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Dairy Supply Chain Margins 2010/11

DairyCo

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Executive summary

The Dairy Supply Chain Margins report presents evidence on the gross margins made by farmers, processors and retailers on the sale of liquid milk and mild and mature Cheddar. This year's report provides evidence on the average margins made across the whole 2010/11 milk year, which ran from April 2010 to March 2011, as well as some half year comparisons. A key feature of the dairy market in the year was the sustained high level of commodity prices and the apparent disconnection with GB farmgate prices.

At the retail level, the liquid milk market experienced a year of two halves, with prices and margins remaining essentially unchanged from the previous year in the first half, followed by a significant drop in prices in the second half. However, the competitive pressures faced by liquid milk processors to secure retail supply contracts kept the wholesale price down, allowing retailers to maintain their gross margin at around 34%.

With mild and mature Cheddar however, retailers saw a drop in margins as wholesale prices were rising on the back of strong commodity markets and limited availability while retail prices remained stable. Retail gross margins fell from 51% to 47% for mild Cheddar between 2009/10 and 2010/11, while mature Cheddar gross margins fell from 52% to 49%.

At the processor level, gross margins fell for liquid milk while increasing for both mild and mature Cheddar. In the liquid market, the strength of commodity markets put upward pressure on farmgate prices, while wholesale selling prices fell, squeezing gross margins from both sides. In the case of Cheddar, gross margins increased as a result of the combination of strong wholesale markets, strong demand for Cheddar on domestic and export markets and, in the case of mature Cheddar, the effect of branding to reduce retailer alternatives.

The price farmers receive for their milk, the farmgate price, increased for the 2010/11 milk year by 5% compared to the previous year, to 25.1 ppl. In comparison, the market indicator AMPE (Actual Milk Price Equivalent), which reflects returns from butter and powder commodity markets, showed a 31% rise. It must be noted however that during the period of falling prices in 2008/09 farmgate prices did not fall as fast as AMPE.

This reflects the situation that there are some factors within the UK dairy supply chain which affect the speed of transmission of price changes to the farmgate. With expectations of continued upward pressure on input costs, further impacting margins at all levels of the supply chain, an understanding of the process of price adjustment along the supply chain is important.

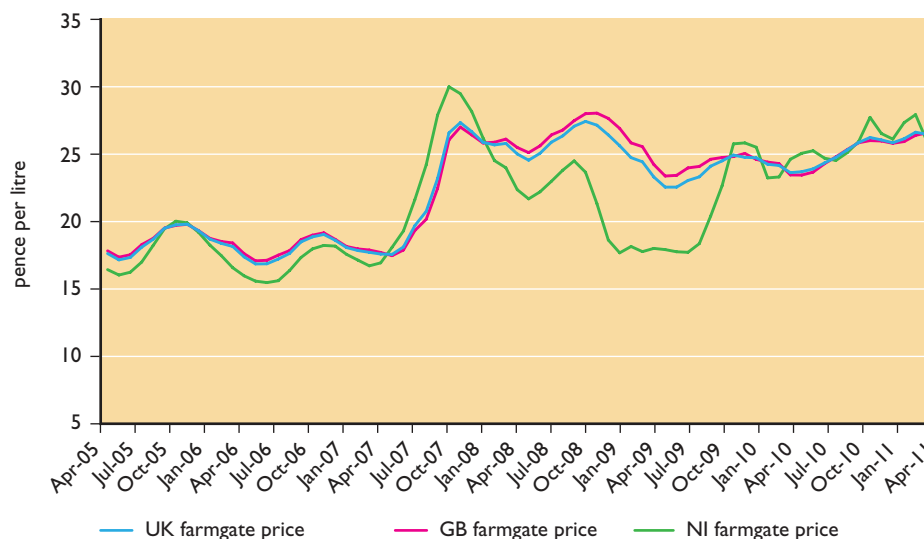
For a sustainable dairy farming industry to exist, conditions within the supply chain must ensure that farmers are not disadvantaged over the long term. DairyCo has commissioned research to examine how prices along the supply chain adjust to changes and how this may impact on farm revenues. Findings from this report are due to be published at the end of July 2011.

