Figure 3.13 and Table 6.56). Although limited data is available, per capita consumption for these products is relatively high in Slovakia (15.0 Kg/capita) and Hungary (11.9 Kg/capita). In these countries, demand has increased by 10.4% per annum and 7.0% per annum over the period, respectively (see Table 6.62).





## 4. Likely impact of policy on demand patterns

In describing the various factors affecting demand for milk and dairy products in Section 2, no consideration was given to the impact of policy on consumption. Changes in policy at all levels can have a huge impact on demand for any product. This Section provides an overview of the likely impact of WTO on world dairy trade and demand patterns (Section 4.1), the impact of CAP reform on demand (Section 4.2) and the impact of future UK food legislation and measures with respect to obesity (Section 4.3).

### 4.1. Impact of WTO on world dairy trade and demand patterns

The current World Trade Organisation (WTO) negotiations on agriculture taking place as part of the Doha Round offer an opportunity to continue the process of market liberalisation achieved under the Uruguay Round. Although no agreement has yet been reached, current WTO negotiations are focussing on further increasing market access and reducing export subsidies.

Although these negotiations are on-going, and nothing has been formally agreed, initial impact analyses have been carried out to quantify the impact of increasing market access and reducing export subsidies further on world dairy trade and demand patterns.

#### 4.1.1. Impact of further increasing market access

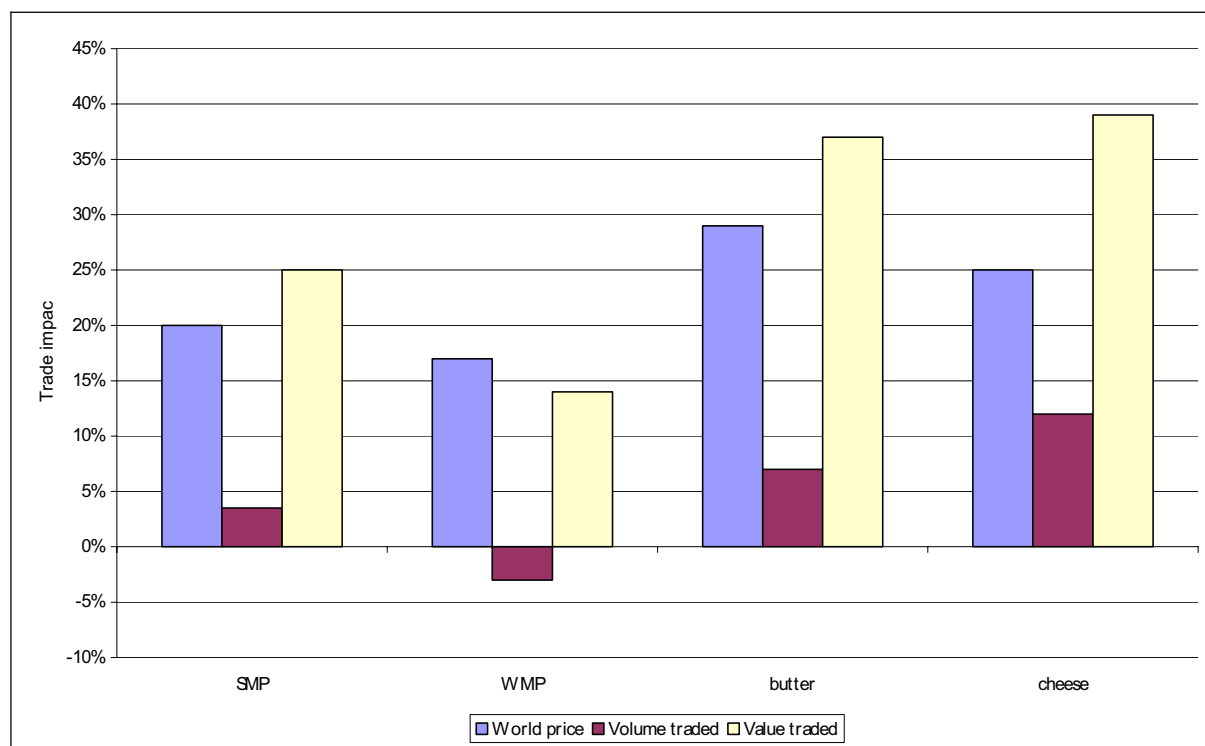
Analysis undertaken by the Australian Bureau of Agricultural and Resource Economics (ABARE 2001) has looked at the impact of further increasing market access<sup>5</sup> for a number of dairy products (SMP, WMP, butter and cheese) by quantifying the likely impact on world price, volume traded and value traded in the first year of the simulation<sup>6</sup>. Results presented in Figure 4.1 suggests that world prices and import demand will increase significantly as a result of increasing market access. World prices are expected to increase for all products as milk supplies are reallocated to their most profitable use under this new liberalised environment. In this context it should be noted that Australia in particular would stand to gain from a more liberalised world market environment and it is therefore not entirely surprising that the results of a study emerging from this country should view this outcome particularly positively.

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<sup>5</sup> as a result of doubling dairy product preferential access quotas and halving tariff rates

<sup>6</sup> It should be noted that this analysis ignores any dynamic adjustments in subsequent years. Over time markets would respond to changes in world prices. Increased prices would bring about increased production, trade would grow accordingly and global consumption of dairy products would expand. With this increased trade, the extent of the ongoing price rise generated by the reforms would be reduced.

In volume terms, world import demand is likely to increase by 12% for cheese (138,000 tonnes), 7% for butter (40,000 tonnes) and 4% for SMP (45,000 tonnes), above 1999 levels. For WMP, import demand is likely to fall by –3% below 1999 levels. In value terms, import demand is likely to increase for all dairy products, increasing value of world dairy trade by around \$1.8 billion (€1.5 billion), above 1999 levels. The value of cheese and butter trade is expected to increase by almost 40%, with the value of trade in milk powders increasing by 14% (WMP) and 25% (SMP), above 1999 levels.



**Figure 4.1: Impact of increased market access on dairy product prices and trade (% change in first year compared to 1999 base year)**

Source: ABARE (2001)

Those world markets likely to absorb most of this increased import demand for dairy products are the EU, the US and Japan which currently allow the most limited access to their markets. In addition, dairy product exports from the EU and the US are also likely to rise. Dairy product exports are likely to increase from many countries and regions, including Australia, New Zealand and Argentina. In these countries, the gross value of milk production is expected to increase by between 7% and 9% and by 9% to 11% for dairy products, as a result of higher world prices. In contrast, in the EU and the US, the gross value of milk production and dairy products is forecast to fall by between –1% and -2%, as a result of displacement of domestic production by imports. (see Table 4.1).

**Table 4.1: Impact of increasing market access on the gross value of production**

	Milk (%)	Dairy products (%)
Australia	7.3	9.3
New Zealand	9.0	10.6
Argentina	6.9	9.4
EU	-1.4	-1.6
US	-1.2	-1.4

Source: ABARE (2001)

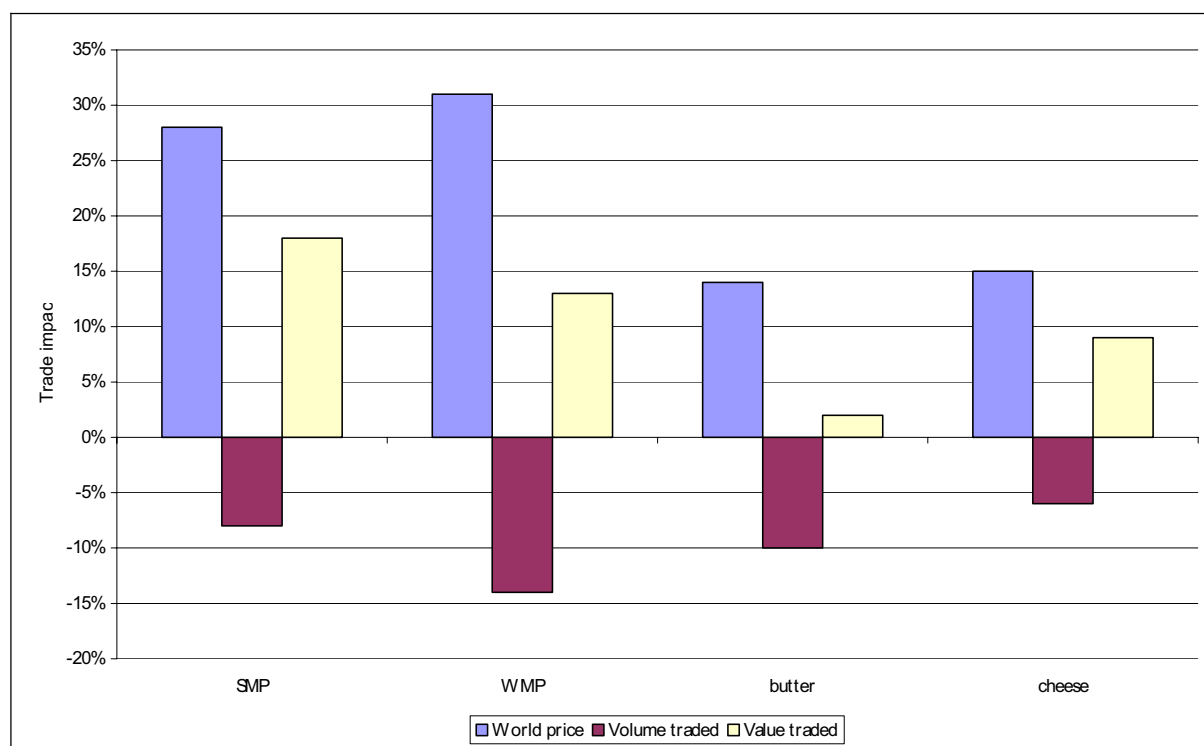
#### 4.1.2. Impact of further reducing export subsidies

A second element of the analysis undertaken by ABARE (2001) looked at the impact of further reducing export subsidies<sup>7</sup> for a number of dairy products (SMP, WMP, butter and cheese) by quantifying the likely impact on world price, volume traded and value traded in the first year of the simulation<sup>8</sup>. The results are presented in Figure 4.2. The modelling results suggest that reducing export subsidies will lower the availability of dairy products for export and this in turn will result in lower export volumes (-6% for cheese, -8% for SMP, -10% for butter and -14% for WMP) and increases in world dairy product prices (14% for butter, 15% for cheese, 28% for SMP and 31% for WMP).

In export value terms, these world dairy product price increases are expected to more than compensate for the likely decrease in the volume of exports (2% for butter, 9% for cheese, 18% for SMP and 13% for WMP). Accordingly, ABARE (2001) forecast that the value of world dairy trade would increase by \$0.7 billion (€0.6 billion).

<sup>7</sup> as a result of halving the volume of EU and US subsidised exports.

<sup>8</sup> It should be noted that this analysis ignores any dynamic adjustments in subsequent years. Over time markets would respond to changes in world prices. Increased prices would bring about increased production, trade would grow accordingly and global consumption of dairy products would expand. With this increased trade, the extent of the ongoing price rise generated by the reforms would be reduced.



**Figure 4.2: Impact of decreasing subsidised exports on dairy product prices and trade (% change in first year compared to 1999 base year)**

Source: ABARE (2001)

In Australia, New Zealand and Argentina, the gross value of milk production is expected to increase by between 7% and 15% and by 8% to 18% for dairy products as a result of higher prices. For Argentina, the value of WMP will increase by the greatest amount as it currently accounts for a relatively high proportion of the country's processed dairy production. In contrast, the gross value of milk production and dairy products is forecast to fall by between -5% and -6% as the EU is currently a significant world exporter of dairy products with the aid of subsidies. For the US, the fall in the gross value of milk production and dairy products is forecast to remain virtually unchanged (see Table 4.7).

**Table 4.2: Impact of reducing subsidised exports on the gross value of production**

	Milk (%)	Dairy products (%)
Australia	6.7	8.3
New Zealand	9.4	10.6
Argentina	14.6	17.5
EU	-4.9	-5.5
US	0.0	-0.1

Source: ABARE (2001)

The OECD (2002) has also modelled the impact of eliminating all subsidised exports for dairy markets in the US, Canada and the EU. The results of this analysis are comparable with those discussed above under the ABARE (2001) analysis. The results suggest that total elimination of export subsidies would result in a reduction in the availability of dairy products at export and lower internal market prices.

For the EU, the elimination of export subsidies was found to have large consequences for many EU dairy product markets. The analysis found that decreasing exports that are uncompensated by higher stocks are expected to lead to falling internal prices and, consequently, lower production and higher consumption of these commodities. Falling internal prices also increase the potential for unsubsidised exports of dairy products. It is noted that without the elimination of export subsidies it is unlikely that such opportunities would exist. In fact, under this scenario unsubsidised exports of cheese are forecast to increase substantially. As found in the ABARE (2001) analysis, future unsubsidised cheese exports more than compensate for the loss in subsidised exports as the EU internal price falls and the world cheese price increases. Under the OECD (2002) analysis, the EU internal price is expected to fall by 5% and the world cheese price expected to rise by 10% on average.

## 4.2. Impact of CAP reform on demand

On 26 June 2003, EU Agriculture Ministers agreed on a reform of the EU's Common Agricultural Policy (CAP). Although originally it was intended that a (mid-term) review of the impacts of, and any necessary adjustments to, the Agenda 2000 reform be carried out, the outcome was a fuller reform of the CAP. A brief summary of the main elements of the reform, which will have an affect on the dairy sector, is presented in Box 4.1.

### Box 4.1: Summary of the main elements of the CAP dairy reform agreement

Dairy quotas will be maintained until the 2014/15 quota year. The general quota increases decided under Agenda 2000 will take place from 2006 onwards (instead of 2005) in the eleven Member States, where they remain to be applied. In these countries, quotas are to be increased by 0.5% in each of the years 2006, 2007 and 2008. In addition, milk quotas will be increased for Greece (120,000 tonnes) from 2004/05 and for the Azores (50,000 tonnes) from 2005/06 onwards. In addition, there is a temporary exemption for the Azores regarding milk quota implementation of 73,000 tonnes in 2003/04 and 61 500 tonnes in 2004/05.

The intervention price for butter will be reduced by 25% (-7% in 2004, 2005, 2006 and -4% in 2007), which is 10% more than agreed in Agenda 2000. For skimmed milk powder (SMP), prices will be cut by 15% as agreed in Agenda 2000 (but in 5% steps over three years from 2004 to 2006). The price cuts are brought forward one year compared to the Agenda 2000 plan. Intervention purchases of butter will be suspended above a limit of 70,000 tonnes in 2004, falling to 30,000 from 2007. Above that limit, purchases may be carried out under a tender procedure. Intervention will only be opened between 1 March and 31 August. The target price for milk will be abolished.

Compensation payments to milk producers are fixed as follows: €11.81/tonne in 2004, €23.65 in 2005 and €35.5 from 2006 onwards. The Single Farm Payment will only apply in the dairy sector once the reform is fully implemented (i.e. 2007), but Member States may decide to introduce it earlier (from 2005) in the context of a regional implementation of the SFP.

The impact of the 2003 CAP reform on the dairy sector will, according to OECD (2004) analysis, be relatively modest because the status quo already incorporates the Agenda 2000 decisions. In this respect, the main elements of EU dairy reform, such as the introduction of a payment based on milk output, intervention price cuts and milk quota increases, were already agreed under Agenda 2000. It should, however, be recalled that much of the Berlin Agreement as it pertains to the dairy sector remains to be implemented. Its full implementation will certainly have a significant impact on the dairy market, even though milk quota remains binding (OECD, 2004).

### 4.2.1. Impact of CAP reform on butter consumption

Two elements of the CAP reform are expected to have an indirect impact on butter consumption. These are the rise in butterfat production resulting from the foreseen

quota increase in the period 2006/07-2008/09 and the cut in the support price of butter. Impact analysis carried out by the European Commission (2003) estimates that this will result in a corresponding fall in the market price for butter to a level 22.5% below the 2001 price and 10.7% lower than under the continuation of Agenda 2000 policy, by 2010 (see Table 4.3).

With a lower price incentive, butter production is projected to fall over the medium term, by around 2.5% compared to Agenda 2000. Due to its low price responsiveness, it is likely that EU domestic demand for butter would increase very slightly as a result, reaching some 0.4% above Agenda 2000 levels by 2010. This lower availability and the slightly higher internal use would result in a marked decline in EU exports, of around 23% (50,000 tonnes) by 2010 (Table 4.3).

**Table 4.3: Impact on the butter sector in the EU-15, 2004-2010 (% deviation from Agenda 2000)**

	2004	2005	2006	2007	2008	2009	2010
Production	-0.6%	-3.5%	-4.4%	-3.4%	-2.6%	-2.6%	-2.4%
Consumption	0.3%	0.6%	0.8%	0.5%	0.6%	0.4%	0.4%
Exports	-5.3%	-26.4%	-34.0%	-27.1%	-23.8%	-24.3%	-23.1%
Butter prices	-2.5%	-7.5%	-9.6%	-10.4%	-12.6%	-10.7%	-10.7%

Source: European Commission

#### 4.2.2. Impact of CAP reform on cheese consumption

The Commission analysis suggests that EU-15 cheese production and consumption will be slightly negatively affected by the CAP reform (European Commission, 2003). This is because cheaper butterfat is likely to be channelled, together with scarce protein, towards the production of other dairy products. As a consequence cheese production is expected to fall to a level 0.4% lower than that which would have prevailed under Agenda 2000 and cheese prices are expected to increase by 0.3% from Agenda 2000 levels, by 2010. This is likely to result in an additional 0.6% reduction in consumption than that which would have prevailed under Agenda 2000, by 2010 (Table 4.4).

**Table 4.4: Impact on the cheese sector in the EU-15, 2004-2010 (% deviation from Agenda 2000)**

	2004	2005	2006	2007	2008	2009	2010
Production	0.1%	-0.1%	0.0%	-0.7%	-0.2%	-0.4%	-0.4%
Consumption	0.0%	-0.3%	-0.2%	-0.9%	-0.3%	-0.5%	-0.6%
Exports	1.6%	2.8%	3.0%	3.8%	2.9%	2.9%	2.9%
Cheese Prices	-0.4%	0.4%	0.4%	0.7%	0.0%	0.3%	0.3%

Source: European Commission

#### 4.2.3. Impact of CAP reform on SMP consumption

According to the European Commission (2003) analysis, the combined effect of the higher quantities of milk proteins that are expected to be channelled into the production of fresh dairy products and the smaller quantities of SMP that are likely to be produced as a co-product of the butter production process, are likely to significantly affect SMP production. Over the period, SMP production is estimated to fall by up to 5.5% in the short-term and 4.5% by 2010, from that expected under Agenda 2000 (Table 4.5). Despite lower internal SMP prices, this lower availability of SMP and the assumed reduction in internal aid for consumption is likely to result in a further decline in domestic use. The European Commission (2003) suggests that a decline of 2.6% by 2010 is likely, compared to the continuation of Agenda 2000 (Table 4.5).

