



# ***The White Paper***

**A report on the UK dairy industry**

**February 2009**



## FOREWORDS



**Dairy UK Chairman, Mark Allen**

Dairy UK is the voice of the UK dairy industry.

We bring together dairy processors and co-operatives, farming representatives and retail milk distributors. Our organisation embraces the views and opinions of all those involved in the industry.

Our Farmers Forum feeds producers' views directly into our board. That and a particularly close relationship with the Dairy Council and the British Cheese Board give us an unparalleled breadth of representation.

Through publications such as this, The White Paper, we aim to speak with weight and confidence directly to government. In the pages that follow, you will find an insight into the dairy industry in the UK and the principal political challenges that it faces.

We start by recognising the moment's short term challenges, but we set out the reasons for the industry to be optimistic, in spite of the difficult environment that prevails. Then we lay out our key priorities for future work, and summarise the areas where we need help and support from industry stakeholders. Each section concludes with a discussion of the key policy objectives being pursued by Dairy UK and the dairy industry.

The White Paper 2009 seemed to grow in length as it was written, but it is packed with useful information and key analysis into the dairy sector. I hope it proves useful and, it goes without saying, Dairy UK welcomes your feedback.

### **Roger Evans, Chairman of the UK Dairy Farmers Forum**

We all know that times are challenging for farmers. Some costs are coming back while others, such as feed, are rising again. In the short-term, pressure is back on milk prices.

There are plenty of commentators ready to leap in and describe the dairy sector in apocalyptic terms. I think they are wrong, and they are hurting our prospects.

As Chairman of the Farmers Forum, I have an insight into conditions across the supply chain, and I know that things are tight for processors too. Prices are more volatile over short periods than they used to be. But I am just one of the many dairy farmers determined to see it through.

We in the UK are well placed to profit from the upturn when it comes. In the meantime, farmers have to pursue closer links and partnerships with others in the supply chain to make us more resilient.

That's why I'm delighted to be contributing to the work of Dairy UK through its Farmers Forum. It provides the opportunity for farmers to really sit down and talk to a range of processors. Dairy UK is doing a great job of promoting the image and the interests of the whole supply chain.

No-one can deny that these are testing times for dairy farmers. But we are driven by the commodity cycle now, and in the longer term, the signs look positive.



## OVERVIEW



**Jim Begg, Dairy UK Director General**

Dairy in the driving seat

Prospects for dairy are good. Global demand for our products is rising. We are efficient and dynamic producers of raw milk and our foods are safe, wholesome and nutritious.

Our main challenge in the short term is greater price volatility arising from deregulation. This is creating intense short term pressures. But we are not in crisis; the industry can and will adapt to this new environment. Farmers, like processors, must consider their net margins, not just milk prices.

Low producer confidence is the single major structural issue within the industry. A climate of pessimism has been exacerbated by sustained negative messaging about the sector's prospects. This is not justified and needs to change.

We are doing the right things now to ensure that we remain competitive in the future. Dairy farmers and dairy companies are following a clear strategy. They are becoming more efficient and consolidating; they are innovating and adding value.

Close partnership with Government is helping us to deliver on the nation's nutritional and environmental policy objectives.

Dairy UK calls on Government and other stakeholders to fulfil the following responsibilities:

- **Understanding from regulators and MPs that activity in the dairy industry is a major economic undertaking requiring high levels of investment**
- **Careful handling of the transition to full market exposure by Brussels, to provide clarity and confidence**
- **Recognition of dairy's vital role in a healthy balanced diet all across Government policy.**
- **Support and credit for environmental work to reduce our industry's footprint.**
- **More money to support agricultural R&D from central Government, so we can keep raising productivity and efficiency**
- **Strong and supportive partnership with Government, so the dairy industry can maximise its contribution to UK food security.**
- **Regulators must allow consolidation so that UK dairy businesses can remain competitive.**
- **Innovation must be fostered by balanced food policy from Government and from the EU**
- **An end to scaremongering about the industry's prospects**

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## 1. THE WORLD MARKET

World milk production is rising. Because dairy products are largely consumed in the region of production, world trade in dairy products represents a relatively small portion of total global output. World prices are volatile, but in the long term they will be underpinned by the growth in world population and rising incomes.

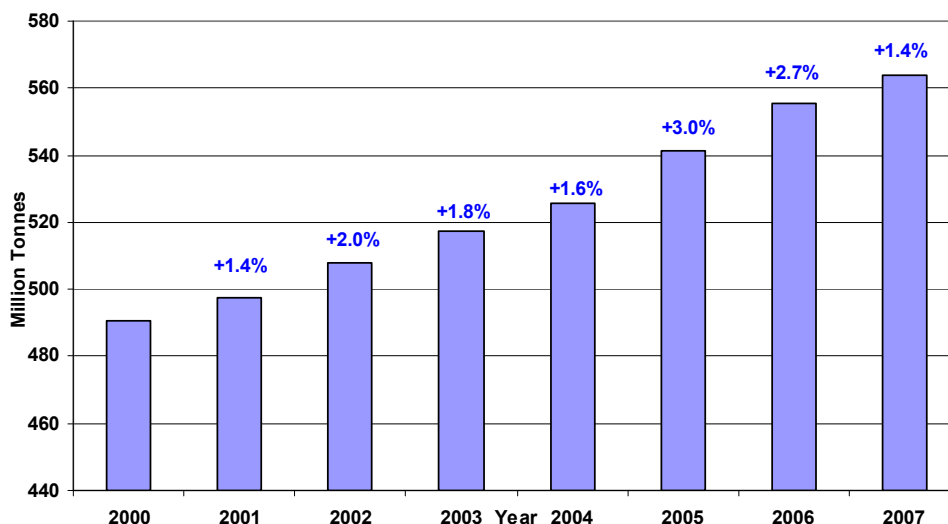
The world market is strongly influenced by the trade policies of major producing countries. The EU has historically used export refunds to manage its relationship with the world market but it will become more exposed to the world market as it become less reliant on the use of refunds.

### 1.1 World Milk Production

World milk production is on an upward trend. Over the past seven years the average annual rate of growth has been 1.8%.

Compared to 2006, the growth in milk production in 2007 was slightly below trend at 1.4%. This slowdown in the rate of growth was due to weather events and a rise in feed, fertiliser and energy costs. Available information for 2008 indicates that the growth rate picked up again in response to changing milk prices, but very recently the rate of growth has again slowed.

**Graph 1 – World Milk Production (million tonnes)**



Around 30% of world milk output continues to be from the 'informal sector' where milk produced by very small farmers is either consumed on the farm or marketed locally. The shift away from the informal sector towards milk being delivered to dairies for processing is one of the main underlying trends in the global dairy industry.

### 1.2 Milk Production by Country

**Table 1 - Summary of Major Milk Producer Forecasts for 2008 (million metric tons)**

	2006	2007	2008 forecast	% Change 07/08	2009 forecast	% Change 08/09
<b>Australia</b>	10,395	9,870	9,377	-5	9377	0
<b>EU-27</b>	132,206	132,600	133,670	1	136343	2
<b>New Zealand</b>	15,200	15,595	14,876	-5	15917	7
<b>United States</b>	80,462	84,188	85,947	2	86806	1
	238,263	242,253	243,870		248444	
<b>% change</b>		1.7	0.7		1.9	

Source: USDA July 2008

The EU has remained the world's largest milk producing region accounting for 23% of global output. The USA has remained the largest milk producing country, accounting for 15%. China continues to grow rapidly and now accounts for almost 7% of world output.

Australia continues to contract and output now stands at 20% below the peak of 11,609 thousand tonnes achieved in 2001. New Zealand is continuing to expand, but at a slower rate.

### 1.3 Structure of the World Market

#### *Exports*

Milk and dairy products continue to be largely consumed in the region in which they are produced, and the tradable surplus for any country as a percentage of production generally remains small, with the exceptions of Australia and New Zealand. Consequently, the world market remains a marginal market, accounting for only around 8% of world output.

**Table 2 - Pattern of World Trade (volume of product exported and % of milk production)**

	<b>Volume of Product Exported (million tons milk equivalent)</b>	<b>% of Domestic Production</b>
<b>New Zealand</b>	13.6	90
<b>EU</b>	13.0	9
<b>Australia</b>	4.2	45
<b>USA</b>	4.0	5
<b>Argentina</b>	1.6	16
<b>India</b>	0.4	1
<b>World</b>	43.0	8

#### *Imports*

The major importing countries are:

**Table 3 - Major Dairy Commodity Importing Countries in 2007**

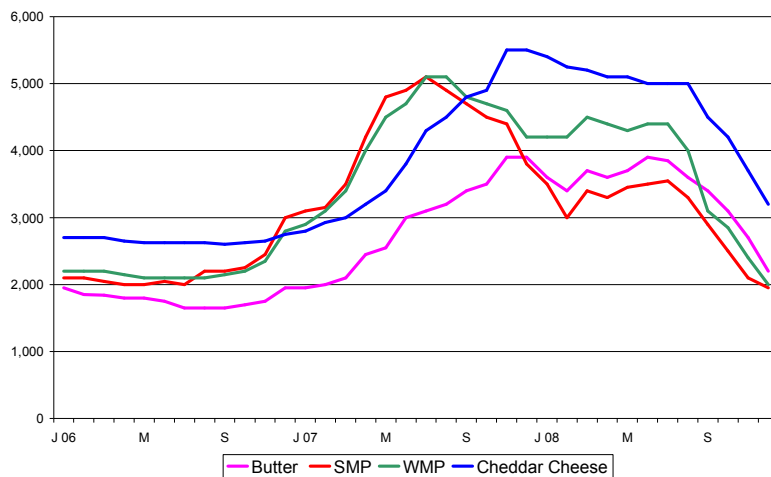
	<b>Volume of Product Imported (Million Tons Milk Equivalent)</b>	<b>% of World Imports</b>
<b>USA</b>	3.8	9
<b>Mexico</b>	2.7	6
<b>Russia</b>	2.7	6
<b>Japan</b>	2.5	6
<b>Algeria</b>	2.2	5
<b>EU</b>	2.2	5

The most significant structural changes since 2006 have been Mexico replacing Russia as the second largest importer and the EU now importing less than Japan and Algeria.

#### *Prices*

The most striking development on the world market over the last 12 months was the phenomenal surge in product prices which started in mid 2007, peaked in September/November 2007, and has now subsided with prices almost returning to the levels seen before the surge.

**Graph 2 - World Dairy Commodity Prices**



The underlying causes of the surge in world prices were fourfold:

- i. The slowdown in the rate of growth in production seen in 2007
- ii. The sustained increase in demand.

This was principally driven by population and income growth. Both these factors will continue to underpin the growth in dairy production in the future. The world's population is forecast to grow by 38% by 2050.

**Table 4 - Projected Population Growth by region**

Region	2007	2050	Change
<b>World</b>	6,671	9,191	+38%
<b>High Income</b>	1,223	1,245	+2%
<b>Low Income</b>	5,448	7,946	+46%
<b>Africa</b>	965	1,998	+107%
<b>Asia</b>	4,030	5,266	+31%
<b>Latin America</b>	572	769	+34%
<b>North America</b>	339	445	+31%
<b>Europe</b>	731	664	-9%

Rising incomes in the growing economies, especially in the Far East, is producing a shift in dietary patterns towards the greater consumption of dairy products. Long term GDP growth forecasts remain positive.

**Table 5 - Economic Growth by Major Country, Region**

Region / Country	Forecast annual GDP % growth in 2010
<b>World</b>	3.0
<b>Euro Area</b>	1.6
<b>United States</b>	2.0
<b>East Asia and Pacific</b>	7.8
<b>China</b>	8.5
<b>Indonesia</b>	6.0
<b>Thailand</b>	5.0
<b>Latin America</b>	4.0
<b>Middle East and N. Africa</b>	5.2
<b>South Asia</b>	7.2
<b>Sub-Saharan Africa</b>	5.8

Source: World Bank

- iii. The surge in the price of oil increasing the purchasing power of major food importing countries among the oil rich economies.
- iv. The erosion of food stocks. In the EU alone, stocks of butter and SMP held by the European Commission were completely exhausted by August 2007.

The severity of the price spike itself also induced further demand as buyers became anxious about securing supplies.

Rising milk production through 2008, the collapse in the oil price and the effects of the credit crunch on demand have seen prices fall back. However, for the longer term world prices are expected to remain at a higher level than those seen over the past 10 years. The OECD-FAO Agricultural Outlook 2008-2017 report states that:

“the expectation is that [prices] will remain firm over the entire outlook (to 2017) and stay higher compared to the previous decade.”

## **1.4 Trade Policies**

Historically the world market has been heavily influenced by the trade policies of the major consuming countries and regions.

The EU, USA and India have all maintained significant tariff barriers to protect their domestic markets. The USA maintains a differential pricing system that effectively cross subsidises exports. As part of the Common Agricultural Policy (CAP) the EU has used export subsidies (export refunds) to allow exporters to bridge the gap between prices on the EU domestic market and those prevailing on the world market.

A WTO agreement will go some way to reducing the importance of these trade policies and their impact on the world market. The last draft agreement for agriculture prepared in December 2008 (the 'Modalities') would require;

- a minimum average tariff cut of 54%
- export refunds to be eliminated by 2013
- a ceiling on expenditure on trade distorting domestic support

The talks have now stalled and require a major investment of political impetus by the new American administration to get them going again.

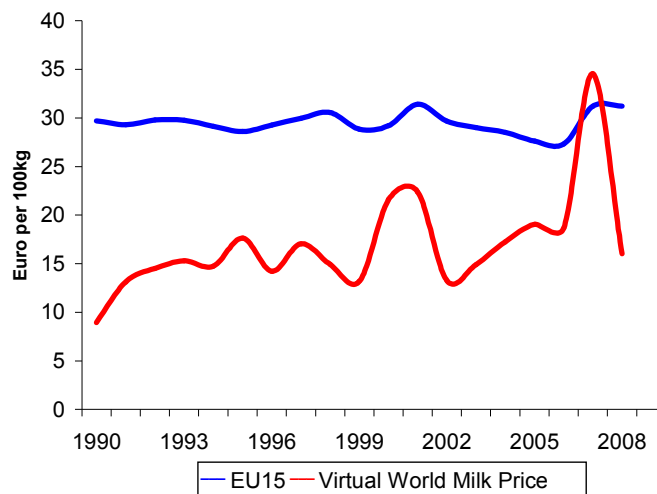
## **1.5 EU and the World Market**

The EU used to be heavily reliant on export refunds to manage its relationship with the world market. The surge in world prices allowed the EU to cut back export refunds until the point was reached in mid 2007 when all export refunds were placed at zero. The subsequent collapse in world prices and pressure from member states resulted in their re-introduction.

Longer term, the policy of the European Union is to reduce the dairy industry's reliance on all forms of market support, including export refunds. In the absence of these subsidies, there will have to be a greater degree of convergence between the EU dairy market and the world market. The EU has an exportable surplus that will have to be priced competitively with the world market without the assistance of export refunds. This will influence the price prevailing throughout the EU.

Greater exposure to the world market will bring with it greater price volatility, as the world market has historically been very volatile compared to the price stability created in the EU by the Common Agricultural Policy.

**Graph 3 - EU and World Market Prices**



Recent price volatility and the reduced influence of the CAP on market prices, mean that there is growing interest in the development of a futures market for dairy products to help the industry manage its pricing risks. The major futures exchanges are currently examining whether futures contracts could be developed for dairy, but at present these are not yet available.

One development that has brought greater price transparency to the world market has been the institution by Fonterra (the New Zealand dairy company which accounts for around one third of world dairy trade) of an electronic auctioning system for sales of whole milk powder. Results of the monthly auction are made publicly available. The inception of the auction coincided with the decline in world prices and this is reflected in the prices realised under the system.

**Table 6 - Fonterra Whole Milk Powder Auction System Results**

Trading Event Number	Weighted Average Price (\$US / MT, FAS)
1 – 2 July 2008	4,395
2 – 5 August 2008	3,843
3 – 2 September 2008	3,306
4 – 1 October 2008	2,917
5 – 4 November 2008	2,585
6 – 2 December 2008	2,223
7 – 6 January 2009	2,017
8 – 3 February 2009	1,851

### Dairy UK and the World Market

**The world market will increasingly shape the UK industry’s commercial environment in the future. There are many issues governing the relationship with the world market, but fundamentally it will positively underpin the industry’s future and a wider range of commercial opportunities.**

Population growth and rising incomes will ensure that the UK dairy industry operates in an environment of growing demand for the foreseeable future. This will keep the industry’s long term commercial prospects positive. Global demand growth will also provide market opportunities, particularly for the industry in Northern Ireland.

Dairy UK regrets the lack of progress in the WTO talks. Our strong preference is for trade liberalisation to be undertaken through a multi-lateral framework. However, if talks are to resume, then any final package must give the industry sufficient time to adapt to the implications of any agreement.

Delays in the Doha round will inevitably place greater emphasis on bilateral or regional trade agreements. Dairy UK is concerned that any form of trade agreement, whether bilateral or through the WTO, should not discriminate against the UK. Tariff quotas should not be offered to exporting countries which by default effectively target the UK dairy market. Conversely, export opportunities should be equally open to UK exporters.

Whilst the elimination of export refunds will be a logical consequence of the move towards a more liberalised commercial environment, there may be occasions when their re-introduction could be justified in order to minimise the impact of excessive price volatility on the sector. Dairy UK therefore welcomes the recent decision by the Commission to bring back refunds as an interim support measure.

## 2. THE EU MARKET

There is an enormous range in scale of production, average farm size and producer price throughout the EU. Overall milk production for the bloc is broadly in line with last year. Whilst milk quotas do not constrain production in the majority of EU countries, the abolition of quotas will still have a significant effect on the distribution of milk production within the EU. EU prices have fallen back since the peak reached in 2007.

The Common Agricultural Policy (CAP) for the dairy sector used to consist of a comprehensive suite of market management tools. Rising prices in 2007 allowed the European Commission to cut all aid rates for domestic consumption subsidy programmes and export subsidies to zero, and to sell all stocks out of intervention. However, the recent fall in prices has seen the Commission reintroduce a range of market support measures.

The Health Check of the CAP agreed in November 2008 will bring an end to the dairy sector market management regime. Milk quotas will expire on 31 March 2015, expanding total EU production and lowering prices. The CAP will continue to evolve as a result of the fundamental review of the EU budget that is due to be concluded in 2009.

### 2.1 Basic Facts

There is an enormous range in scale of production, average farm size and producer price throughout the EU. The UK is the third largest producer of milk in the EU with the fourth highest average herd size.

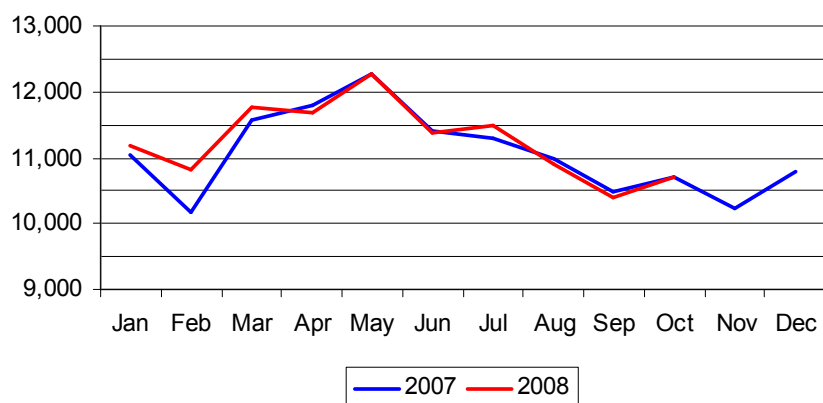
Table 7 – Europe Basic Facts for 2007

Country	Wholesale Production (000t)	Farm Numbers	National Herd (000 head)	Average Herd Size	Average Producer Price (€/100kg)
<b>EU-27</b>	135,091	2,568,038	24,156	9	31.82
<b>EU-15</b>	116,008	423,630	17,878	42	33.77
<b>New member states</b>	17,384	884,008	4,370	5	29.31
<b>Austria</b>	2,682	47,500	525	11	33.97
<b>Belgium</b>	3,092	13,800	524	38	34.63
<b>Bulgaria</b>	761	126,000	336	3	n.a.
<b>Cyprus</b>	146	240	24	99	41.45
<b>Czech Republic</b>	2,697	1,610	407	253	29.48
<b>Denmark</b>	4,497	4,900	551	112	31.65
<b>Estonia</b>	595	1,400	104	74	26.90
<b>Finland</b>	2,271	13,300	296	22	37.59
<b>France</b>	23,491	96,500	3,759	39	31.52
<b>Germany</b>	27,681	99,000	4,087	41	32.63
<b>Greece</b>	714	9,250	150	16	38.67
<b>Hungary</b>	1,667	13,100	268	20	28.57
<b>Ireland</b>	5,231	19,600	1,088	55	34.95
<b>Italy</b>	10,803	39,700	1,839	46	34.37
<b>Latvia</b>	632	40,000	180	5	26.39
<b>Lithuania</b>	1,351	147,000	405	3	24.36
<b>Luxembourg</b>	260	890	40	45	36.06
<b>Malta</b>	40	158	8	47	n.a.
<b>Poland</b>	8,765	656,500	2,677	4	29.55
<b>Portugal</b>	1,844	12,100	306	25	31.66
<b>Romania</b>	938	1,134,400	1,573	1	n.a.

