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**Ensuring a
sustainable dairy
supply chain**

March 2009

DairyCo

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All supply chains need to be competitive, innovative and sustainable both in the short and long term. Moreover, all participants in a supply chain have a vested interest in maintaining it in order to provide the consumer with what they want and make profits from doing so.

As seen in other industries, such as steel, oil and coal, it is normal for the primary producer of a commodity product – as farmers produce raw milk - to bear the vast majority of the price volatility within a supply chain. However, the current price fluctuations due to imbalances in global supply and demand may, in time, prove unsustainable for the British dairy farmer, following a long period of underinvestment on farm.

DairyCo's latest farmer intention survey appears to confirm the industry concern that we may be at an important point in determining the long term future of a sustainable British dairy supply chain with 14% of respondents stating they will leave the industry within two years and only 18% having the confidence to expand.

If UK dairy farmers carry out their stated intentions, UK milk production is expected to fall to 12.1 billion litres by the 2010/2011 milk year with those planning on expanding their businesses not covering the production lost by those leaving the industry.

This will also have a knock on effect of destabilising British dairy processing - probably leading to a lack of investment in the industry going forward. If production continues to decline at the same rate, by 2030 UK production would be just 7.5 billion litres resulting in 53% of dairy products being imported. This in turn will mean that retailers may find it increasingly difficult to offer their consumers the current range of high quality dairy products at an affordable price.

While it is recognised that the industry has made positive improvements in recent times, including, for example, establishing dedicated retail supply chains, it is becoming clear that all parts of the dairy supply chain need to recognise the vulnerability of the supply base and work together to build farmer confidence in order to boost domestic milk production if they wish to provide a platform for a sustainable dairy industry.

If the supply chain works together to maintain confidence to ensure the chain remains sustainable, then there can be continued investment in increasing efficiency and development of new products throughout the chain, as well as securing future supplies which could help to safeguard against issues of food security and protectionism by other countries.

The dairy supply chain in GB is well aware of the issues it faces due to the significant falls in the global dairy commodity markets.

Domestic farmgate prices have begun to fall which has eroded the confidence the industry gained during the farmgate price rises of 2008. Farmers have weathered a considerable period of under-investment due to low returns. With the average annual farmgate price below 20ppl from 1998 to 2007 many farmers have had little to invest to maintain their businesses let alone fund any expansion.

As a result, DairyCo's annual farmer intentions survey of a thousand dairy farmers has highlighted some important messages for the whole supply chain - in Britain we now have the smallest number of farmers planning to expand their businesses since the survey began in 2004, with milk production forecast to fall a further 4.8% in the next two years as farmers continue to exit the industry.

Although the fundamentals of the global industry are positive, with the long term trend of increasing global demand pointing to a positive long term future, the industry is in a period of increased volatility which will add additional pressure to our domestic farmers over the short to medium term.

This raises a number of concerns for the whole supply chain. If we continue to lose production in GB, the industry could reach a critical point in its evolution, which may lead to a downward spiral of loss of production and processing capacity, affecting economies of scale and processor investment, as a significant proportion of our added value markets begin to be undermined by increased imports.

In light of these concerns DairyCo has put together this short report which outlines the main issues. In section one, we outline where the industry stands today, including the most recent price trends and margins within the supply chain. In section two, we present the headline findings of our farmer intentions survey with estimates of future production levels. In the final section, we list the main implications of a continued drop in production levels.

Section 1: The British dairy industry as it stands today

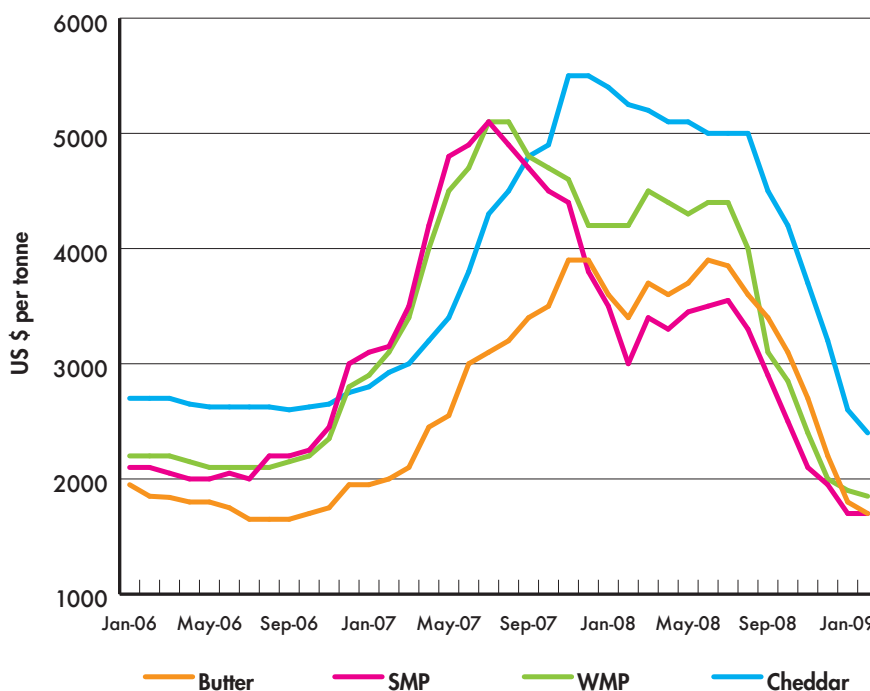
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The market

In 2006 and 2007, supply of dairy products on the world market failed to satisfy demand due to a slowdown in the rate of growth in global milk production at the same time as demand was steadily increasing.

Global demand for dairy products was driven by both global population growth and the growth in personal incomes in non-traditional dairy consuming countries such as the oil rich states, China and some of the South East Asian nations. With supply unable to meet demand, the stocks of dairy products held by many dairy exporting regions (including the EU) – which had historically acted as a buffer against significant price volatility – were exhausted and world commodity prices for many dairy products doubled in less than twelve months.

Figure 1: World dairy commodity prices

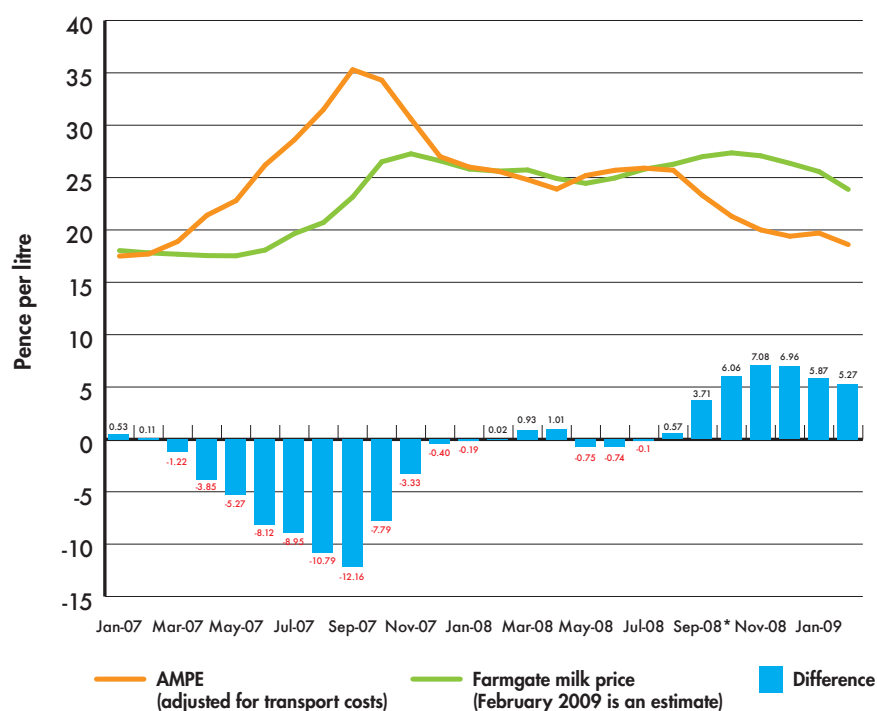


Source: DairyCo

This rapid increase in world prices enabled European dairy commodity products to be traded competitively on world markets without the need for export refunds. This led to the unusual situation, where the return to a manufacturer from processing raw milk into commodity products such as butter and Skimmed Milk Powder (SMP) – which historically set the base for dairy market returns – was greater than the return from the 'premium' markets such as liquid milk and added value cheese. As a result, the domestic market moved to reinstate the usual hierarchy of returns from raw milk and, albeit with a time lag to allow for contract renegotiations between processors and retailer, UK farmgate milk prices increased.