**Table 4.5: Impact on the SMP sector in the EU-15, 2004-2010 (% deviation from Agenda 2000)**

	2004	2005	2006	2007	2008	2009	2010
Production	-0.6%	-3.3%	-5.5%	-5.4%	-4.9%	-4.7%	-4.5%
Consumption	-0.1%	-0.2%	-2.2%	-3.8%	-3.0%	-2.6%	-2.6%
Exports	-2.4%	-12.6%	-14.1%	-7.3%	-8.5%	-10.4%	-11.4%
SMP Prices	-0.6%	-1.2%	-1.1%	-1.6%	-1.1%	-2.1%	-2.1%

Source: European Commission

#### 4.2.4. Impact of CAP reform on world market prices and consumption

The recent OECD (2004) analysis on the impact of CAP reform on world prices for dairy products (assuming maximum decoupling from 2004-08) suggests that the additional cuts in butter intervention prices and subsequent reduction of subsidised exports would strengthen world prices for dairy products in general. The analysis suggests that this would be particularly the case for butter where world prices are expected to increase by more than 3% compared to the continuation of Agenda 2000 by 2008. The forecast increase in world prices for cheese and WMP is smaller



compared to butter world prices, while for SMP the world price is expected to change very little (Table 4.6).

**Table 4.6: Impact of the CAP reform on world prices for dairy products, assuming maximum decoupling, 2004-08 (% change from the baseline)**

	2004	2005	2006	2007	2008
Butter	0.2	1.1	2.3	3.7	3.4
Cheese	-0.2	0.4	1.7	1.6	0.6
SMP	0.5	1	1.1	0.5	-0.3
WMP	-0.1	1.6	4.1	3.7	1.1

Source: OECD AGLINK simulation results

### **4.3. Impact of future UK food legislation and measures with respect to obesity**

#### **4.3.1. Introduction**

In the majority of developed countries there has been an increase in the numbers of overweight and obese people over the past 30 years as a result of more sedentary lifestyles, reflecting a clear change in the balance between energy intake and expenditure. The World Health Organisation (WHO) considers obesity to have reached epidemic proportions, with more than 1 billion adults overweight. This is seen as a major contributor to the global burden of chronic disease and disability.

Over the last 25 years the proportion of the UK population that is obese has grown by almost 400% and it is estimated that around two-thirds of the population are now overweight or obese. On present trends, obesity, which is associated with many health problems including coronary heart disease, diabetes, kidney failure, osteoarthritis, back pain and psychological damage, is expected to surpass smoking as the greatest cause of premature loss of life. It has also been estimated that today's generation of children will be the first for over a century for whom life-expectancy falls. The economic cost of obesity has been estimated to cost the UK £3.7 billion per year (Wanless report, 2004).

The obesity debate is well developed in the EU and, according to a recent press release by the European Commission's Health and Consumer Protection Directorate-General (DG SANCO), the debate surrounding 'obesity' will become more important in future years. In response to this the Commission has already put forward legislation on health claims and food labelling and further proposals are currently being prepared that look at mandatory nutrition labelling (e.g. calorie content). The Commission anticipates that the debate surrounding the obesity 'epidemic' is likely to increase pressure on the food industry to make certain adjustments to processed food content and increase information to the public.

#### **4.3.2. Tackling obesity – current government measures**

There are currently no national obesity targets. The previous Government set targets to reduce the prevalence of obesity to 6% for men and 8% of women by 2010. However, obesity rates have risen dramatically in recent years and these targets are not being met. The UK government is therefore looking to implement a range of measures aimed at tackling obesity<sup>9</sup>. While some measures may have a positive

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<sup>9</sup> The Food in Schools (Private Members') Bill (2004), which sought to have all schools in England have a food policy, to make permanent and extend the scheme for free fruit in schools (the pilot National School Fruit Scheme for 4-6 year olds), to extend entitlement to free school meals (including to breakfasts), and to amend the law relating to the nutritional values of school meals, was dropped by Parliament.

impact on milk and dairy product consumption (such as the provision of milk in school vending machines), others may have a negative impact (such as reducing fat consumption). These measures include:

- The 'five-a-day' logo (Department of Health) which is designed to help consumers see at a glance whether products could help them achieve their five-a-day target. This has already been adopted by a variety of brands and over 300 food retailers including Asda, Birds Eye, Coop, Del Monte, Minute Maid orange juice for McDonalds, Sun-Maid raisins, Whitworths dried fruit and Boots.
- Free fruit and vegetable vouchers for low-income families introduced under reforms to the Welfare Food Scheme (called Healthy Start) which supports some of the poorest pregnant women and families with milk tokens. These will be replaced next year with weekly vouchers that can be used to buy fresh produce as well as to buy milk (the vouchers will be worth between £2.80 and £5.60 per week). All pregnant women under the age of 18 will also be eligible for the scheme.
- Piloting different ways of encouraging different groups to take more exercise (e.g. free swimming lessons), improving school sports facilities as well as extending their availability to the community and encourage better cycle lanes and walking routes.
- Piloting ways of replacing fizzy drinks in school vending machines with more healthy drink options. A recent study in the UK by the Food Standards Agency has shown that schools can make a healthy profit by installing vending machines that offer students water, milk and fruit juice instead of soft drinks<sup>10</sup>.

The role that school vending machines play in childhood obesity has received a great deal of attention in recent years. A recent survey by the Times Education Supplement, for example, found that that 79% of parents (and 84% of mothers) wanted vending machines taken out of schools. Local Scottish councils have also moved to ban advertising on vending machines in schools whilst adding healthy alternatives alongside existing products sold from the machines. City councillors in Scotland have also backed proposals for vending machines and school canteens to stop stocking carbonated, sugary drinks by 2007 and for these drinks to be replaced with healthy alternatives (such as water and milk).

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<sup>10</sup> Machines containing 'healthier' drinks were placed in twelve UK secondary schools for six months. During this time approximately 70,000 drinks were purchased, with the most popular being pure juices, flavoured milk and milkshakes, semi-skimmed milk and mineral water. After wage and lease costs were factored in, two schools recorded a small

### **4.3.3. Tackling obesity – future government measures**

In addition to these activities the government is due to issue a White Paper in October 2004 based on the recommendations in the Health Select Committee's Report. In the UK it has been reported that manufacturers of foods high in salt, fat or sugar could face serious marketing restrictions<sup>11</sup> if the UK government follows recommendations in the House of Common's Health Committee's report on obesity. Some consumer groups, including The Food Commission, have added that the recommendations do not go far enough and that the government should act more rapidly, using legislation, particularly to ban advertising for 'junk food'.

However, the government has countered calls for increased regulation and has recently argued that the educational devices should be investigated as a priority. According to reports the Government does not consider banning or taxing certain foods or taking a tougher stance on children's television advertising, as being the best way to tackle obesity. In contrast the Government is looking towards non-regulatory and voluntary solutions from the food industry, such as Kraft's announcement that it would reformulate many of its products, cease marketing in schools, and curb portion sizes as part of a move to help reduce rising obesity rates.

### **4.3.4. The role that dairy products could play in tackling obesity**

Medical literature that has coalesced during the past two to three decades has identified adequate intake of nutrients from dairy foods as a common factor in the reduction of the disease burden of several common medical conditions. These include obesity, hypertension, type 2 diabetes, osteoporosis, kidney stones, certain outcomes of pregnancy, and some cancers (McCarron and Heaney, 2004). For example, one of the first studies to examine the relationship between dietary calcium intake and overweight in children has found that a higher intake of dietary calcium (such as that found in milk, cheese, and yoghurt) is associated with lower body fat in young children. Results showed that dietary calcium and polyunsaturated fat intake were associated with a lower percentage of body fat. Milk and other dairy products were the main sources of dietary calcium in the study, with milk alone accounting for 50% of the total calcium intake (Skinner J.D., et al. 2003).

Another US study<sup>12</sup> found that just two servings of dairy products a day are linked to a reduction in adolescent fatness. Childhood dairy intake has been falling for 20 years, in part as children's preferences have switched from milk to soft drinks. In this time,

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loss, two made a small profit, three made 'respectable profits' (£300-£500), and two achieved profits between £900 to £1,300).

<sup>11</sup> The report recommends that if insufficient action has been taken within three years, the government should introduce more direct legislation.

<sup>12</sup> *International Journal of Obesity*, September 2003.

soda consumption has risen by 300% and the incidence of obesity has shot up alarmingly. The research also suggested that adolescent girls in particular are concerned about eating dairy, because they think it will make them fat. However, the study found that the opposite is true since children who skimp on milk and other dairy food to avoid calories run the risk of piling on weight<sup>13</sup>.

Other studies have found that there is an inverse effect between dairy food/calcium intake and body weight and that three servings of dairy foods per day in a reduced calorie diet may help accelerate body weight and, in particular, body fat loss. Accordingly, dairy products can form part of the solution in reducing obesity (Di Rienzo *et al*, 2003).

#### **4.3.5. The impact of future UK food legislation with respect to obesity on the demand for dairy products**

The proposals put forward by the Commons Health Select Committee focus on proposals to set up a new labelling system for food, lessons for school children on healthy eating, restrictions on food advertising and a national campaign to try to get people to exercise more. However, in order for these recommendations to have any impact at all they must be accepted and implemented by the government and so far Health Secretary John Reid has said only that the findings will be fed into the White Paper on public health to be published later this year. However, some commentators, including the FSA, view the report as something of a watershed in the fight against obesity and as such it appears likely that it will form the basis of future policy responses by the government.

While the debate on obesity is relatively mature there appears to be a paucity of information or research on what the likely impacts of future obesity-related legislation, on dairy products or otherwise, might be. In the absence of any readily available quantification of the possible impacts we have considered what the key impacts might be for some of the policy measures that are likely to be included in the forthcoming white paper on obesity (see Table 4.7).

It should be noted that this summary is a basic attempt at evaluating the possible impacts of future measures aimed at food and obesity. This approach naturally has many limitations. For example, measures may have a synergistic effect in that the impact of measures in combination is likely to be greater than the impact of measures in isolation. As is shown in the summary below the outcome is critically dependent on whether dairy products are ultimately labelled as 'healthy' foods. If so, there are a variety of potential opportunities for the sector.

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<sup>13</sup> See <http://www.nationaldairycouncil.org/nutrition/reducing/calciumWeight.asp?page=4> for a list of research on calcium and weight management.



**Table 4.7: Summary of possible impacts of future measures aimed at tackling obesity**

Measure	Assumptions/opportunities	Impact rating <sup>1</sup>
Traffic light system for labelling food	<ul style="list-style-type: none"> <li>Assume dairy products are labelled as being 'healthy'.</li> <li>Opportunity for industry to respond quickly with reformulation and new products (e.g. such as Kraft have done)</li> <li>Opportunity for dairy industry to promote health aspects of dairy products, particularly for children, based on peer-reviewed research.</li> <li>Develop new products/branding aimed specifically at optimising benefit to industry and producers from new labelling.</li> <li>The worst case scenario would be if dairy products are given a bad health rating. However, this seems unlikely (given the evidence) and as such the outlook appears positive.</li> <li>Most consumers feel that more could be done to improve labelling and to help people interpret and understand the information that is presented.</li> </ul>	+++
Health education campaign to highlight the risks	<ul style="list-style-type: none"> <li><u>Opportunity to lobby government in short-term as to benefits of dairy products as part of a healthy eating regime.</u></li> <li>Opportunities to participate/fund educational campaigns and to develop promotions based around healthy lifestyles.</li> <li>Most consumers feel the government should spend more on campaigns/support services to promote diet and exercise.</li> </ul>	++
Healthy eating lessons for school-children	<ul style="list-style-type: none"> <li>Possibility of funding/participation (branding).</li> <li>Opportunity to influence curriculum content.</li> <li>Opportunity for industry to introduce education initiatives (e.g. Cadbury's Get Active initiative)</li> </ul>	+
Voluntary ban on junk food ads targeting children	<ul style="list-style-type: none"> <li>Opportunity for enhanced advertising of milk and dairy products.</li> <li>Opportunity to increase market share at expense of 'junk food' brands.</li> </ul>	++
Snack vending machines to be removed from schools	<ul style="list-style-type: none"> <li>If vending machines remain then industry has the opportunity to introduce healthy drinks.</li> </ul>	++
National walking strategy	<ul style="list-style-type: none"> <li>Promotional opportunities.</li> </ul>	+
VAT rule changes	<ul style="list-style-type: none"> <li>Opportunity depends on how milk and dairy products are rated. Milk drinks are currently VAT exempt.</li> <li>Changes to current rules for milk seem unlikely.</li> </ul>	+
Subsidy on 'healthy' foods	<ul style="list-style-type: none"> <li>Assuming milk is classified as a 'healthy' food then there could be a major impact on the industry and producers depending on where the subsidy was applied.</li> <li>Recent CAP reforms and WTO agreements may mean that the introduction of a subsidy on milk products is either impossible or politically unpalatable.</li> </ul>	+

Tax on 'unhealthy' foods (a 'fat tax')	<ul style="list-style-type: none"><li>• Assuming milk is classified as being 'healthy' then potential for increased market share for milk/dairy products is large.</li><li>• Opportunity for industry to differentiate itself from 'junk foods' (assuming that negative views on dairy products can be countered effectively).</li></ul>	++
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## 5. Future market evolution

### 5.1. Introduction

This Section provides a descriptive outline of forecast demand patterns and trends over the next decade for the major dairy products (including both commodity type products and value added (novel) products) at the world, EU and UK level. In describing these demand patterns and trends, reference is made to detailed forecasts for the major products, which are presented in Section 6.4.

### 5.2. World

Per capita consumption of dairy products is generally high in the majority of developed countries and therefore, food availability and affordability concerns have largely been superseded by consumers' concerns about food quality and other food attributes (OECD 2004), as discussed in Section 2.5. Consumption of milk and milk products is therefore expected to show only limited growth (0.5% per annum) over the period to 2013 in developed countries. This is because for most developed countries, current levels of consumption of milk and milk products are near saturation and as a result, any growth in consumption is expected to be marginal and mainly associated with limited population growth and changes in the type and form of dairy products consumed. While these countries are likely to continue to represent an important share of world consumption in the period to 2010, this group of countries is anticipated to account for only 13% of total world milk demand growth (FAO 2002).

For countries in transition (including the Former Soviet Union and Eastern European countries), limited growth (0.9% per annum) compared with 1999 levels is projected; however, this would be a substantial improvement over the 1990s, when consumption dropped at an average rate of 3.3% per annum. The countries in transition are expected to constitute 10% of the estimated increase in world demand to 2010 (FAO 2002).

In comparison, per capita consumption of dairy products in less developed countries is generally lower, with demand largely being fuelled by high population and income growth, but also the impact of urbanisation and the development of fast food, changes in lifestyles, expansion of cold storage facilities and improved product shelf life (OECD, 2004), as discussed in Section 2. The developing countries are forecast to show the strongest growth in demand for milk and milk products, which is projected to grow at the rate of 2.5% per annum, broadly a continuation of the growth rate during the 1990s. Consumption of milk and milk products is expected to grow fastest in Asia, accounting for almost 52% of world demand growth, with Latin America and

the Caribbean region accounting for 18%. Within Latin America and the Caribbean region, Brazil and Mexico are anticipated to have the largest increases in consumption, partly as a result of government food assistance programmes (OECD 2004). In contrast, Africa is expected to have the smallest increase in demand amongst the developing country regions and in many countries in this region, demand is actually forecast to grow at a slower rate than the growth in population (FAO 2002).

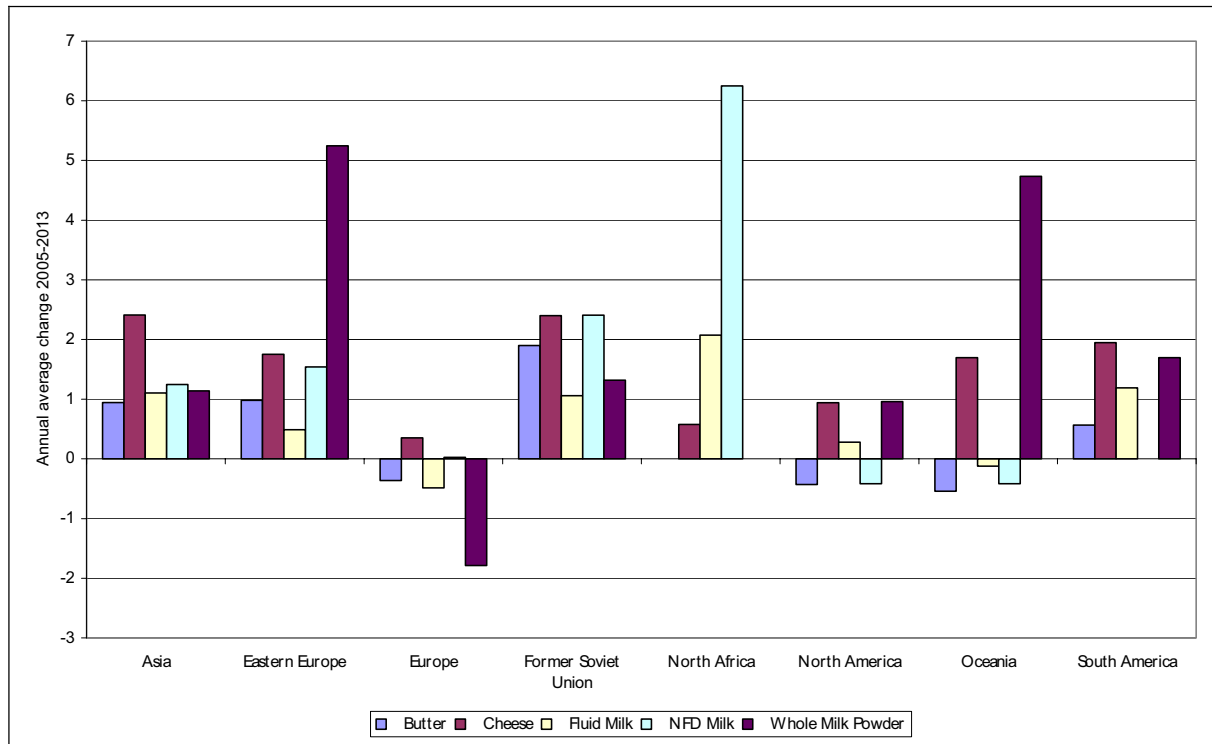
At the world scale, butter, cheese and WMP consumption is forecast to increase, whereas SMP consumption is likely to remain relatively stable (see Table 5.1 and Figure 5.1).

**Table 5.1: World forecast dairy product consumption 2004-2013 ('000 tonnes)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	% 13/04 <sup>1</sup>
Butter	8,324	8,505	8,675	8,832	9,046	9,237	9,410	9,619	9,844	10,075	2.1
Cheese	17,910	18,239	18,678	19,017	19,441	19,803	20,187	20,584	20,979	21,362	2.0
SMP	3,584	3,652	3,676	3,698	3,703	3,731	3,752	3,789	3,828	3,887	0.9
WMP	3,644	3,797	3,886	3,981	4,085	4,185	4,287	4,390	4,496	4,616	2.7

Note <sup>1</sup> Annual average change

Source: OECD 2004, Agra CEAS calculations.



**Figure 5.1: Forecast world<sup>1</sup> dairy consumption per capita 2005-2013 (% change/year)**

Note: <sup>1</sup> Selected countries arranged in regional groups (see Section 6.4)

Source: FAPRI 2004, Agra CEAS calculations.

To meet this changing demand, the ongoing trend in world dairy product trade is expected to continue, with trade gradually shifting from supply-led trade in bulk commodities (SMP and butter) to demand-driven high value-added products (cheeses). Competition to market more income-sensitive value-added products is likely to continue, mainly among established processors and, for bulk commodities, among established exporters. With the implementation of EU CAP reforms, cheese and milk powder prices are forecast to decline slightly in 2005 and 2006, although increasing Asian import demand and declining EU exports are likely to exert upward pressure on dairy product prices in the long term (OECD, 2002 and FAPRI 2004).