<b>Slovenia</b>	528	22,900	116	5	28.03
<b>Slovakia</b>	963	1,100	180	164	29.05
<b>Spain</b>	5,858	23,100	903	39	35.35
<b>Sweden</b>	2,949	7,490	366	49	31.30
<b>The Netherlands</b>	10,988	22,100	1,468	66	32.82
<b>United Kingdom</b>	13,647	14,400	1,977	137	29.43

## 2.2 EU Milk Production

**Graph 4 - EU Milk Production 2007 & 2008 (Million Tonnes)**



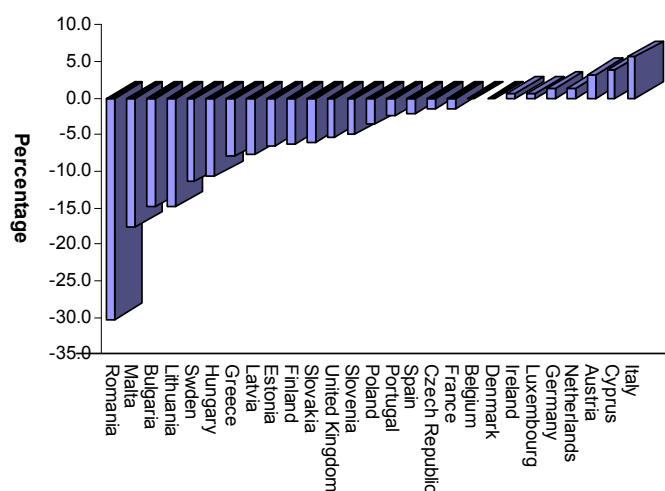
Total EU milk production for the first 10 months of 2008 was 0.7% above 2007, but most of the increase came in the first few months of the year. A large part this excess was accounted for in France. Since the middle of 2008, production profiles have been in line with 2007.

## 2.3 Milk Quotas and Production

Milk production in the EU is still subject to quotas. The system was instituted in 1984 and gives individual producers production limits for both milk volume and butterfat.

At the end of the 2007/08 milk quota year (April to March), the EU was over quota for wholesale deliveries by 0.9%. Whilst the majority of member states were under quota, the excess recorded in Italy, Germany, the Netherlands and Ireland outweighed the shortfall in other states. The UK under performed against quota, but many Eastern European countries saw an even bigger drop in output.

**Graph 5 – Percentage Under/Over Quota by member states for 2007/08**



## 2.4 Effect of Quotas

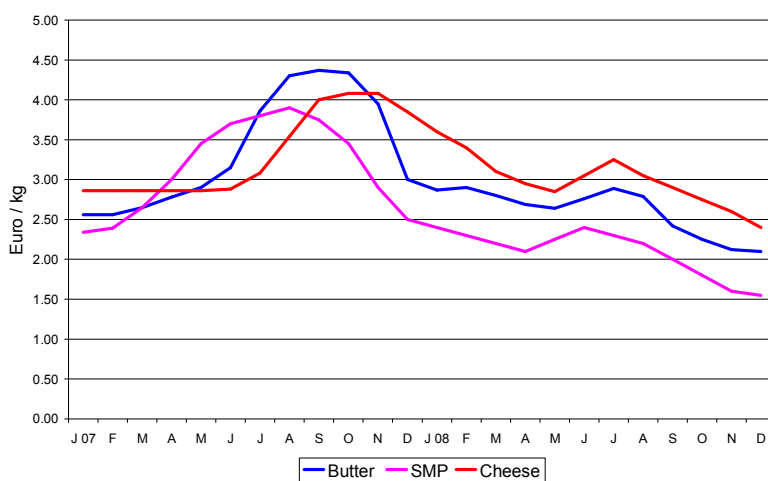
Whilst there is a shortfall against quota in many states, the quota regime is still a powerful constraint on milk production in certain countries. This is especially true of France, where restrictions on the transferability of quota between regions have been in place for some time.

In response to the surge in price seen in the second half of 2007, these restrictions were temporarily relaxed to allow milk production to rise and exploit the increase in prices. The result was an explosion in milk production in north-west France, particularly in Brittany. Whilst it was not sufficient to bring France back up to quota, it did create a local surplus of milk in the spring of 2008. This resulted in raw milk being exported from France, as local processing facilities could not keep up with the pace of production. This shows that the removal of the quota regime will have a significant impact on the distribution of milk production in some EU member states.

## 2.5 EU Product Prices

As with the surge in world prices, the rise in EU product prices has now largely abated.

**Graph 6 - EU Butter, SMP and Cheese Prices Jan 2007 to Dec 2008**

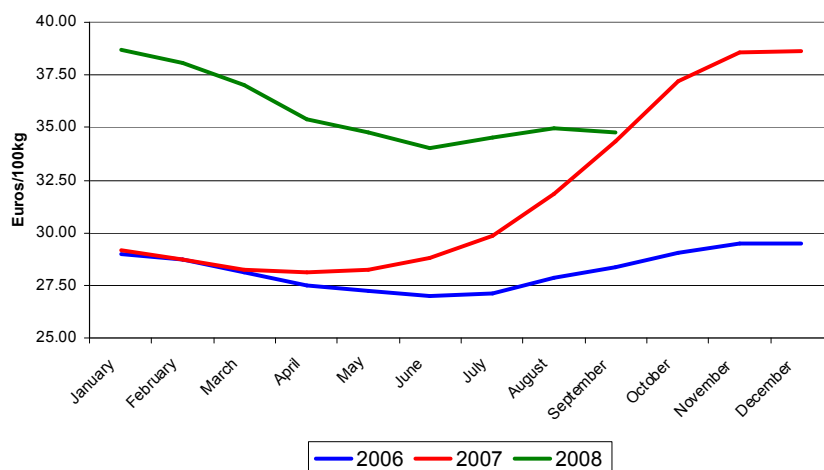


Source: Dairy Co/DIN.

Although the price rise was to an extent driven by forward by the rise in world prices, certain factors within the EU also contributed to the increase.

Milk production growth in 2007 was initially below 2006, whilst the demand for dairy products within the EU continued to grow, particularly for cheese. The result for producers was a welcome increase in farm gate prices.

**Graph 7 - Average EU Farmgate Price (Euros/100kg)**



As product prices subsided from their peak, pressure mounted on farm gate prices. This generated a strong reaction amongst producers in some member states, and Germany in particular, where producers resorted to a campaign of direct action and milk strikes during the months of May and June 2008. This activity spread to several other EU countries, but not to the UK. Since then the German competition authorities have indicated that further concerted action may be illegal and retailers are under growing market pressure to reduce the price of milk.

## **2.6 Common Agricultural Policy (CAP)**

The CAP for the dairy sector consisted of a comprehensive suite of market management tools that allowed the European Commission to manage the supply/demand balance within the EU market in order to achieve an acceptable level of producer prices.

The range of instruments included:

### ***Supply management:***

- Quotas: to restrict production
- Private Storage Aid: to allow manufacturers to store peak production
- Import tariffs: to prevent imports

### ***Demand management:***

- Intervention purchasing (up to a ceiling of 30,000 tonnes of butter and 109,000 tonnes of SMP): to place a floor in the market place
- Consumption subsidies: to increase consumption of dairy products. Consumption subsidies included:
  - Domestic consumption subsidy programmes for the utilisation of milk and dairy ingredients in the production of calf feed, the manufacture of casein and through incorporation into processed foods
  - Export subsidies, which allow EU exports to be competitive on the world market. Because the EU exports the equivalent of 9% of its milk production, export refunds are a key instrument in managing the EU market.

## **2.7 Dairy Sector CAP and the Price Surge**

The surge in prices allowed the European Commission in 2007 to cut all aid rates for domestic consumption subsidy programmes and export subsidies to zero, and all stocks were sold out of intervention. The European Commission also decided to increase milk quotas by 2% for the 2008/09 milk year to allow an increase in milk supply to meet the rise in prices. This was in addition to the quota increases agreed for selected member states under the 2003 reform package.

However, the fall in prices has seen the European Commission reactivate export refunds, open up Private Storage Aid early, and give a commitment to continue purchasing product into intervention through tendering once the volume ceilings have been exceeded.

## **2.8 Legal Basis for Milk Quotas**

The legal basis for the quota regime will expire on 31 March 2015. It would take a proposal from the European Commission for the regime to be renewed. This Commission has stated that no such proposal can be expected. There are an insufficient number of member states to compel the Commission to change its mind, so the quota regime will end in 2015 unless the new Commission to be appointed in October 2009 reverses this policy.

## 2.9 The Health Check of the CAP

Reform proposals agreed in November 2008 by the Agriculture Council as part of the Health Check of the CAP will bring an end to the market management regime for the dairy sector. This will be achieved by a phased series of quota increases which will gradually remove all effective restraints on EU milk production.

The main elements of the package for dairy are:

- Quota increases of 1% each year for the five years beginning 2009/10, except for Italy, where the full 5% increase will take place as of 2009.
- A reduction in the butterfat co-efficient from 0.18 to 0.09 for those producers whose fat content is above their butterfat reference level. The co-efficient is used to adjust milk production against quota to take account of an individual producer's production of butterfat. This will result in one-off quota increases of:

Belgium	3.4%
Denmark	2.3%
Germany	1.8%
France	0.9%
Ireland	2.0%
Netherlands	1.5%
Poland	1.1%
UK	1.0%

- Allowing member states to grant state aid to the dairy sector up to a specified ceiling.
- Commission reports in 2010 and 2012 on the 'evolution of the market situation and the consequent conditions for smoothly phasing out the milk quota system'.
- Abolition of the consumption subsidy scheme for butter.

Other elements of the Health Check package simplified the system of direct payments by:

- simplifying cross compliance obligations.
- phasing the removal of remaining coupled support payments.
- abolishing set aside.
- permitting the shift from historical payment system (such as those used in Northern Ireland, Scotland and Wales) towards the regional model (which is the option chosen for England).

Funds are also to be shifted from direct payments to rural development through increased modulation (deductions) of direct payments. Member states will also be given discretion to retain up to 10% of direct payments to address disadvantages for farmers in certain regions specialising in dairy, beef and sheep.

## 2.10 Economic Impact of Quota Abolition

As stated in the Commission's explanatory memorandum on the Health Check proposals,

'...the phasing out of milk quotas would expand production, lower prices and increase the competitiveness of the sector'.

Research undertaken separately by both the Commission and Defra confirms this analysis. The headline results from the three econometric models used to evaluate the impact of quota abolition against baseline scenarios are:

Econometric model	Aglink	FAPRI	EDIM
EU milk production	+5% to 8%	+1.1%	+5.7%
EU prices	-9% to -10%	-11.8%	-4.0%
UK milk production	-3% to +6%	-6.0%	
Prices:			
UK	-7% to -9%		
England and Wales		-6.0%	
Scotland price		-6.4%	
Northern Ireland		-11.9%	

*Aglink* - OECD model, Defra impact assessment of EC Health Check proposals (2008)  
*FAPRI* - Food and Agricultural Policy Research Institute, *Phasing out Milk Quotas (2008)*  
*EDIM* - European Dairy Industry Model, presented to stakeholders by DG Agri (2008)

The greater forecast reduction in milk prices for Northern Ireland is due to the greater exposure to the world market of the dairy industry in the province

## 2.11 Further Reform of the CAP

The evolution of the CAP will inevitably continue as a result of the fundamental review of the EU budget that is due to be concluded in 2009.

In May 2006, the European Parliament, the Council and the Commission agreed that the Commission should,

*"undertake a full, wide ranging review covering all aspects of EU spending, including the CAP, and of resources, including the UK rebate".*

In many respects the Health Check was intended to position the CAP to survive the budget review, but the recession and changing political priorities will probably mean that the CAP will be subject to further amendment, alteration and re-structuring that will see more resources moved away from agriculture to either rural development and other areas.

Commission proposals for the budget review may not be published until much later in 2009. The next round of CAP reform will occur when the EU decides on its financial perspectives for the seven years from 2014.

## Dairy UK and CAP Reform

**The Common Agricultural Policy is changing. By 2015, the EU dairy market will no longer be managed by the European Commission; instead it will be driven almost exclusively market forces. This transition needs to be carefully handled by the European Commission. Dairy UK supports the creation of a market led dairy industry and the abolition of quotas and the liberalisation of the CAP is an essential part of that process.**

Dairy UK's primary concern is that the CAP reform process should deliver the highest possible degree of certainty to allow the dairy industry to plan its future investments. The provision for two reviews of quota policy by the Health Check will create uncertainty by providing an opportunity for the whole principle of quota abolition to be challenged.

Dairy UK is also concerned that the range of measures allowing member states to provide support for their respective dairy sectors could result in the creation of market distortions.

Over the remaining life time of the quota regime, the EU's dairy sector market management policy should aim to minimise excessive price volatility. Consequently the Commission should be ready to use the remaining market management instruments when the market situation justifies it.

In the expectation of a move towards a more liberalised environment the industry will develop ways of tackling the greater volatility that stems from increased exposure to the world market.

### 3. THE UK AND FOREIGN TRADE

UK prices for tradable dairy products have to be fully competitive with similar products available from elsewhere in the EU. The fact that the UK is outside the eurozone has a major impact on market returns for the UK dairy industry.

The ability of the UK to export to the world market depends on whether its product is competitive with the prices prevailing on the world market. Given the current divergence between EU and world prices, then this depends on the availability and value of export refunds set by the European Commission.

#### 3.1 The UK Dairy Industry and Trade

The UK is part of the EU single market for agricultural products. Consequently, UK prices for tradable dairy products have to be fully competitive with similar products available from elsewhere in the EU.

The UK dairy industry is largely protected from third country (non-EU) imports by tariffs imposed by the EU. There are, however, a number of small but significant exceptions in terms of import quotas.

Dairy companies in the UK can export to the world market, and the industry in Northern Ireland is heavily dependant on doing so. However the ability of the UK to export to the world market depends on whether its product is competitive with the prices prevailing on the world market. Given the current divergence between EU and world prices then this depends on the availability and value of export refunds set by the European Commission.

The actual pattern of UK trade in dairy products is shaped by the following:

- UK milk production is insufficient to meet domestic consumption. This is a product of the constraints on production imposed by quotas and the contraction of milk production seen over the past four years.
- Sales of high value dairy products in Great Britain are focused on the market for direct consumption by domestic shoppers.
- The import tariff quota between the EU and New Zealand effectively results in New Zealand butter being directed primarily to the UK market.
- Butterfat generated from the manufacture of low fat milks is exported from the UK as bulk cream.
- The dairy industry in Northern Ireland is heavily reliant on exports of raw milk to the Republic of Ireland and whole milk powder to destinations all over the world.

These structural factors mean that UK's limited exports tend to be of lower unit value than imports into the UK.

**Table 8 - UK Dairy Imports in 2007 - tonnes**

Product	EU	Non-EU	Total
Liquid milk	64,566	0	64,566
Cream	43,058	2	43,060
Skimmed milk powder	31,209	0	31,209
Whole milk powder	29,080	6	29,086
Evaporated and condensed milk	40,793	6	40,799
Yogurt	136,727	400	137,127
Butter	87,113	2,688	89,801
Cheese	378,321	21,357	399,678
of which processed cheese	41,174	633	41,807
of which Cheddar	80,253	18,711	98,964

Source: Dairy UK

**Table 9 - UK Dairy Exports in 2007 – tonnes**

Product	EU	Non-EU	Total	% of UK production
Liquid milk	57,502	1,031	58,533	0.9
Cream	77,305	345	77,650	27.0
Skimmed milk powder	26,895	11,934	38,829	56.2
Whole milk powder	40,415	25,663	66,078	138.0
Evaporated and condensed milk	5,337	278	5,615	5.1
Yogurt	20,597	771	21,368	8.8
Butter	8,651	4,102	12,753	10.6
Cheese	85,224	10,795	96,019	25.7
of which processed cheese	18,742	1,455	20,197	60.7
of which Cheddar	22,581	4,172	26,753	10.9

Source: Dairy UK

### 3.2 Currency

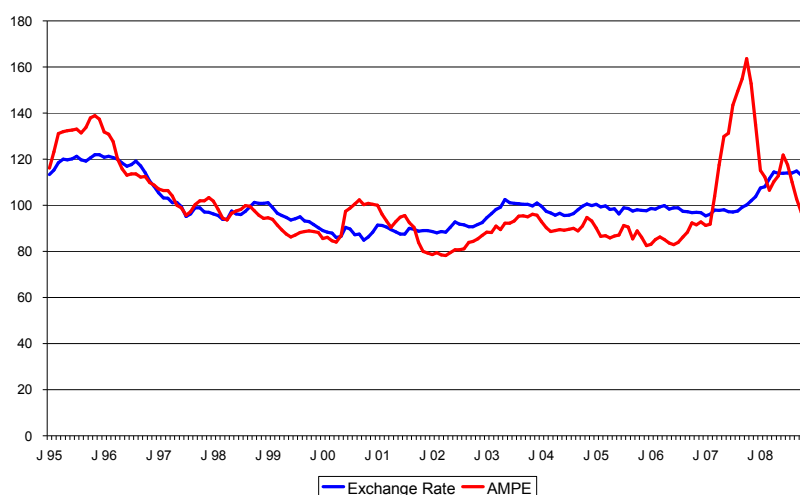
#### Euro/sterling

The fact that the UK is not in the eurozone has a major impact on market returns to the UK dairy industry. As UK dairy products have to be priced competitively with imported products from the EU, then this means variations in the euro/sterling exchange rate directly affect market returns.

The graph compares changes in the euro/sterling exchange rate with changes in the combined market returns for butter and skimmed milk powder converted to their actual milk price equivalent (AMPE - the raw milk price equivalent of returns from the sale of butter and SMP).

The returns for these two commodities tend to determine the trend in prices for all other products.

**Graph 8 - Index of sterling/euro 1995 to Present Compared to Index of Actual Milk Price Equivalent**



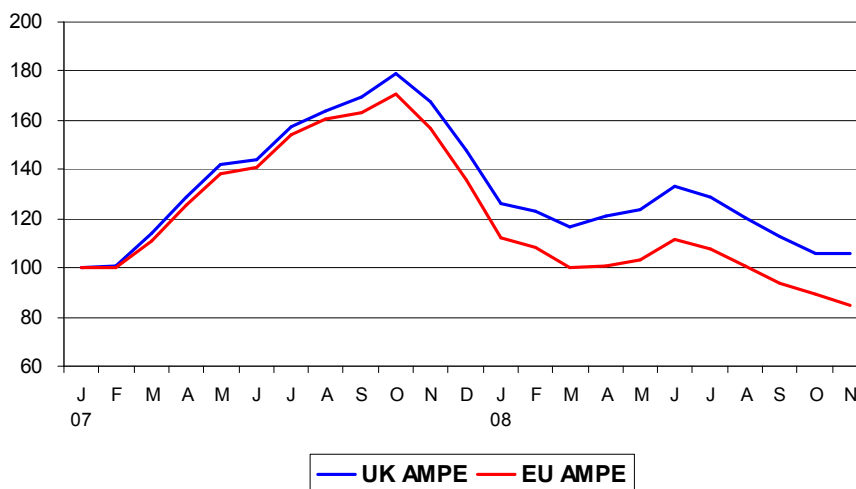
The graph shows that there is a strong underlying correlation between commodity prices and movements in the exchange rate.

Sterling's revaluation from 1996 to 2002 imposed a prolonged period of price deflation on the industry. Sterling then devalued in 2003 and reached a relatively stable plateau which lasted until recently, when it devalued sharply because of the credit crunch.

Periodically, the supply/demand balance within the butter and skimmed milk powder markets generates peaks in prices that are independent of the movement in the exchange rate. This was evident in 1995, 2000 to 2001 and 2007 to 2008. Overall, these events have been of lesser significance in setting the industry's operating environment than the trend in the exchange rate.

This recent devaluation has helped to sustain industry returns after market prices fell away from the peak seen late in 2007. To some extent, this has meant that the UK dairy industry has not shared the same trend in prices seen in the EU where the euro value of prices have fallen away more sharply.