Dairy farm income

Dairy farm incomes fell in the 2010/11 milk year for the second year in a row according to provisional figures published by Defra. While UK farmgate prices increased through the year on the back of improved commodity markets and farm production levels were up, the increases in input costs more than outweighed these gains.

For the 2010/11 milk year, the average farmgate milk price in the UK was 5.7% up on the previous year (Figure 1), driven primarily by the 21.2% rise in average prices in Northern Ireland (NI), where milk prices are strongly influenced by commodity price movements. While it can be seen that prices in NI were slightly higher than in GB for the majority of the past year, as producers benefitted from strong international demand for dairy products, the gap between NI and GB prices during the downturn of 2008/09 was much larger. Dairy farmers in GB are more insulated from the downward movements in the market than NI farmers as a result of the presence of liquid milk supply contracts. The growing number of retailer aligned contracts will also have contributed to more stable pricing within the GB market.

Figure 1: Average farmgate milk price



Source Defra¹, DARDNI

UK milk production for the year was 13,332 million litres, an increase of 507 million litres, or 4%, from the previous year volumes. The year-on-year increase in production within GB was slightly lower at 3%, while NI producers recorded a 9% increase in production on the back of improved milk prices and favourable weather conditions. GB production growth was probably less influenced by rising prices but did benefit from good grazing conditions through the year. The presence of retailer aligned supply contracts will also have contributed to the increased production, as farmers on these contracts are less affected by price volatility².

¹ Average UK farmgate milk prices are calculated from monthly surveys of milk purchasers conducted in England and Wales by Defra, in Scotland by RERAD and in Northern Ireland by DARD. The surveys together account for approximately 91% of UK milk bought by milk purchasers.

² As highlighted in the 2010 DairyCo Farmer Intentions Survey.

The Defra measure of Farm Business Income for the average dairy farm shows a 24% decline in income between 2009/10 and 2010/11 for England, and a drop of 13% for Wales³. The Defra calculation of Farm Business Income includes income from the Single Farm Payment⁴ as well as income from any diversified activities. It does not include the cost of family and spouse labour, imputed rent for owner occupiers, or any reinvestment. In Northern Ireland, farm incomes are forecast to more than double, a result driven by the combination of high prices and production growth, although it should be noted that this is simply a recovery of ground lost in the previous year.

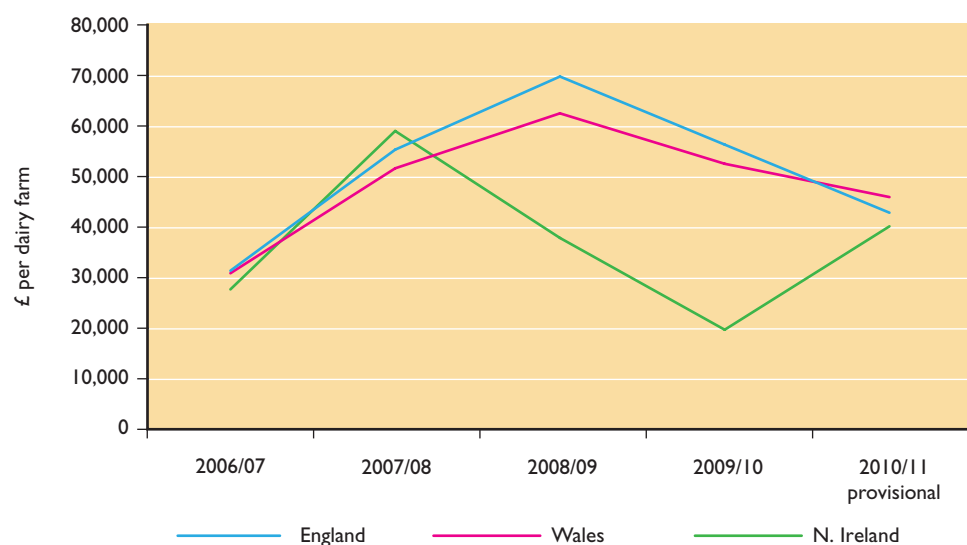
The provisional figures for England and Wales were based on the assumption of increased farm production and higher average farmgate milk prices for the year ending February 2011. Any improvement in farm incomes however will have been offset by an estimated increase of 7%⁵ in the main input costs for dairy farms. The increase in feed costs were forecast to rise as a result of both higher prices and larger quantities of purchased feed, based on the assumption of lower yields of forage caused by unfavourable growing conditions in 2010.