### 5.2.1. Liquid milk

By 2013, the largest consumers of liquid milk are expected to be Eastern Europe and the new EU Member States, where per capita consumption is forecast to increase by 0.5% per to 116.3 Kg/capita. The Former Soviet Union is also expected to be a large consumer, with consumption forecast to increase by 1.1% per annum to 96.5 Kg/capita. North Africa is forecast to see the fastest growth in per capita consumption of 2.1% per year to 18.5 Kg/capita, while Europe is forecast to see a decrease in consumption of 0.5% per year to 79.9 Kg/capita (see Figure 5.1 and Table 6.70 in Section 6.4.1).

While, these forecasts show only modest growth in world liquid milk consumption, world milk production is forecast to increase in the medium term (OECD 2004). It is therefore likely that the majority of additional milk production would be processed into other products, and increasingly in high-income countries this will be for the production of value added products.

### **5.2.2. Butter**

OECD forecasts show world butter consumption increasing at 2.1% per annum to reach 10.1 million tonnes by 2013 (see Table 5.1). Domestic demand for butter has increased rapidly in India in recent years and this trend is forecast to continue, with domestic production expected to increase accordingly. Butter consumption in Russia has generally recovered from the Rouble shock of 1998 and imports have been rising to meet this growing demand. Meanwhile, East Asian demand is also forecast to increase, particularly in China, Indonesia, Malaysia, and the Philippines, with imports expected to rise to meet the majority of this extra demand (FAPRI 2004).

By 2013, the largest consumer of butter is expected to be Europe at 4.9 Kg/capita, despite a forecast 0.4% per annum decrease in per capita consumption. A similar trend is forecast for Oceania, where per capita consumption is expected to decrease by 0.5% per annum to 4.3 Kg/capita (the second largest consumer of butter). The Former Soviet Union is forecast to see the fastest growth in per capita consumption of 1.9% per year to 3.0 Kg/capita, while Oceania is forecast to see the fastest decrease in consumption per capita, followed by North America (and Europe as mentioned) at 0.4% per annum to 1.8 Kg/capita (see Figure 5.1 and Table 6.70 in Section 6.4.1).

### **5.2.3. Cheese**

OECD forecasts show world cheese consumption increasing at 2.0% per annum to reach 21.4 million tonnes by 2013 (see Table 5.1). Growth in cheese demand in some developed countries has been boosted in recent years following the outbreak of BSE and FMD in Europe and Japan, which has prompted many consumers to substitute meat and meat products in their diets with dairy products, particularly high value-added products such as cheeses (OECD 2002). Approximately three-quarters of world cheese consumption occurs in higher income countries and forecasts show that these countries are likely to consume more than two-thirds of the forecast increase in world production in the period to 2013. Cheese is an income sensitive product in many of these countries and often seen as a substitute for meat and meat products. As a result, cheese producers are competing for new consumer demand with increased product variety and increased use of recognised geographic indicators (OECD, 2004).

By 2013, the largest consumers of cheese are expected to be Europe, with consumption forecast to increase by 0.4% per annum between 2005 and 2013 to 18.1 Kg/capita, followed by North America and Eastern Europe, where consumption is forecast to increase by 0.9% per annum and 1.8% per annum to 9.6 Kg/head and 8.9 Kg/head respectively. Consumption is forecast to increase fastest in Asia and the Former Soviet Union, both at 2.4% per annum to 0.8 Kg/capita and 3.8 Kg/capita respectively (see Figure 5.1, Table 6.70 and Section 6.4.1). The largest absolute growth is forecast in Argentina, with consumption increasing by 2.25 Kg/capita (FAPRI 2004). Japan has a per capita consumption of less than 2.0 Kg/capita, although the OECD forecasts that it will remain the world's largest importer of cheese, accounting for almost one-fifth of trade.

#### **5.2.4. Skimmed milk powder**

OECD forecasts show world SMP (Non Fat Dry milk - NFD) consumption increasing at 0.9% per annum to reach 3.9 million tonnes by 2013 (see Table 5.1). This rather flat growth reflects the growing competition from WMP in milk reconstitution markets and especially from processed whey in feed and milk ingredient markets (OECD 2002).

Europe is expected to be the largest consumer of SMP with consumption forecast to be stable between 2005 and 2013 at 2.3 Kg/capita, with Eastern Europe forecast to increase consumption by 1.5% per annum. Consumption is forecast to grow fastest in North Africa by 6.3% per annum to 0.3 Kg/capita, followed by the Former Soviet Union at 2.4% per annum to 1.3 Kg/capita. Meanwhile, consumption is forecast to decrease by 0.4% per annum in North America and Oceania to 1.7 Kg/capita and 1.4 Kg/capita (see Figure 5.1, Table 6.70 and Section 6.4.1). As a by-product of India's increasing butter output, SMP production in India is forecast to increase by 73.7% over the period. As demand in India is not expected to increase by this amount, this will result in an increased exportable surplus and exports that are forecast to increase by 12.7% per annum (FAPRI 2004).

#### **5.2.5. Whole Milk Powder**

OECD forecasts show world WMP consumption increasing at 2.7% per annum to reach 4.6 million tonnes by 2013 (see Table 5.1), reflecting the growing use of WMP in milk reconstitution markets at the expense of SMP. Domestic WMP consumption in Asia (particularly China) is forecast to increase as consumers increasingly substitute liquid milk for reconstituted milk powder, contributing to a forecast reduction in WMP imports in the long term.

The largest consumer of WMP is South America, where consumption is forecast to increase by 1.7% per year between 2005 and 2013 to 2.8Kg/capita. North America

and Europe are the next largest consumers, with consumption in North America forecast to increase by 1.0% per annum to 1.4 Kg/capita and in Asia by 1.1% per annum to 1.3 Kg/capita. The fastest rate of growth is forecast to be in Eastern Europe, where consumption is expected to increase by 5.2% per annum to 0.7 Kg/head, followed by Oceania at 4.7% per annum to 0.9 Kg/capita. Consumption is forecast to decrease in Europe by 1.8% per annum to 0.6 Kg/capita (see Figure 5.1, Table 6.70 and Section 6.4.1).

#### **5.2.6. Processed whey**

Processed whey consumption is increasingly being used in the manufacture of foodstuffs, animal feed and protein concentrates for the agro-food industry and consequently, output of whey has been rising steadily as a by-product of cheese production. Whey proteins are seen as multifunctional food ingredients with high nutritional values and excellent metabolic efficiency, making them ideal for infant and sport nutrition. Whey is also being used to fractionate lactose, which can be used as a substitute for cane and beet sugars (OECD 2002).

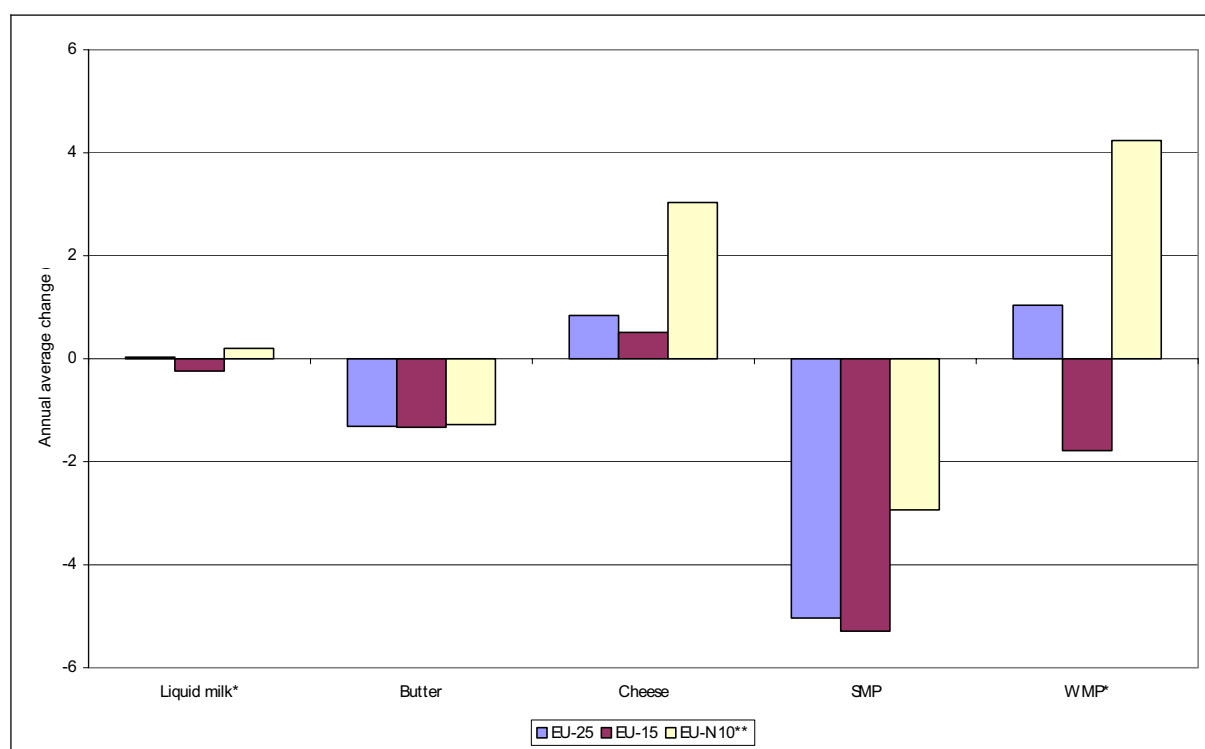
#### **5.2.7. Milk components**

Membrane technologies are not only used to fractionate whey proteins and lactose from whey, but also to fractionate farm milk directly into ingredients with market-recognised specifications. The products of this process (milk protein concentrates, lactose, de-mineralised lactose, etc.) have wide application in food manufacturing and as substitutes for traditional milk powders (WMP and SMP). International markets based on milk components have been developing rapidly as cheaper, multi-functional sources of milk solids. This trend continues to be encouraged by the fact that milk protein products have been the only dairy items not subject to Tariff Rate Quotas, although there has been pressure in the United States to change this (OECD 2002).

### 5.3. EU-25

Average EU per capita consumption of dairy products is expected to decline following enlargement, as per capita consumption of dairy products in the new member states, especially SMP and cheese, is considerably lower than in the EU-15. However the enlarged European Union is expected to maintain its position as the largest per capita consumer of some dairy products. This is likely to be particularly the case for cheese where consumption is forecast to increase and reach 19.2 Kg/capita by 2013).

The difference in per capita consumption between the EU-15 and EU-N10 countries is also expected to narrow between 2004 and 2013 (OECD 2004). Figure 5.2 (also Table 6.77 and Table 6.78 in Section 6.4.2) presents European Commission and FAPRI consumption forecasts for the period to 2013, with EU-25 consumption of butter and SMP expected to fall, while the consumption of cheese and WMP is expected to increase over the period and liquid milk consumption likely to remain relatively unchanged.



**Figure 5.2: EU-25 forecast dairy consumption 2005-2011 (% change/year)**

Note \* % change per year 2005-2013.

Note \*\* including Bulgaria and Romania. WMP excluding Cyprus and Malta.

Source: DG Agriculture, Eurostat, FAPRI, Agra CEAS calculations.

### **5.3.1. Liquid milk**

FAPRI consumption forecasts for liquid milk (see Figure 5.2, and Table 6.77 and Table 6.78) in the EU-25 suggest that the current trends will continue over the medium-term, with liquid milk consumption declining in the EU-15 by 0.24% per annum to 71.7Kg/capita by 2013, while consumption in the EU-N10 is forecast to increase by 0.20% to 116.3 Kg/capita, resulting in a very small overall EU-25 increase in per capita consumption of 0.03% per annum to 188.0 Kg/capita. In addition, it is likely that there will be a continuation in the shift away from the consumption of full fat milk in favour of skimmed and semi-skimmed milks.

### **5.3.2. Butter**

Butter consumption in the EU-25 is forecast by the European Commission to decrease over the period to 2011 by 1.3% per annum to 3.8 Kg/capita, with consumption in the EU-15 and the EU-N10 declining at virtually the same rate to 4.0 Kg/capita and 2.9 Kg/capita, respectively (see Figure 5.2 and Table 6.77). This is despite some signs of stabilisation observed over recent years. Butter consumption forecasts for the EU-15 by FAPRI predict a similar fall in consumption in the medium-term (see Table 6.78).

### **5.3.3. Cheese**

Cheese consumption in the EU-25 is forecast by the European Commission to increase in the period to 2011 by 0.8% per annum to 18.7 Kg/capita, with consumption in the EU-N10 increasing at a faster rate. EU-N10 per capita consumption is expected to increase by 3.0% per annum to 15.7 Kg/capita and in the EU-15 by 0.5% per annum to 19.3 Kg/capita (see Figure 5.2 and Table 6.77). Cheese consumption forecasts for the EU-15 by FAPRI predict a similar increase in consumption in the medium-term (see Table 6.78). As production is constrained by milk quotas, this likely growth in domestic consumption is expected to be met largely by a relative decline in net exports (OECD, 2004).

### **5.3.4. Milk powders**

Skimmed milk powder consumption in the EU-25 is forecast by the European Commission to decrease in the period to 2011 by 5.0% per annum to 1.6 Kg/capita. Consumption is expected to decrease by a greater rate (5.3% per annum to 1.7 Kg/capita) in the EU-15 compared with the EU-N10 where it is forecast to decrease by 2.9% per annum to 19.3 Kg/capita (see Figure 5.2 and Table 6.77). SMP consumption forecasts for the EU-15 by FAPRI predict a similar decreasing trend in the medium-term (see Table 6.78).

As reported in Section 4.2, the decrease in consumption is likely to be lessened by the implementation of the CAP reform support price cut, which is expected to lead



to a reduction in price. Production is forecast to decrease substantially in the long term and in conjunction with declining consumption is expected to gradually reduce the level of intervention stocks. The use of SMP in the animal feed sector is also projected to decline slightly (European Commission, 2003).

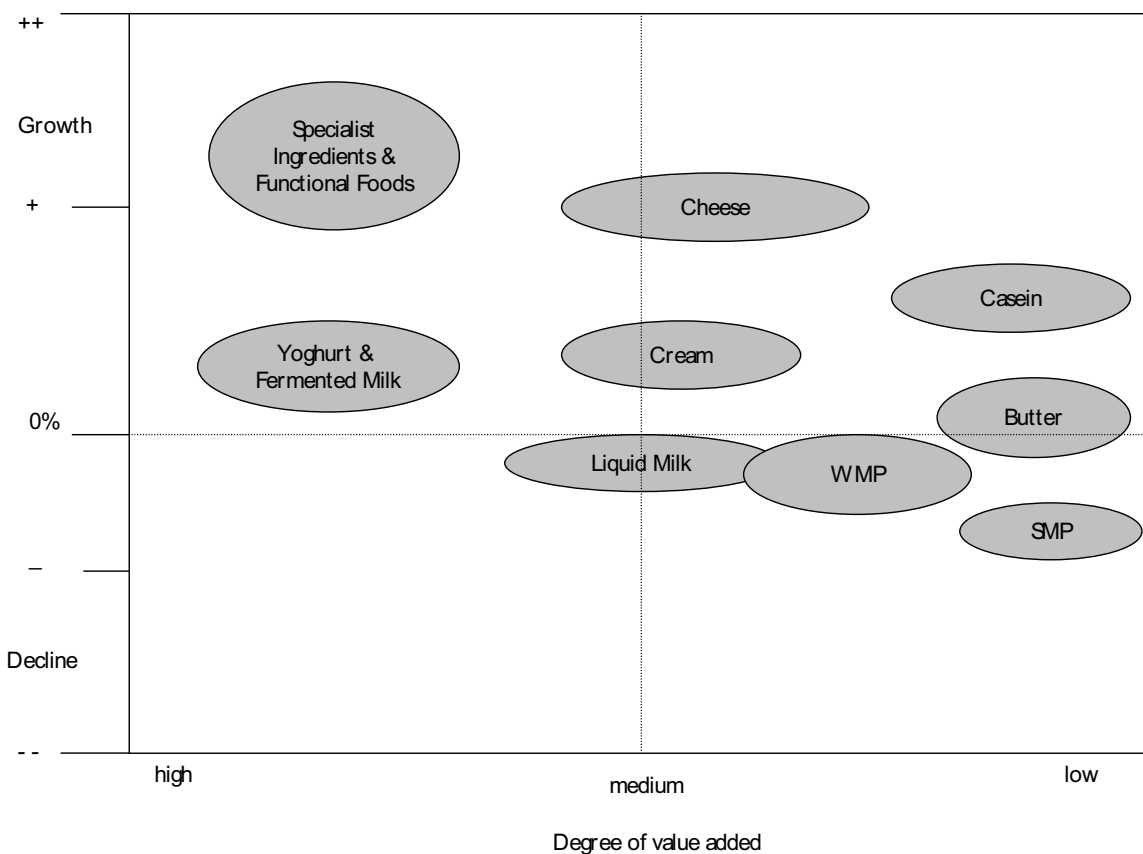
According to FAPRI forecasts, WMP consumption in the EU-25 is likely to increase over the period to 2013 by 1.0% per annum to 1.3 Kg/capita, decreasing in the EU-15 by 1.8% per annum to 0.6 Kg/capita, but increasing in the EU-N10 by 4.2% per annum to 0.7 Kg/capita (see Figure 5.2, Table 6.77 and Table 6.78).

#### **5.4. UK**

In the medium-term, future demand and consumption patterns in the UK are expected to follow existing trends, which are generally being driven by evolving consumer preferences and food attitudes rather than population growth, income and price. Although consumption forecasts are not carried out at the UK level, it is likely that the future evolution of UK dairy demand will be more or less in line with forecast trends for the EU-15.

In this respect, consumption of innovated, value added products (e.g. low-fat and low-calorie foods, like light cheese, skimmed and semi-skimmed milk and yoghurt) are likely to continue to negatively affect the consumption of some of the traditional dairy products (e.g. high-fat cheese, whole milk and butter). However, demand for differentiated traditional dairy products are likely to continue to increase (e.g. flavoured milks), particularly those that offer a higher content in food service and in industrial uses (e.g. the range of dairy products aimed at children, including DairyLea Lunchables, DairyLea Dunkers and DairyLea Strip Cheese). In addition, evolving tastes and fashions will require more complex products (e.g. biological products).

These expected trends are conceptualised in Figure 5.3 for the various milk and dairy product types. This conceptualisation provides a generalised view of the likely evolution in demand for each product type as it should be noted that there are huge variations in terms of value added and expected demand within each product category.



**Figure 5.3: Expected demand and level of value added**

Adapted from Donnelly (2004).