Figure 2 shows average farmgate prices and the value of the market indicator AMPE (actual milk price equivalent). AMPE indicates the return, in pence per litre, processors would derive from manufacturing raw milk into butter and SMP. In this case AMPE has been adjusted for the cost of transport from the farm to the dairy to make it more comparable with the average farmgate price.

Figure 2: Farmgate price vs. adjusted AMPE



Source: DairyCo

Farmgate price, which has historically tracked AMPE closely, significantly lagged behind AMPE during the market rises of 2007. The two measures became better aligned at the end of 2007 due to commodity prices declining from their peaks and farmgate milk prices increasing as a result of processors passing their higher returns back to farmers. They then remained fairly closely aligned until the latter part of 2008 when the returns from commodity markets began to decrease rapidly due to the global supply of dairy products outstripping demand, while a slower decline in farmgate prices lagged behind. This change in the supply and demand balance was primarily a result of a number of dairy exporting countries reacting to higher milk prices by increasing output; for example milk production in the USA increased by 2.25% between 2007 and 2008. In addition, demand has fallen due to the changing economic climate.

The resulting excess supply of dairy products has seen global commodity prices for many dairy products halve in twelve months, to levels similar, or in some cases lower than, those seen before prices rallied in 2007. As a result, in many countries of the world, farmgate milk prices have also seen significant reductions with average prices declining by 42% in New Zealand and 32% in Germany in the twelve months to December 2008¹.

The British dairy industry, and ultimately the milk price paid to British dairy farmers, has been isolated, to some extent, from these rapid changes in global dairy market returns due to a combination of the structure of the supply chain - which predominantly supplies domestic added value markets - and a significant weakening of Sterling. In addition, the falling milk supply means there is little 'spare milk' available for commodity market uses.

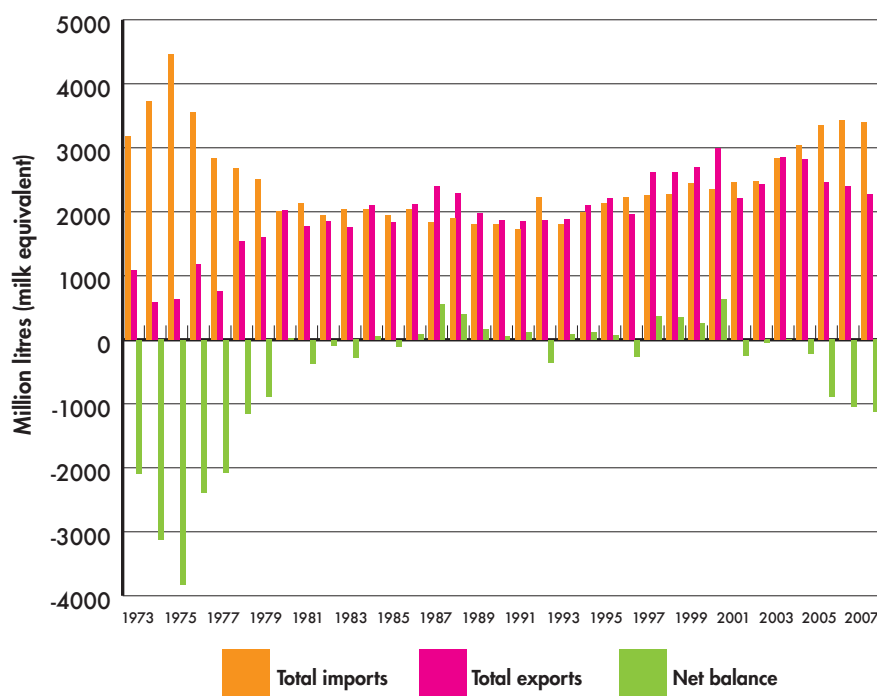
Although significantly more isolated from commodity market fluctuations than many of our European neighbours or even Northern Ireland, the British dairy industry has not been completely immune to falling prices, with domestic Cheddar prices being driven down by the availability of foreign imports and the value of cream (a by-product of liquid milk processing) being depressed by excess stocks of butterfat in Continental Europe. These pressures have seen processor returns fall which ultimately led to farmgate milk price cuts at the beginning of 2009.

In the UK, with only days to go to the end of the current milk year, it is evident

that milk production will be around 3% lower than the previous milk year at around 12.8 billion litres. This is the lowest level in almost 40 years.

The sustained decline in milk supply has led to an increase in imports of dairy products into the UK. Comparing the UK balance of trade in 2007 with 1997, shows that in the 10 year period, the UK has moved from the position of a net exporter of dairy products, exporting 367 million litres more than it imported, to the position of a net importer of dairy products, importing 1,126 million litres more than it exports.²

Figure 3: UK dairy trade



There are a great number of complex interacting reasons why milk production is falling and these are explained in detail in DairyCo's recent publication *Factors affecting milk supply*. Although the report predicts milk supply is likely to continue on a downward trend in the immediate future, it highlights the opportunity for this trend to be slowed, stabilised or potentially reversed due to the increased number of replacement heifers predicted to be available from 2011. However, a stabilisation of milk supply will only occur if farmer confidence is sufficient for them to move their businesses forward.

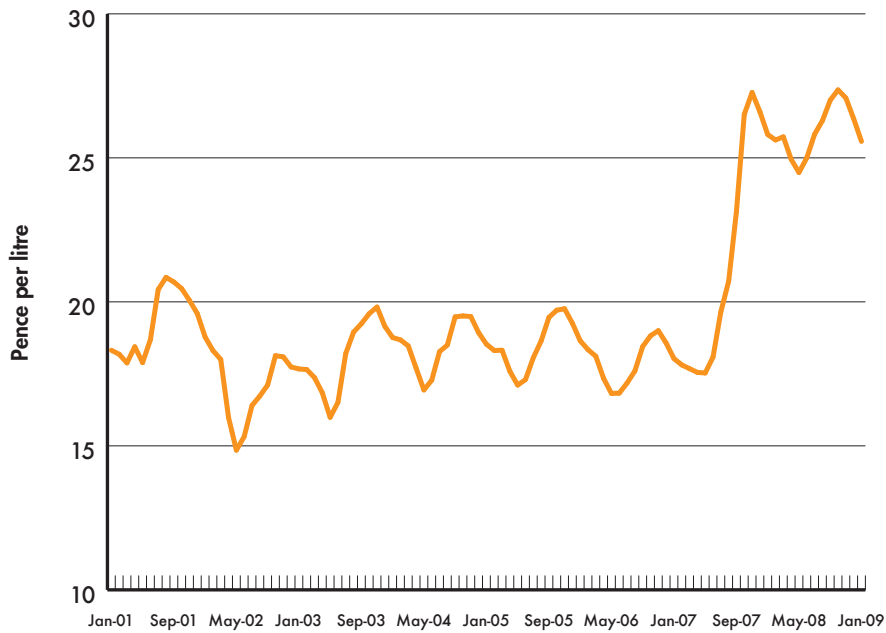
Dairy farmer margins

Dairy farmers are likely to remember 2008 as a year of higher milk prices. Throughout the year average monthly prices paid to farmers varied between 24.49ppl and 27.36ppl with the average for the year standing at 25.91ppl – 25% (5.25ppl) higher than 2007 and 45% higher than the average price paid in 2006³.