**Graph 9 - UK AMPE Compared to EU AMPE (index Jan 2007=100)**



A further complication with currency is the relationship between the dollar and sterling. As world prices are denominated in US dollars, changes in the value of the dollar directly affect realisations from sales to the world market and therefore the effectiveness of export refunds.

## Dairy UK and Foreign Trade

**Trade is the commercial activity that directly ties the UK industry into the EU and world markets, and significantly shapes the UK market. This ensures that sterling value is a major driver of industry prosperity. Trade presents opportunities, but fluctuations in the value of sterling are a source of income volatility to the whole industry.**

Exports remain an enormous potential market for the future, and UK dairy industry must retain a foothold in the markets where it has achieved a presence.

The volatility between sterling and the euro has a direct impact on the dairy industry. Entering the euro at a competitive exchange rate would significantly help to stabilise the industry's operating environment and remove a major source of instability.

UK exports have been badly affected by outbreaks of Foot and Mouth Disease when importing countries insist on the re-negotiation of the export health certificates issued by Defra. The process of re-negotiating the health certificates after the 2007 FMD outbreak was only just completed in August 2008. It remains important that the UK government ensures adequate resources are made available to undertake this process should the UK ever again be affected by health scares.

## 4. DAIRY AND NUTRITION

Milk and dairy products are nutrient rich (nutrient dense). The nutrient most commonly associated with dairy foods is calcium, but dairy is not a one-nutrient food.

Dairy foods contain a range of nutrients important for building healthy bones. There is also evidence which suggests that some dairy foods may play a protective role in a number of chronic conditions, particularly type-2 diabetes, stroke, and certain cancers such as colon cancer.

Dairy foods and their components can help improve the nutritional quality of foods for vulnerable groups. Recent studies suggest that skimmed milk can be a more effective sports aid than non-dairy sports drinks.

The dairy industry supports the use of Guideline Daily Amount labelling systems as a better means of communicating nutritional information to the consumer.

### 4.1 Nutrition and Health

Milk, cheese and yogurt are nutrient rich (nutrient dense). Nutrient rich foods provide a lot of nutrients per calorie. In the UK, dairy foods make a major contribution to the nutrient needs of all age groups.

Good nutrition has a profound impact on health because the human body needs a variety of nutrients to function correctly. People eat foods, not individual nutrients, so it is important that they get the maximum amount of nutrients possible per calorie from the foods they consume.

In addition to vitamins and minerals, dairy foods contain bioactive compounds which appear to offer health benefits in conditions such as high blood pressure and type-2 diabetes. Milk is also an important means of re-hydration

#### 4.1.1 Nutrients in Milk, Cheese and Yogurt

The nutrient most commonly associated with dairy foods is calcium, but dairy is not a one nutrient food. Milk, cheese and yogurt are sources of good quality protein, fatty acids, carbohydrate, and a host of essential vitamins and minerals.

**Figure 1** - The Functions of Nutrients in Milk



**Table 10 – Key Nutrients in 100g of Milk, Cheese and Yogurt**

<b>Nutrient</b>	<b>Whole milk</b>	<b>Semi-skimmed milk</b>	<b>Skimmed milk</b>	<b>Hard cheese</b>	<b>Low-fat plain yogurt</b>
<b>Energy (kcal)</b>	66	46	34	411	56
<b>Protein (g)</b>	3.3	3.5	3.5	24.9	4.8
<b>Carbohydrate (g)</b>	4.6	4.7	4.8	0.1	7.4
<b>Fat (g)</b>	3.9	1.7	0.3	34.5	1.0
<b>Riboflavin (mg)</b>	0.23	0.24	0.22	0.41	0.22
<b>Niacin, niacin from tryptophan (mg)</b>	0.8	0.7	0.8	6.9	1.1
<b>Vitamin B12 (µg)</b>	0.9	0.9	0.8	2.4	0.3
<b>Folate (µg)</b>	8.0	9.0	9.0	31.0	18.0
<b>Biotin (µg)</b>	2.5	3.0	2.5	3.0	1.5
<b>Vitamin A (µg)</b>	49.0	28.0	~1	545.0	~8
<b>Sodium (mg)</b>	43.0	43.0	44.0	687.0	63.0
<b>Potassium (mg)</b>	155.0	156.0	162.0	76.0	228.0
<b>Calcium (mg)</b>	118.0	120.0	125.0	731.0	162.0
<b>Magnesium (mg)</b>	11.0	11.0	11.0	29.0	16.0
<b>Phosphorus (mg)</b>	93.0	94.0	96.0	500.0	143.0
<b>Zinc (mg)</b>	0.4	0.4	0.5	4.1	0.6
<b>Iodine (µg)</b>	31.0	30.0	30.0	30.0	34.0

*Source: The Dairy Council*

#### **4.1.2 Dairy and Calcium in Childhood, Adolescence and Adulthood**

Dairy foods contain calcium, phosphorus, magnesium and protein. These are all important for building healthy bones. Eating dairy foods is therefore an easy way to get the nutrients needed for bone health. In addition, the calcium contained in dairy foods is present in a form that is easy to absorb, which is not the case for all forms of calcium from other foods.

Childhood and adolescence are stages of life where bone is growing and calcium is being laid down for future years. Bone is a living tissue which is constantly being regenerated by the body. By the mid-to-late twenties bone has reached its maximum length. From around thirty five onwards more bone cells are lost than replaced. Although our genetics largely determine whether we will develop osteoporosis or not, diet and lifestyle factors can influence how healthy our bones are and the rate at which they can repair themselves. Following a healthy diet, and having a lifestyle which includes plenty of weight bearing exercise, is one way of maintaining bone health and slowing the rate at which bones become fragile. Failure to build strong bones during childhood, adolescence and early adulthood can lead to an increased risk of developing this bone disease.

Just as dairy is not a one nutrient food, calcium is not a single function nutrient. Calcium's best known function is the development and maintenance of bones and teeth but it has many other roles within the body. Calcium is necessary for normal nerve and muscle function, including the heart muscle. It is needed for normal blood clotting and for the release of hormones such as insulin. Calcium is also required to maintain normal blood pressure and is involved in digestion. We cannot make calcium in our bodies, so if we do not get enough from food, the body will use calcium from bone for all of these essential functions. Many foods contain calcium but dairy foods are the major contributor of calcium to the UK diet and consuming dairy foods is an easy way for most people to meet their calcium needs.

### **4.1.3 Dairy: A Positive Role in Chronic Conditions**

There is epidemiological evidence which suggests that some dairy foods may play a protective role in a number of chronic conditions, particularly type-2 diabetes, stroke, and certain cancers such as colon cancer. How dairy foods do this is not fully known but it is believed to involve certain nutrients and bioactive compounds in dairy foods. Since dairy foods appear to be more protective in many cases than single nutrients, it has been suggested that the dairy matrix may allow nutrients and other components to act together in a way that could be beneficial to health. Consuming dairy foods as part of a health balanced diet does not increase the risk of chronic disease.

There are many mixed messages given to consumers about dairy, and numerous myths blame milk for a variety of conditions. Many of these myths are part of folklore and continue to be passed on without any scientific basis. Others are born out of inconsistent science.

Dairy is often accused of causing conditions like diabetes, heart disease, stroke and cancer. Chronic conditions such as these are a result of interplay between genetics and environmental factors. Of the environmental factors, diet may play a part but it is the whole diet, and not just one food group, which increases the risk of disease.

### **4.1.4 Dairy for Vulnerable Groups**

Dairy foods and their components can help improve the nutritional quality of foods for vulnerable groups.

Fortified blended foods (FDFs) are used to improve the nutrition of some of the most vulnerable groups worldwide e.g. malnourished children. Supplementing FDFs with powdered milk, or whey protein, has been shown to provide a number of important benefits including boosting growth and improving recovery from malnutrition. This is a very positive point for food aid.

### **4.1.5 Milk and Sport**

Milk naturally contains many of the elements provided by specifically formulated commercial sports drinks. Recent studies suggest that skimmed milk is just as good, and in some cases better, as a sports aid than sports drinks.

Skimmed milk has been shown to out-perform a commercially available sports drink in rehydrating cyclists after exercise. Milk's ability to rehydrate is largely due to the presence of salts such as sodium and potassium which the body loses during exercise.

Milk may also help reduce exercise induced muscle damage (EIMD). EIMD is the result of a breakdown of protein structures within muscle. Milk has been shown to limit the effects of EIMD, by providing protein and carbohydrate, which may help increase protein production and reduce protein breakdown within the muscles

### **4.1.6 Food Labelling: GDAs and Traffic Lights**

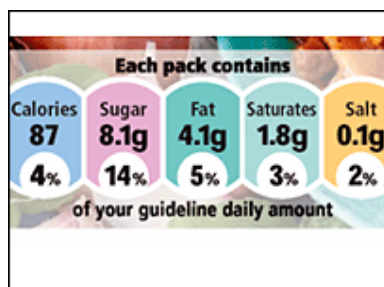
Growing demand for healthier foods has led to a number of initiatives to help consumers understand nutrition and the nutritional make up of the foods they consume. These include a number of mandatory and voluntary nutritional labelling programs such as nutritional labelling, Guideline Daily Amounts and the Traffic Light system, which was launched by the Food Standards Agency in 2006.

The food and drink industry, along with the retailing sector, have recognised the importance of providing nutritional information to consumers. The Institute of Grocery Distribution developed a labelling system based on Guideline Daily Amounts (GDAs) which is calculated from the predicted daily consumption of an average consumer eating a diet conforming to the Committee on Medical Aspects of Food and Nutrition Policy (COMA) recommendations. This is translated into a set of guideline amounts for men, women, adults and children for calories, fat, saturated fat, carbohydrates, sugars, protein, fibre, salt and sodium.

The GDA system is a voluntary labelling scheme that has been adopted by a number of retailers, food manufacturers and industry organisations such as Tesco, Kellogg's, Danone, Nestlé, the British Retail Consortium and the Food and Drink Federation.

There are a number of differences between traffic light signposting and GDAs. One fundamental difference is that GDAs are based on a typical portion size, which is more meaningful to consumers than the 100g value on which traffic lights are based. Therefore the dairy industry supports GDAs as a better means of communicating nutritional information to the consumer.

**Figure 2** – An Example of GDA Labelling



Source: IGD – GDA Best Practice Guide

## 4.2 Nutrient Density as a Concept

Nutrient density and nutrient richness are terms used to describe foods and beverages which provide a substantial number of nutrients for very few calories. Milk, cheese and yogurt are nutrient dense/rich.

Although nutritional density is not a new concept, it is one which is increasingly being adopted around the world as a means of communicating about foods with regulators, health professionals and consumers. Because the definition of nutrient density given above is considered by many as subjective, dairy organisations worldwide have been adopting the concept of nutrient density, but looking at ways of building their own mathematical algorithms in conjunction with the scientific community to express nutrient density in a form that is acceptable to regulators and health professionals, and which can also be used with the consumer. The USA has been working on this for a number of years and has already developed consumer applications.

The concept of nutrient density could also have potential benefits in the area of the environment. Dairy foods provide a lot of nutrients to the diet and it would be difficult for people to meet many of their nutrient needs without dairy foods. An algorithm could be developed to look at the environmental cost of dairy nutrients versus the environmental cost of replacing all of the nutrients dairy provides with other foods or with dietary supplements. This is an interesting area and one which is being considered in a number of countries.

## 4.3 The Dairy Council

The Dairy Council ([www.milk.co.uk](http://www.milk.co.uk)) provides evidence-based information on the nutritional benefits of dairy products as part of a healthy balanced diet. The Dairy Council will be solely funded by Dairy UK from 1 April 2009.

## Dairy UK and Nutrition

**Milk and dairy products are nutritionally rich and complex foods that have a crucial role to play in a healthy balanced diet. The complexity of dairy products and their benefits, both nutritionally, are often not fully appreciated by policy makers and consumers. Government policy and nutritional information systems must cater for this complexity.**

Consumers need access to accurate and easy to use information about foods, and nutrition in general.

Key to this is a nutrition education programme which reinforces the importance of a balanced diet containing all food groups, and which is delivered using positive rather than negative messages. Arming consumers with the knowledge to make good dietary choices in this way would be of significant benefit to the nation's health.

The dairy industry is working closely with the Food Standards Agency in a number of areas. Processors have worked with the FSA on the reduction of salt in dairy products and, through the FSA Dairy Partnership, are reducing the saturated fat content of mainstream dairy products. However, FSA initiatives must be framed in such a way that they do not discriminate against UK dairy products. The FSA also needs to be more proactive in communicating the nutritional benefits of dairy products and less focused on addressing negative food constituents, such as fat and salt.

## 5. THE UK CONSUMER

An overwhelming majority of UK population consumes dairy products. The credit crunch means that greater emphasis is now being given by consumers to value for money.

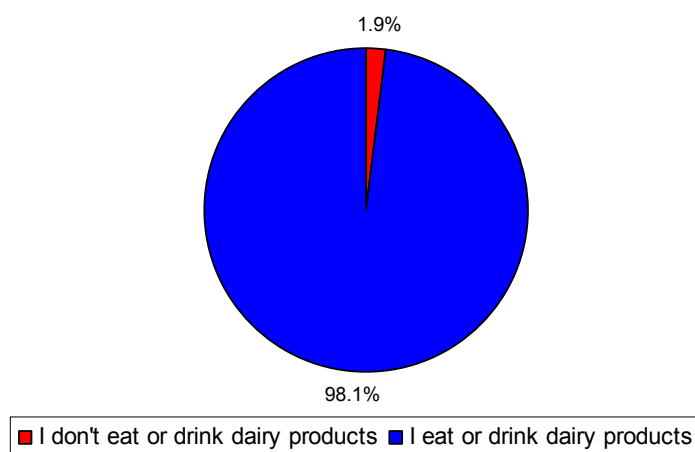
A comprehensive range of lower fat varieties of dairy products has been created by the industry in response to increased consumer concerns over obesity and calorie intake. Organic dairy products are the response of the industry to ethical concerns, but this sector has recently encountered difficulties.

The provision of milk to nurseries and primary and secondary schools provides significant nutritional benefits to children.

### 5.1 Consumption of Dairy Products

The overwhelming majority of UK consumers consume dairy products.

**Graph 10** - Consumption of Dairy Products 2008



*Source: Telephone survey of 800 members of the public by Swift Research on behalf of The Dairy Council (April 2008). Weighted results.*

This gives the dairy industry one of the highest degrees of market penetration of any consumer product. This makes the dairy industry extremely important to the wellbeing of the nation.

### 5.2 Drivers of Consumer Choice

The credit crunch and pressure on incomes have affected the main drivers of consumer choice. Greater emphasis is now being given by consumers to value for money with price been given as the top driver for store choice but, once the store has been chosen, the criteria influencing the choice of products within that store are shown below. The depth of the economic slow down will determine how far value for money will displace the increasing weight previously given to convenience, health and ethical criteria by consumers over the past 10 years.

**Table 11 – Change in Top Criteria Informing Consumer Choice**

2008 Rank		2007 Rank
1	Brand	2
2	Knowing Ingredients	5
3	Fat Content	4
4	Price	1
5	Sell by Date	3
6	Salt Content	7
7	Country of Origin	9
8	Sugar Content	6
9	Food Taste	8

Whilst it is likely that the industry will be under pressure to simplify its product portfolio, the progress made in creating products to meet the growing sophistication in consumer decision taking will not be lost. The creation of products that meet ethical or 'source of origin' criteria has led to the development of production systems and traceability mechanisms that will remain in place to exploit the renewed consumer interest in these factors once the normal pace of economic growth resumes.

### 5.3 Healthy Eating and Dairy Products

The creation of a comprehensive range of lower fat varieties of dairy products has been the industry's response to increased consumer concerns about obesity and calorie intake. The trend towards low fat products was initiated decades ago but it is still continuing.

**Table 12 – Consumption of Low-fat Dairy Products – year ending Aug 2008**

Product	% change from y/e Aug 2007
Skimmed Milk	+ 4.7
Semi-Skimmed Milk	+ 0.2
Low-fat cheese	+ 0.1

Aside from the fat content, consumer requirements for healthy food have continued to evolve and become more complex. The dairy sector has responded with significant product developments such as functional yogurts, a range of probiotic and prebiotic products and nutrient enriched milks such as Omega 3 milks.

### 5.4 Organic Milk

Organic dairy products are the most obvious response by the industry to ethical concerns by the consumer. This sector has however encountered difficulties over the past year. Demand for organic products continues to grow but supply constraints and higher prices all contributed to a slowing in the growth of sales in existing markets in 2007.

Weather effects and a dramatic rise in the cost of organic feed reduced supply growth to 1% in 2007. The erosion of the premium over ordinary milk and higher cost inflation in the organic sector has almost halved the number of farm conversions in 2007/08 compared to the previous year. Conversions are now at a level that is insufficient to meet the 11% growth in demand that is expected to be seen over 2008.



Source: (OMSCo 'The organic milk market report 2008)

Nevertheless, organic milk now holds a significant share of the UK liquid milk market.

**Table 13 – Retail Sales of All Milk and Organic Milk**

(Million litres)	All Milk	Organic	Percentage of Total Sales
<b>2003</b>	4,703.2	55.7	1.18
<b>2004</b>	4,726.6	71.0	1.50
<b>2005</b>	4,786.7	135.4	2.83
<b>2006</b>	4,767.5	162.5	3.41
<b>2007</b>	4,879.1	166.9	3.42

Source: DairyCo Datum, TNS

Although organic products have made inroads into the liquid milk and yogurt sectors, the number of organic cheese products still only forms a small proportion of the cheese market.

Yogurt	79%
Liquid	5.1%
Cheese	1.5%

Source: TNS 52w/e 23/02/08

## 5.5 School Milk

The provision of milk to nurseries, primary and secondary schools provides significant nutritional benefits to children and encourages them to consume milk and milk products and develop a lasting consumption habit.

In the UK, free milk is available to under-fives in registered nurseries. Subsidised milk is available for 5- to 11-year olds attending primary school and to secondary school pupils from 1 August 2008. The EU School Milk Subsidy Scheme pays a modest subsidy on the 46,944 tonnes of liquid milk and yogurt consumed annually by primary school children, with a further “top-up” of £1.5 million per annum paid by Defra, the Department of Health and the Department for Children, Schools and Families. This “top-up” is under review, with Dairy UK proposing that funds are more effectively spent by Government on school milk promotion. The UK is the largest provider of subsidised school milk in the EU.

The UK dairy industry actively promotes milk consumption in schools and the EU/UK Subsidy Scheme. From September 2007, semi-skimmed milk became one of only three groups of drinks available in schools, the others being fruit juice and water.

## Dairy UK and Consumers

**Dairy products are a profoundly important part of the nation's diet and contribute to the quality of life in the UK. Consumer priorities are constantly shifting and are currently focused on value. The industry has and will continue to adapt to the needs of British consumers.**

The dairy industry is proactive in meeting changes in consumer requirements. It has developed a comprehensive range of products to meet the full spectrum of the nation's preferences, from environmental and ethical concerns to value for money and convenience.

Dairy UK members are suppliers of drinks and foods to schools, and fully support the recommendation of the School Food Trust that the drinks available to school children should be as "pure" as possible, and that drinks with little nutritional value should not be provided. Milk and flavoured milks are nutrient rich and supply protein and calcium to the diet.

Dairy UK works with its members and all other relevant bodies to actively promote the consumption of milk and dairy products in primary and secondary schools across the UK.

## 6. INDUSTRY CUSTOMERS

The majority of the output of the UK dairy industry is packaged for direct consumption by the consumer.

Major retailers are the industry's most important intermediaries with the consumer. Other major customer segments include wholesale distributors, catering outlets, institutional customers (hospitals, schools and prisons), traders and export customers.

The industry still sells direct to the consumer around 3 million pints of milk a day in returnable glass bottles through the doorstep delivery service.

The sale of food and drink for consumption out of home is a growth market, along with the ingredients sector, which covers the use of milk products as an ingredient in the food processing industry.

### 6.1 Distribution of Dairy Products

The majority of the output of the UK dairy industry is ultimately intended for human consumption and over 73% is produced in consumer packs. The vast majority of this output is sold to intermediaries, the most important of which are the major retailers. Only a small proportion of the industry's output is sold direct to the consumer by dairy companies via the doorstep delivery service or through local markets. Around 5% of raw milk ultimately ends up with the consumer by this route.