## 6. Data

### 6.1. Balance sheets for dairy products

#### 6.1.1. World

**Table 6.1: USDA-FAS country groups**

Region	Selected Countries	
<b>North America</b>	Canada United States	Mexico
<b>South America</b>	Argentina Brazil Chile	Peru Colombia Venezuela
<b>Former Soviet Union</b>	Russia	Ukraine
<b>North Africa</b>	Egypt	Algeria
<b>South Asia</b>	India	
<b>Asia</b>	(India) Japan Taiwan Malaysia Thailand	China Korea (S) Indonesia Philippines
<b>Oceania</b>	Australia	New Zealand

**Table 6.2: World<sup>1</sup> supply balance for Milk ('000 tonnes)**

		1999	2000	2001	2002	(p) 2003	(f) 2004
<b>North America</b>	Production	90,791	93,395	92,601	94,664	94,975	94,835
	Import	n.a	n.a	n.a	n.a	n.a	n.a
	Export	n.a	n.a	n.a	n.a	n.a	n.a
	Consumption	33,487	33,718	33,834	33,967	34,459	34,255
	Kg/capita	81.90	81.53	80.97	80.48	80.84	79.57
	Ending Stocks	n.a	n.a	n.a	n.a	n.a	n.a
<b>South America</b>	Production	35,180	35,094	35,150	34,559	34,135	34,663
	Import	n.a	n.a	n.a	n.a	n.a	n.a
	Export	n.a	n.a	n.a	n.a	n.a	n.a
	Consumption	16,178	16,188	15,940	15,485	15,561	15,844
	Kg/capita	64.47	63.69	61.93	59.44	59.03	59.43
	Ending Stocks	n.a	n.a	n.a	n.a	n.a	n.a
<b>Former Soviet Union</b>	Production	45,140	44,300	46,169	47,360	46,306	45,086
	Import	n.a	n.a	n.a	n.a	n.a	n.a
	Export	n.a	n.a	n.a	n.a	n.a	n.a
	Consumption	17,400	17,256	17,340	17,650	16,750	17,274
	Kg/capita	88.38	88.12	89.05	91.18	87.01	90.20
	Ending Stocks	n.a	n.a	n.a	n.a	n.a	n.a
<b>North Africa</b>	Production	n.a	n.a	n.a	n.a	n.a	n.a
	Import	n.a	n.a	n.a	n.a	n.a	n.a
	Export	n.a	n.a	n.a	n.a	n.a	n.a
	Consumption	n.a	n.a	n.a	n.a	n.a	n.a
	Kg/capita	n.a	n.a	n.a	n.a	n.a	n.a
	Ending Stocks	n.a	n.a	n.a	n.a	n.a	n.a
<b>South Asia</b>	Production	36,000	36,250	36,400	36,200	36,500	37,500
	Import	n.a	n.a	n.a	n.a	n.a	n.a
	Export	n.a	n.a	n.a	n.a	n.a	n.a
	Consumption	33,000	33,000	33,300	33,500	34,000	34,500
	Kg/capita	33.44	32.91	32.70	32.39	32.39	32.39
	Ending Stocks	n.a	n.a	n.a	n.a	n.a	n.a
<b>Asia</b>	Production	15,633	16,771	18,555	21,383	23,953	26,905
	Import	n.a	n.a	n.a	n.a	n.a	n.a
	Export	n.a	n.a	n.a	n.a	n.a	n.a
	Consumption	7,704	8,784	9,404	10,680	11,922	13,304
	Kg/capita	5.56	6.29	6.70	7.57	8.40	9.33
	Ending Stocks	n.a	n.a	n.a	n.a	n.a	n.a
<b>Oceania</b>	Production	21,553	23,407	24,026	25,533	24,982	25,380
	Import	n.a	n.a	n.a	n.a	n.a	n.a
	Export	n.a	n.a	n.a	n.a	n.a	n.a
	Consumption	2,389	2,338	2,275	2,321	2,342	2,360
	Kg/capita	105.05	101.72	97.97	98.96	98.89	98.72
	Ending Stocks	n.a	n.a	n.a	n.a	n.a	n.a

Note: P=provisional figures F=forecast.

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Source: USDA-FAS 2004, Agra CEAS Calculations

**Table 6.3: World<sup>1</sup> supply balance for Whole Milk Powder ('000 tonnes)**

		1999	2000	2001	2002	(p) 2003	(f) 2004
<b>North America</b>	Production	58	54	19	21	18	20
	Import	41	40	59	49	48	47
	Export	12	22	0	0	0	0
	Consumption	87	73	79	70	66	67
	Kg/capita	0.2	0.2	0.2	0.2	0.2	0.2
	Ending Stocks	4	3	1	1	1	1
<b>South America</b>	Production	625	606	691	728	711	728
	Import	249	219	176	191	142	148
	Export	166	122	109	195	134	136
	Consumption	689	715	774	756	727	747
	Kg/capita	2.2	2.3	2.4	2.3	2.2	2.2
	Ending Stocks	160	148	132	100	92	85
<b>Former Soviet Union</b>	Production	64	82	129	137	127	117
	Import	35	25	15	16	20	25
	Export	5	9	17	12	11	10
	Consumption	94	99	127	141	136	132
	Kg/capita	0.5	0.5	0.7	0.7	0.7	0.7
	Ending Stocks	1	0	0	0	0	0
<b>North Africa</b>	Production	0	0	0	0	0	0
	Import	108	110	110	116	115	121
	Export	0	0	0	0	0	0
	Consumption	108	109	107	112	115	117
	Kg/capita	3.6	3.6	3.5	3.6	3.6	3.6
	Ending Stocks	2	3	6	10	10	14
<b>Asia</b>	Production	499	577	661	628	659	691
	Import	200	211	263	290	318	371
	Export	3	12	65	63	44	44
	Consumption	693	762	871	852	929	1016
	Kg/capita	0.2	0.3	0.3	0.3	0.3	0.3
	Ending Stocks	8	22	10	13	17	19
<b>Oceania</b>	Production	527	607	685	779	784	789
	Import	643	619	652	688	666	728
	Export	521	576	694	694	777	781
	Consumption	35	21	26	25	27	29
	Kg/capita	1.5	0.9	1.1	1.1	1.1	1.2
	Ending Stocks	43	58	30	93	83	66

Note: P=provisional figures F=forecast.

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Source: USDA-FAS 2004, Agra CEAS Calculations

**Table 6.4: World<sup>1</sup> supply balance for Skimmed Milk Powder ('000 tonnes)**

		1999	2000	2001	2002	(p) 2003	(f) 2004
<b>North America</b>	Production	835	885	874	957	951	888
	Import	129	134	147	139	160	167
	Export	258	174	142	175	177	207
	Consumption	661	664	759	825	1023	1040
	Kg/capita	1.62	1.61	1.82	1.95	2.40	2.42
	Ending Stocks	168	349	469	565	476	284
<b>South America</b>	Production	120	119	157	156	149	144
	Import	74	57	34	36	30	31
	Export	29	25	18	25	13	14
	Consumption	171	158	171	172	167	162
	Kg/capita	0.59	0.54	0.57	0.57	0.55	0.52
	Ending Stocks	21	14	16	11	10	9
<b>Former Soviet Union</b>	Production	162	186	222	203	208	203
	Import	90	51	50	50	60	65
	Export	15	97	86	63	51	47
	Consumption	237	141	185	190	217	223
	Kg/capita	1.20	0.72	0.95	0.98	1.13	1.16
	Ending Stocks	2	1	2	2	2	0
<b>North Africa</b>	Production	0	0	0	0	0	0
	Import	71	90	112	132	115	129
	Export	0	0	0	0	0	0
	Consumption	71	90	95	128	120	127
	Kg/capita	0.72	0.89	0.92	1.22	1.13	1.17
	Ending Stocks	2	2	19	23	18	20
<b>Asia</b>	Production	378	426	442	475	489	522
	Import	406	460	413	453	468	504
	Export	17	34	24	37	39	48
	Consumption	770	808	837	896	918	973
	Kg/capita	0.27	0.28	0.29	0.31	0.31	0.33
	Ending Stocks	99	143	137	132	132	137
<b>Oceania</b>	Production	468	461	492	516	508	499
	Import	0	4	2	3	4	3
	Export	445	428	413	479	495	477
	Consumption	46	37	38	40	40	40
	Kg/capita	2.02	1.61	1.64	1.71	1.69	1.67
	Ending Stocks	73	73	116	116	93	78

Note: P=provisional figures F=forecast.

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Source: USDA-FAS 2004, Agra CEAS Calculations



**Table 6.5: World<sup>1</sup> supply balance for Butter ('000 tonnes)**

		1999	2000	2001	2002	(p) 2003	(f) 2004
<b>North America</b>	Production	738	717	713	762	716	680
	Import	58	64	95	72	86	85
	Export	13	14	16	20	22	15
	Consumption	779	766	773	774	807	765
	Kg/capita	1.9	1.9	1.8	1.8	1.9	1.8
	Ending Stocks	25	26	45	85	58	43
<b>South America</b>	Production	70	72	78	70	72	70
	Import	11	10	2	8	4	2
	Export	0	0	3	0	0	0
	Consumption	81	82	77	78	76	72
	Kg/capita	0.47	0.47	0.43	0.43	0.42	0.39
	Ending Stocks	0	0	0	0	0	0
<b>Former Soviet Union</b>	Production	368	400	426	411	400	385
	Import	58	61	112	121	135	135
	Export	11	34	56	20	25	15
	Consumption	420	437	480	510	525	512
	Kg/capita	2.13	2.23	2.47	2.63	2.73	2.67
	Ending Stocks	50	40	42	44	29	22
<b>North Africa</b>	Production	10	10	12	15	16	16
	Import	43	49	45	62	57	59
	Export	0	0	0	0	0	0
	Consumption	53	59	57	76	73	75
	Kg/capita	0.77	0.84	0.79	0.73	0.69	0.69
	Ending Stocks	0	0	0	1	1	1
<b>Asia</b>	Production	1836	2038	2330	2483	2530	2682
	Import	4	10	3	16	26	23
	Export	1	2	2	3	2	5
	Consumption	1835	2042	2343	2497	2550	2697
	Kg/capita	1.62	1.77	2.01	2.11	2.13	2.22
	Ending Stocks	29	33	21	20	24	27
<b>Oceania</b>	Production	492	524	512	534	538	535
	Import	6	10	12	7	7	10
	Export	396	477	470	468	486	479
	Consumption	90	85	84	76	81	77
	Kg/capita	3.96	3.70	3.62	3.24	3.42	3.22
	Ending Stocks	114	86	56	53	31	20

Note: P=provisional figures F=forecast.

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Source: USDA-FAS 2004, Agra CEAS Calculations

**Table 6.6: World<sup>1</sup> supply balance for Cheese ('000 tonnes)**

		1999	2000	2001	2002	(p) 2003	(f) 2004
<b>North America</b>	Production	4036	4208	4216	4372	4371	4500
	Import	264	269	291	307	326	326
	Export	63	65	72	71	64	60
	Consumption	4192	4368	4453	4574	4630	4780
	Kg/capita	10.25	10.56	10.66	10.84	10.86	11.10
	Ending Stocks	324	368	350	384	387	373
<b>South America</b>	Production	4036	4208	4216	4372	4371	4500
	Import	22	24	14	12	7	7
	Export	20	24	20	28	26	27
	Consumption	890	895	886	829	793	817
	Kg/capita	4.23	4.20	4.11	3.80	3.59	3.66
	Ending Stocks	31	26	34	29	27	20
<b>Former Soviet Union</b>	Production	4036	4208	4216	4372	4371	4500
	Import	61	61	142	132	177	177
	Export	9	17	36	42	73	77
	Consumption	293	331	469	559	610	620
	Kg/capita	1.49	1.69	2.41	2.89	3.17	3.24
	Ending Stocks	8	8	10	10	12	2
<b>North Africa</b>	Production	382	380	395	410	425	430
	Import	16	15	9	9	12	8
	Export	0	2	2	5	4	4
	Consumption	398	393	402	414	433	434
	Kg/capita	5.76	5.58	5.59	5.65	5.80	5.70
	Ending Stocks	0	0	0	0	0	0
<b>Asia</b>	Production	49	49	54	56	58	61
	Import	208	235	236	235	227	244
	Export	0	1	1	0	0	1
	Consumption	256	282	288	290	286	303
	Kg/capita	1.48	1.62	1.65	1.66	1.63	1.72
	Ending Stocks	16	17	18	19	18	19
<b>Oceania</b>	Production	565	670	655	725	653	695
	Import	33	38	45	46	53	51
	Export	412	476	470	495	498	498
	Consumption	225	223	228	253	265	262
	Kg/capita	9.89	9.70	9.82	10.79	11.19	10.96
	Ending Stocks	90	99	101	124	67	53

Note: P=provisional figures F=forecast.

Note: <sup>1</sup> Selected countries arranged in regional groups (see Table 6.1)

Source: USDA-FAS 2004, Agra CEAS Calculations

**6.1.2. EU-15**
**Table 6.7: EU-15 balance sheet for Cow Milk (million tonnes)**

	1998	1999	2000	2001	2002*
Deliveries of milk	113.47	115.00	114.50	115.26	115.56
imports in milk equivalent	4.09	4.37	4.45	4.47	4.49
exports in milk equivalent	13.44	13.98	15.31	12.33	12.57
change in stocks in milk equivalent	0.87	0.39	-1.93	2.20	1.38
Consumption in milk equivalent	103.24	105.00	105.56	105.20	106.10
- at market prices	92.64	93.64	94.55	95.22	95.95
- subsidised consumption	10.60	11.36	11.01	9.97	10.15
Self-sufficiency (%)	110.00	110.00	108.00	110.00	109.00
adjusted for subsidised consumption	119.00	119.00	118.00	117.00	117.00
Consumption per capita (Kg)	0.28	0.28	0.28	0.28	0.28

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.8: EU-15 balance sheet for Liquid Milk ('000 tonnes)**

	1998	1999	2000	2001	2002	2003*
Production in dairies	29,769.00	29,415.00	29,275.00	29,469.00	29,243.00	29,300.00
Import	0.00	0.00	0.00	0.00	0.00	0.00
Export	98.00	80.00	86.00	89.00	91.00	100.00
Consumption	29,671.00	29,335.00	29,189.00	29,386.00	29,152.00	29,200.00
Consumption per capita (Kg)	79.21	78.02	77.30	77.49	76.64	76.54

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.9: EU-15 balance sheet for Cream ('000 tonnes)**

	1997	1998	1999	2000	2001	2002*
Production in dairies	1,619.00	1,645.00	1,690.00	1,711.00	1,770.00	1,749.00
Import	1.00	1.00	1.00	1.00	1.00	1.00
Export	45.00	33.00	41.00	48.00	46.00	49.00
Consumption	1,575.00	1,613.00	1,650.00	1,664.00	1,726.00	1,701.00
Consumption per capita (Kg)	4.21	4.31	4.39	4.41	4.55	4.47

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.10: EU-15 balance sheet for Yoghurt and fermented products ('000 tonnes)**

	1997	1998	1999	2000	2001	2002*
Production in dairies	5,960.00	6,170.00	6,400.00	6,500.00	6,600.00	6,790.00
Import	0.00	0.00	1.90	3.60	7.70	8.60
Export	222.80	225.00	140.70	149.00	105.70	87.30
Consumption	5,737.00	5,945.00	6,261.00	6,355.00	6,502.00	6,711.00
Consumption per capita (Kg)	15.33	15.87	16.65	16.83	17.15	17.64

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.11: EU-15 balance sheet for Butter ('000 tonnes)**

	1998	1999	2000	2001	2002*	2003*
Opening Stocks	110.00	130.00	180.00	190.00	220.00	320.00
Total Production	1,854.00	1,878.00	1,835.00	1,824.00	1,880.00	1,870.00
- Dairies	1,842.00	1,867.00	1,823.00	1,814.00	1,870.00	1,860.00
- Farmhouse	13.00	11.00	12.00	10.00	10.00	10.00
Imports	88.00	105.00	104.00	114.00	115.00	120.00
Exports	170.00	168.00	184.00	181.00	214.00	270.00
Final Stocks	130.00	180.00	190.00	220.00	320.00	380.00
Disappearance	1,752.00	1,765.00	1,745.00	1,727.00	1,680.00	1,660.00
- at market prices	1,274.00	1,281.00	1,254.00	1,237.00	1,200.00	1,175.00
- subsidised	478.00	484.00	491.00	490.00	480.00	485.00
Consumption	1,752.00	1,765.00	1,745.00	1,727.00	1,680.00	1,660.00
Consumption per capita (Kg)	4.68	4.69	4.62	4.55	4.42	4.35

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.12: EU-15 detailed butter supply balance ('000 tonnes)**

	1997	1998	1999	2000	2001	2002
<b>Opening stocks</b>						
- private, aided by EU	54	40	57	64	57	75
- public (intervention)	40	11	3	55	64	66
<b>Production:</b>						
- dairy	1,853	1,853	1,898	1,853	1,835	1,885
- farm	13	14	13	13	10	10
Imports	90	96	106	106	115	115
<b>Total availability</b>	<b>2,050</b>	<b>2,014</b>	<b>2,077</b>	<b>2,091</b>	<b>2,081</b>	<b>2,151</b>
<b>Consumption</b>						
- at normal prices	1,294	1,312	1,318	1,299	1,241	1,195
Special schemes <sup>1</sup>	478	467	471	486	520	500
<b>Total apparent consumption</b>	<b>1,772</b>	<b>1,779</b>	<b>1,789</b>	<b>1,785</b>	<b>1,761</b>	<b>1,695</b>
Exports at world market prices	226	175	169	185	179	214
Food aid	1	:	:	:	:	:
Exports at special prices	0	:	:	:	:	:
<b>Total exports</b>	<b>227</b>	<b>175</b>	<b>169</b>	<b>185</b>	<b>179</b>	<b>214</b>
<b>Closing stocks</b>						
- private, aided by EU	40	57	64	57	75	50
- public (intervention)	11	3	55	64	66	192
<b>Total closing stocks</b>	<b>51</b>	<b>60</b>	<b>119</b>	<b>121</b>	<b>141</b>	<b>242</b>

Note <sup>1</sup>: excluding cream used in ice-cream. Includes welfare schemes, non-profit-making bodies, butter concentrate, food processors (including cream).

Source: DG Agriculture, Eurostat.

**Table 6.13: EU-15 balance sheet for Cheese ('000 tonnes)**

	1998	1999	2000	2001	2002	2003*
Production	6,715.00	6,749.00	6,960.00	7,201.00	7,218.00	7,304.00
- cow milk in dairies	6,126.00	6,166.00	6,372.00	6,587.00	6,608.00	6,680.00
- cow milk on farms	64.00	63.00	68.00	67.00	72.00	74.00
- other animal milk	525.00	520.00	521.00	548.00	538.00	550.00
Intra-EU trade	1,798.00	1,873.00	1,963.00	2,024.00	1,992.00	
Imports	127.00	146.00	149.00	175.00	156.00	185.00
Processing addition	210.00	213.00	219.00	217.00	220.00	220.00
Available	7,052.00	7,107.00	7,328.00	7,592.00	7,594.00	7,709.00
Exports	448.00	398.00	458.00	469.00	484.00	510.00
Change in stocks	20.00	0.00	-12.00	20.00	0.00	0.00
Consumption	6,584.00	6,710.00	6,882.00	7,103.00	7,110.00	7,200.00
Consumption per capita (Kg)	17.58	17.85	18.23	18.73	18.69	18.87

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.14: EU-15 balance sheet for Processed Cheese ('000 tonnes)**

	1997	1998	1999	2000	2001	2002*
Production	516.70	523.60	524.50	546.60	542.50	543.00
Imports	5.20	5.50	5.60	4.80	4.20	3.80
Exports	121.90	114.60	105.20	107.00	102.00	100.30
Consumption	400.00	414.40	424.90	444.40	444.60	446.50
Consumption per capita (Kg)	1.07	1.11	1.13	1.18	1.17	1.17

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.15: EU-15 balance sheet for Condensed milk ('000 tonnes)**

	1997	1998	1999	2000	2001	2002*	2003*
Production		1,284.00	1,258.00	1,249.00	1,317.00	1,203.00	1,160.00
Imports		1.00	0.00	1.00	7.00	6.00	5.00
Exports		323.00	315.00	279.00	318.00	251.00	240.00
Change in Stocks		-5.00	-5.00	0.00	16.00	-10.00	-15.00
Sales		966.00	948.00	971.00	990.00	968.00	940.00
Consumption**	973.07	973.92	940.00	981.76	985.92	951.00	
Consumption per capita (Kg)	2.60	2.60	2.50	2.60	2.60	2.50	

Note \* provisional figures.