² In milk equivalent terms

³ According to weighted average Defra figures

Figure 4: Farmgate milk price



Source: Defra

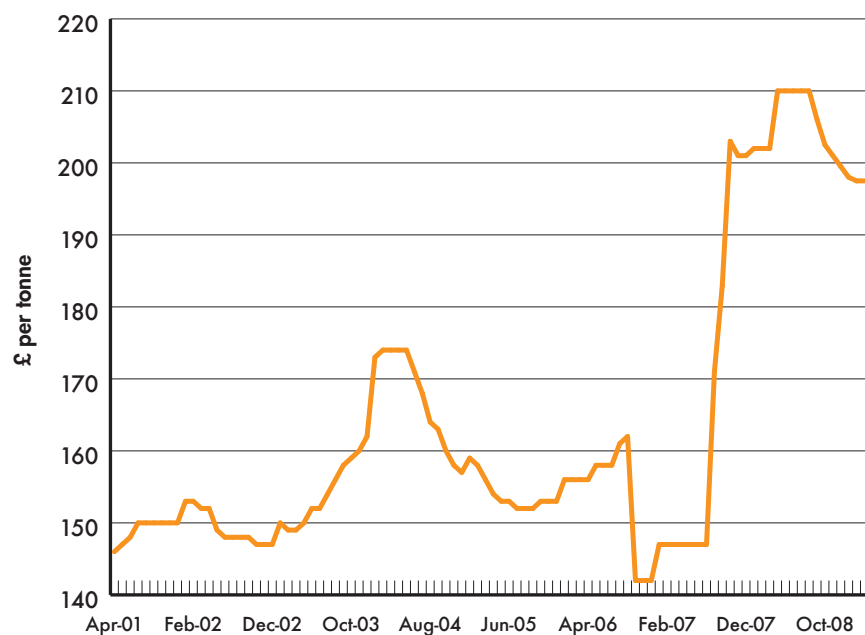
However, between October 2008 and January 2009 average farmgate milk prices in Britain decreased by 1.08ppl, partly due to changes in seasonality payments. In Northern Ireland, as a result of the country's greater exposure to commodity markets, farmgate prices fell by 5.96ppl over the same period with an average price paid for January milk of just 17.64ppl.

Although dairy farmer margins will have seen improvement as a result of the increased farmgate milk price during 2008, a significant proportion of this increase in income has been eroded by increased input costs.

Feed accounts for approximately a quarter of the total cost of production on a typical dairy farm. The annual average price of intensive energy dairy rations (as shown in figure 5) increased by 23% between 2007 and 2008 from £166/tonne to £205/tonne. This 23% increase represents an additional 1-2ppl on the cost of producing a litre of milk⁴.

4 Assuming volumes remain constant

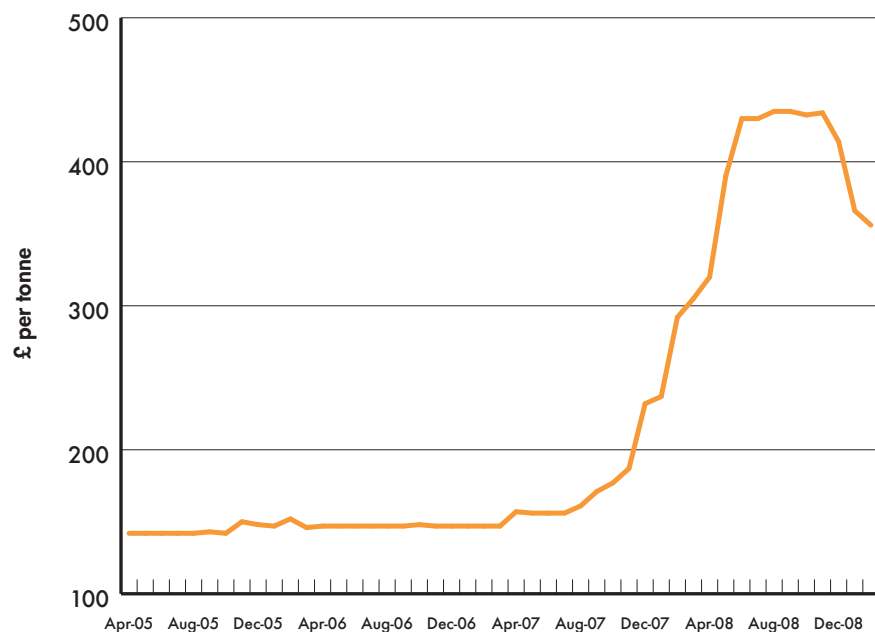
Figure 5: Average price of intensive energy dairy ration



Source: DairyCo/Farmbrief

Fertiliser costs have also risen rapidly, with a typical blended fertiliser, such as 20:10:10, rising from around £147/tonne at the beginning of 2007 to £356/tonne in February 2009. In addition, power and machinery costs increased in line with rallying oil prices in 2008, although they are now showing some signs of easing.

Figure 6: Average price of 20:10:10 fertiliser



Source: DairyCo/Farmbrief

As the graphs above show, input costs have not fallen significantly yet, despite the generally held view by many outside the industry that they have.

Dairy farm profits have undoubtedly risen in the past twelve months but this follows a long period of low returns and is unlikely to have made a significant difference to the long term under-investment on farm. The average farmgate milk price in GB was below 20ppl from 1998 to 2007 which for many farmers left little profit for the maintenance of existing infrastructure let alone any money for improvements in efficiency or expansion.

Dairy processors' margins

The analysis that follows analyses gross margins for processors. It is important to note that gross margin does not equal profit as it only takes into account the cost of purchasing milk. Other operating costs and overhead costs are not included. Similar to the situation on dairy farms it is essential for a sustainable British dairy industry that, other than just covering costs, processors also make sufficient profits. These are needed in order to invest in the research and development necessary for new products to satisfy consumer demand, as well as to invest in improving the efficiency of manufacturing capacity.

Liquid milk

The majority (53%) of raw milk produced in the UK goes into the production of liquid milk. While significant, positive efforts have been made to create sustainable supply chain relationships throughout the liquid milk supply chain by a number of major British supermarkets, it is understood that both the food service and middle ground sectors remain very competitive.

Recent falling global commodity prices have reduced the incentive for processors to manufacture dairy products for which they do not have existing orders. This means that despite milk supply falling there is an excess of milk available on the spot market. This is likely to have been further exacerbated by some milk buyers, who also act as milk brokers, recruiting extra supply during 2007 and 2008. Also, to avoid storage costs and to aid cash flow, processing raw milk into liquid milk is often the favoured option. This results in increased competition, lower prices and consequently lower margins on contracts that are negotiated frequently such as those with some food service and middle ground buyers.

Over the past few months it has not been uncommon in the middle ground to see milk on promotion for £1 for 2 litres – equivalent to 50ppl or almost a 30% discount to the average price paid for standard milk in the major multiple retailers. As a reaction to the economic downturn, and in an attempt to attract consumers back from shopping at 'discounters', most of the major multiple retailers also now sell a 'discount' brand or type of milk. Although probably a necessary step in the current economic climate, providing a discounted brand will inevitably reduce the margins available in the supply chain.

Comparing results in 2008/09 to the previous year shows that liquid milk processor margins have increased by 2.91ppl and retailer margins have increased by 0.79ppl. In percentage terms, processor gross margins have increased from 45% of the processor selling price to 46%. Retail gross margins have fallen from 28% of the retail price to 26%.