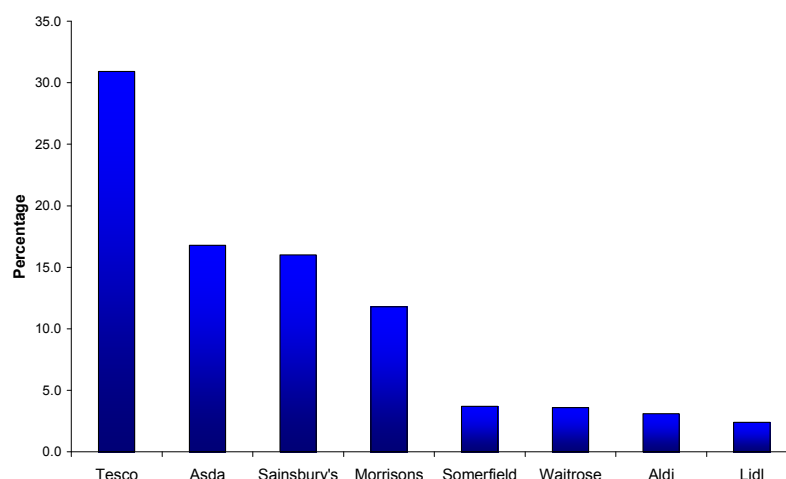
Other major customer segments include wholesale distributors, catering outlets, institutional customers (hospitals, schools, prisons), food processors, traders and export customers.

### 6.2 Sales by Sector

#### 6.2.1 Retailers

In Great Britain, the retail market is dominated by four major retailers, Tesco, ASDA, Sainsbury's and Morrisons, who between them account for 75% of all grocery sales in Great Britain. Tesco is by far the largest retailer with a grocery market share of 30.9%, followed by ASDA and Sainsbury's and who account for 16.8% and 16.0% respectively.

**Graph 11 – Share of Grocery Market**



Source: TNS

#### 6.2.2 Where Consumers Shop

The weekly shop is still a key feature of UK shopping habits, with about 59% of adults shopping this way, but the trend is decreasing with more and more consumers, 24%, opting for multiple visiting.

As well as the growth in the supermarket sector, consumers are also using convenience stores on a more regular basis with more than 75% of adults using them at least once a week. Convenience stores are often used for 'top up' shopping for products such as milk and bread.

### 6.2.3 Doorstep Sales

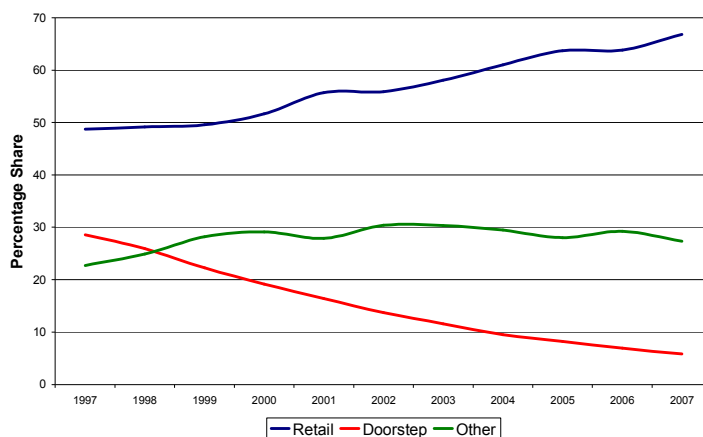
The industry still sells around 3 million pints of milk a day direct to the consumer in returnable glass bottles through the doorstep delivery service.

The much valued doorstep market, which stands at just below 10% of the liquid market, remains a favourite with millions of customers. The sector is being driven by an increasing demand for convenience amongst consumers and a significant degree of innovation in the type of services and products made available to the consumer.

Dairy UK's popular "findmeamilkman" website allows new customers to simply sign up for a doorstep delivery at findmeamilkman.net, and the public's tremendous support for doorstep delivery is celebrated annually through the Milkman of the Year Competition.

Twenty years ago, sales via the doorstep accounted for 27% of raw milk production and 78% of household liquid milk sales. However, since retail prices for liquid milk were deregulated in 1984, doorstep deliveries have been in decline as shops could sell milk more cheaply. Despite this decline, doorstep delivery and the milkman remain national icons.

**Graph 12 – Distribution of Liquid Milk in the UK**



Other: distribution to restaurants, schools, hospitals, etc

Source: Defra, DairyCo Datum, TNS

### 6.2.4 Out of Home Consumption

The sale of food and drink for consumption out of home is a growth market. The market is made up of two sectors; the first, the public sector, consists of schools and Government procurement services such as hospitals, and makes up about 30% by value of the market. The remaining 70% of the total market is made up by the commercial sector. This sector includes restaurants, pubs and hotels.

Out of home consumption has grown over the last century, driven particularly by the commercial sector, but in recent years the market has begun to slow. The reduction in market growth has mainly been caused by an increase in "on the move" eating and innovations in meal solutions from the retail sector.

Despite this reduction, the foodservice market is forecast to grow over the next 15 to 20 years with the IGD forecasting that by 2025 there will be an equal balance between the food we eat out and the amount of food we buy from food retailers (Source: IGD Research).

The market is also serviced via wholesalers and distributors that supply restaurants. This creates a fairly complex web of distribution.

**Table 14** – Out of Home Consumption in the UK and Percentage of Total Consumption

(Thousand tonnes)	Milk	Cheese	Ice Cream	Yogurt & Fromage Frais
<b>2002/03</b>	75	11	26	10
	1.3%	3.1%	4.4%	2.0%
<b>2003/04</b>	78	10	25	8
	1.3%	2.8%	4.0%	1.5%
<b>2004/05</b>	70	10	22	9
	1.2%	2.8%	3.9%	1.5%
<b>2005/06</b>	65	9	21	8
	1.1%	2.5%	3.7%	1.2%
<b>2006</b>	61	10	23	9
	1.1%	2.6%	3.6%	1.3%
<b>2007</b>	55	8	20	9
	1.0%	2.2%	3.4%	1.4%

Source: Defra, Family Food Survey

### 6.2.5 Ingredients Sector

This covers the use of milk products as an ingredient in the food processing sectors. This can range from biscuits, cakes and confectionary to ready made meals. It's an enormously diverse sector and the fragmented nature of this market means that little data is available. This sector is growing as consumers eat more processed or prepared foods.

## Dairy UK and the Industry's Customers

**The industry's route to the final consumer is evolving and it now relies on a range of intermediary distributors, principal among which are the retailers. Partnership between these distributors and the supply chain is maximising benefit for consumers, retailers, processors and farmers.**

Retailers remain the industry's major gateway to the consumer. They are responsible for around 60% to 70% of the industry's sales to consumers and over 80% of the sales of high value products. They are also capable of significantly adding to the value generated by dairy products through their purchasing and market strategies. They present the greatest opportunity available to the sector to improve its relationship with the consumer. Dairy UK therefore believes in working constructively with retailers to develop the market for dairy products.

Major retailers are not the only outlet and liquid milk is not the industry's only product; the sale of liquid milk through major retailers accounts for 30% of all sales by volume by the industry. The range of the industry's customers and the distribution network operated by the industry is becoming increasingly complex, especially with the development of out of home consumption.

## 7. PRODUCTS

UK dairy farmers produce just over 13 billion litres of milk each year, which is processed into a wide range of dairy products. The majority of products packaged for direct consumption are distributed through a chilled distribution chain.

Manufacturers of dairy foods in the UK are working hard to increase the proportion of branded products in their portfolios. The liquid milk market has seen a major shift away from whole fat milks to skimmed and semi-skimmed milks over the past ten years. The cheese market in the UK has seen healthy growth of 9% over the last four years and fresh products continue to grow strongly.

### 7.1 Milk Processing

UK dairy farmers produce just over 13 billion litres of milk each year, which is then processed into a wide range of dairy products.

Almost half of the milk produced on farms in the UK is processed into liquid milk. After liquid milk the key dairy products are cheese, cream and butter. Despite the fall in milk production on the farm over the last four years, the production of cheese has grown over the same period.

Growth in cheese production and falling raw milk production have had a large effect on the volume of milk powders produced in the UK, which is down more than 40% in the last 10 years, despite a brief recovery in 2003. Other products that have been in decline include condensed milk which has seen a reduction of almost 50% over the last decade.

**Table 15 – Manufacture of Liquid Milk and Dairy Products**

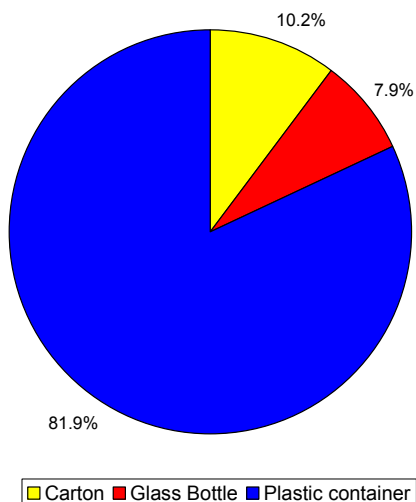
(Million litres)	2006	2007	Percentage change 2006 -2007
<b>Production of raw milk</b>	13,926	13,653	-2.0
<b>for liquid consumption</b>	6,736	6,698	-0.6
<b>for manufacture</b>	6,343	6,131	-3.3
<b>Butter</b>	241	249	+3.3
<b>Cheese</b>	3,784	3,604	-4.8
<b>Cream</b>	321	285	-11.2
<b>Condensed Milk</b>	303	298	-1.7
<b>Milk Powders</b>	1,258	1,223	-2.8
<b>Other</b>	435	471	+8.3
<b>Dairy wastage and stock change</b>	38	127	+234.2
<b>Other uses</b>	249	247	-0.8

Source: Defra

### 7.2 Consumer Packs, Chilled Distribution and Perishability

The majority of the industry's product is packaged for direct consumption by the purchaser. In turn, the majority of these products are distributed through a chilled distribution chain. For the first time, more than 80% of liquid milk is now sold by retailers in plastic containers, with less than 20% of milk sold in glass bottles or cartons.

**Graph 13 – Sales of Liquid Milk by Container Type (Retail)**



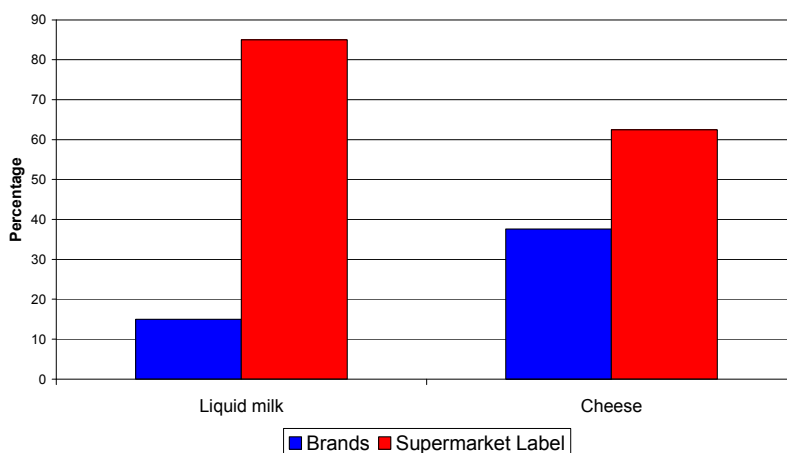
Source: DairyCo, TNS

Within chilled distribution, the majority of the industry’s output is perishable with a limited shelf life. This means that distribution and chill chain management is one of the fundamental activities of the processing sector.

### 7.3 Brands

One of the major drivers of the value obtained from milk is the possession of brands. The UK dairy industry is working hard to increase the proportion of branded products in its portfolio.

**Graph 14 – Brands versus Supermarket Label in 2007**

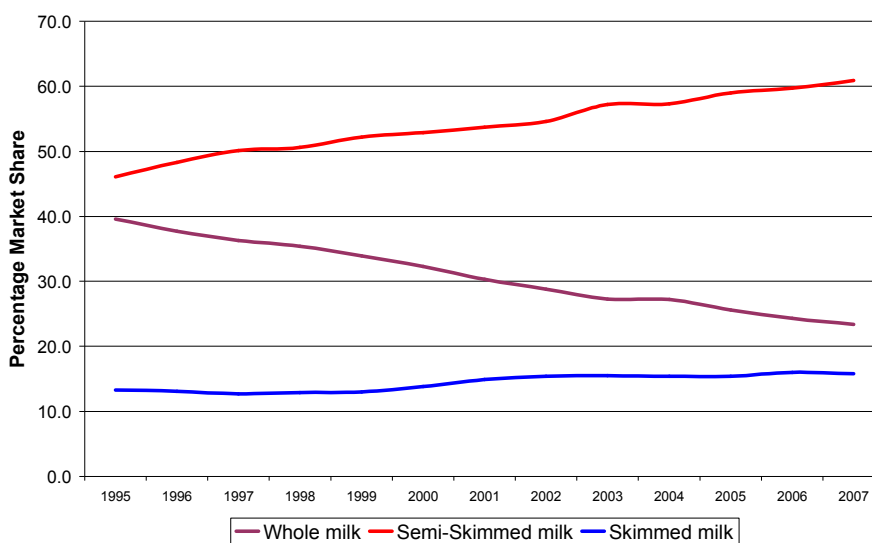


Source: Industry Estimate

## 7.4 Liquid Milk

Concern over fat intake drove one of the biggest changes in the structure of the liquid market over the past 10 years, with a major shift away from whole fat milks to skimmed and semi-skimmed milks.

**Graph 15 – Sales of Milk by Type**



Source: DairyCo, TNS

Whole milk consumption has fallen by 41% over the last 10 years, whilst consumption of semi-skimmed rose by 12% and skimmed by 21%.

From 1 January 2008, the European legal framework governing the marketing of liquid milk in the EU was changed to permit the marketing of liquid milks of any fat content - as long as the percentage of fat was clearly labelled. However, products falling within the fat ranges of the traditional milk types of whole milk, semi-skimmed milk and skimmed milk would still have to use these product names.

Whole milk	>3.5%
Semi-skimmed milk	1.5% to 1.8%
Skimmed milk	0% to 0.5%

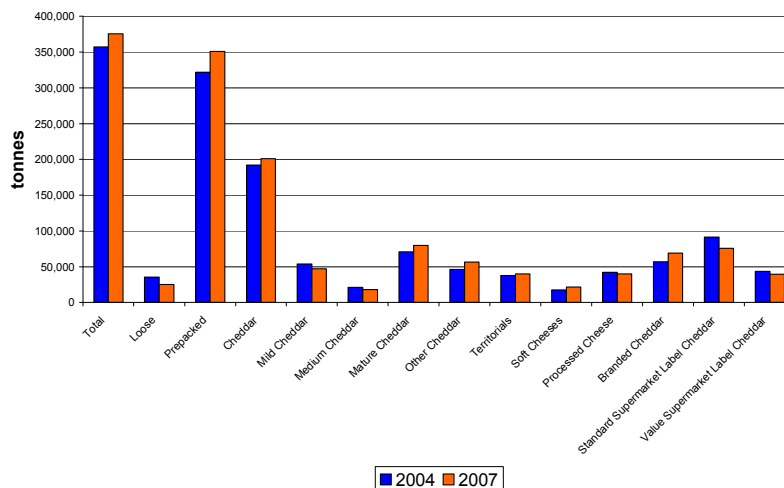
This change is expected to see the production and marketing of a range of liquid milk products with varying fat contents.

## 7.5 Cheese

The cheese market in the UK has also seen healthy growth of 9% over the last four years, despite a small decline between 2005 and 2006. This decline was caused by reductions in the loose cheese market, which has been in decline since early 2005.

The overall growth has been strongly supported by the growth of the packaged cheese market, with volume increases year-on-year of between 3% and 5% over the last four years. There has also been a strong evolution towards mature Cheddars.

**Graph 16 – Sales of Cheese by Type in 2004 and 2007**



Source: DairyCo, TNS

## 7.6 Fresh Products

Fresh products continue to grow strongly, particularly yogurts where consumption has risen 32% since 2000. The key driver for of growth in has been the rise in consumption of functional foods, such as probiotic and prebiotic yogurts and yogurt drinks.

**Table 16 – UK Annual Consumption of Fresh Dairy Products**

('000 tonnes)	2002/03	2003/04	2004/05	2005/06	2006	2007
<b>Yogurt</b>	458	504	540	583	592	572
<b>Fromage frais</b>	62	61	62	67	72	71
<b>Cream</b>	63	63	61	68	72	70
<b>Other milk and dairy desserts</b>	299	311	284	307	309	302

Source: Defra

Even though the rapid growth in the functional foods market has started to decrease over the past couple of years, the revenue growth in 2007 was still a very healthy 8.7%. Over the same period, sales of probiotic yogurts outperformed the sector with an increase of 16.3%.

## Dairy UK and Products

**The industry will continue evolving and adapting its product mix to respond to changing consumer and customer demand.**

The dairy industry is firmly focused on product innovation. It is now a central strategy being pursued by every major dairy company. Innovation is regarded as the key to increasing the value in the dairy supply chain, from farm gate to retail shelf. Opportunities for innovation that address a range of consumer interests include:

- Health concerns: Functional and enriched foods
- Lifestyle issues: Convenience products
- Ethical choices: Organic products
- Provenance: Locally supplied products
- Quality: Premium products

Examples of new products produced by British companies over the last year include:

**Functional and enriched foods:**

Milk Link's Moo one%  
Dairy Crest Cathedral City Mature Lighter  
Arla Foods Lactofree yogurt  
Sainsbury's 1% fat milk

**Convenience products:**

Müller Little Stars High Fruit Yogurt Smoothies  
Cravendale Half Pint milk range  
Dairy Crest Cathedral City Minis cheese

**Organic Products:**

Rachel's Organic My First Yogurts and Taste Explorers Yogurts for children  
Yeo Valley Smooth & Creamy yogurt  
Yeo Valley Summer Fruit Compote yogurt  
Dairy Farmers of Britain Mature Organic Cheddar

**Locally supplied products:**

Robert Wiseman Dairies Grampian Dairy milk  
South Caernarfon Creameries Welsh Caerphilly Cheese  
Wensleydale Creamery Real Yorkshire Wensleydale with cranberries  
First Milk's Pembrokeshire Cheese Company range of Welsh Cheddars

## 8. MILK PURCHASERS AND PROCESSORS

Seven major organisations lead the UK dairy industry. This relatively low level of industry concentration means that further opportunities for industry rationalisation and merger still exist.

The co-operatives' share of milk processing capacity has been rising and now accounts for over 30% of industry capacity. In England and Wales dairy plants which process over 100 million litres of milk account for almost 90% of the volume of milk processed.

UK dairy processors are efficient compared to their international counterparts. Over the three years from 2006 to the end of 2008 Dairy UK contributed to the improvement in the performance of UK dairy processors through a programme funded by Defra's Agricultural Development Scheme.

All the major dairy companies have clearly set out principles of Corporate Social Responsibility.

### 8.1 Industry Organisations

Seven major organisations lead the UK dairy industry:

- Four of them are UK based dairy farming co-operatives: First Milk, Milk Link, United Dairy Farmers and Dairy Farmers of Britain.
- Two are plcs quoted on the stock market: Dairy Crest and Robert Wiseman Dairies
- The seventh is Arla Foods, which is now wholly owned by the Scandinavian co-op Arla (Amba).

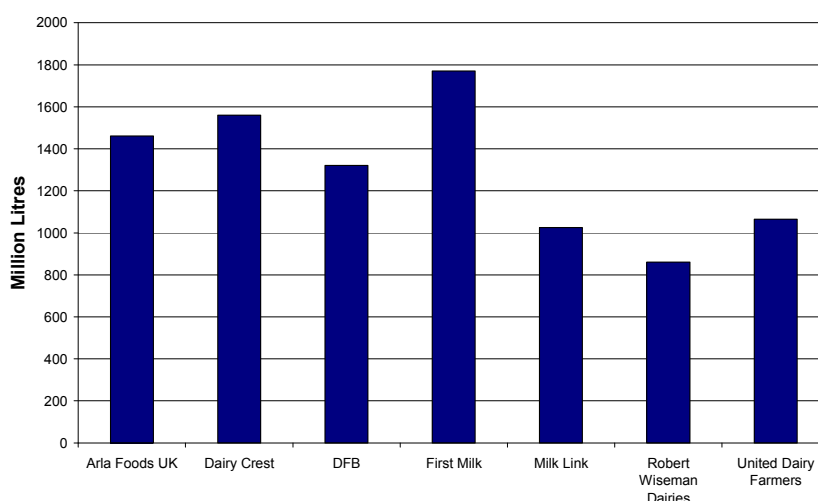
This relatively low level of industry concentration means that further opportunities for industry rationalisation and merger still exist.

### 8.2 Milk Purchasers

The organisation that holds the contract with a farmer to buy the milk produced from the farm is called the purchaser. A purchaser can be a farmer co-operative, private dairy company or a plc.

Currently the co-op First Milk purchases the largest volume of milk from dairy farmers.