Note \*\* data from FAO Agrastat

Source: ZMP, Agra CEAS calculations

**Table 6.16: EU-15 balance sheet for Whole Milk Powder ('000 tonnes)**

	1998	1999	2000	2001	2002*	2003*
Production	926.30	895.30	879.10	835.70	794.10	740.00
Imports	7.70	8.20	7.60	18.70	17.70	15.00
Exports	588.90	575.60	575.20	476.90	490.40	420.00
Change in Stocks	0.00	0.00	-30.00	40.00	-20.00	-10.00
Sales	345.10	327.90	341.50	337.50	341.40	345.00

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.17: EU-15 balance sheet for Skim Milk Powder ('000 tonnes)**

	1998	1999	2000	2001	2002*	2003*
Opening Stocks	166.00	270.00	266.00	123.00	200.00	300.00
Production	1,148.00	1,191.00	1,116.00	1,000.00	1,140.00	1,110.00
Imports	66.00	73.00	78.00	57.00	69.00	90.00
Available	1,380.00	1,534.00	1,460.00	1,180.00	1,409.00	1,500.00
Consumption	936.00	996.00	980.00	838.00	955.00	950.00
- at market prices	464.00	498.00	504.00	502.00	520.00	500.00
- for feed	472.00	498.00	476.00	336.00	435.00	450.00
Exports	174.00	272.00	357.00	142.00	154.00	220.00
Ending Stocks	270.00	266.00	123.00	200.00	300.00	330.00
- o.w. intervention	204.00	180.00	0.00	0.00	140.00	200.00
Consumption	942.00	995.00	980.00	838.00	955.00	950.00
Consumption per capita (Kg)	2.51	2.65	2.60	2.21	2.51	2.49

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.18: EU-15 detailed Skimmed Milk Powder supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002
<b>Opening stocks</b>					
- private	n.a	n.a	n.a	n.a	n.a
- public (intervention)	135	203	180	0	0
<b>Production:</b>					
- skimmed-milk powder <sup>1</sup>	1,009	1,028	908	869	1,006
- buttermilk powder	58	63	67	64	66
<b>Imports</b>	63	71	75	48	64
<b>Total availability</b>	<b>1,265</b>	<b>1,365</b>	<b>1,230</b>	<b>981</b>	<b>1,136</b>
<b>Consumption at full market prices</b>	425	440	480	486	501
<b>Subsidized consumption</b>					
- animal feed (calves)	473	497	476	336	436
<b>Special measures</b>					
- pigs and poultry	0	0	0	0	0
<b>Total consumption</b>	<b>898</b>	<b>937</b>	<b>956</b>	<b>822</b>	<b>937</b>
Exports at world market prices	172	226	n.a	n.a	n.a
Food aid	2	46	n.a	n.a	n.a
<b>Total exports</b>	<b>174</b>	<b>272</b>	<b>357</b>	<b>142</b>	<b>159</b>
<b>Closing stocks</b>					
- private	n.a	n.a	n.a	n.a	n.a
- public (intervention)	203	180	0	0	140
<b>Total Closing stocks</b>	<b>203</b>	<b>180</b>	<b>0</b>	<b>0</b>	<b>140</b>

Note 1: Including buttermilk powder incorporated directly in animal feed, milk powder for babies.

Source: DG Agriculture, Eurostat.

**Table 6.19: EU-15 balance sheet for Whey Powder ('000 tonnes)**

	1998	1999	2000	2001	2002*	2003*
Production	1,320.00	1,355.00	1,420.00	1,450.00	1,465.00	1,480.00
Imports	2.00	5.00	9.00	6.00	15.00	10.00
Exports	96.00	119.00	167.00	187.00	170.00	200.00
Disappearance	1,206.00	1,251.00	1,260.00	1,289.00	1,260.00	1,290.00
- milk replacers	825.00	844.00	840.00	940.00	860.00	880.00
- other use	381.00	407.00	420.00	349.00	400.00	410.00
Stock change	20.00	-10.00	2.00	-20.00	40.00	0.00

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.20: EU-15 balance sheet for Casein ('000 tonnes)**

	1997	1998	1999	2000	2001	2002*
Production	134.00	140.00	154.00	157.00	171.00	144.00
Imports	58.00	56.40	44.90	47.80	48.70	49.30
Exports	70.00	73.00	83.00	90.00	85.00	90.00
Sales	122.00	123.40	115.90	114.80	115.00	117.00

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations



### 6.1.3. Eastern Europe and new EU Member States

**Table 6.21: Bulgaria dairy supply balance ('000 tonnes)**

	1997	1998	1999	2000	2001
<b>Dairy Production</b>					
Butter	2.1	2.1	1.4	1.4	n.a
Cheese total (including cheese from sheep milk)	72	71	58	56	n.a
- of which cheese from cow milk	27.8	29	n.a	n.a	n.a
Whole milk powder	1	1	1	n.a	n.a
Skim milk powder	0.7	0.6	0.6	n.a	n.a
<b>Exports</b>					
Cheese	2.1	4.9	5.3	6.1	n.a
Milk powder	0.6	0.6	n.a	n.a	n.a
<b>Imports</b>					
Butter	0.6	1	1	1.1	n.a
Cheese	1.2	1.3	1.5	1.9	n.a
Milk powder	3.2	3.2	n.a	n.a	n.a
<b>Consumption</b>					
Butter	2.8	2.9	0.5	n.a	n.a
Cheese	70	72	98	n.a	n.a

Source: ZMP, Agra CEAS calculations

**Table 6.22: Cyprus dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Liquid milk	n.a	n.a	69.4	71.8	72.1
Fermented milk products and mixed drinks	n.a	n.a	7.5	7.8	7.8
Cheese	n.a	n.a	11.2	11.3	11.8
<b>Imports</b>					
Cheese	2.8	3.2	3.6	12.4	11.8
<b>Exports</b>					
Cheese	3	3.1	3.4	3.3	2.3

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.23: Czech Republic dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Liquid Milk	503.1	488	474.8	475.3	471.4
Liquid cream (m. litres)	27.6	30.4	35.5	37.4	37.8
Fermented milk	102.1	121.2	128	129.4	125.8
Butter	65.4	65.4	63.5	66.7	66.3
Cheese <sup>1</sup>	83	84.5	92.4	87.6	94.1
Quark and fresh cheese	42.6	44.8	41.1	43.7	45.3
Processed cheese	21.3	21	24	25.2	21.3

Milk powder	57.8	56.5	57.1	59	57.2
<b>Export</b>					
Butter	24.7	25.6	22.2	24.3	22.4
Cheese	19.9	19.4	19	19.6	17.6
Skim milk powder	27.4	32.4	28.7	34	n.a
Whole milk powder	19.7	17.9	17.9	17	n.a
<b>Import</b>					
Cheese	11.2	15.4	16.8	17.6	19.7
<b>Consumption</b>					
Butter	41.2	40.5	42	44	45.9
Cheese	90.6	95.4	108.2	104.3	108.9

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.24: Estonia dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Butter	12.6	7.6	8.8	6.9	7.3
Cheese	10.7	9.2	8.6	10.6	10.8
Condensed Milk	0.3	0.1	0.1	n.a	n.a
Skimmed milk powder	14.1	10.2	10.6	6.2	n.a
Whole milk powder	n.a	1.5	4.1	13.6	n.a
<b>Exports</b>					
Fresh milk products	33.9	3.7	4.9	8.6	n.a
Butter	13.1	7.5	4.7	4	7.6
Cheese	7.9	4.6	3.9	5.4	7.7
Skimmed milk powder	12.9	3.1	10.4	8.6	11.7
Whole milk powder	n.a	n.a	n.a	11.3	10
<b>Imports</b>					
Cheese	n.a	n.a	n.a	5.8	4.1
Skimmed milk powder	n.a	n.a	n.a	6.3	1.4
<b>Consumption</b>					
Butter	2.4	3	3	n.a	n.a
Cheese	6	5.2	6	n.a	n.a

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.25: Hungary dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Liquid Milk	570	576.3	606.5	583	554.4
Fresh milk products	105.4	120.6	122.8	117.1	113.9
Cream	68.5	67	70.7	68.9	71.8
Butter	13	13.8	10.5	9.7	12.3
Cheese	89.9	93.9	101.4	107.8	107.9
Whole milk powder	2.5	3.2	3.4	6.5	4.8
Skim milk powder	6.7	5.6	4.7	9.1	11.1
Condensed milk	4.6	4.1	2.2	1.8	1.5
<b>Exports</b>					
Butter	3.6	4.8	1.2	1.8	3.3
Cheese	11.6	3.1	19	20.8	20.2
Whole milk powder	0.6	2	1.1	4.1	3.1
Skim milk powder	2.4	3.8	1.6	5.5	8.4
<b>Consumption</b>					
Butter	8.1	8.3	7.5	6.4	6.7
Cheese	81	83.3	90.2	88.4	90.2

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.26: Romania dairy supply balance ('000 tonnes)**

	1996	1997	1998	1999	2000
<b>Dairy Production</b>					
Butter	13.4	9.2	6.4	9.2	10
Cheese	42.6	41.8	47.8	49.4	51.4
Milk powder	12.2	14	14	n.a	n.a
<b>Exports</b>					
Cheese	0.4	0.8	0.4	1.3	0
Skim milk powder	1.4	1.9	0.2	0.2	0
<b>Imports</b>					
Butter	1.6	0.3	0.5	0.8	1
Cheese	3	2	5.8	2.2	n.a
Whole milk powder	3.9	1.6	4.6	n.a	n.a
<b>Consumption</b>					
Butter	n.a	n.a	n.a	n.a	n.a
Cheese	95	95	92	n.a	n.a

Source: ZMP, Agra CEAS calculations

**Table 6.27: Latvia dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy production</b>					
Liquid milk	62.2	55.1	58.8	93	89.4
Butter	9.2	5.8	6.3	7	6.6
Cheese	10.6	11	11	11.5	11.9
Quark	n.a	n.a	n.a	11.6	13.5
Skimmed milk powder	4.2	2.5	2.9	1.3	n.a
<b>Exports</b>					
Butter	5.5	2.9	2.6	2.1	2.2
Cheese	5.4	3	2.7	4.9	4.7
Skimmed milk powder	3.6	2.8	2.7	1.8	2.5
Condensed milk	n.a	10	7	1.9	0.4
<b>Consumption</b>					
Butter	4.9	3.1	4	4.8	n.a
Cheese	9.1	9.2	19.8	19.4	n.a

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.28: Lithuania dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Liquid milk	80.9	73	76.1	77.2	81.3
Cream	20.7	18.6	18.9	20.2	n.a
Butter	35.9	26.3	19.4	18.4	n.a
Cheese	54.4	52.5	57.7	50.5	49.6
Quark	n.a	n.a	n.a	11.1	11.7
Condensed milk	12.4	9.2	3.5	6.1	8.8
Milk Powder	32.9	26.6	18.2	17.7	n.a
-of which whole milk powder	n.a	n.a	12.3	9.8	n.a
Lactose	1.7	0.6	4.8	5.3	n.a
<b>Exports</b>					
Butter	29.2	15.3	11.1	n.a	n.a
Cheese	29.9	22.9	32.4	34.8	n.a
Condensed milk	6.3	3.1	n.a	n.a	n.a
Milk Powder	29.3	28.4	27.5	n.a	n.a
WMP	3.7	5.1	13.8	n.a	n.a

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.29: Malta dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Cheese	0.2	0.2	0.2	0.2	0.2

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.30: Poland dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Condensed milk	n.a	1,803	1,803	1,786	1,899
Cream	194.6	196.3	198.3	204.9	214.8
Yoghurt	155	165	176	212.7	222.5
Butter	146	132.8	139.1	149.8	150.2
Cheese	457.6	410	404	434.6	452.6
natural mature Cheese	163.5	149	142	167	177.9
fresh Cheese	261.4	261	262	267.6	275
Processed cheese	41.1	42.9	47.9	50.4	51
Whole milk powder	39.3	34.7	30.4	36.6	27.1
Skimmed milk powder	131.3	109	119	150.9	150.9
Casein	6.9	5.2	4.2	n.a	n.a
<b>Exports</b>					
Butter	5	2.7	3	18.6	11.8
Cheese	32.7	30.9	33.7	45	41.8
Whole milk powder	4.1	5.3	1.4	16.4	12.9
Skimmed milk powder	100.9	83.2	86.2	108	94.4
Casein	8.2	8.5	8.5	17.8	13.7
<b>Imports</b>					
Butter	1	7.6	12.3	3.5	4.6
Cheese	7.1	3.4	6.7	4.8	4.8
Whole milk powder	1.4	2	2.7	2.5	4.6
Skimmed milk powder	6.1	4.9	16.2	10.4	7.2
<b>Consumption</b>					
Butter	159	178	166	143	155
Cheese natural mature	400	398	390	390	390

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.31: Slovakia dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Liquid milk	406	410	322.4	321.4	330.5
Cream	22.5	21.1	19.6	19.8	23
Fresh milk products	34.4	38.1	46.4	47.5	60.1
Butter	16.5	16.3	16	17	15.4
Cheese	44.2	45.5	40.4	43.6	43.9
Fresh cheese and quarg	12.2	13	10.8	11.2	10.1
Milk Powder	16.4	16	11.9	n.a	n.a
-Whole milk powder	n.a	3.1	4.1	4.8	3.9
<b>Imports</b>					
Butter	0.2	0.2	0.5	0.5	0.3
Cheese	3.8	3.5	5.5	5.2	4.8
Milk Powder	2.2	1.9	2.7	3.2	n.a
<b>Exports</b>					
Butter	1.5	2.3	2.2	2.2	2.1
Cheese	9.7	9.8	11	11.6	11.9
Milk powder	11.2	10.6	7.8	9.2	8.5
<b>Consumption</b>					
Butter	15.6	16	14.6	14.8	16.2
Cheese	43	44.6	30.8	33.6	48.7

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

**Table 6.32: Slovenia dairy supply balance ('000 tonnes)**

	1998	1999	2000	2001	2002*
<b>Dairy Production</b>					
Liquid Milk	143.3	149.7	160.4	177	166
Cream for consumption		13.3	16.3	16.6	17.7
Fresh milk products	32.2	37.7	38.1	39.1	38.7
Butter	3.1	4.1	3	3.1	3.3
Cheese	16	16.1	17.2	17.7	18.9
Whole milk powder	1	0.6	0.1	0.7	1
Skim milk powder	1.7	2.5	2	1.4	2.5
<b>Import</b>					
Cheese	1.6	1.7	1.5	2	n.a
<b>Export</b>					
Cheese	2.8	3.4	3	3.5	3.6

Note \* provisional figures.

Source: ZMP, Agra CEAS calculations

### 6.1.4. UK

**Table 6.33: UK Milk supply balance (million litres)**

	1999	2000	2001	2002	2003*
Production	14,587.12	14,078.44	14,291.14	14,448.54	14,627.66
Imports	111.45	104.94	63.58	72.05	120.38
Exports	465.09	445.16	413.71	420.51	445.42
Total new supply	14,233.48	13,738.22	13,941.01	14,100.08	14,302.62
Total milk consumption	13,840.30	13,318.53	13,474.99	13,694.45	13,892.14
Liquid milk consumption	6,852.63	6,768.33	6,760.66	6,755.68	6,662.24

Note \* provisional figures.

Source: DEFRA Statistics 2004, Agra CEAS Calculations.

**Table 6.34: UK Butter supply balance ('000 tonnes)**

Butter (a) (b)	1999	2000	2001	2002	2003*
Production (c)	141.35	131.69	126.19	135.93	144.84
Imports intra-EU	66.56	79.81	75.79	97.11	119.41
Imports extra-EU	46.76	38.23	39.39	18.84	n.a
Exports intra-EU	50.17	39.27	35.56	34.50	35.26
Exports extra-EU	5.97	6.22	5.27	4.27	12.42
Total new supply (d)	198.52	204.24	200.54	213.11	216.77
Change in stocks (e)	11.12	-5.05	1.31	1.03	-5.64
Total domestic uses (d) (e)	187.40	209.28	199.23	212.08	222.41
Production as % of total new supply for use in the UK	71.2%	64.5%	62.9%	63.8%	66.8%
Closing stocks (e)	22.09	17.04	18.35	19.38	13.75

Note \* provisional figures.

Notes: (a) Includes butterfat and oil, dehydrated butter and ghee.

(b) Includes production from the residual fat of low fat milk products.

(c) Includes farmhouse manufacture.

(d) Includes the use for animal feed.

(e) In addition to stocks in public cold stores surveyed by Defra, closing stocks include all intervention stocks in private cold stores. Total domestic uses does not equate exactly with consumption since changes in unrecorded stocks are not included in the calculation.

Source: DEFRA Statistics 2004, Agra CEAS Calculations.

**Table 6.35: UK Cheese supply balance ('000 tonnes)**

Cheese	1999	2000	2001	2002	2003*
Production <sup>(c)</sup>	368.42	339.67	394.92	379.85	365.95
Imports intra-EU	236.15	224.84	245.62	253.21	285.09
Imports extra-EU	41.21	29.92	28.82	31.96	29.27
Exports intra-EU	48.58	48.19	57.19	59.59	61.86
Exports extra-EU	12.91	10.30	10.72	22.67	20.13
Total new supply	584.28	535.93	601.45	582.76	598.31
Change in stocks	0.88	n.a	5.48	-2.58	2.09
Total domestic uses	583.40	536.27	595.97	585.34	596.22
Production as % of total new supply for use in the UK	63.1%	63.4%	65.7%	65.2%	61.2%
Closing stocks <sup>(f)</sup>	9.89	9.55	15.03	12.44	7.90

Note \* provisional figures.

Notes: <sup>(c)</sup> Includes farmhouse manufacture.

<sup>(f)</sup> Cheese stocks held in public cold stores. Public coldstores make their storage space available to the public or to the Rural Payments Agency, formerly the Intervention Board. The ownership of the store whether public or private is irrelevant.

Source: DEFRA Statistics 2004, Agra CEAS Calculations.

**Table 6.36: UK Cream (fresh, frozen, sterilised) supply balance ('000 tonnes)**

	1999	2000	2001	2002	2003*
Production <sup>(b) (c)</sup>	275.34	269.95	263.34	263.84	266.91
Imports intra-EU	7.85	9.90	17.56	14.87	11.93
Imports extra-EU	n.a	n.a	n.a	n.a	n.a
Exports intra-EU	94.66	81.13	83.54	90.51	95.88
Exports extra-EU	0.52	1.11	0.84	n.a	1.20
Total new supply	188.01	197.61	196.52	187.90	181.76
Change in stocks	n.a	n.a	n.a	n.a	n.a
Total domestic uses	188.01	197.61	196.52	187.90	181.76
Production as % of total new supply for use in the UK	146.4%	136.6%	134.0%	140.4%	146.8%
Closing stocks	n.a	n.a	n.a	n.a	n.a

Note \* provisional figures.

Notes: <sup>(b)</sup> Includes production from the residual fat of low fat milk products.

<sup>(c)</sup> Includes farmhouse manufacture.

Source: DEFRA Statistics 2004, Agra CEAS Calculations.