Table 1: Margins and prices for liquid milk milk⁵

	1998/1999		2007/2008		2008/2009	
	ppl	margin	ppl	margin	ppl	margin
Farmgate price	19.11		22.85		25.60	
Processor gross margin	16.39	46%	18.62	45%	21.53	46%
Processor selling price	35.50		41.47		47.13	
Retail gross margin	6.01	15%	15.75	28%	16.54	26%
Retail price	41.51		57.22		63.67	

An important income stream for liquid milk processors comes from the sale of surplus cream, as the majority of liquid milk sold is not whole milk but semi-skimmed or skimmed. This cream goes into a number of end uses including the production of butter. This gives liquid processors a direct

⁵ All figures are estimates and subject to rounding. Farmgate prices for February and March and retail prices for March have been estimated by DairyCo

financial exposure to one of the basic commodity markets, which as explained earlier, have fallen significantly in the past year. DairyCo estimates the income that liquid processors receive from the sale of this surplus cream, per litre of milk that enters the factory. This '*cream income to liquid processors*' peaked at 8.26ppl in October 2007 and has fallen to 4.23ppl in February 2009. The twelve month average from March 2008 to February 2009 stood at 5.07ppl.

When seen in the context of the liquid processor gross margin increase of 2.91ppl estimated in Table 1, it is clear that the fall in '*cream income to liquid processors*' seen during 2008 is likely to have put liquid milk processors' margins under severe pressure, particularly when it is remembered that processor gross margin has to cover all processor costs (apart from the purchase of milk), including transport, bottling and financing costs before a profit can be made. It was evident before the farmgate price cuts seen at the beginning of 2009 that liquid processors were absorbing this volatility, partly to keep the milk price they pay competitive with cheese processors. This resulting in a number of the larger companies reducing their forecasted profits for the year, although recent farmgate price cuts may have gone some way to restore processor gross margins.

It must be noted that liquid processors usually pay a higher price for their milk than the average Defra farmgate price. This premium will be even greater where the milk is purchased from a dedicated supply group to whom retailers guarantee a price based on the cost of production or a premium to other milk contracts. In addition, many liquid processors purchase a significant proportion of their milk from the major co-operatives, to which they are likely to pay a premium for the service of balancing their supply requirements.

Cheddar

It is estimated that 20%⁶ of the raw milk produced in the UK goes into the production of Cheddar cheese. Of this around 40% is classed as mature Cheddar and 23% as mild Cheddar⁷.

Figures 7 and 8 show that due to the wholesale prices of Cheddar declining during 2008, but farmgate prices remaining relatively high, processor margins have come under significant pressure. On a number of occasions during recent months, processor gross margin has slipped to below 2ppl for mild Cheddar. It is unlikely that this 2ppl gross margin was sufficient to cover costs let alone allow for a profit margin.

When comparing 2008/09 with the previous milk year the analysis suggests that processor margins on mild Cheddar have fallen from 19% to 12% - a fall of 2.06ppl, while margins on mature Cheddar have fallen from 27% to 25%, but have risen by 0.14p in pence per litre terms due to the increase in the retail price of mature Cheddar.

It should be noted that the rather simple methodology used in this analysis suggests that when there is promotional activity on a product the retailer takes the 'hit' in terms of a reduced retail price. In many cases these promotional offers, including discounts and multibuy deals, are partly or wholly funded by the processor of the product. Industry estimates suggest the split of the costs associated with these discounts is usually in the region of 50:50 between processors and retailers. This means the analysis is likely to overestimate processor gross margins, particularly for mature Cheddar where promotional activity is most common.

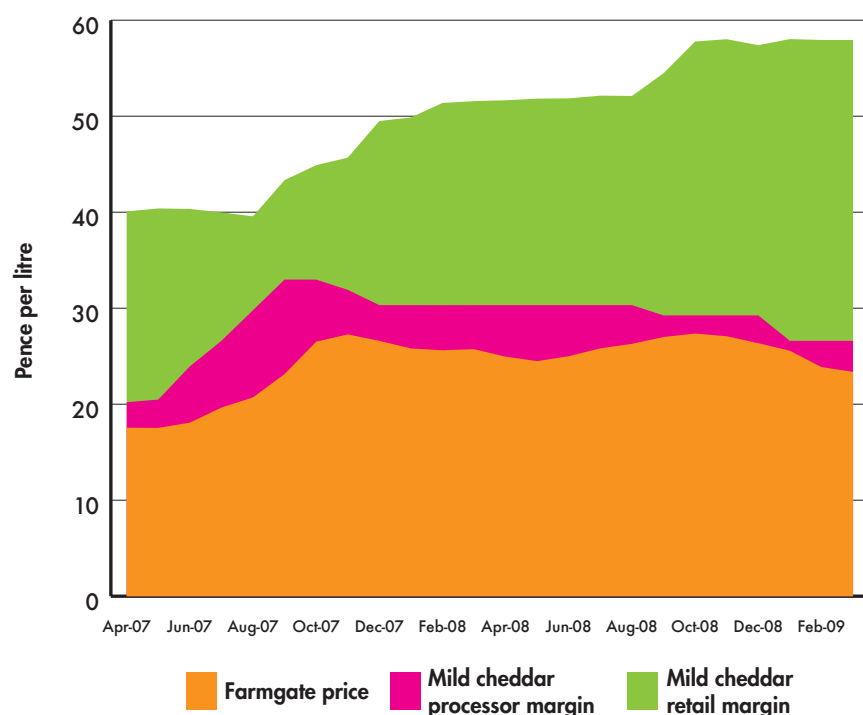
As British-produced Cheddar is more susceptible than liquid milk to being substituted by imports from outside the UK, due primarily to liquid milk being highly perishable and costly to transport, it is a very competitive market. Processors need a sustainable margin in order to invest in increasing efficiency and to add value to products, in order to compete with imports as well as paying suppliers a sustainable price over the longer term.

⁶ DairyCo estimate based on Defra raw milk utilisation figures for the UK and England and Wales

⁷ Based on TNS data and assuming that the percentage of each type of Cheddar purchased by consumers is representative of the percentage of each type produced

In a similar way to liquid milk processors having a second revenue stream through the sale of bulk cream, a significant by-product from the production of cheese is whey powder which has averaged only £355 per tonne over the past year, barely covering the cost of production. The low returns from selling whey powder, when added to the low gross margins from processing Cheddar, are likely to have resulted in considerably lower overall margins for cheese producers in 2008/09.