**Graph 17 – Volume of Milk by Purchaser**

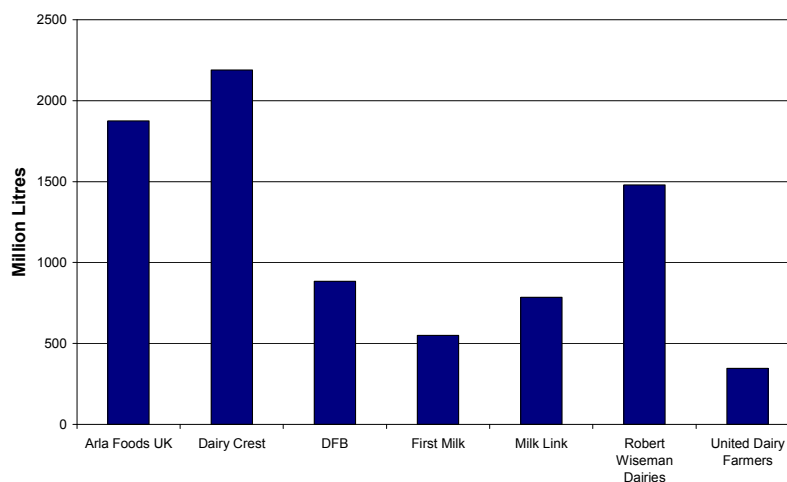


### 8.3 Milk Processors

Organisations that process milk are referred to as a processor (again, they can be a co-op, private dairy company or a plc).

Not all the milk bought by purchasers from farmers is dealt with in the processing operations owned by the purchaser. Consequently, a lot of the milk bought from farms by purchasers is sold on to other organisations for processing. This is especially true of the major co-ops. That is why there is usually a disparity between the volumes of milk purchased by a co-op and the volumes of milk that it processes.

**Graph 18 – Volumes of Milk Processed**

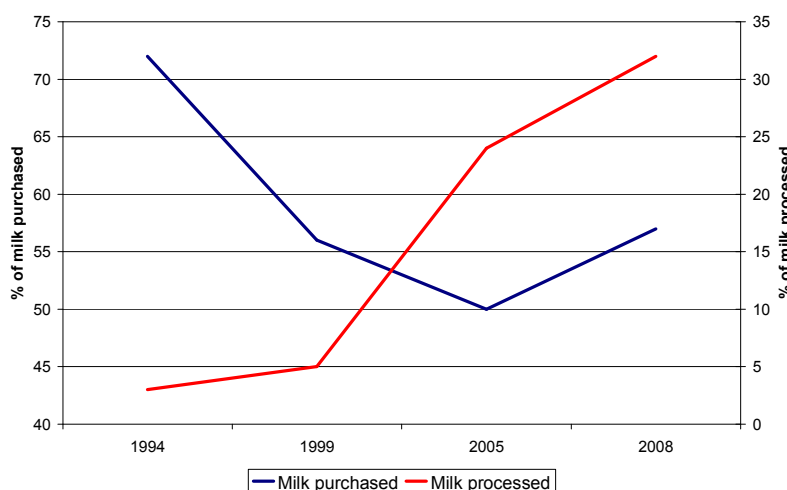


Source: Industry Figures and Dairy UK Estimates

### 8.4 Ownership of Processing Capacity

The co-ops' share of milk processing capacity has been rising since industry de-regulation in 1994 when producer ownership of processing fell from nearly 40% to around 5% of milk production. The renewed investment is the effort by co-ops to obtain a greater share of the value added generated in the supply chain.

**Graph 19 – Evolution of Co-op Processing**



Source: Industry Figures and Dairy UK Estimates

Just over 30% of UK processing capacity is owned by UK producer co-ops. If the Scandinavian co-op Arla (Amba) is included through their ownership of Arla Foods UK, then nearly 55% of UK processing is owned by farmers of one nationality or another.

Producer ownership of milk processing expanded in May 2008, when British farmers supplying milk to Arla Foods UK acquired a 7% stake in the company through a joint venture owned equally with Arla's Scandinavian parent co-op.

## 8.5 Products

The majority of processors manufacture a comprehensive range of products, with the exception of Robert Wiseman Dairies, which remains almost exclusively focused on liquid milk.

**Table 17** – Products Produced by Processors

	Arla Foods	Dairy Crest	DFB	First Milk	Milk Link	United Dairy Farmers	Robert Wiseman Dairies
Liquid Milk	✓	✓	✓	✓	✓	✓	✓
Cheese	✓	✓	✓	✓	✓	✓	
Milk Powders	✓	✓		✓	✓	✓	

Source: Dairy UK

## 8.6 Structure of Milk Processing Sites

In England and Wales, dairy plants which process over 100 million litres of milk account for almost 90% of the volume of milk processed.

**Table 18** - Volumes of Milk Processed by Size of Plant in the United Kingdom

(litres)	Companies Processing Milk		Volume of annual intake	
	Number	% of Total	Million Litres	% of Total
<b>5 million and under</b>	453	86.5	187.0	1.4
<b>5 - 20 million</b>	26	5.0	286.0	2.1
<b>20 - 50 million</b>	13	2.5	457.0	3.4
<b>50 – 100 million</b>	9	1.7	607.0	4.5
<b>100 – 300</b>	14	2.7	2,321.0	17.3
<b>Over 300 million</b>	9	1.7	9,529.0	71.2
<b>Total</b>	524	100.0	13,387.0	100.0

Source: DairyCo, Defra

## 8.7 Competitiveness of UK Milk Processors

UK dairy processors are efficient compared to their international counterparts. In a Defra funded study published in 2007, the international competitiveness of UK dairy processors was evaluated by KPMG. Using publicly available data, the study compared the seven largest UK processors against a sample of 27 companies drawn from Europe, USA, Australia, New Zealand and Argentina.

Overall, the study concluded that UK companies generated higher levels of value added per employee and delivered higher levels of profitability in terms of return on capital employed. However, they also generated lower levels of revenue per unit of milk processed.

These results indicated that UK dairy companies were efficient at utilising the assets available to them, compared to their international counterparts. In addition, potential opportunities existed in investment in innovation, R&D, increased focus on end customers, increased vertical integration and in an increase in the geographic scope of operation.

The efficiency of UK dairy processors is the inevitable result of the intense competitive pressures they are subject to in meeting the demanding requirements of their customers and of competing with each other for business. This has generated a sustained process of rationalisation and plant closure. The intensity of this rationalisation process demonstrates that processors do not enjoy guaranteed margins and only the most competitive and efficient can remain in business.

In addition to plant rationalisation, processing efficiency is also being pursued by sustained investment in new processing facilities. The biggest single recent investment by the dairy industry has been by Robert Wiseman Dairies in a state-of-the-art £80m liquid milk processing facility in Bridgwater, Somerset. The plant has the capacity to meet 10% of the UK liquid milk processing needs and has been designed to meet exacting environmental standards.

## 8.8 Dairy UK and Industry Performance

Over the three years to the end of 2008, Dairy UK contributed to the improvement in the performance of UK dairy processors through a programme funded by Defra's Agricultural Development Scheme.

The programme provided business improvement advice to dairy companies consisting of:

- Dairy PROBE; a diagnostic benchmarking tool provided by Comparison International Limited, that evaluated performance across all activities against world class standards
- Masterclass; a staff training programme provided by the Society of Motor Manufacturers and Trades (SMMT) Industry Forum that equipped staff to seek out ongoing improvements in processing efficiency

In total, 30 companies undertook Dairy PROBES and 11 companies undertook a Masterclass. All the companies participating in the programme valued the experience gained and the programme made a meaningful contribution to the continuing process of improving industry efficiency.

## 8.9 Corporate Social Responsibility

All the major dairy companies have clearly set out and rigorously follow principles of Corporate Social Responsibility. These include fundamental issues, such as maintaining high standards of corporate governance, provision of a safe working environment free of discrimination and intimidation, supply of products and services that meet all contractual obligations, compliance with all relevant legislation (health and safety, food safety and hygiene, employees' rights etc.), education with regard to nutritional information, making a positive contribution to the local community and ensuring that proper environmental standards are maintained.

## Dairy UK and Processing

**UK dairy processors are efficient and dynamic and informed by a strong sense of Corporate Social Responsibility. Producers are now responsible for a sizeable portion of UK processing capacity. The industry has the structure and strength to deliver on commitments entered into in partnership with the Government.**

A strategy central to the industry's future prosperity is consolidation. Companies, both processors and co-ops, need to grow to match the growth in size of their customers. Opportunities for consolidation are being examined all the time. The industry is concerned that the competition authorities should not unnecessarily impede this process.

Companies also need to continue to invest in the scale of operation at the plant level to improve efficiency. This will mean further consolidation of production into fewer locations. This will help to improve the industry's costs and reduce its environmental footprint. Government needs to be mindful of this process in developing policy.

## 9. MILK PRICES AND COMMODITIES

Commodity products such as butter, milk powder and Cheddar generally set the underlying trend in the farm gate price of raw milk. As currency has a major role in driving commodity prices, then currency is a significant factor in setting producer prices. Against this background there is considerable variation in the price paid to individual producers, reflecting a diverse range of factors.

Several retailers have put in place 'integrated supply arrangements' where the retailer obtains supplies of liquid milk from a group of farmers whose output has been assigned exclusively to that retailer.

Compared to the annual average payment, the monthly payment received by producers can vary considerably due seasonality payment systems, which reward production more at certain times of year.

### 9.1 Milk Prices and Commodities

The price of raw milk has been completely de-regulated since the Milk Marketing Schemes were wound up in Great Britain in 1994 and in Northern Ireland in 1995. Prices are now set by commercial negotiations between individuals and groups of farmers and milk buyers in a free and competitive market.

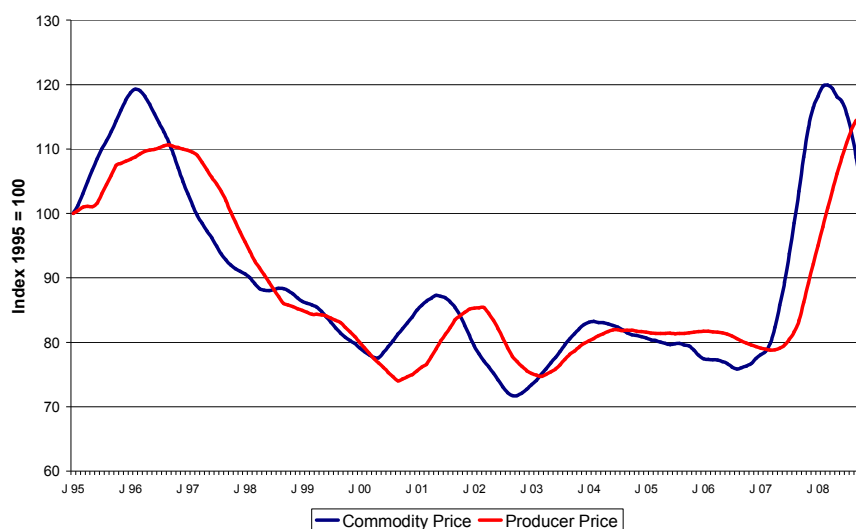
In this competitive environment, commodity products such as butter, powder and Cheddar generally set the underlying trend in the farm gate price of raw milk.

The correlation between producer prices and commodity prices is shown in Graph 20, which compares indices of:

- average UK producer prices against
- the raw milk equivalent of the return from sales of bulk butter and skimmed milk powder

This shows that farm gate prices generally lag behind returns from commodity markets by about six months.

**Graph 20 – Farmgate Price versus Market Price**



Source: Dairy UK

Commodity products create the underlying trend in raw milk prices because most of the raw milk produced in the UK can be switched between different end uses. Raw milk used for the manufacture of cheese can just as easily be switched to produce liquid milk.

Raw milk is generally used for the manufacture of butter and powder when other more profitable uses can't be found for it. The result is that when commodity prices fall, farmers selling raw milk for commodities have an incentive to offer this milk into higher returning markets, so the price of raw milk used in other products then has to be adjusted to remain competitive.

Likewise, when commodity prices rise, milk buyers have to adjust the premiums they pay over commodity milk in order to secure their supply of milk.

UK producer prices fell from a peak of 25.02ppl in 1996 to 17.95ppl in 2006, with the greatest part of the fall in the period 1996 to 2000. This sustained period of price deflation put farm incomes under considerable pressure with the result that milk production in the UK has been falling since 2004.

Farm gate prices recovered strongly from the middle of 2007, due to the sudden rise in world commodity prices, to reach a peak of 27.29ppl in November of that year. Since then, farm gate prices stabilised at around 25ppl before rising again at the end of 2008, underpinned by favourable currency movements (see below) and concerns amongst industry customers over security of supply. However, towards the very end of the year, further weakness in commodity markets has had a negative effect on prices in Northern Ireland and several major milk purchasers in Great Britain announced significant cuts in farm gate prices from the beginning of this year.

The European Commission's intervention in commodity markets by extending intervention buying and by reintroducing export refunds should help to stabilise markets along with the slowdown in the growth of production worldwide.

In the medium term, the inherent volatility in supply means that commodity prices are cyclical and long term price trends cannot be deduced from short term price cycles. The current downturn must therefore be regarded as a temporary phenomenon that will go into reverse. The import issue for the industry is trying to gauge where prices will reside on average over the long term.

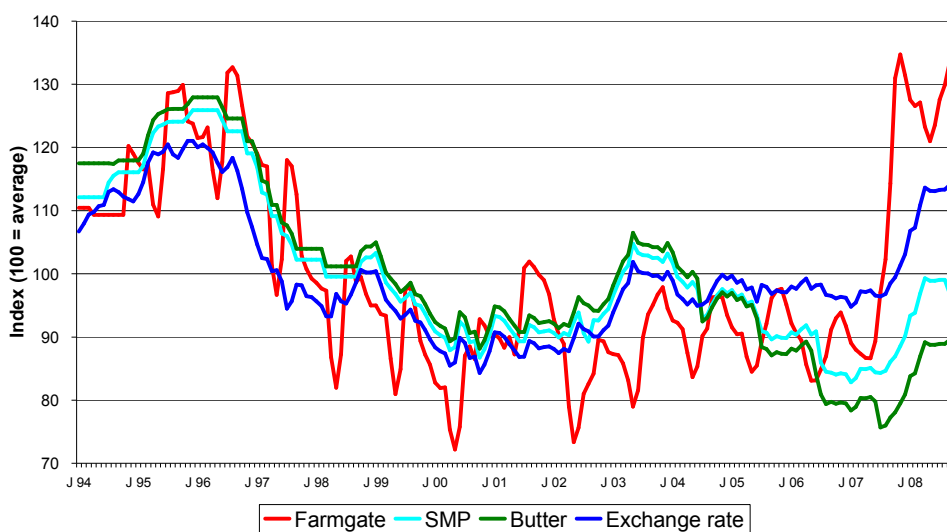
## 9.2 Currency and Commodities

As currency has a major role in driving commodity prices, and commodity prices underpin farm gate prices, then currency is a significant factor in setting producer prices.

The chart shows the correlation between:

- The movement in sterling/euro exchange rate between 1994 and 2008
- Commodity prices
- UK average producer prices

**Graph 21 – Farmgate and Commodity Prices with Exchange Rate**



Source: Dairy UK

### **9.3 Variation in Individual Producer Prices**

Whilst commodity products set the overall trend in raw milk prices, there is a considerable variation in the price paid to individual producers. These variations reflect:

- premiums available to ensure that milk is allocated to fresh product markets such as the liquid milk market
- short-term supply considerations
- the type of milk buyers operating in any particular area
- capital deduction levies put in place by co-ops to fund acquisition programmes
- integrated supply arrangements put in place by retailers. This last factor is potentially the most significant for the industry in the future (see discussion below).

The spread between the highest and lowest farmer price can be as much as 7ppl, although generally prices are concentrated to within 2ppl of each other.

### **9.4 Integrated Supply Arrangements**

Over the past few years, several major retailers have put in place 'integrated supply arrangements'. Under these systems, a retailer obtains its supply of liquid milk from a group of farmers whose milk output has been assigned exclusively to that individual retailer.

Farmers generally receive a higher price under these arrangements. The precise method by which this price is determined varies between retailers, but some retailers explicitly recognise changes in input costs in order to secure the sustainability of their supplying farmers. As such, the farmers under these arrangements are partially insulated from the price trends created by commodity markets. However, in the long run, the retailer has to ensure that they are competitive with their counterparts at the retail price level. This means that the influence of commodity prices ultimately restricts the extent to which farmers under these systems can be protected from wider market forces.

In exchange for participating in integrated supply arrangements, farmers may be required to deliver different welfare requirements or to meet particular environmental standards set by the retailer.

To varying degrees, all the major retailers have now entered into supply arrangements with the farmers providing liquid milk to their stores. This includes Marks and Spencer, Waitrose, ASDA, Sainsbury's, Tesco and Morrisons. However, the number of farmers covered by these arrangements remains relatively small at around 2,500. Because of the sheer volume of milk purchased by Tesco, the price set by this retailer for its supplying farmers is seen by many as setting a benchmark for the industry.

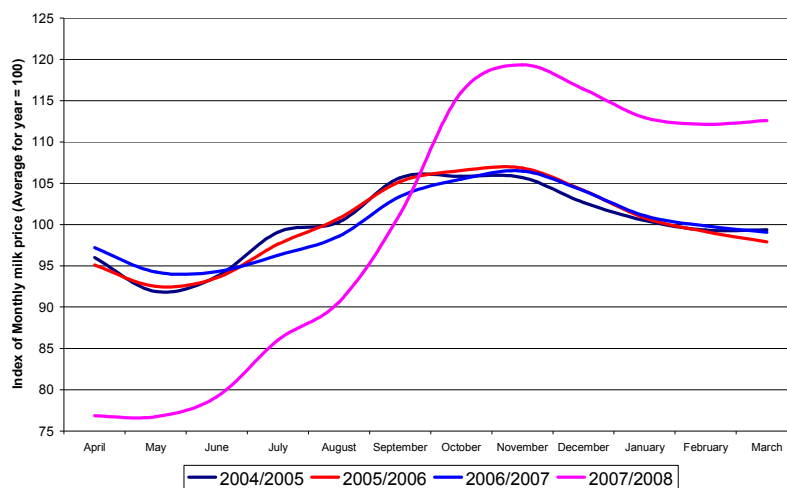
Integrated supply arrangements raise a number of issues. They are beneficial to the farmers involved, but they undermine the principle of price pooling, which shares the premium from fresh product markets amongst all the farmers supplying a milk buyer. They may also raise production standards for the farmers concerned, but at the expense of fragmenting standards across the whole industry. However they also allow more value to be created from the sale of milk and they improve the transmission of information within supply chains.

### **9.5 Monthly Milk Prices**

Compared to the annual average payment, the monthly average payment received by producers can vary considerably. This is due to the seasonality payment systems put in place by purchasers to incentivise farmers to produce milk at a more constant rate throughout the year, without the usual peaks and troughs of the seasons. The variation in the producer price over the year is almost exactly the opposite of the pattern of milk production.

For the 2007/08 milk year, the normal profile was distorted by the extreme price volatility in the sector.

**Graph 22 – Average Farmgate Price**



Source: Defra

## Dairy UK and Raw Milk Prices

**De-regulation of the raw milk market has significantly improved the efficiency of the dairy industry by facilitating better exchange of commercial information and closer alignment between milk producers and the needs of the consumer. This has brought about radical changes in marketing arrangements and contracts between farmers and milk buyers, of which the integrated supply chains put in place by retailers are the strongest example. Contractual arrangements in the UK are now probably the most diverse and sophisticated in Europe.**

As a trade association Dairy UK cannot become directly involved in the price negotiating process, but we have facilitated the industry's debate on the future evolution of milk marketing arrangements through various publications.

The commitment of retailers to the development of integrated supply chains can go some way to securing the sustainability of the producers involved in these relationships. However, they only cover a minority of the supply chain, and even then milk pricing cannot be entirely divorced from wider market circumstances.

The industry needs to continue to confront the challenges created by market volatility and refine and develop its milk marketing arrangements. These will inevitably be increasingly tailored to individual market circumstances. There will be no one size fits all conception that can embrace the entire industry.

## 10. MILK PRODUCTION AND QUOTA

Quota statistics show a significant migration of quota out of England since 1994. Agricultural census statistics show a process of concentration in dairy farming into a handful of counties in England and Wales.

As UK milk production has fallen well below national quota, the price of quota has fallen. At the end of 2008, quota was being traded at virtually nothing for leased and 0.20ppl for permanently transferred.

Since 2004, annual total UK milk production has been on a downward trend and this is expected to continue in the short term due to a variety of factors. Some are short-term and weather related, others are structural, such as the lack of confidence amongst farmers to invest in the industry.