**Table 6.37: UK Condensed milk<sup>(g)</sup> supply balance ('000 tonnes)**

	1999	2000	2001	2002	2003*
Production	176.64	161.75	160.58	146.43	127.21
Imports intra-EU	14.04	14.92	13.86	11.60	18.24
Imports extra-EU	n.a	n.a	n.a	n.a	n.a
Exports intra-EU	38.12	28.19	19.64	27.74	17.13
Exports extra-EU	13.45	3.01	1.60	1.86	1.00
Total new supply	139.11	145.49	153.34	128.43	127.33
Change in stocks	0.75	-0.87	2.92	-1.84	n.a
Total domestic uses	138.37	146.36	150.42	130.27	127.51
Production as % of total new supply for use in the UK	127.0%	111.2%	104.7%	114.0%	99.9%
Closing stocks	7.62	6.75	9.67	7.84	7.65

Note \* provisional figures.

Note: <sup>(g)</sup> Includes condensed milk used in the production of chocolate crumb and in the production of sweetened and unsweetened machine skimmed milk.

Source: DEFRA Statistics 2004, Agra CEAS Calculations.

**Table 6.38: UK Milk powder (full cream) supply balance ('000 tonnes)**

	1999	2000	2001	2002	2003*
Production	102.42	105.17	87.11	104.81	103.33
Imports intra-EU	9.51	10.95	8.27	9.49	11.00
Imports extra-EU	n.a	n.a	n.a	n.a	n.a
Exports intra-EU	28.07	28.21	29.24	42.54	28.89
Exports extra-EU	64.27	73.70	57.40	60.12	75.37
Total new supply	19.60	14.24	8.81	11.68	10.08
Change in stocks	0.68	-1.21	3.05	-0.96	-1.54
Total domestic uses	18.92	15.45	5.76	12.64	11.61
Closing stocks	4.32	3.11	6.15	5.20	3.66

Note \* provisional figures.

Source: DEFRA Statistics 2004, Agra CEAS Calculations.

**Table 6.39: UK Skimmed Milk Powder supply balance ('000 tonnes)**

Skimmed milk powder	1999	2000	2001	2002	2003*
Production	102.31	82.81	70.52	86.99	115.46
Imports intra-EU	13.96	13.47	22.68	17.48	32.98
Imports extra-EU	n.a	n.a	n.a	n.a	n.a
Exports intra-EU	29.73	77.08	26.22	20.36	25.24
Exports extra-EU	29.76	35.07	3.70	8.74	22.84
Total new supply <sup>(d)</sup>	56.77	-15.70	63.29	75.38	100.39
Change in stocks	-11.07	-65.67	7.23	15.94	24.99
Total domestic uses <sup>(d)</sup>	67.85	49.96	56.06	59.44	75.40
Production as % of total new supply for use in the UK	180.2%	-527.3%	111.4%	115.4%	115.0%
Closing stocks	70.85	5.19	12.41	28.35	53.34

Note \* provisional figures.

Note: <sup>(d)</sup> Includes the use for animal feed.

Source: DEFRA Statistics 2004, Agra CEAS Calculations.

## 6.2. Consumption

### 6.2.1. World

**Table 6.40: World<sup>1</sup> Fluid Milk consumption ('000 tonnes)**

	1999	2000	2001	2002	2003 P	2004 f	% 04/99 <sup>2</sup>
<b>North America</b>							
Consumption	33,487	33,718	33,834	33,967	34,459	34,255	0.46
Consumption/capita (Kg)	81.9	81.5	81.0	80.5	80.8	79.6	-0.57
<b>South America</b>							
Consumption	16,178	16,188	15,940	15,485	15,561	15,844	-0.40
Consumption/capita (Kg)	64.5	63.7	61.9	59.4	59.0	59.4	-1.60
<b>EU-15</b>							
Consumption	29,335	29,189	29,386	29,152	29,200	30,000	0.46
Consumption/capita (Kg)	78.0	77.3	77.5	76.6	76.5	78.4	0.11
<b>EU-N10<sup>3</sup></b>							
Consumption	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Consumption/capita (Kg)	82.6	78.4	75.9	76.2	n.a	n.a	-2.61
<b>Former Soviet Union</b>							
Consumption	17,400	17,256	17,340	17,650	16,750	17,274	-0.10
Consumption/capita (Kg)	88.4	88.1	89.1	91.2	87.0	90.2	0.45
<b>South Asia</b>							
Consumption	33,000	33,000	33,300	33,500	34,000	34,500	0.89
Consumption/capita (Kg)	33.4	32.9	32.7	32.4	32.4	32.4	-0.63
<b>Asia</b>							
Consumption	7,704	8,784	9,404	10,680	11,922	13,304	11.57
Consumption/capita (Kg)	5.6	6.3	6.7	7.6	8.4	9.3	10.95
<b>Oceania</b>							
Consumption	2,389	2,338	2,275	2,321	2,342	2,360	-0.23
Consumption/capita (Kg)	105.0	101.7	98.0	99.0	98.9	98.7	-1.22

Note 1: Selected countries arranged in regional groups (see Table 6.1)

Note 2: Average annual percentage change.

Note 3: EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note: P=provisional; f=forecast.

Source: USDA-FAS, ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.41: World<sup>1</sup> Cheese consumption ('000 tonnes)**

	1999	2000	2001	2002	2003 <sup>p</sup>	2004 <sup>f</sup>	% 04/99 <sup>2</sup>
<b>North America</b>							
Consumption	4,192	4,368	4,453	4,574	4,630	4,780	2.67
Consumption/capita (Kg)	10.3	10.6	10.7	10.8	10.9	11.1	1.61
<b>South America</b>							
Consumption	890	895	886	829	793	817	-1.64
Consumption/capita (Kg)	4.2	4.2	4.1	3.8	3.6	3.7	-2.80
<b>EU-15</b>							
Consumption	6,710	6,882	7,103	7,110	7,200	n.a	1.78
Consumption/capita (Kg)	17.6	17.8	18.7	18.7	18.9	n.a	1.81
<b>EU-N10<sup>3</sup></b>							
Consumption	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Consumption/capita (Kg)	7.5	7.49	8.8	9.7	n.a	n.a	9.05
<b>Former Soviet Union</b>							
Consumption	293	331	469	559	610	620	16.92
Consumption/capita (Kg)	1.5	1.7	2.4	2.9	3.2	3.2	17.57
<b>North Africa</b>							
Consumption	398	393	402	414	433	434	1.77
Consumption/capita (Kg)	5.8	5.6	5.6	5.6	5.8	5.7	-0.19
<b>Asia</b>							
Consumption	256	282	288	290	286	303	3.51
Consumption/capita (Kg)	1.5	1.6	1.7	1.7	1.6	1.7	3.21
<b>Oceania</b>							
Consumption	225	223	228	253	265	262	3.19
Consumption/capita (Kg)	9.9	9.7	9.8	10.8	11.2	11.0	2.16

Note 1: Selected countries arranged in regional groups (see Table 6.1)

Note 2: Average annual percentage change.

Note 3: EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note: <sup>p</sup>=provisional; <sup>f</sup>=forecast.

Source: USDA-FAS, ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.42: World<sup>1</sup> Butter consumption ('000 tonnes)**

	1999	2000	2001	2002	2003 <sup>p</sup>	2004 <sup>f</sup>	% 04/99 <sup>2</sup>
<b>North America</b>							
Consumption	779	766	773	774	807	765	-0.31
Consumption/capita (Kg)	1.9	1.9	1.8	1.8	1.9	1.8	-1.34
<b>South America</b>							
Consumption	81	82	77	78	76	72	-2.28
Consumption/capita (Kg)	0.5	0.5	0.4	0.4	0.4	0.4	-3.45
<b>EU-15</b>							
Consumption	1765	1745	1727	1680	1660	1780	0.23
Consumption/capita (Kg)	4.7	4.6	4.6	4.4	4.4	4.7	-0.12
<b>EU-N10<sup>3</sup></b>							
Consumption	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Consumption/capita (Kg)	2.5	2.4	2.9	3.1	3.1	3.0	4.40
<b>Former Soviet Union</b>							
Consumption	420	437	480	510	525	512	4.12
Consumption/capita (Kg)	2.1	2.2	2.5	2.6	2.7	2.7	4.70
<b>North Africa</b>							
Consumption	53	59	57	76	73	75	8.01
Consumption/capita (Kg)	0.8	0.8	0.8	0.7	0.7	0.7	-1.83
<b>Asia</b>							
Consumption	1,835	2,042	2,343	2,497	2,550	2,697	8.10
Consumption/capita (Kg)	1.6	1.8	2.0	2.1	2.1	2.2	6.63
<b>Oceania</b>							
Consumption	90	85	84	76	81	77	-2.92
Consumption/capita (Kg)	4.0	3.7	3.6	3.2	3.4	3.2	-3.89

Note 1: Selected countries arranged in regional groups (see Table 6.1)

Note 2: Average annual percentage change.

Note 3: EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note: <sup>p</sup>=provisional; <sup>f</sup>=forecast.

Source: USDA-FAS, ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.43: World<sup>1</sup> Non-fat Dry Milk consumption ('000 tonnes)**

	1999	2000	2001	2002	2003 <sup>p</sup>	2004 <sup>f</sup>	% 04/99 <sup>2</sup>
<b>North America</b>							
Consumption	661	664	759	825	1,023	1,040	9.82
Consumption/capita (Kg)	1.6	1.6	1.8	2.0	2.4	2.4	8.70
<b>South America</b>							
Consumption	171	158	171	172	167	162	-0.94
Consumption/capita (Kg)	0.6	0.5	0.6	0.6	0.5	0.5	-2.19
<b>EU-15</b>							
Consumption	995	980	838	955	950	n.a	-0.64
Consumption/capita (Kg)	2.6	2.6	2.2	2.5	2.5	n.a	-1.00
<b>EU-N10<sup>3</sup></b>							
Consumption	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Consumption/capita (Kg)	n.a	n.a	n.a	n.a	n.a	n.a	n.a
<b>Former Soviet Union</b>							
Consumption	237	141	185	190	217	223	2.08
Consumption/capita (Kg)	1.2	0.7	1.0	1.0	1.1	1.2	2.64
<b>North Africa</b>							
Consumption	71	90	95	128	120	127	13.33
Consumption/capita (Kg)	0.7	0.9	0.9	1.2	1.1	1.2	11.32
<b>Asia</b>							
Consumption	770	808	837	896	918	973	4.80
Consumption/capita (Kg)	0.3	0.3	0.3	0.3	0.3	0.3	3.71
<b>Oceania</b>							
Consumption	46	37	38	40	40	40	-2.32
Consumption/capita (Kg)	2.0	1.6	1.6	1.7	1.7	1.7	-3.29

Note 1: Selected countries arranged in regional groups (see Table 6.1)

Note 2: Average annual percentage change.

Note 3: EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note: <sup>p</sup>=provisional; <sup>f</sup>=forecast.

Source: USDA-FAS, ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.44: World<sup>1</sup> Whole Milk Powder consumption ('000 tonnes)**

	1999	2000	2001	2002	2003 <sup>p</sup>	2004 <sup>f</sup>	% 04/99 <sup>2</sup>
<b>North America</b>							
Consumption	87	73	79	70	66	67	-4.69
Consumption/capita (Kg)	0.2	0.2	0.2	0.2	0.2	0.2	-5.67
<b>South America</b>							
Consumption	689	715	774	756	727	747	1.72
Consumption/capita (Kg)	2.2	2.3	2.4	2.3	2.2	2.2	0.42
<b>EU-15</b>							
Consumption	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Consumption/capita (Kg)	n.a	n.a	n.a	n.a	n.a	n.a	n.a
<b>EU-N10<sup>3</sup></b>							
Consumption	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Consumption/capita (Kg)	n.a	n.a	n.a	n.a	n.a	n.a	n.a
<b>Former Soviet Union</b>							
Consumption	94	99	127	141	136	132	7.63
Consumption/capita (Kg)	0.5	0.5	0.7	0.7	0.7	0.7	8.23
<b>North Africa</b>							
Consumption	108	109	107	112	115	117	1.64
Consumption/capita (Kg)	3.6	3.6	3.5	3.6	3.6	3.6	0.23
<b>Asia</b>							
Consumption	693	762	871	852	929	1016	8.10
Consumption/capita (Kg)	0.2	0.3	0.3	0.3	0.3	0.3	6.97
<b>Oceania</b>							
Consumption	35	21	26	25	27	29	-0.93
Consumption/capita (Kg)	1.5	0.9	1.1	1.1	1.1	1.2	-1.91

Note 1: Selected countries arranged in regional groups (see Table 6.1)

Note 2: Average annual percentage change.

Note 3: EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note: <sup>p</sup>=provisional; <sup>f</sup>=forecast.

Source: USDA-FAS, ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.45: Global sales of yoghurt by subsector, 1998-2003 (million tonnes)**

	1998	1999	2000	2001	2002	2003
Plain/natural yoghurt	3.82	3.99	4.18	4.39	4.65	4.93
Flavoured yoghurt	1.32	1.34	1.36	1.4	1.48	1.54
Fruited yoghurt	3.94	4.1	4.28	4.48	4.71	4.93
Probiotic yoghurt	0.43	0.47	0.53	0.57	0.64	0.71
Drinking yoghurt	1.71	1.86	1.98	2.09	2.24	2.38
- of which Regular drinking yoghurt	1.63	1.73	1.83	1.91	2.03	2.15
- of which Probiotic drinking yoghurt	0.09	0.13	0.15	0.18	0.21	0.23
<b>Yoghurt</b>	<b>11.2</b>	<b>11.76</b>	<b>12.33</b>	<b>12.9</b>	<b>13.72</b>	<b>14.49</b>

Source: Euromonitor 2004.

**Table 6.46: Global sales of yoghurt by region, 2003 (million tonnes)**

	2003	% 2003/02	% CAGR 2003/98
Western Europe	7.50	4.5	4.1
Eastern Europe	1.01	4.3	6.7
North America	1.51	3.9	4.3
Latin America	1.80	7.0	7.8
Asia Pacific	1.52	10.6	6.4
Australasia	0.16	4.0	6.8
Africa and Middle East	0.99	5.7	7.6
<b>World</b>	<b>14.49</b>	<b>5.4</b>	<b>5.2</b>

Notes: CAGR Compound Annual Growth Rate

Source: Euromonitor 2004

**Table 6.47: Global sales of fermented dairy drinks, 1998-2003 (billion litres)**

	1998	1999	2000	2001	2002	2003
Fermented dairy drinks	0.89	0.98	1.07	1.14	1.18	1.23

Source: Euromonitor 2004

**Table 6.48: Global sales of fermented dairy drinks by region (million litres)**

	2003	% 2003/02	% CAGR 2003/98
Western Europe	181.00	9.00	22.20
Eastern Europe	2.00	53.40	311.20
North America	0.40	28.60	n.a
Latin America	133.20	5.70	8.00
Asia Pacific	838.10	2.00	4.10
Australasia	4.90	1.80	4.80
Africa and Middle East	69.30	14.20	10.90
<b>World</b>	<b>1,228.80</b>	<b>4.00</b>	<b>6.70</b>

Notes: CAGR Compound Annual Growth Rate

Source: Euromonitor 2004



**Table 6.49: Latin America sales of fermented dairy drinks by country (million litres)**

	2003	% 2003/02	% CAGR 2003/98	% 2003/98
Argentina	7.1	35.6	n.a	n.a
Brazil	105.8	4.6	5.7	32.3
Chilie	n.a	n.a	n.a	n.a
Colombia	n.a	n.a	n.a	n.a
Mexico	19.8	22.2	19.0	138.6
Venezuela	n.a	n.a	n.a	n.a
Other Latin America	0.5	-85.7	-26.3	-78.3
<b>Latin America</b>	<b>133.2</b>	<b>5.7</b>	<b>8.0</b>	<b>46.9</b>

Notes: CAGR Compound Annual Growth Rate

Source: Euromonitor 2004

**Table 6.50: Asia Pacific sales of fermented dairy drinks by country (million litres)**

	2003	% 2003/02	% CAGR 2003/98	% 2003/98
China	46.9	25.6		
Hong Kong, China	39.4	6.5	2.6	13.8
India	n.a	n.a	n.a	n.a
Indonesia	n.a	n.a	n.a	n.a
Japan	350.0	-1.7	2.3	12.3
Malaysia	13.3	2.5	5.5	30.6
Phillippines	10.9	5.1	5.6	31.2
Singapore	4.2	13.2	6.2	35.1
South Korea	219.8	-0.9	-0.2	-0.8
Taiwan	26.0	9.7	14.8	99.6
Thailand	90.8	7.0	7.6	44.2
Vietnam	n.a	n.a	n.a	n.a
Other Asia Pacific	36.7	7.3	12.4	79.4
<b>Asia Pacific</b>	<b>838.1</b>	<b>2.0</b>	<b>4.1</b>	<b>22.2</b>

Notes: CAGR Compound Annual Growth Rate

Source: Euromonitor 2004

## 6.2.2. EU-15

**Table 6.51: EU-15 dairy product consumption ('000 tonnes)**

		1997	1998	1999	2000	2001	2002*	2003*	% change 03/97*
Cows Milk	Consumption	n.a	103.24	105.00	105.56	105.20	106.10	n.a	0.69
	Kg/capita	n.a	0.28	0.28	0.28	0.28	0.28	n.a	0.30
Liquid Milk	Consumption	n.a	29,671	29,335	29,189	29,386	29,152	29,200	-0.44
	Kg/capita	n.a	79.21	78.02	77.30	77.49	76.64	76.54	-0.82
Cream	Consumption	1,575	1,613	1,650	1,664	1,726	1,701	n.a	1.57
	Kg/capita	4.21	4.31	4.39	4.41	4.55	4.47	n.a	1.24
Yoghurt <sup>1</sup>	Consumption	5,737	5,945	6,261	6,355	6,502	6,711	n.a	3.19
	Kg/capita	15.33	15.87	16.65	16.83	17.15	17.64	n.a	2.86
Butter	Consumption	n.a	1,752	1,765	1,745	1,727	1,680	1,660	-1.04
	Kg/capita	n.a	4.68	4.69	4.62	4.55	4.42	4.35	-1.42
Cheese	Consumption	n.a	6,584	6,710	6,882	7,103	7,110	7,200	1.95
	Kg/capita	n.a	17.58	17.85	18.23	18.73	18.69	18.87	1.55
Processed Cheese	Consumption	400	414.40	424.90	444.40	444.60	446.50	n.a	2.24
	Kg/capita	1.07	1.11	1.13	1.18	1.17	1.17	n.a	1.91
Condensed Milk	Consumption	973.07	973.92	940.00	981.76	985.92	951.00	n.a	-0.41
	Kg/capita	2.60	2.60	2.50	2.60	2.60	2.50	n.a	-0.74
Skim Milk Powder	Consumption	n.a	942.00	995.00	980.00	838.00	955.00	950.00	0.90
	Kg/capita	n.a	2.51	2.65	2.60	2.21	2.51	2.49	0.51

Note <sup>1</sup>: including fermented products.

Note \*: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.52: UK milk consumption (million litres)**

	1999	2000	2001	2002	2003*
Production	14,587.12	14,078.44	14,291.14	14,448.54	14,627.66
Imports	111.45	104.94	63.58	72.05	120.38
Exports	465.09	445.16	413.71	420.51	445.42
Total new supply	14,233.48	13,738.22	13,941.01	14,100.08	14,302.62
Total milk consumption	13,840.30	13,318.53	13,474.99	13,694.45	13,892.14
Total milk (Kg/capita)	233.42	223.76	225.62	228.58	231.17
Liquid milk consumption	6,852.63	6,768.33	6,760.66	6,755.68	6,662.24
Liquid milk (Kg/capita)	115.57	113.71	113.20	112.76	110.86

Note \* provisional figures.

Source: DEFRA Statistics 2004, Agra CEAS Calculations.