Figure 7: Margins and prices for mild Cheddar⁸

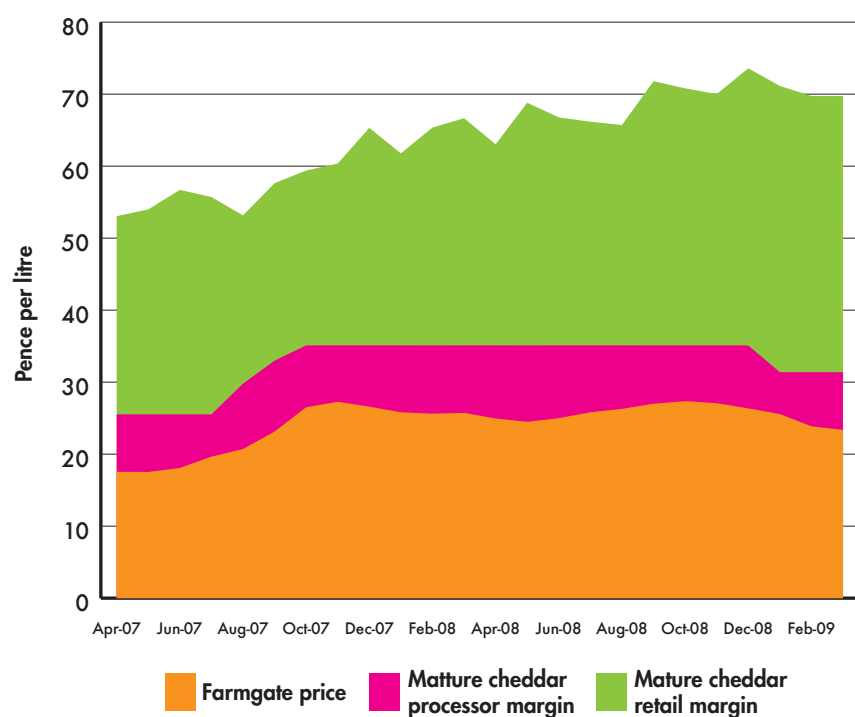


Source: DairyCo

Table 2: Margins and prices for mild Cheddar⁸

	1998/1999		2007/2008		2008/2009	
	ppl	margin	ppl	margin	ppl	margin
Farmgate price	19.11		22.85		25.60	
Processor gross margin	3.32	15%	5.50	19%	3.44	12%
Processor selling price	22.43		28.35		29.04	
Retail gross margin	13.65	38%	16.37	37%	26.06	47%
Retail price	36.08		44.72		55.10	

⁸ All figures are estimates and subject to rounding. Farmgate prices for February and March and retail prices for March have been estimated by DairyCo

Figure 8: Margins and prices for mature Cheddar⁹

Source: DairyCo

Table 3: Margins and prices for mature Cheddar⁹

	1998/1999		2007/2008		2008/2009	
	ppl	margin	ppl	margin	ppl	margin
Farmgate price	19.11		22.85		25.60	
Processor gross margin	10.70	36%	8.44	27%	8.58	25%
Processor selling price	29.81		31.29		34.18	
Retail gross margin	22.74	43%	27.80	47%	34.77	50%
Retail price	52.55		59.09		68.95	

⁹ All figures are estimates and subject to rounding. Farmgate prices for February and March and retail prices for March have been estimated by DairyCo

Retailer margins

It should be stressed, again, that the following analysis looks at retail gross margins and does not take into account costs other than purchasing the milk product. In the same way the methodology behind the analysis is likely to overestimate processor margins, in a market where significant processor funded promotional activity occurs (such as mature Cheddar), it is also likely to underestimate margins at retail level.

Liquid milk

Retail prices for dairy products have increased over the past year. The liquid milk retail price has increased by 6.45ppl year on year¹⁰. This increase is likely to have been mitigated by the introduction of discounted brands and types of milk across major retailers. Of this 6.45ppl increase in the price consumers pay for milk the analysis suggests 0.79ppl has gone to increase retailer margins and 5.66ppl was passed back to the processor. This 5.66ppl has been used to increase farmgate milk price by 2.75ppl and increase processor gross margins by 2.91ppl. It is important to note that the entire supply chain, including processors and retailers, had to pay for higher costs out of these increases. Table 4 shows how the price of supermarket own label pasteurised milk (which continues to make up the majority of consumer purchases) has changed since May 2007.

Table 4: Liquid milk retail prices

	Month of increase			
	May-07	Sep-07	May-08	Oct-08
1 pint	£0.35	£0.40	£0.42	£0.45
2 pint	£0.66	£0.76	£0.80	£0.86
4 pint	£1.15	£1.34	£1.44	£1.53
6 pint	£1.68	£1.96	£2.12	£2.25
weighted average ppl	52.28	60.72	64.98	69.29

Liquid milk is the main dairy product where the largest British retailers have made arrangements to secure the stability of the supply chain. The best initiatives, some of which have been running for a number of years, include encouraging a dedicated group of dairy farmers to improve certain aspects of their dairy farming system to achieve the best levels of technical performance and standards of animal welfare while minimising their impact on the environment. These farmers are paid a premium price, which for some is linked to the cost of production. The existence and growth of these initiatives has helped to maintain the sustainability of the supply chain.

Cheddar

For mild Cheddar the retail price has increased by the equivalent of 10.38ppl over the past milk year¹⁰. Initially prices went up as a response to increasing wholesale prices. However, as wholesale prices have fallen, retail prices appear to have been slower to follow suit. The analysis suggests the retail gross margin on mild Cheddar has increased from 37% of the retail price in 2007/08 to 47% of the retail price in 2008/09.

Of the 10.38ppl extra paid by the consumer for mild Cheddar in 2008/09 compared to the previous year, analysis suggests 9.70ppl was used to increase retailer gross margin. The price processors received increased by 0.69ppl, however processor margin fell by 2.06ppl as a result of farmgate prices increasing by 2.75ppl over the period.

For mature Cheddar the analysis suggests, of the additional 9.85ppl paid by the consumer, 6.97ppl was used to increase the retail gross margin and the remaining 2.89ppl was passed

¹⁰ All figures are estimates and subject to rounding. Farmgate prices for February and March and retail prices for March have been estimated by DairyCo

back to processors. The majority of this 2.89ppl was used to increase farmgate prices, leaving 0.14ppl to increase processor gross margins. As stated previously, this method is likely to understate retail gross margins and overstate processor gross margins in this market.

The behaviour of retailers is perfectly understandable. The biggest supermarkets in Britain are successful businesses with expertise in adapting to consumers' changing demands and needs. They are owned by shareholders who demand return on their capital and as such retailers will naturally look to maximise profits along with growing market share wherever possible. The significant steps some retailers have made in working more closely with their suppliers in the dairy industry have moved the supply chain considerably further forward.

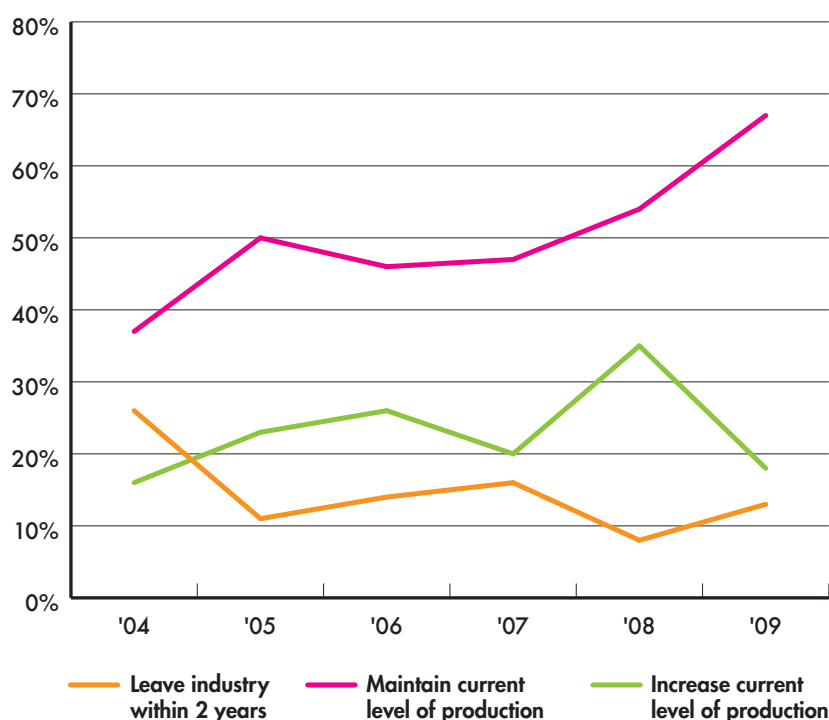
Although apparently large at 26%, the margins made by retailers on liquid milk are not unexplainable according to a report conducted by Oxford University for DairyCo in 2007¹¹ which found that supermarkets' ability to charge a margin of up to 33% on liquid milk was explained by consumer shopping behaviour and not due to anti-competitive behaviour.