Milk production follows a seasonal trend and butterfat and protein levels also vary through the year.

### 10.1 Quota

There are two types of quota in the UK: wholesale and direct sales

- Wholesale quota is held by producers who sell milk to a purchaser, either a producer co-op or a dairy processor.
- Direct sales quota is held by producers who sell their milk directly to the market without going through a purchaser, or who sell products other than milk, e.g. skimmed milk, cream, butter, yogurt and cheese. Producers can hold one or both types of quota.

Wholesale milk production makes up about 98% of the milk produced in the UK with direct sales constituting the remainder.

Direct sales production has been falling steadily over the last 10 years, with a 30% decrease between 1997/98 and 2007/08. This decrease in production has been offset by an increase in direct sales quota through conversion from wholesale.

#### 10.1.1 Distribution of Quota by Country

Statistics on milk quota by production is of value to the industry because it provides a rough guide to the location of milk production around the country.

Quota can be freely traded between producers and can be transferred permanently or leased temporarily. The quota held by county or region used to give a fairly accurate indication of the volume of milk production in that area. However, since the UK has consistently fallen below national quota for the past four years, farmers don't have an incentive to match changes in production with quota, so there may be some disparity between data for quota and actual production figures.

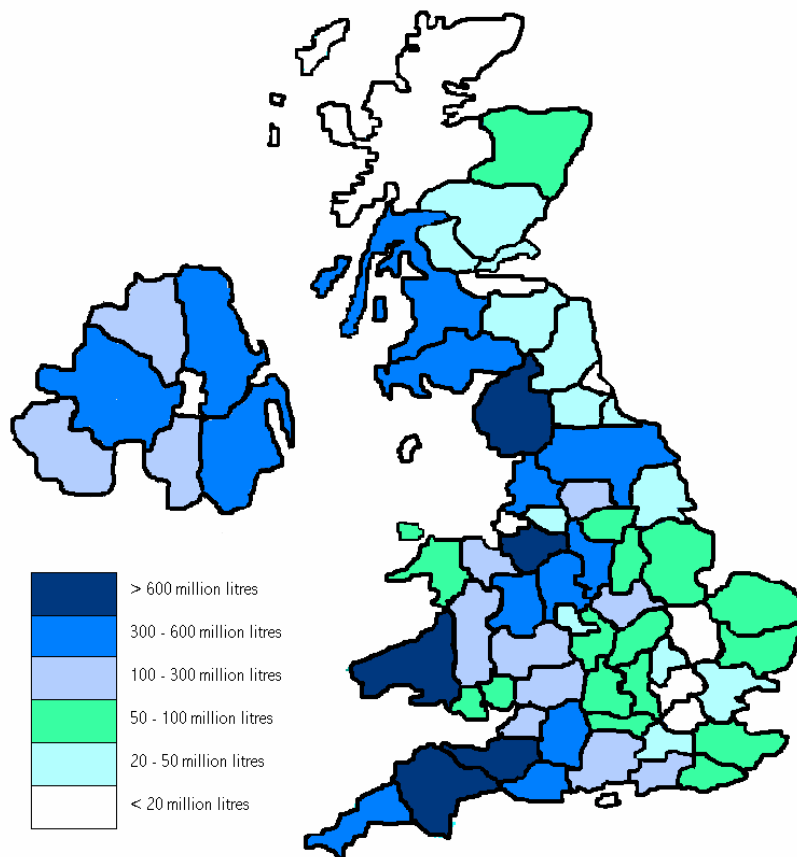
Between 1994 and 2000, England, Wales and Scotland all experienced a reduction in quota, with significant reductions in England and Scotland of 200 million litres and 50 million litres respectively. Conversely, quota in Northern Ireland increased during the same period from 1,343 million litres to 1,622 million litres.

Since 2000 the quota levels in Wales and Scotland have both increased by 153 million litres. In Northern Ireland quota levels continued to grow (adding another 258 million litres since 2000) with an overall increase of 40% since 1994. The migration of quota from England has seen quota levels drop from 10,166 to 9,515 million litres since 1994, a reduction of 7%.

The major milk producing regions in England are in the south west and the north west, with quota in Devon, Somerset, Cheshire and Cumbria each exceeding 600 million litres. Farming in the east of the country is dominated by arable farming and milk production is lower in this region.

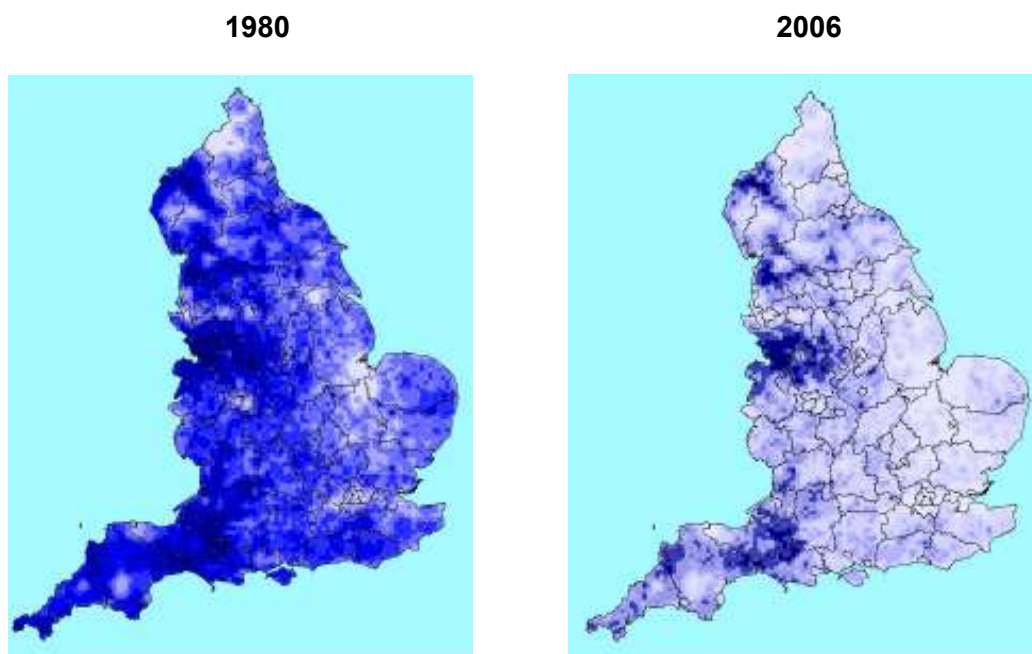
In Wales, only Clwyd, Dyfed and Powys have quota levels of above 100 million litres, with Dyfed holding over 900 million litres. In Scotland, with quota levels around 500 million litres in Dumfries and Galloway and Strathclyde, the south west of Scotland is the chief milk producing region. In Northern Ireland, Antrim, Down and Tyrone are the major quota holding counties, each holding over 400 million litres of quota.

**Figure 3 – Map of UK Quota**



Another indicator of the geographic restructuring of milk production is provided by Defra’s statistics from its regular June Survey of Agriculture and Horticulture. For England, this shows a significant process of concentration of milk production from 1980 into a handful of major counties.

**Figure 4 – Location of Dairy Herds in England**



### 10.1.2 Price of Quota

Quota can be transferred in one of two ways, permanent transfer and temporary transfer.

a) Permanent transfers, when quota is sold from one producer to another.

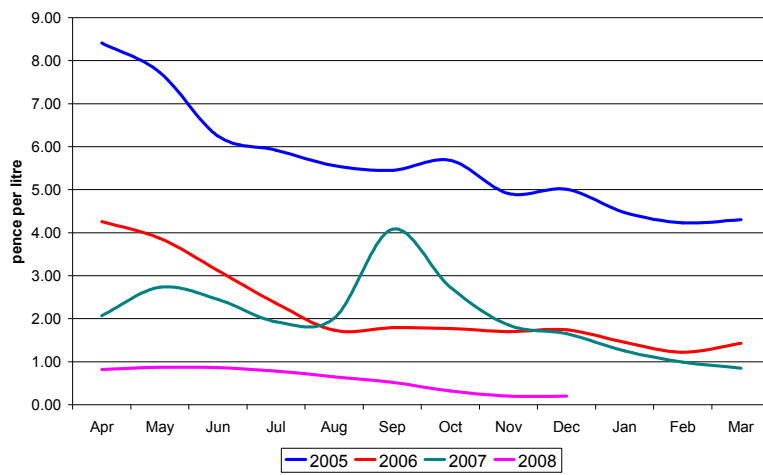
b) Temporary transfers, where quota is leased to a producer. Quota can be leased for one quota year at the end of which it reverts to the original holder. Leasing is a cheaper option than buying quota and is often advantageous to producers who cannot afford to purchase quota or producers who need flexibility to adapt to short term production changes.

The price of quota is closely connected to production. When production levels are high and close to the UK's quota limit, then the price of quota is high, but as production moves away from quota limits, farmers' need for extra quota falls and the price drops.

The price of leased quota is traditionally about half the price of permanently transferred quota.

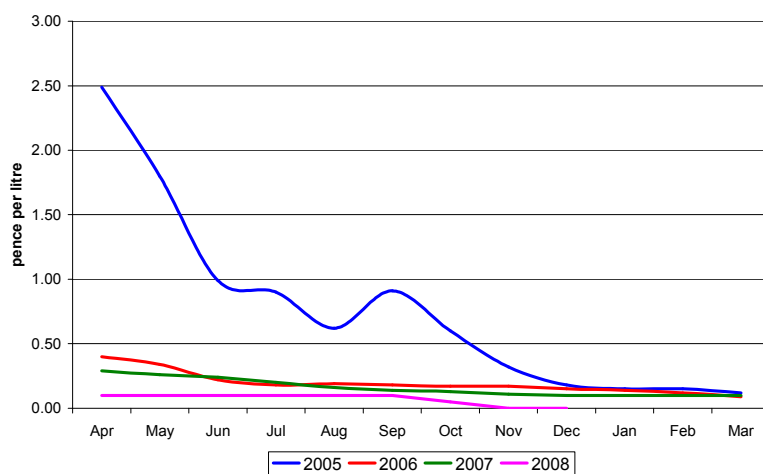
As production in the UK fell below national quota, the price of quota also reduced and, at the end of 2008, quota was being traded at virtually nothing for leased and 0.20ppl for permanently transferred.

**Graph 23 – Monthly Average Price of Permanently Transferred Quota**



Source: BK Quota

**Graph 24 – Monthly Average Price of Leased Quota**

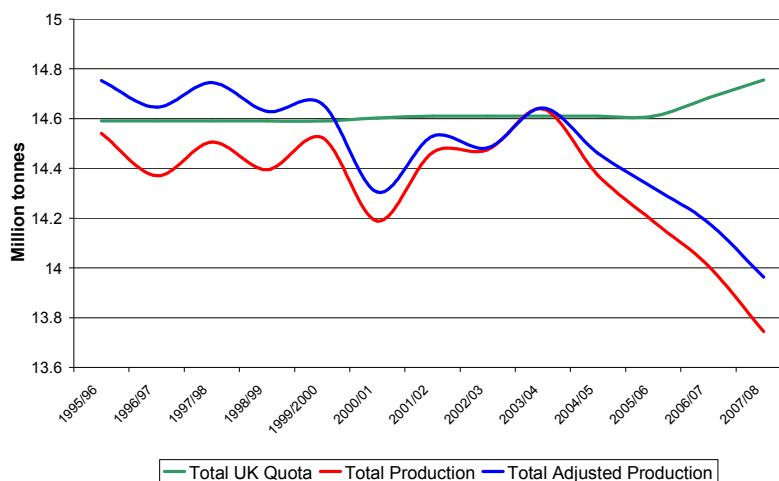


Source: BK Quota

### 10.2 Milk Production

The milk production year runs from April to March of the following year. Prior to 2004 UK milk production had been close to quota. Since then, production has been on a downward trend and this trend is expected to continue in the short term.

**Graph 25 – Milk Production and Quota**



Source: EU Commission

The trend in milk production is determined by a large variety of factors, which are analysed in a report published by DairyCo in January 2009 on 'Factors Affecting Milk Supply'. This showed that milk supply is influenced by a large number of factors both negative and positive which vary in importance and timescale.

**Relative influence of factors affecting milk supply**

(grouped in ascending order of importance)

**Positive factors**

**Negative factors**

Lower influence



Increasing lactations per cow  
Slowing in rate of farm exit  
Increasing cattle imports

Greater emphasis in breeding on robustness  
Rising cull cow prices  
TB slaughterings

Increasing farm gate price

Declining genetic progress in milk yield  
Declining forage quality  
Increased incidence of Mastitis  
Availability of labour  
Regulatory burden

Increased calving interval  
Extreme weather conditions  
Increased input costs  
Low levels of investment



Insufficient numbers of replacements available

Greater influence

The strongest negative influence on production has been insufficient number of replacement animals available. The forecast greater availability of dairy animals in 2011 and 2012 could stabilise and even reverse the trend in milk production.

However, the most important long term influence has been the lack of confidence amongst farmers to invest in the industry. The lack of confidence is directly linked to low milk prices. The rise in farm gate prices in 2007 and 2008 brought a much needed boost to farmer confidence, although a significant portion of this increase was eroded by rises in input costs.

### 10.2.1 Seasonality of Milk Production

Milk production follows a seasonal trend with traditional peak production in May after the calving season and a trough in October/November.

The seasonality of milk production is affected by two key factors:

- a) the calving system employed on a farm, i.e. spring calving or autumn calving.
- b) feeding patterns for cows

In spring, cows graze on young grass which is easily digested and very nutritious. For cows producing high yields of milk, grass feeding is often complimented by concentrates. As the season develops, the quality and nutritional profile of the grass falls. Good availability of high quality grass means relatively high milk production in early spring, tailing off through the summer to a trough in production in autumn.

In winter, cows are fed on silage (stored grass). Silage is much less nutritious than fresh grass and hence cow's diets are supplemented by concentrates of high energy and high protein foods.

As the quality and availability of grass, silage, and concentrates is heavily dependent on weather, adverse condition can have a big effect on production.

### 10.2.2 Milk Constituents

Butterfat and protein levels in milk are measured as producers are rewarded financially for producing milk with a high concentration of butterfat and protein.

Levels vary through the year due to weather and diet. Protein and butterfat levels are high during autumn and winter months, when feed is supplemented by high levels of concentrate high in energy and protein. Feeding patterns are dependent on a number of factors from feed and concentrate prices to weather conditions, hence butterfat and protein levels, like production, can vary year on year.

## Dairy UK and Milk Production

**Market forces are reshaping the location of milk production across the country and determining the total volume of milk production. Dairy farmers do not produce milk to fulfil quota. They tailor their output according to the rewards given to their labour and capital, and the alternative business opportunities open to them in their area. If milk production is to stabilise or recover, it must principally be from incentives provided by the market place.**

The location of dairy farming is undergoing a sustained process of rationalisation driven largely by the greater importance of dedicated specialist dairy farms. This means that dairying is of growing importance to the agricultural sector of certain regions. It is therefore important the Regional Development Agencies covering these areas are fully aware of the needs of the sector and put in place the necessary consultative processes to ensure that the voice of the dairy industry is heard.

It is important that quota costs are never re-imposed on the industry. The cost of acquiring entitlements to produce was once a significant burden on the industry and a barrier to rationalisation.

The overall level of UK production will ultimately be determined by market forces, but the long term prospects for the industry are good (see section on Commercial prospects, p66).

## 11. DAIRY FARMERS

Dairy farms are generally small, essentially family run businesses, the majority of which are owner-occupied. Dairy farms are extremely complex agricultural enterprises that require a high degree of knowledge and expertise to run. The industry has particular difficulty in obtaining the skilled labour that it requires.

Dairy farm profitability has not been enough to meet the long term re-investment requirements of the sector. There is a direct correlation between farm size and efficiency. The process of restructuring at farm level and the movement towards larger farms is essential to the future competitiveness of the industry. This has meant that the number of dairy farms has been declining whilst the average farm size has been rising.

UK dairy farms are amongst the most cost efficient in the EU and stand comparison with non-EU countries such as the USA. However, the UK cannot achieve the cost efficiency achieved by New Zealand, where climatic conditions combined with the absence of demand for fresh products allows for a wholly different production model to be used.

The industry operates a farm assurance scheme to ensure dairy farmers meet benchmark standards of animal welfare and product quality.

### 11.1 Dairy Farms

Foundations for the dairy supply chain in the UK are provided by about 17,000 dairy production holdings, according to 2008 figures. The EU's December census of farmer numbers in the UK estimates that these holdings were owned by about 12,900 dairy farmers. The discrepancy between the two figures illustrates that some producers own more than one holding.

#### 11.1.1 Size

Dairy farms are generally small businesses. The vast majority of farms meet the Department for Business, Enterprise and Regulatory Reform (BERR) classification of a small business as they would satisfy at least two of the following criteria:

- a turnover of not more than £5.6 million
- a balance sheet total of not more than £2.8 million
- not more than 50 employees

In addition to this definition, many farms in the UK also meet the criteria for the statistical label of micro business as they employ fewer than ten people.

Dairy farms are very largely stand alone businesses, although over 70% of dairy farms are members of co-ops. A growing number of farms are entering into agreements with other dairy farms to share resources and purchasing on inputs, but these arrangements cover only a minority of farms.

#### 11.1.2 Legal Form

Dairy farming covers a wide spectrum of business types from small family run farms to large enterprises overseen by professional managers owned by external investors that are only remotely engaged in the business. However, the majority of dairy farms are still essentially family businesses.

Dairy farms take a variety of legal forms. It is estimated that:

- 85% are partnerships
- 5% are sole traders
- 10% are companies

Classified according to land ownership, between 70% and 75% of dairy farms in the UK are owner-occupied and between 20% and 25% are tenanted.

### 11.1.3 Age of Farmer

It is estimated that more than 50% of dairy farmers are aged over 55 with the average age having risen to 58. This breakdown has not significantly changed over the last 10 years. This is because demographic analysis does not take into account younger relatives that may be in line to succeed to the farm. However, it is the absence of a family successor that is one of the main drivers of exit from the industry.

### 11.1.4 Labour

The actual number of individuals labouring on a dairy farm varies depending on:

- whether other activities besides dairying are undertaken
- the use of unpaid family labour
- the type of production system used

However, it is generally believed a good level of animal welfare is obtained by the employment of one member of staff for every 80 to 140 cows.

One of the greatest difficulties facing dairy farms is recruiting and retaining stockmen. This has led a large number of dairy farmers to recruit staff from Eastern Europe.

### 11.1.5 Input and Expertise

Dairy farms are extremely complex agricultural enterprises that require a high degree of knowledge and expertise to run. Individuals engaged in the management of a dairy farm must either have personal understanding of, or be able to obtain advice on:

- Financial management
  - Cost of production
  - Benchmarking
  - Forecasting
- Statutory compliance
- Business support
  - Production of goods to specification
  - Following and understanding contracts
  - Compliance with relevant legislation
- Farm health planning
  - Foot-care, treatment of lame cows
  - Infectious disease and vaccination plan
  - Parasite control
  - Management of animal casualties
- Livestock technical skills
  - Genetics and breeding
  - Practical health and welfare management
  - Basic nutrition
  - Grassland and silage management
- People management
  - Employment
  - Motivation
  - Communication

Regulatory changes are requiring new areas of expertise to be added such as environmental planning. Dairy farmers also require a large number of inputs from a diverse range of businesses such as feed suppliers, breed societies, vets etc.

The depth and viability of businesses involved in these activities at the regional level is essential to the viability of dairy farming in the milk producing regions of the UK.

### 11.1.6 Financial Position

Provisional figures indicate that farm incomes are recovering strongly from the reduced levels seen in 2006/07, with the average 2008/09 Farm Business Income for a dairy farm in England forecast to be £72,800 (a 32% increase on 2007/08). Following the calculation of actual figures in Northern Ireland, the provisional estimate for dairy farms for 2007/08 was revised upwards to £58,700 (a figure more than double the 2006/07 total of £27,300). The provisional estimate for 2008/09 shows a 12.9% decrease to £51,100. The latest available figures for Wales saw dairy incomes rising by 29.6% from £36,800 to £47,700.

**Table 19 – Average Farm Business Income per Dairy Farm (£)**

	2004/05	2005/06	2006/07	2007/08	2008/09
<b>England</b>	33,100	33,600	30,800	55,100	72,800
<b>Wales</b>	28,600	30,600	36,800	47,700	n.a
<b>Scotland</b>	n.a.	n.a.	n.a.	n.a.	n.a.
<b>N.Ireland</b>	24,900	28,700	27,300	58,700	51,100

Recent levels of profitability have not been enough to meet the long term re-investment requirements of the sector. Research undertaken by the French Institut de l'Élevage in 2006 into the productivity of dairy units in Northern Europe, published in January 2007, confirms that British dairy farms are on the whole amongst the most productive and efficient in European terms but, owing to low milk prices, British farms have invested less in buildings and equipment than their counterparts and competitors elsewhere in the EU. Whereas Danish and Dutch dairy farmers have invested around €40 and €30 respectively per tonne of milk production per year in infrastructure and machinery, specialist producers in the UK have invested a mere €10. This is even less than the EU average in the period 1989-2004 of €25.