**Table 6.53: EU-15 butter consumption ('000 tonnes)**

		1998	1999	2000	2001	2002	% change 02/98*
Austria	Consumption	40.0	40.0	40.0	40.0	40.0	0.0
	Kg/capita	4.9	4.9	4.9	5.0	5.0	0.1
Belgium	Consumption	58.1	54.8	51.0	n.a	n.a	-6.3
	Kg/capita	5.7	5.4	5.0	n.a	n.a	-6.5
Denmark	Consumption	9.8	9.7	8.7	8.7	9.1	-1.7
	Kg/capita	1.9	1.8	1.6	1.6	1.7	-2.0
Finland	Consumption	23.0	22.0	23.0	23.0	21.0	-2.1
	Kg/capita	4.5	4.3	4.4	4.4	4.0	-2.4
France	Consumption	490.0	490.0	490.0	485.0	482.0	-0.4
	Kg/capita	8.3	8.4	8.3	8.2	8.1	-0.7
Germany	Consumption	555.0	548.0	546.0	537.0	538.0	-0.8
	Kg/capita	6.8	6.7	6.6	6.5	6.5	-0.9
Greece	Consumption	10.0	10.0	7.0	7.0	7.0	-7.5
	Kg/capita	1.0	1.0	0.7	0.7	0.7	-7.6
Ireland	Consumption	12.7	12.0	11.4	11.1	11.0	-3.5
	Kg/capita	3.4	3.2	3.0	2.9	2.8	-4.8
Italy	Consumption	133.0	134.0	135.0	n.a	n.a	0.7
	Kg/capita	2.3	2.3	2.3	n.a	n.a	0.6
Luxembourg	Consumption	n.a	n.a	n.a	n.a	n.a	n.a
	Kg/capita	n.a	n.a	n.a	n.a	n.a	n.a
Netherlands	Consumption	51.3	54.0	52.5	53.2	52.4	0.6
	Kg/capita	3.3	3.4	3.3	3.3	3.2	-0.2
Portugal	Consumption	18.0	20.0	20.0	20.0	n.a	3.7
	Kg/capita	1.8	2.0	2.0	1.9	n.a	2.7
Spain	Consumption	34.0	24.5	24.3	26.7	36.0	4.0
	Kg/capita	0.9	0.6	0.6	0.7	0.9	3.9
Sweden	Consumption	14.2	12.8	12.3	12.6	12.7	-2.6
	Kg/capita	1.6	1.4	1.4	1.4	1.4	-2.8
United Kingdom	Consumption	170.0	187.0	209.0	200.0	217.0	6.5
	Kg/capita	2.9	3.1	3.5	3.3	3.6	6.0

Note \*: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.54: EU-15 Cheese consumption ('000 tonnes)**

		1998	1999	2000	2001	2002	% change 02/98*
Austria	Consumption	126.0	130.0	146.0	150.0	153.0	5.1
	Kg/capita	15.6	16.0	18.0	18.7	19.0	5.2
Belgium	Consumption	170.0	165.2	161.2	n.a	n.a	-2.6
	Kg/capita	16.7	16.2	15.7	n.a	n.a	-2.8
Denmark	Consumption	75.2	73.7	77.4	79.0	n.a	1.7
	Kg/capita	14.2	13.9	14.5	14.8	n.a	1.3
Finland	Consumption	83.0	88.8	91.6	92.2	91.8	2.6
	Kg/capita	16.1	17.2	17.7	17.8	17.6	2.3
France	Consumption	1,390.0	1,400.0	1,420.0	1,445.0	1,461.0	1.3
	Kg/capita	23.7	23.9	24.2	24.4	24.6	1.0
Germany	Consumption	1,673.0	1,701.0	1,742.0	1,772.0	1,788.0	1.7
	Kg/capita	20.4	20.7	21.2	21.5	21.7	1.6
Greece	Consumption	250.0	255.0	268.0	280.0	290.0	3.8
	Kg/capita	23.8	24.2	25.4	26.6	27.5	3.7
Ireland	Consumption	33.5	37.4	38.8	39.5	40.0	4.6
	Kg/capita	9.1	10.0	10.2	10.3	10.3	3.2
Italy	Consumption	1,147.0	1,222.0	1,233.0	1,238.0	n.a	2.6
	Kg/capita	19.9	21.2	21.4	21.4	n.a	2.5
Luxembourg	Consumption	n.a	n.a	n.a	n.a	n.a	n.a
	Kg/capita	n.a	n.a	n.a	n.a	n.a	n.a
Netherlands	Consumption	261.3	268.0	275.9	281.9	284.5	2.2
	Kg/capita	16.7	17.0	17.3	17.6	17.6	1.4
Portugal	Consumption	82.0	93.0	102.0	105.0	n.a	8.7
	Kg/capita	8.2	9.3	10.2	10.2	n.a	7.6
Spain	Consumption	330.0	338.0	340.0	344.0	360.0	2.2
	Kg/capita	8.4	8.6	8.6	8.7	9.1	2.1
Sweden	Consumption	145.2	148.8	148.2	151.9	154.9	1.6
	Kg/capita	16.4	16.8	16.7	17.1	17.4	1.5
United Kingdom	Consumption	577.0	590.0	581.0	590.0	612.0	1.5
	Kg/capita	9.8	9.9	9.7	9.9	10.2	1.1

Note \*: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.55: Western Europe sales of fermented dairy drinks by country (million litres)**

	<b>2003</b>	<b>% 2003/02</b>	<b>% CAGR 2003/98</b>	<b>% 2003/98</b>
Austria	6.0	9.3	17.8	126.9
Belgium	9.3	5.8	11.3	70.5
Denmark	0.9	9.3	7.7	44.6
Finland	6.5	3.2	3.8	20.4
France	35.0	12.1	30.6	280.4
Germany	47.6	3.5	15.8	108.4
Greece	3.4	-0.9	1.3	6.7
Ireland	1.2	12.6	20.8	157.5
Italy	22.5	27.8	76.9	1,630.8
Netherlands	6.5	7	10.9	68.0
Norway	1.6	1.8	1.2	6.4
Portugal	0.2	1.1	2.6	13.5
Spain	12.1	8.5	11.9	75.3
Sweden	n.a	n.a	n.a	n.a
Switzerland	10.9	3.9	n.a	n.a
United Kingdom	16.6	9.2	46	564.0
Other Western Europe	0.7	6.8	15.1	101.6
<b>Western Europe</b>	<b>181.0</b>	<b>9</b>	<b>22.2</b>	<b>172.5</b>

Notes: CAGR Compound Annual Growth Rate

Source: Euromonitor 2004

### 6.2.3. Eastern Europe and new EU Member States

**Table 6.56: EU-N10<sup>1</sup> dairy product consumption (Kg per capita)**

	1997	1998	1999	2000	2001	2002	% 02/97 <sup>2</sup>
Total milk	177.0	181.3	184.3	186.2	n.a	n.a	3.2
Liquid milk	71.5	80.5	82.6	78.4	75.9	76.2	0.3
Butter	2.2	2.3	2.5	2.4	2.9	3.1	5.2
Cream	3.5	3.7	3.5	3.6	5.2	5.2	0.4
Cheese	6.7	6.8	7.5	7.5	8.8	9.7	5.4
Yoghurt, Fermented milk, Milk drinks	8.6	9.4	11.1	9.3	9.3	10.3	5.4

Note: <sup>1</sup> EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note <sup>2</sup>: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.57: EU-N10<sup>1</sup> Total milk consumption (Kg/capita)**

	1997	1998	1999	2000	2001	2002	% change <sup>2</sup>
Estonia	188.9	197.5	231	239.8	n.a	n.a	8.4
Latvia	211.6	205.4	198.0	172.5	n.a	n.a	-6.5
Lithuania	129.0	107.8	112.5	181.6	n.a	n.a	16.4
Czech Republic	184.6	190.1	203.5	190.1	n.a	n.a	1.1
Slovakia	126.1	142.3	128.8	203.6	n.a	n.a	20.5
Poland	186.5	197.4	193.6	123.2	n.a	n.a	-10.8
Hungary	170.1	174.1	168.8	176.7	n.a	n.a	1.3
Slovenia	223.0	233.8	253.2	222.2	n.a	n.a	0.3
Romania	189.6	194	190.4	188.9	n.a	n.a	-0.1
Bulgaria	160.4	170.2	163.5	163.8	n.a	n.a	0.8
<b>Average</b>	<b>177.0</b>	<b>181.3</b>	<b>184.3</b>	<b>186.2</b>	<b>n.a</b>	<b>n.a</b>	<b>3.2</b>

Note: <sup>1</sup> EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note <sup>2</sup>: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.58: EU-N10<sup>1</sup> Liquid milk consumption (Kg/capita)**

Country	1997	1998	1999	2000	2001	2002	% change <sup>2</sup>
Estonia	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Latvia	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Lithuania	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Poland	79.0	87.0	85.0	68.7	65.0	62.7	-4.1
Czech Republic	59.6	72.4	76.2	73.3	75.2	n.a	6.4
Slovakia	75.8	76.8	81.5	81.5	81.8	84.9	2.3
Hungary	n.a	85.6	87.5	90.1	81.6	81.0	-1.2
Slovenia	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Romania	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Bulgaria	n.a	n.a	n.a	n.a	n.a	n.a	n.a
<b>Average</b>	<b>71.5</b>	<b>80.5</b>	<b>82.6</b>	<b>78.4</b>	<b>75.9</b>	<b>76.2</b>	<b>0.3</b>

Note: <sup>1</sup> EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note <sup>2</sup>: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.59: EU-N10<sup>1</sup> Butter<sup>2</sup> consumption (Kg/capita)**

Country	1997	1998	1999	2000	2001	2002	% change <sup>3</sup>
Estonia	4.1	5.6	5.8	6.5	n.a	n.a	17.4
Latvia	2.2	1.8	2.1	1.9	n.a	n.a	-3.7
Lithuania	2.7	2.4	3.1	2.7	n.a	n.a	1.7
Poland	4.0	3.5	3.6	3.7	4.0	4.1	0.7
Czech Republic	3.8	4.0	3.9	4.1	4.3	4.5	3.5
Slovakia	2.5	2.9	3.0	2.7	2.7	3.0	4.1
Hungary	0.7	0.8	0.8	0.8	0.6	0.7	1.2
Slovenia	0.9	1.0	1.9	0.9	n.a	n.a	16.2
Romania	0.4	0.3	0.4	0.3	n.a	n.a	-5.6
Bulgaria	0.2	0.3	0.3	0.3	n.a	n.a	16.7
<b>Average</b>	<b>2.2</b>	<b>2.3</b>	<b>2.5</b>	<b>2.4</b>	<b>2.9</b>	<b>3.1</b>	<b>5.2</b>

Note: <sup>1</sup> EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note <sup>2</sup> Butter and ghee

Note <sup>3</sup>: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.60: EU-N10<sup>1</sup> Cream consumption (Kg/capita)**

Country	1997	1998	1999	2000	2001	2002	% change <sup>2</sup>
Estonia	1.9	1.8	1.5	2.2	n.a	n.a	8.2
Latvia	7.4	8.7	7.9	7.1	n.a	n.a	-0.6
Lithuania	4.9	5.3	4.8	2.1	n.a	n.a	-19.2
Poland	3.6	3.4	3.5	3.8	n.a	n.a	2.0
Czech Republic	2.6	2.8	3.0	3.0	2.9	2.9	2.3
Slovakia	3.9	4.2	3.2	3.2	3.2	3.2	-3.2
Hungary	6.3	6.3	6.3	6.5	6.6	6.6	0.9
Slovenia	4.7	4.8	5.0	8.0	8.0	8.0	13.3
Romania	0.0	0.0	0.0	0.0	n.a	n.a	0.0
Bulgaria	0.0	0.0	0.1	0.1	n.a	n.a	0.0
<b>Average</b>	<b>3.5</b>	<b>3.7</b>	<b>3.5</b>	<b>3.6</b>	<b>5.2</b>	<b>5.2</b>	<b>0.4</b>

Note: <sup>1</sup> EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note <sup>2</sup>: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.61: EU-N10<sup>1</sup> Cheese consumption (Kg/capita)**

Country	1997	1998	1999	2000	2001	2002	% change <sup>2</sup>
Estonia	8.3	7.5	12.8	13.1	n.a	n.a	21.1
Latvia	2.8	2.5	3.7	3.9	n.a	n.a	14.2
Lithuania	5.1	3.9	5.5	5.0	n.a	n.a	2.8
Czech Republic	8.6	8.8	9.3	10.5	10.2	10.6	4.4
Slovakia	9.5	9.1	8.4	9.0	8.3	9.5	0.4
Poland	9.8	11.3	11.4	10.0	10.1	10.1	1.0
Hungary	6.8	8.0	9.4	10.1	8.7	8.9	6.2
Slovenia	n.a	n.a	n.a	7.0	6.7	9.4	18.0
Romania	1.9	2.4	1.9	1.8	n.a	n.a	0.1
Bulgaria	7.4	7.5	5.4	4.5	n.a	n.a	-14.4
<b>Average</b>	<b>6.7</b>	<b>6.8</b>	<b>7.5</b>	<b>7.5</b>	<b>8.8</b>	<b>9.7</b>	<b>5.4</b>

Note: <sup>1</sup> EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note <sup>2</sup>: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.



**Table 6.62: EU-N10<sup>1</sup> Yoghurt, fermented milk and milk drinks consumption (Kg/capita)**

	1997	1998	1999	2000	2001	2002	% 02/97 <sup>2</sup>
Estonia	n.a	n.a	n.a	n.a	n.a	n.a	0.0
Latvia	n.a	n.a	n.a	n.a	n.a	n.a	0.0
Lithuania	n.a	n.a	n.a	n.a	n.a	n.a	0.0
Poland	n.a	n.a	n.a	4.0	3.8	4.0	0.1
Czech Republic	n.a	n.a	n.a	n.a	n.a	n.a	0.0
Slovakia	n.a	n.a	11.2	11.7	12.6	15.0	10.4
Hungary	8.6	9.4	10.9	12.2	11.5	11.9	7.0
Slovenia	n.a	n.a	n.a	n.a	n.a	n.a	0.0
Romania	n.a	n.a	n.a	n.a	n.a	n.a	0.0
Bulgaria	n.a	n.a	n.a	n.a	n.a	n.a	0.0
<b>Average</b>	<b>8.6</b>	<b>9.4</b>	<b>11.1</b>	<b>9.3</b>	<b>9.3</b>	<b>10.3</b>	<b>5.4</b>

Note: <sup>1</sup> EU-N10 excluding Cyprus and Malta; including Bulgaria and Romania.

Note <sup>2</sup>: Average annual percentage change.

Source: ZMP, FAO Agrastat, Agra CEAS calculations.

**Table 6.63: Eastern Europe sales of fermented dairy drinks by country (million litres)**

	2003	% 2003/02	% CAGR 2003/98	% 2003/98
Russia	2.0	53.8	n.a	n.a
Ukraine	n.a	n.a	n.a	n.a
Other Eastern Europe	0.0	27.2	78.0	1,688.2
<b>Eastern Europe</b>	<b>2.0</b>	<b>53.4</b>	<b>311.2</b>	<b>117,465.1</b>

Notes: CAGR Compound Annual Growth Rate

Source: Euromonitor 2004



### 6.3. Elasticity data

**Table 6.64: Aggregate dairy product elasticities in High-Income countries**

Country	Region	GNI/ capita (US\$)	Income elasticity	Own price elasticity
Hong Kong	East Asia & Pacific	25,430	0.289	-0.234
Japan	East Asia & Pacific	34,510	0.334	-0.270
Korea	East Asia & Pacific	12,020	0.510	-0.412
Singapore	East Asia & Pacific	21,230	0.483	-0.391
Slovenia	Europe & Central Asia	11,830	0.555	-0.449
Bahamas	Latin America & Caribbean	15,110	0.438	-0.354
Bahrain	Middle East & North Africa	11,260	0.670	-0.541
Israel	Middle East & North Africa	16,020	0.455	-0.368
Qatar	Middle East & North Africa	9,386	0.561	-0.453
Canada	North America	23,930	0.324	-0.262
United States	North America	37,610	0.117	-0.095
Australia	Oceania	21,650	0.340	-0.275
New Zealand	Oceania	15,870	0.450	-0.364
Austria	Western Europe	26,720	0.353	-0.285
Belgium	Western Europe	25,820	0.369	-0.299
Denmark	Western Europe	33,750	0.281	-0.227
Finland	Western Europe	27,020	0.448	-0.363
France	Western Europe	24,770	0.377	-0.305
Germany	Western Europe	25,250	0.351	-0.284
Greece	Western Europe	13,720	0.519	-0.420
Iceland	Western Europe	30,810	0.286	-0.231
Ireland	Western Europe	26,960	0.495	-0.401
Italy	Western Europe	21,560	0.364	-0.294
Luxembourg	Western Europe	43,940	0.142	-0.115
Netherlands	Western Europe	26,310	0.405	-0.327
Norway	Western Europe	43,350	0.369	-0.298
Portugal	Western Europe	12,130	0.504	-0.408
Spain	Western Europe	16,990	0.503	-0.407
Sweden	Western Europe	28,840	0.411	-0.333
Switzerland	Western Europe	39,880	0.291	-0.236
United Kingdom	Western Europe	28,350	0.375	-0.304

Source: GNI per capita 2003 (Atlas method) - World Bank, September 2004  
 USDA-FAS data, 2004  
 Agra CEAS calculations.

**Table 6.65: Aggregate dairy product elasticities in Upper Middle-Income countries**

Country	Region	GNI/ capita (US\$)	Income elasticity	Own price elasticity
Czech Republic	Europe & Central Asia	6,740	0.545	-0.441
Estonia	Europe & Central Asia	4,960	0.654	-0.529
Hungary	Europe & Central Asia	6,330	0.622	-0.503
Latvia	Europe & Central Asia	4,070	0.720	-0.582
Lithuania	Europe & Central Asia	4,490	0.695	-0.562
Poland	Europe & Central Asia	5,270	0.666	-0.539
Slovakia	Europe & Central Asia	4,920	0.639	-0.517
Antigua & Barbuda	Latin America & Caribbean	9,160	0.667	-0.539
Argentina	Latin America & Caribbean	3,650	0.587	-0.474
Barbados	Latin America & Caribbean	9,270	0.297	-0.240
Belize	Latin America & Caribbean	3,190	0.741	-0.599
Chile	Latin America & Caribbean	4,390	0.676	-0.547
Dominica	Latin America & Caribbean	3,360	0.724	-0.585
Grenada	Latin America & Caribbean	3,790	0.700	-0.566
Mexico	Latin America & Caribbean	6,230	0.679	-0.549
St. Kitts & Nevis	Latin America & Caribbean	6,880	0.639	-0.517
St. Lucia	Latin America & Caribbean	4,050	0.711	-0.575
Trinidad & Tobago	Latin America & Caribbean	7,260	0.658	-0.532
Uruguay	Latin America & Caribbean	3,790	0.642	-0.519
Venezuela	Latin America & Caribbean	3,490	0.748	-0.605
Lebanon	Middle East & North Africa	4,040	0.725	-0.586
Oman	Middle East & North Africa	7,830	0.578	-0.468
Botswana	Sub-Saharan Africa	3,430	0.764	-0.618
Gabon	Sub-Saharan Africa	3,580	0.654	-0.529
Mauritius	Sub-Saharan Africa	4,090	0.473	-0.382

Source: GNI per capita 2003 (Atlas method) - World Bank, September 2004  
 USDA-FAS data, 2004  
 Agra CEAS calculations.