Section 2: Farmer intentions

The 2009 DairyCo farmer intentions survey, carried out in February and March 2009, shows that in the UK only 18% of dairy farmers intend to increase their production level in the next two years.

This is the lowest number of 'increasers' predicted by the survey since 2004, despite increases in the farmgate price. For example, the farmgate price paid in January 2004 was 18.75ppl – 6.82ppl less than the average price paid in January 2009. This lack of farmers intending to increase dairy production is the fundamental reason why, if UK dairy farmers carry out their stated intentions, UK milk production is expected to fall to 12.1billion litres by the 2010/2011 milk year (GB to 10.4billion litres). It can clearly be seen that those planning on expanding their businesses will not cover the production lost by those leaving the industry.

Figure 9: UK dairy farmer intentions



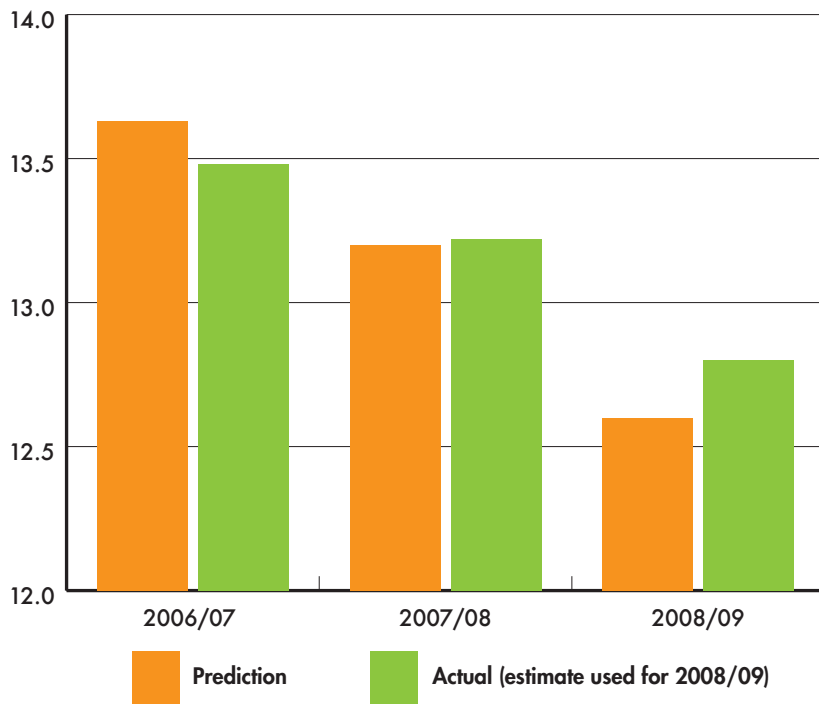
Source: DairyCo

Table 5: UK dairy farmer intentions

	2004	2005	2006	2007	2008	2009
Leave industry within 2 years	26%	11%	14%	16%	8%	13%
Maintain current level of production	37%	50%	46%	47%	54%	67%
Increase current level of production	16%	23%	26%	20%	35%	18%

By its nature, the farmer intentions survey only collates attitudes and responses at a particular point in time and does not take into account unknown events such as weather. Despite this, past surveys have been relatively accurate at predicting future milk production. The survey consists of 1000 telephone interviews with dairy farmers. This large sample size gives the results their statistical strength and hence accuracy highlighted in Figure 10.

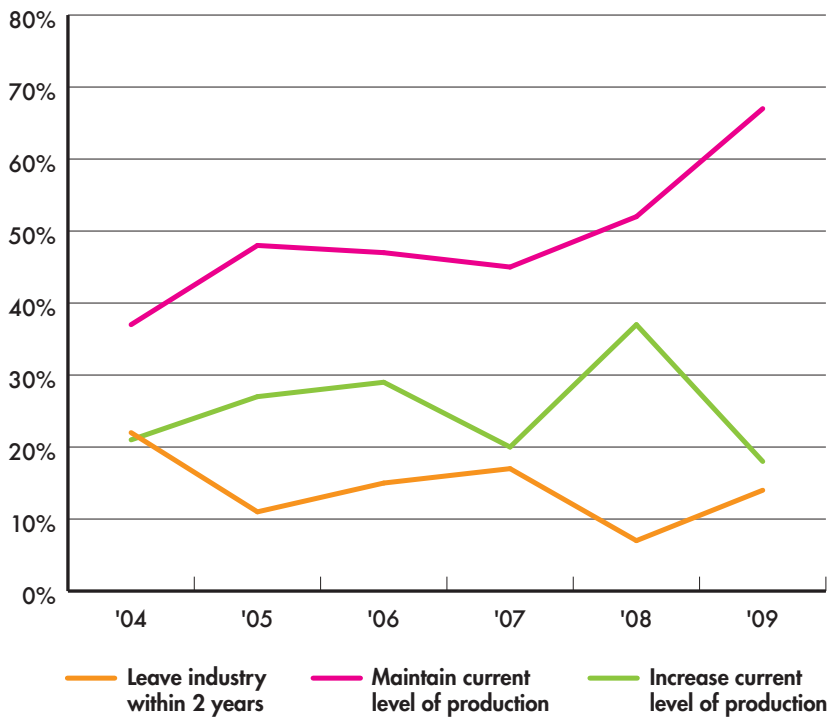
Figure 10: Farmer intentions survey predictions of future UK milk production vs. actual



Source: DairyCo

Looking specifically at Great Britain, dairy farmer intentions are very similar to the UK as a whole and as such, GB milk production is predicted to fall by 4.8% by the 2010/11 milk year. If it is assumed that GB milk production in the 2008/09 milk year is 10.95 billion litres, production in two years time is predicted to be 10.4 billion litres.

Figure 11: GB dairy farmer intentions

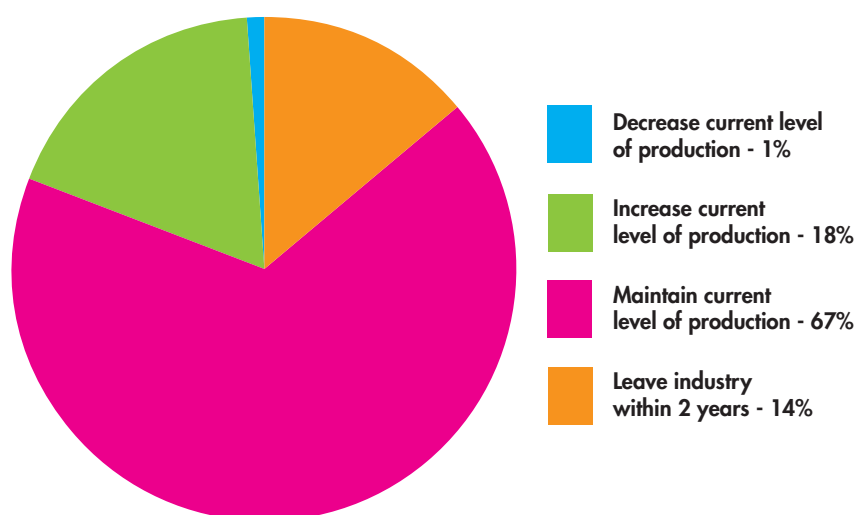


Source: DairyCo

Table 6: GB dairy farmer intentions

	2004	2005	2006	2007	2008	2009
Leave industry within 2 years	22%	11%	15%	17%	7%	14%
Maintain current level of production	37%	48%	47%	45%	52%	67%
Increase current level of production	21%	27%	29%	20%	37%	18%

Figure 12: GB dairy farmer intentions



Source: DairyCo

What is striking about these results, and the subsequent predicted reduction in milk production of almost 5% from current levels, is that it is not being driven by the number of leavers – which is about average for the past five years of the survey - but that it is being driven by the lack of producers intending to increase production, which at 18% is the lowest recorded in the six years the survey has been in operation. This highlights the lack of confidence in the industry, despite relatively high milk prices, and acts as a reminder that the future of dairy farming is dependent on profit and confidence and not just on price.