According to the farm consultants Kite Consulting, 'for industry sustainability there should be margin for capital investment equivalent to 10% of costs, or a further 3ppl at the current time' (Kite Cost of Production Update August 2008).

This accords with the position put forward by another firm of farm consultants. In a report on 'The Real Price of Milk' prepared for First Milk in March 2008, Promar International concluded that a dairy farmer should be able to make a profit of 10% of the price at which they sell their milk to the processor or the retailer (after they have paid all their costs and family wages). Only this will provide the money for investment to maintain the British Dairy Industry.'

### 11.1.7 Efficiency and Restructuring

There is a considerable divergence in the cost efficiency between the most efficient and the least efficient dairy farms.

**Table 20 – Analysis by Performance Quartiles**

	Lower Quartile	Upper Quartile
<b>Lowland Herds (£ per cow)</b>		
<b>Total Dairy Output</b>	895	1,578
<b>Total Variable Costs</b>	501	590
<b>Total Gross Margin</b>	394	988
<b>Less Favoured Areas (£ per cow)</b>		
<b>Total Dairy Output</b>	884	1,392
<b>Total Variable Costs</b>	532	673
<b>Total Gross Margin</b>	353	719

Source: "Farm Business Survey 2006/2007 – Dairy Farming in England":  
Rural Business Research Unit – The University of Nottingham

This reflects the fact that many individuals are involved in dairying as a lifestyle choice and are prepared to use the capital of their business to maintain themselves in that position. The proportion of the UK milk supply accounted for by this type of farmer is falling rapidly as they reach retirement.

At the other end of the spectrum are business minded individuals who require a competitive rate of return on capital employed, otherwise they will take their capital and expertise elsewhere.

In the medium term, improvements in business efficiency can be achieved by improvements in farm management. In the longer term, cost efficiency requires fixed costs to be spread over a larger scale of operation. This means that there is a direct correlation between farm size and efficiency.

**Table 21 – Analysis of Efficiency by Herd Size**

	Herd size (cows)		
	<80	80-130	>130
<b>Lowland Herds (£ per cow)</b>			
<b>Total Dairy Output</b>	1,056	1,267	1,399
<b>Total Variable Costs</b>	476	579	619
<b>Total Gross Margin</b>	580	688	780
<b>Less Favoured Areas (£ per cow)</b>			
<b>Total Dairy Output</b>	1,055	1,224	n.a.
<b>Total Variable Costs</b>	480	589	n.a.
<b>Total Gross Margin</b>	575	634	n.a.

*Source: "Farm Business Survey 2006/2007 – Dairy Farming in England":  
Rural Business Research Unit – The University of Nottingham*

This means that the process of restructuring at farm level and the movement towards larger farms is essential to the future competitiveness of the industry.

## 11.2 Dairy Farmer Numbers

The number of dairy farms has been declining at a steady rate of around 2.8 to 6.3% per annum in the countries of the UK since the latter part of the last century, with an acceleration seen in England over the last 10 years. The number of animals in the national herd has also been falling whilst the average farm size has been rising.

In addition to the rise in average farm size, the average milk yield per cow in the UK has also been rising which, until recently, offset the decline in cow numbers.

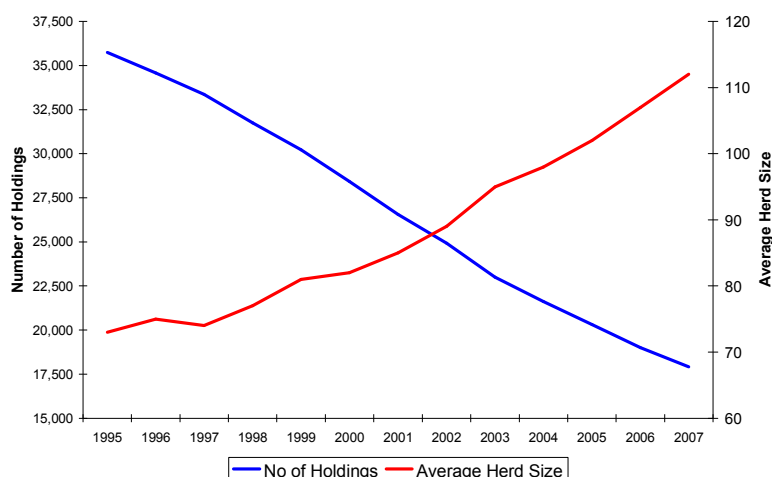
**Table 22 - Average Herd Size in the UK**

	Holdings	Dairy Herd (000 Head)	Average Herd size
1995	35,741	2,603	73
1996	34,570	2,587	75
1997	33,352	2,478	74
1998	31,753	2,439	77
1999	30,221	2,440	81
2000	28,422	2,336	82
2001	26,556	2,251	85
2002	24,930	2,227	89
2003	22,992	2,192	95
2004	21,616	2,131	98
2005	20,313	1,998*	102
2006	19,011	1,979*	107
2007	17,915	1,954*	112

*Source: Defra (these figures differ from the figures provided by the EU Commission - this is due to the difference in accounting in the UK and the EU)*

\* New series

**Graph 26 – National Herd Size and Number of Holdings**



Source: Defra

### 11.3 International Competitiveness

UK dairy farms are amongst the most cost efficient in the EU and stand comparison with non-EU countries such as the USA. However, the UK cannot achieve the cost efficiency achieved by New Zealand where climatic conditions combined with the absence of demand for fresh products allows for a wholly different production model to be used.

**Table 23 – UK Production Costs Compared to Other Countries**

Cost of production US\$/100 kg	
New Zealand	19
Ireland	20
India	21
Australia	22
Poland	25
Germany	29
United Kingdom	31
Spain	32
France	33
United States	33
The Netherlands	34
Denmark	38
Czech Republic	38

Source: International Farm Comparison Network

### 11.4 Animal Welfare

Dairy farmers have a vested interest in maintaining the health and welfare of their dairy cows. This is because they aim to keep their livestock productive for as long as possible as opposed to raising them for slaughter.

The industry operates a farm assurance scheme to ensure dairy farmers meet benchmark standards of animal welfare and product quality. The scheme is called Assured Dairy Farms and is overseen by a board nominated by Dairy UK, the NFU, the British Cattle Veterinary Association, the Scottish Milk Forum and the British Retail Consortium.

The scheme is accredited under European Standard EN 45011 which set standards for bodies operating product certification systems. Farmers are inspected every 17 months and the quality of the assessor is further verified by a system of random audits.

The scheme is also part of Assured Food Standards (AFS), which is the umbrella organisation of all the major farm assurance schemes operated in the UK. As such milk assured under the scheme is entitled to carry the Red Tractor Logo which is operated by AFS.

## Dairy UK and Farmers

**UK dairy farmers are professional, dedicated and efficient. However, as essentially small family run businesses they have finite powers of adaptation. They also have limited resources that need to be carefully husbanded. The sector cannot be expected to make radical and sudden step changes in operational practice. It therefore needs support and encouragement from the supply chain and the Government, and adequate incentives to motivate and sustain continued improvements in scale and operating practice.**

Dairy farmers are restructuring their businesses to achieve the greater efficiency perpetually demanded of them by a competitive market place.

Once the possibilities of improving managerial practice have been exhausted then further sustained increases in efficiency can only be achieved through increases in scale. This means larger dairy units.

Government must be aware of the importance of this process and ensure that unnecessary impediments are not placed in the way of farm expansion, particularly in respect of planning requirements.

Dairy farmers face particular challenges in acquiring labour and meeting new regulatory requirements. The Government must provide transitional assistance when it imposes higher operating costs on the sector through tighter regulatory standards.

DairyCo, the industry's levy funded farm improvement organisation, has a vital role to play in addressing market failure in the provision of services to farmers and contributing to the continued improvement in industry efficiency.

## 12. DAIRY AND THE ENVIRONMENT

Dairy production contributes only 3% of global greenhouse gas (GHG) emissions and in the UK, that figure is closer to 2%. Much of the industry's impact on the environment is also positive, such as in the case of landscape management.

Nevertheless, dairy businesses are committed to improving their environmental footprint. Amongst the most important initiatives being pursued is the Milk Roadmap, which sets out challenging targets for improvements in the dairy industry's environmental performance.

Processors have committed to eliminating waste to landfill, improving water efficiency and reducing GHG emissions. They are also examining the benefits of centralised anaerobic digestion to generate cleaner heat and power and working on packaging design and consumer education to reduce food waste.

Challenges created by a growing body of environmental legislation are being met positively. These challenges include Climate Change Agreements, the EU Emissions Trading Scheme and Environmental Permitting Regulations. Dairy UK itself plays a prominent role in several areas to help the industry to meet these challenges, and is developing a comprehensive environmental benchmarking tool.

Farmers are working towards improving the environmental performance through the Environmental Plan for Dairy Farming. Significant opportunities exist for dairy farmers to improve their GHG emissions by using on-farm anaerobic digestion, biofuels in agricultural vehicles, increasing energy efficiency and raising feed efficiency for livestock. They can also manage nitrogen better, with the development of nutrient planning for crops and slurry management on farms. The industry is helping farmers on all these issues.

The changes announced by Defra to the NVZ Action Programme for England which will impose significant costs on dairy farmers equivalent to 1.34 pence per litre over a 10 year period.

### 12.1 The Dairy Sector and Environmental Policy

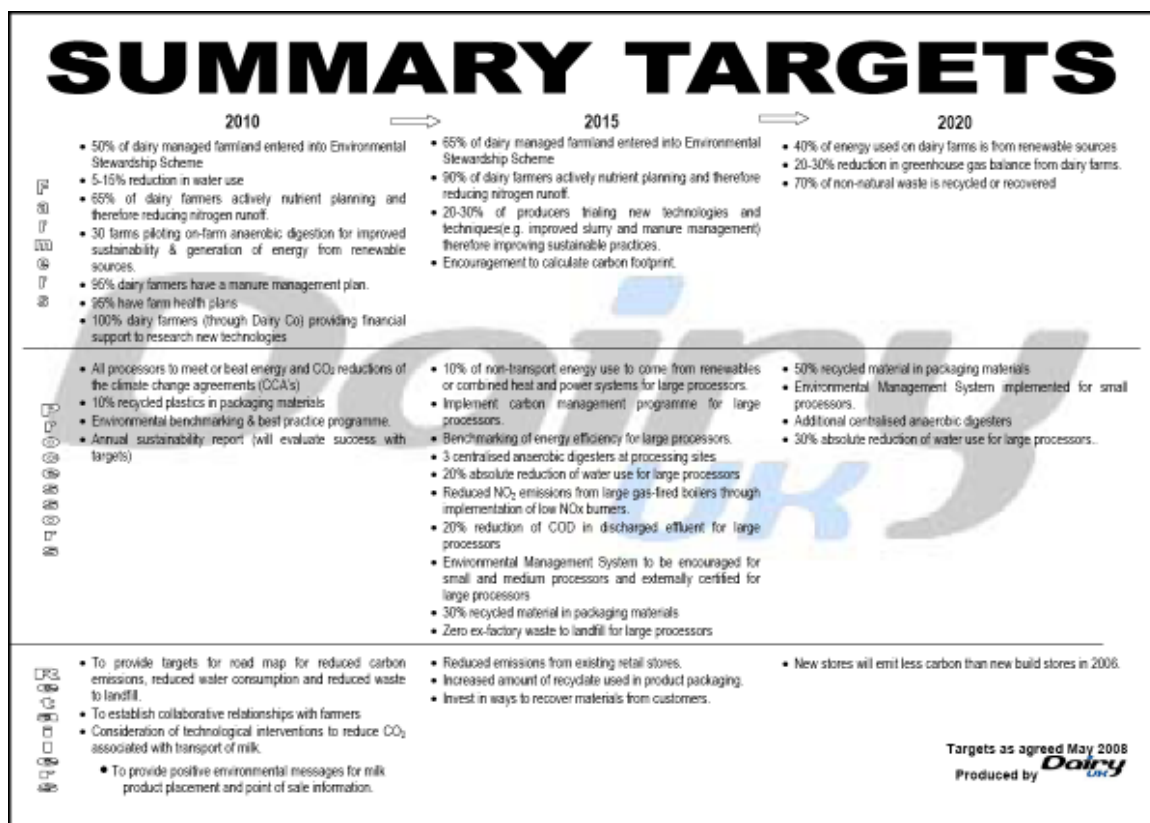
The dairy industry is committed to improving its environmental footprint. Amongst the many initiatives being pursued by the industry the most important is the Milk Roadmap.

This was published in May 2008 and was the first of 10 roadmaps being developed by the Government and various industrial sectors to be completed. The Milk Roadmap sets out challenging targets for improvements in the dairy industry's environmental performance. Targets include reducing water and energy use, cutting greenhouse gas emissions and slashing waste to landfill.

The Roadmap applies to the entire liquid milk supply chain, from farm inputs to consumer waste, and is led by the Dairy Supply Chain Forum's Sustainable Consumption and Production Taskforce chaired by Dairy UK.

The construction of the Roadmap is an excellent example of an industry working successfully with government to tackle environmental issues.

Figure 5 – Milk Road Map Targets



The dairy industry is committed to delivering the Milk Roadmap targets and many in the industry are already making significant improvements towards and beyond these targets. A collection of case studies from the farming, processing and retail sectors of the dairy chain has drawn together by Dairy UK in “Green and White, the environmental credentials of the dairy industry” which showcases some of the many projects under way to make milk ‘greener’.

## 12.2 The Dairy Industry’s Overall Footprint

The industry’s impact on the environment is often misunderstood or exaggerated. An independent report from CE Delft commissioned by the European Dairy Association, showed that world dairy production contributes only 3% of the global greenhouse gas (GHG) emissions. Dairy makes only a small contribution to the 18% of GHG emissions attributed to the global livestock sector by the UN Food and Agriculture Organisation.

Many of the impacts of the industry on the environment are also positive, such as maintaining the UK’s landscape of open pasture land which is such an important aesthetic and leisure amenity. The dairy sector also provides significant opportunities for mitigating green house emissions through the use of anaerobic digestion technology.

## 12.3 Carbon Footprinting and PAS 2050

Publicly Available Standard 2050 (PAS2050) provides the methodology to analyse a product’s life cycle, which in turn allows a carbon footprint or label to be calculated. The standard was drawn up between industry and Defra, the BSI British Standards and the Carbon Trust.

By allowing businesses to investigate their supply chain and identify key carbon emissions, they will be able to identify the areas where reductions are possible. Experience in the dairy sector to date suggests that lower emissions mean lower costs, which are to the benefit of all participants in the chain. This tool will also allow benchmarking against similar businesses and should spur the development of low-carbon technologies.

## 12.4 Dairy Processors and the Environment

Dairy processors are subject to a growing body of environmental legislation and initiatives, both from within the UK and the European Union. The industry is responding positively to the challenges created by these initiatives and Dairy UK itself plays a prominent role in several areas in helping the industry to meet these challenges.

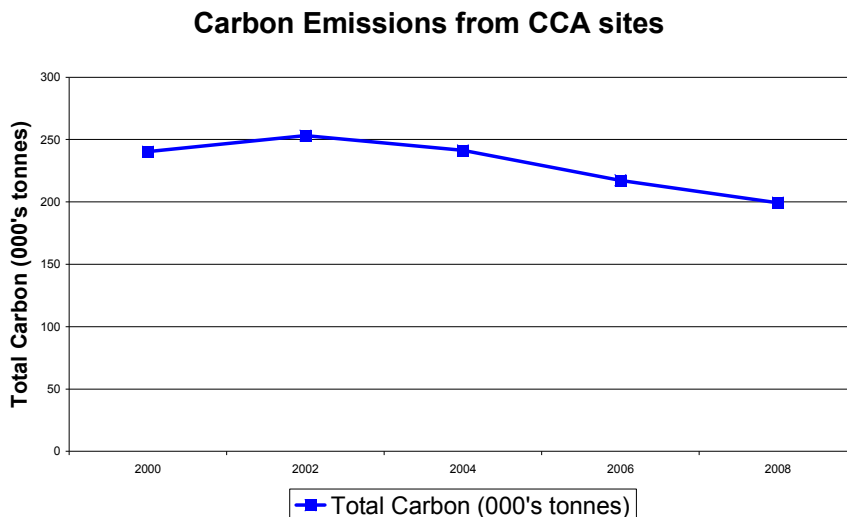
## 12.5 Climate Change Agreement (CCA)

Since April 2001, a financial levy (the Climate Change Levy or CCL) has been applied to business users of electricity, gas, coal and LPG. This levy is applied at source and is charged according to the amount of energy used. The result is an increase in the final cost of energy of 10-15%.

Following a decision by the UK Government to give special consideration to the treatment of energy intensive sectors, including the dairy industry, Defra set up a Climate Change Agreement (CCA), which enables those companies that enter the agreement to receive an 80% discount from the levy. In return, participating companies must agree to implement all cost effective energy saving measures and meet relative energy reduction targets over the course of the agreement (2001-2010).

The dairy sector CCA is managed by Dairy Energy Savings Ltd, which is operated by Dairy UK.

**Graph 27 – Carbon Emissions from CCA Sites**



Since the agreement was set up, in excess of 150 milk processing sites have joined the dairy sector CCA, saving those companies approximately £4.5m per annum. In energy terms, the CCA has reduced emissions by 16% since the early 1990s.

## 12.6 EU Emissions Trading Scheme

A small number of dairy sites within the CCA also fall within the provisions of the EU Emissions Trading Scheme (EU ETS). This mandatory scheme began in January 2005 with Phase I of the scheme running until the end of 2007. Phase II runs from January 2008 to 2012. The sites are included in the scheme by virtue of having installed combustion capacity greater than 20MW of thermal output.

The key difference between CCA and EU ETS is that, with the latter, targets set an absolute cap on a site's emissions from the combustion installation, whereas CCA targets normally take the form of a relative target (kWh per tonne of product).

The European Commission is currently consulting on Phase III of the EU-ETS which runs from January 2013 to 2017. It is expected that an emissions threshold will apply for this phase which would allow relatively small emitters to opt out of the EU-ETS on the condition that the site was in a domestic carbon mechanism such as the Climate Change Agreement.

## 12.7 Environmental Permitting Regulations

In April 2008 Defra introduced the Environmental Permitting Regulations which have streamlined and combined separate waste and pollution control (PPC) systems so there can now be a single environmental permit and common procedures.

All sites processing more than 200 tonnes of milk per day have been required to obtain a permit from the Environment Agency and this permit sets emissions reduction targets for emissions to land, air and water and requires sites to reduce waste from all operations. The permit therefore requires that companies implement a robust Environmental Management System at each of their sites. Evidence shows that sites reducing emissions and waste will also be reducing costs.

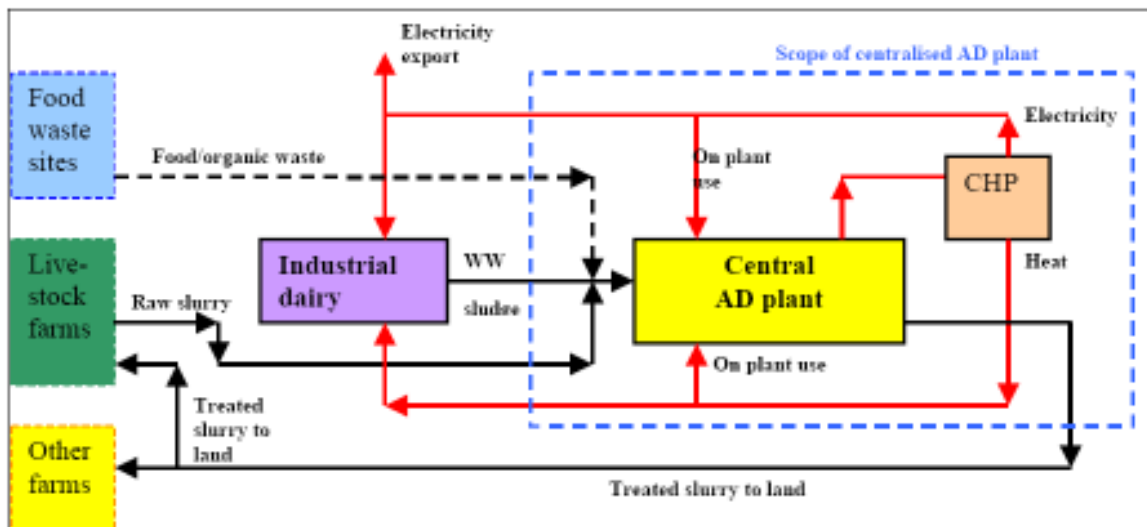
## 12.8 Centralised Anaerobic Digestion

Dairy processors are increasingly looking for new and innovative ways of reducing energy use and associated costs. Anaerobic digestion (AD) is a well-established and proven technology capable of converting low-value organic materials, for example food and agricultural waste, into high value renewable energy in the form of methane-rich biogas.