**Table 6.66: Aggregate dairy product elasticities in Lower Middle-Income countries**

Country	Region	GNI/ capita (US\$)	Income elasticity	Own price elasticity
Fiji	East Asia & Pacific	2,360	0.701	-0.567
Indonesia	East Asia & Pacific	810	0.783	-0.633
Philippines	East Asia & Pacific	1,080	0.754	-0.610
Thailand	East Asia & Pacific	2,190	0.755	-0.610
Albania	Europe & Central Asia	1,740	0.792	-0.641
Armenia	Europe & Central Asia	950	0.814	-0.658
Azerbaijan	Europe & Central Asia	810	0.835	-0.676
Belarus	Europe & Central Asia	1,590	0.729	-0.590
Bulgaria	Europe & Central Asia	2,130	0.716	-0.579
Georgia	Europe & Central Asia	830	0.787	-0.636
Kazakhstan	Europe & Central Asia	1,780	0.727	-0.588
Macedonia	Europe & Central Asia	1,980	0.742	-0.600
Romania	Europe & Central Asia	2,310	0.689	-0.557
Russia	Europe & Central Asia	2,610	0.712	-0.576
Turkey	Europe & Central Asia	2,790	0.698	-0.564
Turkmenistan	Europe & Central Asia	1,120	0.890	-0.720
Ukraine	Europe & Central Asia	970	0.775	-0.626
Bolivia	Latin America & Caribbean	890	0.820	-0.663
Brazil	Latin America & Caribbean	2,710	0.718	-0.581
Ecuador	Latin America & Caribbean	1,790	0.825	-0.667
Jamaica	Latin America & Caribbean	2,760	0.797	-0.645
Paraguay	Latin America & Caribbean	1,100	0.843	-0.682
Peru	Latin America & Caribbean	2,150	0.759	-0.614
Egypt	Middle East & North Africa	1,390	0.741	-0.599
Iran	Middle East & North Africa	2,000	0.691	-0.559
Jordan	Middle East & North Africa	1,850	0.809	-0.654
Morocco	Middle East & North Africa	1,320	0.757	-0.613
Syria	Middle East & North Africa	1,160	0.791	-0.639
Tunisia	Middle East & North Africa	2,240	0.654	-0.529
Sri Lanka	South Asia	930	0.805	-0.651
Swaziland	Sub-Saharan Africa	1,350	0.747	-0.604

Source: GNI per capita 2003 (Atlas method) - World Bank, September 2004  
 USDA-FAS data, 2004  
 Agra CEAS calculations.

**Table 6.67: Aggregate dairy product elasticities in Low-Income countries**

Country	Region	GNI/ capita (US\$)	Income elasticity	Own price elasticity
Mongolia	East Asia & Pacific	480	0.909	-0.735
Vietnam	East Asia & Pacific	480	0.856	-0.692
Kyrgyzstan	Europe & Central Asia	330	0.837	-0.677
Moldova	Europe & Central Asia	590	0.839	-0.679
Tajikistan	Europe & Central Asia	190	0.937	-0.758
Uzbekistan	Europe & Central Asia	420	0.839	-0.679
Yemen	Middle East & North Africa	520	0.930	-0.752
Bangladesh	South Asia	400	0.859	-0.695
Nepal	South Asia	240	0.869	-0.703
Pakistan	South Asia	470	0.843	-0.682
Benin	Sub-Saharan Africa	440	0.900	-0.728
Cameroon	Sub-Saharan Africa	640	0.842	-0.681
Congo	Sub-Saharan Africa	640	0.887	-0.717
Cote d'Ivoire	Sub-Saharan Africa	660	0.850	-0.687
Guinea	Sub-Saharan Africa	430	0.802	-0.649
Kenya	Sub-Saharan Africa	390	0.906	-0.733
Madagascar	Sub-Saharan Africa	290	0.917	-0.742
Malawi	Sub-Saharan Africa	170	0.925	-0.748
Mali	Sub-Saharan Africa	290	0.928	-0.750
Nigeria	Sub-Saharan Africa	320	0.946	-0.765
Senegal	Sub-Saharan Africa	550	0.866	-0.701
Sierra Leone	Sub-Saharan Africa	150	0.895	-0.724
Tanzania	Sub-Saharan Africa	290	0.963	-0.779
Zambia	Sub-Saharan Africa	380	0.930	-0.752
Zimbabwe	Sub-Saharan Africa	480	0.814	-0.658

Source: GNI per capita 2003 (Atlas method) - World Bank, September 2004  
 USDA-FAS data, 2004  
 Agra CEAS calculations.

**Table 6.68: Income elasticity for dairy products in selected countries**

	Butter	Cheese	Non-fat Dry Milk	Whole Milk Powder	Milk
Argentina	0.43	0.73	0.35	1.95	0.26
Australia	0.03	0.36	0.18	0.39	0.06
Brazil	0.05	0.28	0.40	0.50	0.35
Bulgaria	0.31	0.29	0.13	n/a	0.09
Canada	0.01	0.15	0.01	n/a	0.17
China - Urban	0.10	0.15	0.30	0.30	0.70
China - Rural	0.10	0.15	0.30	0.50	0.60
Czech Republic	0.05	0.18	0.15	0.83	0.23
Egypt	0.05	0.31	0.25	0.80	0.60
Estonia	0.07	0.20	0.18	0.20	0.06
European Union	0.02	0.03	0.07	0.10	0.07
Hungary	0.12	0.18	0.28	0.23	0.03
India	0.29	n/a	0.50	n/a	0.05
Indonesia	0.20	0.45	0.60	0.50	0.30
Japan	0.11	0.73	0.14	n/a	0.16
Latvia	0.06	0.28	-0.12	0.09	0.05
Lithuania	0.05	0.32	0.19	0.32	0.05
Malaysia	0.50	0.50	0.30	0.60	0.40
Mexico	0.41	0.92	0.29	0.15	0.15
New Zealand	0.04	0.42	0.30	0.24	0.06
Other EU New Member States	0.17	0.11	0.15	0.47	0.03
Philippines	0.10	0.35	0.10	0.34	0.50
Poland	0.09	0.21	0.34	0.36	0.11
Romania	0.54	0.26	0.60	n/a	-0.01
Russia	0.16	0.40	0.12	0.30	0.05
Slovak Republic	0.12	0.15	0.16	1.25	0.40
Slovenia	0.18	0.21	0.30	0.55	0.08
South Korea	0.10	0.85	0.50	0.06	0.05
Switzerland	0.11	0.04	0.05	n/a	0.02
Ukraine	0.38	0.79	1.07	0.30	0.23
United States	0.30	0.30	0.41	n/a	0.40

Source: FAPRI data, 2004

**Table 6.69: Own-price elasticity for dairy products in selected countries**

	Butter	Cheese	Non-fat Dry Milk	Whole Milk Powder	Milk
Argentina	-0.03	-0.1	-0.10	-0.12	-0.02
Australia	-0.1	-0.37	-0.28	-0.29	-0.05
Brazil	-0.06	-0.23	-0.22	-0.75	-0.20
Bulgaria	-0.14	-0.35	-0.15	n/a	-0.15
Canada	-0.4	-0.23	-0.19	n/a	-0.17
China - Urban	-0.2	-0.05	-0.30	-0.20	-0.25
China - Rural	-0.2	-0.05	-0.30	-0.10	-0.35
Czech Republic	-0.23	-0.32	-0.04	-10.52	-0.32
Egypt	-0.07	-0.01	-0.09	-0.10	-0.10
Estonia	-0.28	-0.27	-0.28	-0.39	-0.20
European Union	-0.3	-0.18	-0.24	-0.27	-0.07
Hungary	-0.04	-0.17	-0.47	-0.51	-0.10
India	-0.08	n/a	-0.33	n/a	-0.05
Indonesia	-0.15	-0.14	-0.12	-0.20	-0.12
Japan	-0.14	-0.12	-0.17	n/a	-0.04
Latvia	-0.14	-0.24	-0.05	-0.35	-0.12
Lithuania	-0.15	-0.14	-0.04	-0.10	-0.33
Malaysia	-0.15	-0.3	-0.10	-0.11	-0.14
Mexico	-0.13	-0.17	-0.09	-0.05	-0.22
New Zealand	-0.11	-0.76	-0.46	-0.53	-0.24
Other EU New Member States	-0.56	-0.15	-0.39	-0.55	-0.05
Philippines	-0.15	-0.29	-0.12	-0.30	-0.46
Poland	-0.1	-0.15	-0.30	-0.21	-0.20
Romania	-0.32	-0.13	-0.40	n/a	-0.08
Russia	-0.16	-0.42	-0.28	-0.25	-0.19
Slovak Republic	-0.11	-0.1	-0.08	-1.08	-0.20
Slovenia	-0.23	-0.31	-0.35	-0.27	-0.10
South Korea	-0.2	-0.4	-0.12	-0.31	-0.11
Switzerland	-0.33	-0.17	-0.13	n/a	-0.08
Ukraine	-0.09	-0.25	-0.42	-0.20	-0.14
United States	-0.28	-0.33	-0.50	n/a	-0.17

Source: FAPRI data, 2004



## 6.4. Forecast consumption

### 6.4.1. World

**Table 6.70: World forecast dairy consumption per capita in 2013 (Kg/capita and % average annual growth 2005-13)**

	Butter		Cheese		Fluid Milk		NFD Milk		WMP	
	% 13/05 <sup>1</sup>	Kg	% 13/05 <sup>1</sup>	Kg	% 13/05 <sup>1</sup>	Kg	% 13/05 <sup>1</sup>	Kg	% 13/05 <sup>1</sup>	Kg
Asia	0.9	0.8	2.4	0.8	1.1	16.6	1.2	1.2	1.1	1.3
Eastern Europe	1	2.3	1.8	8.9	0.5	116.3	1.5	2.3	5.2	0.7
Europe	-0.4	4.9	0.4	18.1	-0.5	79.9	0	2.3	-1.8	0.6
Former Soviet Union	1.9	3.0	2.4	3.8	1.1	96.5	2.4	1.3	1.3	0.7
North Africa	0	1.7	0.6	6.7	2.1	18.5	6.3	0.3	0	0.1
North America	-0.4	1.8	0.9	9.6	0.3	64.8	-0.4	1.7	1	1.4
Oceania	-0.5	4.3	1.7	6.8	-0.1	69.2	-0.4	1.4	4.7	0.9
South America	0.6	0.8	1.9	6.8	1.2	69.2	0	0.6	1.7	2.8

Note <sup>1</sup> annual average growth.

Source: FAPRI 2004, Agra CEAS calculations

**Table 6.71: North America forecast dairy consumption per capita 2005-2013**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Canada</b>									
Fluid Milk	85.4	84.8	84.2	83.6	83	82.5	82	81.4	80.8
Butter	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Cheese	11	11	11.1	11.1	11.2	11.3	11.4	11.5	11.6
NFD Milk	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
<b>Mexico</b>									
Fluid Milk	44.1	44.8	45.4	45.9	46.4	46.9	47.4	48	48.7
Butter	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Cheese	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.5
NFD Milk	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Whole Milk Powder	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
<b>United States</b>									
Total Fluid Milk	92	91.3	90.8	90.1	89.6	89.1	88.5	88	87.6
Butter	2	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8
Cheese	14.2	14.2	14.3	14.3	14.4	14.5	14.6	14.7	14.8
NFD Milk	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Source: FAPRI 2004.

**Table 6.72: South America forecast dairy consumption per capita 2005-2013**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Argentina</b>									
Fluid Milk	53.7	54.1	54.5	54.9	55.3	55.8	56.2	56.7	57.2
Butter	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Cheese	8.9	9.1	9.3	9.5	9.8	10	10.2	10.5	10.8
NFD Milk	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Whole Milk Powder	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.7
<b>Brazil</b>									
Fluid Milk	71.5	72.5	73.6	74.8	76.1	77.3	78.6	79.8	81.1
Butter	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Cheese	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.8
NFD Milk	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Whole Milk Powder	2.4	2.5	2.5	2.6	2.7	2.7	2.8	2.9	2.9

Source: FAPRI 2004.

**Table 6.73: Former Soviet Union forecast dairy consumption per capita 2005-2013**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Russia</b>									
Fluid Milk	93.9	94.4	94.9	95.1	95.4	95.6	95.9	96.2	96.4
Butter	2.8	2.9	2.9	2.9	3	3	3	3.1	3.1
Cheese	3.6	3.6	3.7	3.8	3.9	4	4.1	4.2	4.3
NFD Milk	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3
Whole Milk Powder	0.9	0.9	1	1	1	1	1.1	1.1	1.1
<b>Ukraine</b>									
Fluid Milk	83.8	85.1	86.6	88.1	89.8	91.5	93.1	94.9	96.6
Butter	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.7	2.8
Cheese	2.7	2.7	2.8	2.9	3	3.1	3.2	3.2	3.3
NFD Milk	0.9	0.9	1	1	1	1.1	1.1	1.2	1.2
Whole Milk Powder	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

Source: FAPRI 2004.

**Table 6.74: North Africa forecast dairy consumption per capita 2005-2013**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Egypt</b>									
Fluid Milk	15.7	16	16.3	16.7	17	17.4	17.7	18.1	18.5
Butter	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Cheese	6.4	6.4	6.4	6.5	6.5	6.6	6.6	6.7	6.7
NFD Milk	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Whole Milk Powder	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Source: FAPRI 2004.

**Table 6.75: Asia forecast dairy consumption per capita 2005-2013**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>China</b>									
Fluid Milk	6.3	6.6	6.8	7.1	7.3	7.5	7.8	8	8.2
Butter	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Cheese	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
NFD Milk	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>India</b>									
Fluid Milk	32.3	32.4	32.5	32.6	32.7	32.9	33	33.1	33.2
Butter	2.4	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.7
NFD Milk	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
<b>Indonesia</b>									
Fluid Milk	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5
Butter	0	0	0	0	0	0	0	0	0
Cheese	0	0	0	0	0	0	0	0	0
NFD Milk	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
Whole Milk Powder	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
<b>Japan</b>									
Fluid Milk	39.4	39.5	39.6	39.7	39.9	40.1	40.2	40.4	40.6
Butter	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Cheese	1.9	1.9	1.9	2	2	2	2.1	2.1	2.1
NFD Milk	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7
<b>Malaysia</b>									
Fluid Milk	2	2	2	2.1	2.1	2.1	2.2	2.2	2.2
Butter	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Cheese	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
NFD Milk	3	3.4	3.4	3.5	3.5	3.5	3.6	3.6	3.6
Whole Milk Powder	3.4	3.4	3.5	3.6	3.7	3.7	3.8	3.9	4
<b>Philippines</b>									
Fluid Milk	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8
Butter	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Cheese	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
NFD Milk	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3
Whole Milk Powder	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
<b>South Korea</b>									
Fluid Milk	30.1	29.6	29.2	29.2	29.3	29.3	29.4	29.4	29.5
Butter	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3
Cheese	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6	1.7
NFD Milk	0.9	1	1	1	1	1	1	1	1
Whole Milk Powder	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Source: FAPRI 2004.

**Table 6.76: Oceania forecast dairy consumption per capita 2005-2013**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Australia									
Fluid Milk	99.3	99.1	98.9	98.7	98.8	98.5	98.3	98	97.8
Butter	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4
Cheese	12	12.2	12.4	12.5	12.7	12.8	13	13.1	13.3
NFD Milk	1.5	1.5	1.5	1.4	1.4	1.3	1.3	1.3	1.2
Whole Milk	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3
Powder									
New Zealand									
Fluid Milk	91	91.6	91.8	91.7	91.6	91.3	90.8	90.6	90.6
Butter	6.5	6.5	6.4	6.4	6.3	6.3	6.3	6.2	6.2
Cheese	7.2	7.3	7.5	7.7	7.8	8	8.2	8.3	8.5
NFD Milk	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5
Whole Milk	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5
Powder									

Source: FAPRI 2004.

## 6.4.2. EU-25

Table 6.77: EU-25 dairy consumption forecasts (2005-2013) ('000 tonnes)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	% 13/05 <sup>1</sup>
<b>Fluid Milk*</b>										
Kg/capita	187.6	187.4	186.8	186.8	187.1	187.3	187.6	187.7	188.0	0.03
EU-15	73.1	73.1	73	72.8	72.5	72.3	72.1	71.9	71.7	-0.24
EU-N10	114.5	114.3	113.8	114.0	114.6	115.0	115.5	115.8	116.3	0.20
<b>Butter</b>										
Total consumption	1,884	1,880	1,863	1,832	1,819	1,795	1,767	n.a	n.a	-1.07
EU-15	1,648	1,648	1,635	1,609	1,598	1,573	1,549	n.a	n.a	-1.03
EU-N10	236	232	228	224	221	222	217	n.a	n.a	-1.33
Kg/capita	4.1	4.1	4.0	4.0	3.9	3.9	3.8	n.a	n.a	-1.31
EU-15	4.3	4.3	4.2	4.1	4.1	4.0	4.0	n.a	n.a	-1.33
EU-N10	3.2	3.1	3.1	3.0	3.0	3.0	2.9	n.a	n.a	-1.28
<b>Cheese</b>										
Total consumption	8,178	8,332	8,419	8,534	8,590	8,665	8,729	n.a	n.a	1.09
EU-15	7,198	7,329	7,384	7,469	7,491	7,533	7,559	n.a	n.a	0.82
EU-N10	981	1,003	1,035	1,065	1,099	1,132	1,169	n.a	n.a	2.98
Kg/capita	17.8	18.1	18.2	18.5	18.5	18.6	18.7	n.a	n.a	0.84
EU-15	18.7	19.0	19.1	19.3	19.3	19.3	19.3	n.a	n.a	0.51
EU-N10	13.1	13.4	13.9	14.3	14.7	15.2	15.7	n.a	n.a	3.03
<b>SMP</b>										
Total consumption	1,029	1,004	975	927	873	823	765	n.a	n.a	-4.80
EU-15	932	907	880	836	787	738	685	n.a	n.a	-5.00
EU-N10	97	97	95	90	86	85	80	n.a	n.a	-2.99
Kg/capita	2.2	2.2	2.1	2.0	1.9	1.8	1.6	n.a	n.a	-5.04
EU-15	2.4	2.4	2.3	2.2	2.0	1.9	1.7	n.a	n.a	-5.29
EU-N10	1.3	1.3	1.3	1.2	1.2	1.1	1.1	n.a	n.a	-2.94
<b>WMP*</b>										
Kg/capita	1.2	1.2	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.04
EU-15	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	-1.79
EU-N10**	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	4.24

Note: \* FAPRI data including Bulgaria and Romania. \*\* excluding Cyprus and Malta

Note 1: Annual average change.

Source: DG Agriculture, Eurostat, FAPRI, Agra CEAS calculations.

**Table 6.78: European dairy consumption per capita forecasts (2005-2013)**

	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>EU-15</b>									
Fluid Milk	73.1	73.1	73	72.8	72.5	72.3	72.1	71.9	71.7
Butter	4.3	4.4	4.4	4.4	4.3	4.3	4.3	4.2	4.2
Cheese	18.6	18.8	18.8	18.9	18.9	19	19	19.1	19.1
SMP	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3
Whole Milk Powder	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6
<b>Switzerland</b>									
Fluid Milk	93.4	92.9	92.3	91.6	91	90.2	89.5	88.8	88.1
Butter	5.7	5.7	5.7	5.7	5.6	5.6	5.6	5.6	5.5
Cheese	16.6	16.7	16.8	16.9	16.9	16.9	17	17	17.1
SMP	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3

Source: FAPRI 2004.

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