Furthermore, as highlighted in *Factors affecting milk supply* there are many other factors which impact on milk supply, other than an individual dairy farmer's intention. For example, over recent years the impacts of the weather and TB have reduced many dairy farmers' production levels below what was initially intended, which has also reduced the confidence of these farmers.

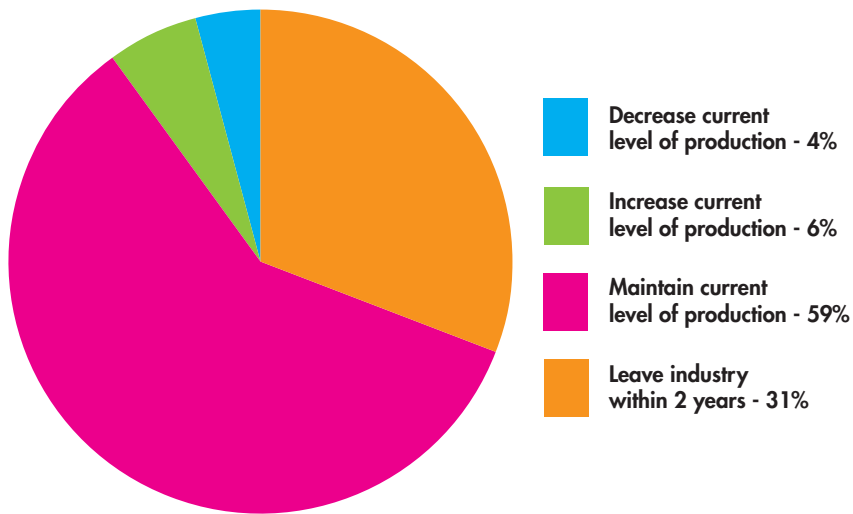
In addition, with the majority of British dairy farmers not actively pursuing a strategy of either increasing or decreasing production over the next two years, there is the potential for them to change their intention as a reaction to market signals. For example, when given a hypothetical scenario of a 2ppl increase in milk price, the number of dairy farmers intending to increase production jumped to 29% (from 18%) while the number of producers intending to leave remained at 14%. This situation would result in a 2.2% reduction in milk supply by 2010/11 (compared to 4.8% with no pricing scenario) to 10.7 billion litres.

When considering the results of this hypothetical price scenario, it must be borne in mind that the farmers questioned were just about to receive or had received their January 2009 milk cheques. The average Defra GB farmgate price for January 2009 stood at 26.85ppl, although farmers were likely to be aware of the price cuts to come.

A 2ppl decrease in milk price, however, would result in fewer dairy farmers intending to increase production (down from 18% to only 6%) and a greater number of dairy farmers leaving the industry (up from 14% to 31%). This scenario, if farmers carried out their stated

intentions, would result in a British milk supply of just 8.3 billion litres by the 2010/2011 milk year. This analysis illustrates just how finely balanced the future of domestic milk supply is.

Figure 13: GB farmer intentions if milk price falls by 2ppl



Source: DairyCo

Investment in dairy units in the coming years will be crucial in securing milk supply for the future, particularly following a long period where low milk prices prevented investment. The 2009 survey revealed that 58% of dairy farmers were intending to invest less than £25,000 on their dairy units in the next five years. Comparing this to 2008, where 50% of dairy farmers intended to spend less than £25,000 on their dairy units in the next five years, illustrates that farmers are expecting a further tightening of margins.

Section 3: Issues the supply chain should consider

The data presented in Sections 1 and 2 raises a number of concerns about the sustainability of our domestic dairy supply chain.

As seen in other industries, such as steel, oil and coal, it is normal for the primary producer of a commodity product – as farmers produce raw milk - to bear the vast majority of the price volatility within a supply chain. However, the current price fluctuations due to imbalances in global supply and demand may, in time, prove unsustainable for the British dairy farmer, following a long period of underinvestment on farm.

As highlighted in the DairyCo *Factors affecting milk supply report* we have consistently seen the average farmgate price in the UK to be 3ppl below the average EU15 price. This is primarily due to the structure of our supply chain, and breaks down into a number of individual factors which are difficult to quantify, such as a lack of added value products, the legacy of a lack of investment in efficient processing capacity and the contractual relationships and levels of negotiating power within the supply chain. This price differential has resulted in an on farm reinvestment rate per litre of approximately half that of our nearest European competitors, according to a recent Institute de l'Elevage report.

However, farmers in GB are still some of the most efficient in Europe. There are currently around 3900 farmers in GB producing over 1million litres per annum and they account for 57% of the milk produced. Although all dairy farmers make a contribution to milk production, these farmers will continue to provide the majority of our milk and their confidence is key.

These farmers need to grow their businesses in order to take advantage of economies of scale so they can compete in the increasingly unregulated globalised market, which as mentioned earlier, has positive long term market fundamentals. To make the necessary investment, these dairy farmers need to be confident that they will be able to make a return on this investment, so they can service their loans and sustain an acceptable standard of living. If these farmers continue to lack confidence in the sector, they are likely to invest their time and money in other agricultural sectors or exit the industry altogether.

If the necessary confidence does not return to our dairy farmers, milk supply will continue to fall. This raises a number of issues for the supply chain as a whole, some of which are outlined in the following section.

Inability to meet domestic demand

Total domestic consumption of dairy products has grown at a rate of approximately 0.44% per annum over the past thirteen years. Although in-home consumption of dairy products has declined per capita, out of home consumption and the consumption of ready meals has increased. However, this small annual increase in consumption can largely be attributed to UK population growth, which has stood at similar levels over the same period.

If the observed 0.44% annual increase in consumption is extrapolated forward, UK consumption in 2030 could be in the region of 16billion litres per annum, which is 23% greater than the current UK production level. If we add to this a decline in domestic production of 2.5% per annum, which reflects recent trends, the UK would be producing in the region of 7.5billion litres per annum by 2030 resulting in the need to import 53% of our dairy products to meet projected consumption levels.

However, there are many positive and negative factors that may affect consumer consumption behaviour over this period. On the negative side, concerns over saturated fat levels and climate change impact may reduce demand. While on the positive side, increased awareness of the health benefits of milk and new product innovation may help consumption rise.

Even if the liquid milk market remains the highest priority, added value product, using the figures from the

calculation above, domestic production would not be sufficient to completely supply the liquid market by 2030. This would also likely result in the ending of cheese, butter and powder production in Britain.



Lack of investment in processing

If milk supply continues to fall the industry may see processors reluctant to invest in what they feel is a contracting industry. This lack of investment from our domestic processors, or an unwillingness by the major global players to invest in the UK, with all of their advantages of scale and established R&D and innovation programmes, would inevitably disadvantage our supply chain in the longer term. A lack of the economies of scale or innovation necessary to compete in the increasingly globalised market would make the UK more vulnerable to imports even in the markets that are currently somewhat isolated, such as liquid milk and added value Cheddars.

This same principal may also result in a rationalisation of our existing processors. Although in the short term this may increase efficiency through economies of scale, if these larger businesses still lack the necessary investment in efficient processing facilities, the result will be a smaller number of under-invested businesses from whom supermarkets can source their products and to whom farmers can sell their milk. This lack of choice for both farmers and retailers may then perpetuate inefficiency and lack of product development within the processing sector, disadvantaging consumers and the supply chain as a whole.