Given the great potential for AD to contribute to renewable energy, carbon reduction and waste management objectives, in parallel with on-farm AD, the dairy industry has been investigating the commercial and technical feasibility of exploiting centralised AD within the dairy supply chain in the UK.

One of the models being explored is to develop centralised systems based at or near to dairy processing sites that can co-digest livestock manures and dairy processing waste. A centralised AD plant can co-treat wastes from a variety of food processing sites, alongside that from dairy processors. Dairy UK is supporting feasibility studies for such a plant.

**Figure 6** – Schematic of Centralised Anaerobic Digestion Plant



The AD plant generates digestate, which can be re-used as fertiliser back on farms, and methane rich biogas which can be used in a combined heat and power scheme to generate electricity and heat, both of which can be used in the dairy processing plant.

## 12.9 Environmental Benchmarking

Dairy UK is developing a comprehensive environmental benchmarking tool for dairy processors. The system will address a series of key performance indicators (KPIs) which will be aligned with the Milk Roadmap. It will also provide an information base from which individual processors can focus their efforts at environmental improvement.

Dairy UK KPI Monitoring Spreadsheet	
<b>Section A - Facility Details</b>	
Company Name:	
Facility Name:	
Facility Address 1:	
Address 2:	
Address 3:	
Address 4:	
Postcode:	
<b>Key Contact</b>	
Job Title:	
Title:	
Firstname:	
Surname:	
Tel:	
Mobile:	
Fax:	
E-mail:	
Climate Change Agreement Number	
<b>Section B - Sector</b>	
Sub Sector	Cheese/Butter

## 12.10 Industry Environmental Reporting

Dairy UK is preparing to publish the first dairy processing sector annual sustainability report in 2009. This will provide for public reporting of industry environmental data collected by Dairy UK through the benchmarking exercise outlined above. The report will allow year-on-year profiling of environmental performance demonstrating improvements made and the effectiveness of mitigation strategies for example, those set out in the Milk Roadmap. The report will also set out a series of commitments agreed by the industry to further improve performance in future years.

## 12.11 Waste

In common with most manufacturers, dairy companies produce waste which has to be disposed of. In the past, this waste has often ended up in landfill sites, but with the growing recognition of the impact that landfill has on our environment, dairies are making a big effort to tackle it. As well as reducing waste, the dairy industry is committed to a programme of recycling, covering everything from cardboard to food scraps from canteens and rubber gloves.

By 2020, the industry will send no waste to landfill, unless it is more environmentally damaging for small quantities in remote locations to be recycled.

## 12.12 Water Use

Water is an important resource, and the dairy sector is committed to continual improvement in water efficiency. The Milk Roadmap sets a target of 0.5 litres water used per litre of milk produced by 2020, which would generate annual water savings of approximately 5.6 billion litres.

The industry is also investigating a number of opportunities to either reuse water (for example low-grade wash waters) or to recycle water from through membrane systems. These initiatives are subject to meeting legislative standards.

## 12.13 Food Waste

As highlighted by the UK Cabinet Office Strategy Unit's report Food Matters, household food wastage in the UK is a major issue; eliminating household food waste would deliver major benefits, including a reduction in GHG emissions equivalent to taking one in five cars off UK roads.

The dairy sector is working with key partners such as WRAP (Waste Resource Action Programme) to help identify where food wastage occur in the whole supply chain and in homes in the UK, how much and why it is wasted and to develop projects and programmes to help to reduce food wastage in the UK. This work includes supporting WRAP's "Love Food Hate Waste" campaign.

### **12.14 Packaging**

The dairy industry is committed to improving the sustainability of its milk packaging systems and there have been a number of initiatives that have sought to achieve this. Specific work to date has focused on light-weighting of poly bottles by blow-moulding technology providers and the industry is currently investigating further reductions including a handle-less bottle.

Dairy companies have worked closely with packaging suppliers on a major project to reuse post consumer plastic milk bottles back into new plastic milk bottles. Extensive testing and development has created a process for "super cleaning" used plastic material for reuse in contact with milk. The first milk bottle made on this 'closed loop' system was launched in February 2007.

The dairy sector is now developing a programme to enable recycled material to be included in all UK plastic HDPE milk bottles, which will ultimately reduce the amount of virgin material used by around 50,000 tonnes. The success of this initiative is due to the team work between the milk processors, retailers, packaging suppliers and government support.

### **12.15 Dairy Farmers and the Environment**

The industry is working towards improving the environmental performance of dairy farmers through the Environmental Plan for Dairy Farming (EPDF).

The focus of the EPDF is on promoting integrated solutions to improving environmental performance through straight-forward activities that tackle more than one environmental problem. The three central tenets of the EPDF are encouraging the take-up of nutrient planning, supporting registration of land farmed by milk producers into the Entry Level Stewardship scheme and supporting best practice through demonstration.

Dairy farmers, however, face increasing environmental restrictions and regulations, covering a number of topics including:

- Control of pollution (silage, slurry and agricultural fuel oil);
- Nitrate Vulnerable Zones and Action Programme of measures;
- Waste management licensing, duty of care and other waste matters;
- Water resources including discharge consents, anti-pollution works notices;
- Sludge (use in agriculture);
- Groundwater authorisations;
- Water abstraction licences;
- Protection of habitats and wildlife.

These regulations can have serious implications on the cost efficiency of dairy farms.

### **12.16 Dairy Farming and Greenhouse Gas (GHG) Emissions**

Methane is the key GHG emission from dairy farming. It is a by-product of the enteric fermentation of grass, forage and other feed in the cow's rumen, the largest of its four stomachs.

Over one year, methane emissions from the national dairy herd add up to 1% of the UK's GHG emissions, compared with 24% from transport. GHG emissions can also be attributed to energy used in field operations and farm buildings, and energy used in processing and distribution.

Opportunities exist for dairy farmers to improve their GHG emissions through, for example, the use of on-farm anaerobic digestion (AD), use of biofuels in agricultural vehicles, increased energy efficiency, and increased feed efficiency.

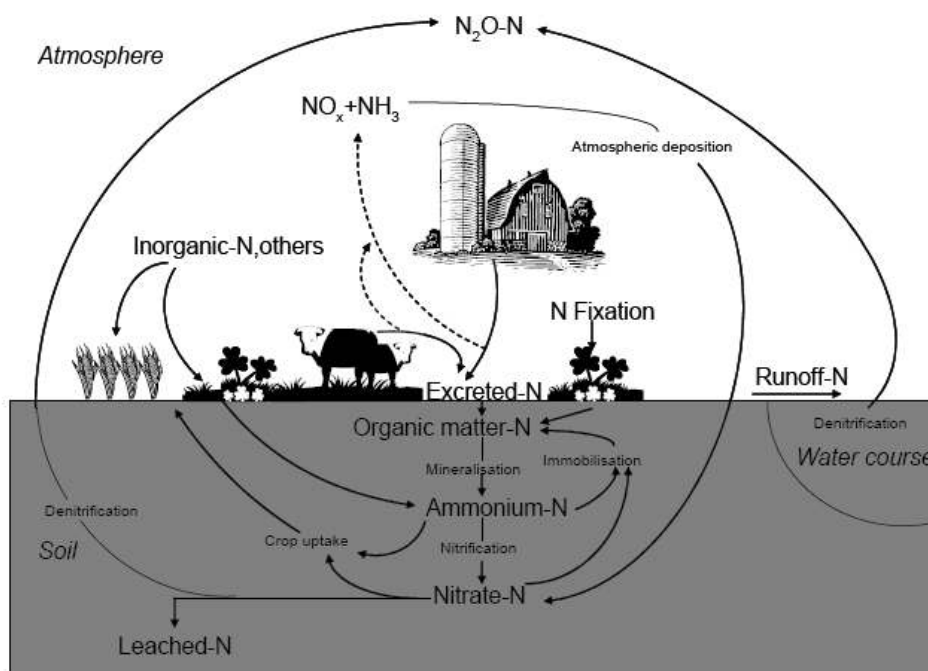
The dairy industry is currently carrying out research investigating cost effective ways of reducing GHG from dairy farms, including studies looking at:

- Improving the ratio of methane emissions per unit of product, by increasing cow longevity
- Increasing milk yield per cow, recognising that on many units, yields may already be at optimum levels in terms of economic viability and animal welfare
- Enhancing the efficiency of rumen microbial action through changes in diet, and the use of feed additives to reduce methane production
- Avoidance of low quality forage that stimulates methane production
- Increased take-up of anaerobic digestion to produce biogas and reduce uncontrolled methane emissions from stored manures and slurries. AD can also export low-carbon electricity and heat services, which should be given credit in any overall greenhouse gas balance.
- Nutrient planning to ensure that the efficiency of nitrogen utilisation in plants and animals is optimised, thereby reducing the overall emissions of nitrous oxide and methane

## 12.17 Nitrogen Efficiency

Nitrous oxide, given off by agricultural soils through activities such as spreading manure, applying synthetic fertilisers and ploughing, is a major source of on-farm greenhouse gas emissions. The industry is working to develop tools for farmers to help to manage nitrogen, with the development of nutrient planning for crops and slurry management on farms.

**Figure 7 – The Nitrogen Cycle**



Source: Defra, UK Greenhouse Gas Inventory, 1990 to 2006

## 12.18 Nitrate Vulnerable Zones (NVZ)

In July 2008, Defra announced changes to the NVZ Action Programme for England which will impose significant costs on dairy farmers. The changes

- extend the NVZ from 55% to 70% of England's agricultural land
- prevent farmers from spreading slurry for up to four months in the year depending on soil type and usage
- require dairy farmers to have five months' slurry storage capacity. Farmers will have three years starting from January 2009 to meet this new storage requirement

Defra is committed to seeking a derogation from the EU to allow the retention of the existing livestock manure loading limit of 250kg of N per hectare.

According to a report commissioned by Dairy UK from the farm consultants Promar International, the new Action Programme will cost farmers the equivalent of 1.34 pence per litre over a 10-year period. An average farm will need to spend £50,000 on infrastructure improvements.

Defra is providing a limited programme of advice to dairy farmers in England. This compares with the grant aid is being provided by the devolved administration to assist farmers affected by NVZ legislation.

## Dairy UK and the Environment

**In the spirit of the pioneering Milk Roadmap, the dairy industry will continue to meet and exceed its environmental obligations. Dairy UK and its members will continue to work proactively with Government and other stakeholders to reduce the industry's impact on the environment. It is vital that dairy businesses have the full backing of Government if they are to invest in the necessary 'green' technologies.**

Experience in the dairy sector suggests that environmental benefit and economy go hand in hand. A keen awareness of its responsibilities to society and the environment ensures that the industry will continue to make progress on this front. However, to maximise potential benefits, Government needs to work more closely with dairy businesses.

First, Government must avoid any impression that it has a negative attitude to the dairy sector for environmental reasons, or that it would wish to see a reduction in the consumption of dairy products. Given the prominence of dairy products in UK food culture, any policy based on reducing consumption would only undermine domestic production and suck in imports. This would not result in a positive overall environmental improvement.

Second, it is important that Government fully consider the impact of regulation on the UK agriculture's productive capacity. Smarter regulation with a lighter touch, such as eliminating duplicate farm inspections would be of mutual benefit to the whole chain.

Government needs to be mindful of the impact on dairy farmers of regulating higher environmental compliance costs and the need to give farmers in adapting to changing standards. This is particularly true of the costs of meeting the changing NVZ Action Programme.

## 13. THE INDUSTRY'S COMMERCIAL FUTURE

There can be no doubt that the short term commercial situation of the dairy sector is challenging. But indicators for the longer term commercial environment are positive, with the global supply/demand balance working in its favour.

Rising population and economic growth are the two basic drivers of demand for dairy products. Both these factors are positive in the medium term. At the same time, supply growth will be constrained by competing demand for land from biofuels and higher feed prices, which knock will the profitability of non grass based production systems.

### 13.1 The Commercial Future

The two basic factors that drive the growth in demand for dairy products are:

- the size of the population
- economic growth

Table 24 shows the GDP and percentage population growth for major milk consuming countries along with the overall consumption of liquid milk in these countries

**Table 24** – Drivers of World Consumption (2008)

Country / Region	% Growth in consumption	GDP	Pop. Growth
USA	0.47	2.00	0.88
EU-25	0.70	3.00	0.11
India	2.82	9.00	1.58
China	3.24	11.90	0.63
Japan	-1.57	2.00	-0.14

Source: USDA FAS, CIA Factbook

China is a prime example of the relationship between GDP, population and consumption. China has shown GDP growth of between 9% and 11%, and population growth of about 0.6%, and has seen dairy consumption increase by one third since 2003. The same trend can be seen in India, and to a lesser extent, the EU and North America. The reverse trend can be seen in Japan, where a lower GDP and population growth have produced a decline in consumption.

Global demand for dairy products is predicted to grow by 16% between 2008 and 2017, equivalent to an annual growth rate of almost 2%. Traditional markets such as the EU, Japan, North America and Oceania are expected to see lower annual growth of 1% or less. Demand in the Middle East and North Africa is forecast for year-on-year growth of between 2% and 3% over the same period, while India and Sub-Saharan Africa are slated for even stronger increases of around 3% annually. Demand in China is predicted to maintain the strong growth of recent years, but it is forecast to slow from 2010 onwards.

**Table 25**– Consumption Forecasts (million tonnes)

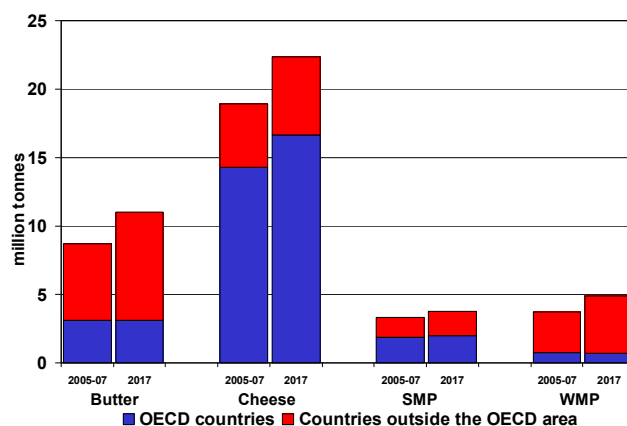
	2008	2017	% change
	'000 tonnes		
<b>World</b>	<b>36,710</b>	<b>42,505</b>	<b>15.8</b>
<b>OECD</b>	20,680	22,470	8.6
<b>Non-OECD</b>	16,030	20,035	25.0
<b>EU-27</b>	11,960	12,690	6.1
<b>United States</b>	5,760	6,450	11.9
<b>Japan</b>	570	605	6.2
<b>China</b>	1,945	2,595	33.5
<b>India</b>	4,015	5,365	33.6

<b>Australia</b>	355	395	11.3
<b>New Zealand</b>	100	100	...
<b>Mexico</b>	655	770	17.6
<b>Sub-Saharan Africa</b>	570	750	31.8
<b>Argentina</b>	535	570	6.1
<b>Algeria, Egypt</b>	1,095	1,390	27.1
<b>Brazil</b>	1,230	1,445	17.8
<b>Russia</b>	1,535	1,860	21.1
<b>Ukraine</b>	350	425	21.0

Source: OECD

OECD countries are forecast to see consumption growth focused on cheese.

**Graph 28** – Outlook for Dairy Product Consumption



On the supply side of the equation, dairy farming will present an opportunity for many regions around the world, but it will take time for this potential to be converted into reality. Growth will also be limited by competing demand for land by biofuels, and the increases in feed prices this will entail. The biggest impact will be on the profitability of production systems that are not grass based.

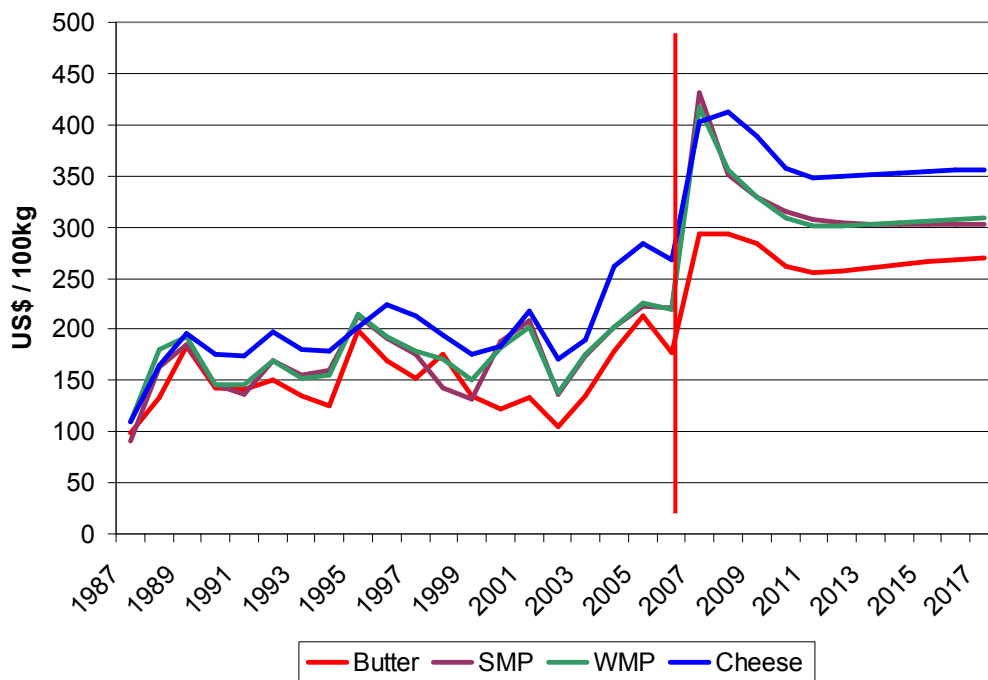
In the short term, the industry will be subject to effect on demand caused by the recession and the downside of the current commodity price cycle. However, it will take only a relatively small adjustment in the rate of growth of global milk production for markets to rebalance themselves.

The UK and EU industry will be well placed to serve the growing world demand for dairy products. Given the importance of EU production to meeting global demand it can be stated with confidence that the future global price environment will be a level that will reward efficient EU producers.

The complexity of milk as a raw material and the range of the processing technologies available to the industry mean that it is well placed to take advantage of the ever increasing sophistication of consumer demand. The UK dairy industry is working hard on innovation to develop the range of products to meet this demand. The future of the industry ultimately depends on achieving a closer relationship with the consumer based on trust and informed understanding.

Graphs 28 and 29 give an illustration of the projected movements for world dairy prices and dairy product consumption respectively. These projections have been provided by the Organisation for Economic Co-operation and Development (OECD).

**Graph 29 – Trends in World Dairy Prices**



## Dairy UK and the Industry's Commercial Future

**Confidence in the future is vital for a successful dairy industry. Whilst there are many challenges that have to be confronted in the short and medium term, they are not insurmountable or indicative of long term trends. The industry's mindset needs to be grounded on informed optimism.**

Global population pressure should underpin sustained growth in demand for all food types and dairy in particular. In conjunction with a constructive partnership with Government, this should create a positive environment for the UK dairy industry to prosper.

The industry is located in a wealthy country where dairy products (and fresh products in particular) are deeply embedded in the food culture. The processing industry is dynamic and there are multiple opportunities still to be explored by the industry to add value to milk.

Dairy UK will work to ensure that the industry can realise its commercial potential and looks to Government to be partners in this process.

## ABOUT US

### Dairy UK

Dairy UK represents the interests of the United Kingdom's dairy farmers, milk producer co-operatives, manufacturers of dairy products and processors and distributors of liquid milk. Between them, Dairy UK's members handle 90% of United Kingdom milk production.

Although principally focused on providing its membership with information and political representation, some of Dairy UK's other activities include:

- operating the dairy sector Climate Change Agreement (CCA) through its wholly owned subsidiary Dairy Energy Savings Ltd
- funding the activities of The Dairy Council
- operating a roll container repatriation scheme
- undertaking issues and crisis management on behalf of the industry
- running high profile, topical conferences and seminars that are open to non-members
- producing benchmark-setting industry reports and publications
- taking a lead within the European Dairy Association and International Dairy Federation

For an electronic version of this publication and for further details on Dairy UK and its activities, please visit our website:

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