This reduced choice may in-turn reduce the amount of power retailers have when negotiating prices, leading to higher processor selling prices. In this situation, the retailer would have to choose whether to increase retail prices to consumers or reduce margins to absorb any additional cost.

However, if we consider the opposite scenario, where we see continued investment in a vibrant processing sector, we may again see rationalisation but this time to gain the economies of scale and investment levels necessary to succeed on the world stage, thus providing a market for British farmers and a reliable source of quality product for the retailers and consumers.

Food security

A recent report by Chatham House, the Royal Institute of International Affairs, highlights seven fundamental factors that over the next decade will combine to put our global food system under pressure. These factors are: population growth, the nutritional transition, energy, land, water, labour and climate change.

The report warns that a 'business as usual' model could at worst fail, and is at best poor preparation for the coming period. The need for a new system is identified, that is able to reconcile the often conflicting goals of resilience, sustainability and competitiveness while being able to meet and manage consumer expectations.

The report concludes: *'Domestic production will continue to play a significant role in the UK's food supply. But it will need to adapt to become both productive and sustainable; technological innovation and transfer of best practice will be key. Collaborative relationships around the supply network will take on a new importance and become part of the drive for a more integrated approach. Retailers in particular will need to adapt their practices to alter the balance of risk and reward throughout the chain. But it is currently unclear whether the sectors can easily reconcile traditional commercial imperatives with the wider public interest and move from its ingrained short-termism in order to develop the more strategic focus required.'*

When seen in this wider context, stemming the continued decline in UK milk production could be seen as important to meet the future needs of our population and not just to secure the future of domestic production and processing.

Inability to meet consumer needs

Consumers demand cheap food that is convenient to source and supermarkets are attempting to meet this demand, with the average Briton only spending 15% of their income on food¹².

However, a new report by Cardiff Business School¹³ states that: *'Given their size, and their significance in the UK retail market, the largest retailers have been able to extract low prices from suppliers thereby pushing suppliers' margins down. These policies have long run costs in reduced investment by suppliers, lower product quality, less product choice and potentially higher long run prices.'*

If margins at all levels are suppressed to the extent that the domestic dairy industry is no longer able to supply the mainstay of domestic demand, retailers will have to source product from abroad which could entail higher costs and may also impact on the quality of product. In addition, British consumers although primarily driven by price, are increasingly driven by provenance and are demanding British food. A recent piece of research by IGD¹⁴ found that:

- 90% of those questioned believed that farmers deserved the full support of the British public
- 81% said farmers should have better prices and purchase conditions from the supermarkets
- 88% agreed that Britain needed to be more self-sufficient in food
- 88% believed supermarkets should focus more on selling British food

Consumers also demand product quality and consistency, which can be harder to achieve when sourcing from the more seasonal production countries that provide the majority of the globally traded dairy products. The inevitable dip in quality in the months following these countries' supply peaks and the beginning of the following season, primarily due to inconsistent storage lengths, is likely to increase product inconsistency on retail shelves.

In an associated issue, the traceability and associated consumer demands such as reliable factory audits may be harder to maintain if British retailers begin to source significant volumes of product from abroad.

It could therefore be said that to ensure a secure food supply it is important for the supply chain and consumers to debate whether continuing to provide the cheapest possible food today is in anyone's long term best interest, or whether a more sustainable approach considering the long term might have some value, whilst accepting that this cannot be used as an excuse for not continuing to strive to improve the efficiency of the whole supply chain.

Increasing protectionism

In recent months and during the global dairy commodity price peaks of 2007 we have seen a number of concerning market interventions by dairy exporting countries throughout the world.

In 2008 India, an increasingly important dairy exporter, imposed a high export tax on dairy products in order to keep product within its border to reduce domestic prices to feed its domestic population. India has ambitions to increase the efficiency of its domestic agriculture in order to exploit the export opportunities arising as a result of the growing global consumption. However, in 2008 it prioritised its own food security at the expense of its dairy farmers and processors, who were keen to take advantage of high global prices. A cheap domestic supply that feeds its population, who couldn't afford the higher world prices, was seen as a political imperative to avoid civil unrest.

A similar strategy was imposed in Argentina, much to the disappointment of its farmers. Farmer demonstrations did nothing to move their government's position of

¹² Source: ONS 2006

¹³ Source: The impact of a groceries ombudsman on consumers best interests, Cardiff Business School 2009

¹⁴ Understanding consumer perceptions of British farmers, IGD, January 2009

putting the needs of its population above those of farmers and processors.

Market interventions such as these could play a more significant role in the future, due to the factors highlighted in the food security section above. If for example, drought in the Southern Hemisphere became more prevalent due to global warming, the EU and UK may find it increasingly difficult to find exporting countries with the production capacity to meet internal and external demand.

Greater volatility

In the past two years it has not only been the price of dairy commodity products that have experienced significant volatility but also the majority of globally traded commodities. As this volatility is likely to continue and because many of the inputs needed for milk production are either commodity products themselves, or have their prices closely linked to the commodity markets, dairy farmers will need to manage volatility not only in the price they receive for milk but also in input costs. Furthermore, we have seen in recent years that these markets often run with a time lag to each other requiring dairy farmers to manage a period of considerably reduced margins before incomes rise again in a cyclical pattern.

In the UK however, we may be better placed than some of our world market competitors to deal with the increased volatility in input prices. This is because a large proportion of our domestic production systems are grass based and are therefore less exposed to changes in global grain prices. This reduced exposure is likely to buffer the boom-bust cycles seen in other countries, again giving a more reliable supply for consumers and sustainable margins for the supply chain.

Where there is capacity and 'spare' milk available, profit maximising processors will naturally switch milk into the most lucrative markets at a point in time. This behaviour also creates a cyclical pattern of price volatility. For example, when the returns from processing raw milk into butter and SMP are higher than cheese, more butter and SMP will be produced. If this happens in sufficient volumes to increase or decrease the supply of a particular product, normal price fluctuations can be further exacerbated.

In addition to the price volatility brought about by market forces discussed so far in this section, any product that is exported from or imported into the UK will be affected by exchange rate fluctuations. In 2008 a fall in the value of Sterling against both the Euro and the US dollar, mitigated the effect of falling global prices on the UK dairy sector. However, if the balance tips the other way in the future and Sterling strengthens against the major trading currencies, this would make UK produced products relatively more expensive on world markets while making imported products cheaper to UK buyers.

The protection the domestic farmer has been afforded by the weakening of Sterling in recent months cannot be underestimated. It is highly likely that the farmer intentions outlined in section 2 would have been far more pessimistic if we had seen the falls in commodity prices and hence farmgate prices, experienced by other European countries.

Managing this volatility is a role the supply chain must discuss together, because as stated at the beginning of this section, farmers may be less able, due to their small scale, to cope with this volatility as primary producers in other industries, for example, the oil industry.

Conclusion



All supply chains need to be efficient in order to be competitive, and produce the products consumers want.

In addition all supply chains come under pressure from time to time – which can help to stimulate efficiency and the development of new products that consumers benefit from. However, each part of the supply chain maintaining confidence even through the challenging times is important for all parts of that chain as they are mutually dependent.

All parts of the supply chain need to generate enough profit to ensure continued improvements in efficiency and product development. At present the DairyCo intentions survey suggests that not enough farmers have sufficient confidence to invest and this threatens the sustainability of the GB supply chain through milk production continuing to fall. Current market volatility could worsen that confidence.

The long term implications of this could include lower levels of investment and development throughout the supply chain. If the supply chain work together to ensure that the chain remains sustainable, then there can be continued investment in increasing efficiency and development of new products throughout the chain, as well as securing future supplies which help to safeguard against issues of food security and protectionism.

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