Table 1: Farm Business Income			
£ per farm	England	Wales	N.Ireland
2006/07	31,000	30,500	27,300
2007/08	55,000	51,300	58,700
2008/09	69,500	62,200	37,500
2009/10	56,000	52,200*	19,300
2010/11	42,500*	45,600†	39,800†

Source: Defra Farm Business Survey

*Provisional †Estimate

Figure 2: Farm Business Income



Source Defra, Welsh Assembly Government, DARDNI

³Farm Business Incomes are published each year based on the Farm Business Survey and are provisional.

⁴As single farm payment is decoupled from agricultural production ie you do not have to produce an agricultural product to receive the payment, it can be argued that it should not be included in the income calculation of a dairy enterprise.

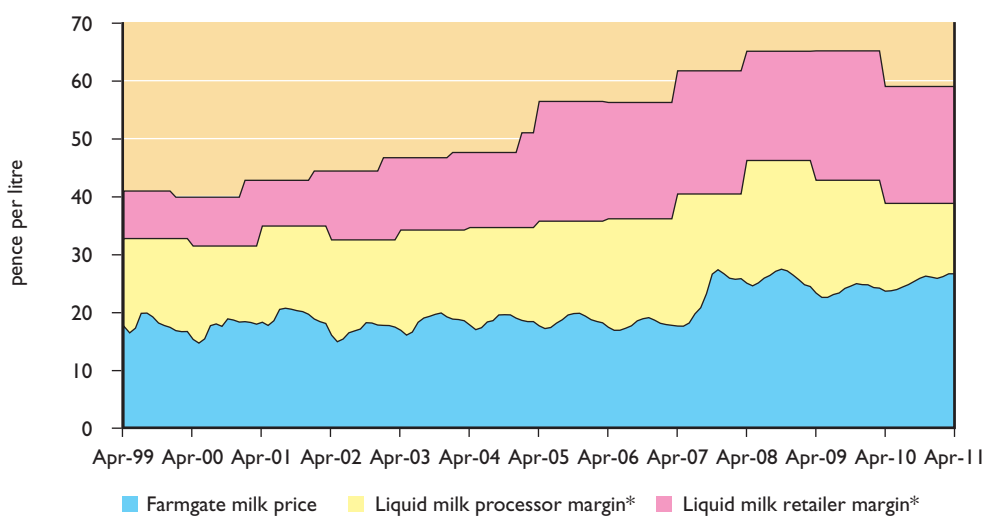
⁵According to Defra's provisional estimates of farm incomes for 2010, including the main input costs of energy, fertilisers, feed and vet fees.

Liquid milk margins



The average retail price for liquid milk in multiple retailers declined sharply over the past year to 58.9ppl compared to the average of 65.0ppl in 2009/10, a drop of 9.4%. Retail prices for milk have been increasing steadily over the 10 year period to 2010 as price competition was limited due to the shift in sales from doorstep to multiple retailers. When examining the trends in retail prices since 1999, it can be seen that there was a substantial increase in the retail price in 2005/06 when retailers responded to pressure from producers and processors to increase returns in order to cover increased costs. Two further significant increases in retail prices occurred in 2007/08 (14%) and 2008/09 (12%) which can be attributed to increased processing costs in 2007/08 and to surges in prices for dairy commodity products on world markets in both cases. Combined with this, retailers have been able to realise increases in gross margins even during times of increasing costs.

Figure 3: Prices and gross margins for liquid milk



Source DairyCo

*The gross margin equals the difference between the selling price and buying price for milk

During the 2010/11 milk year, multiple retailers began to lose market share in the milk sector to the discounters and freezer centres. The growth in volume sales in the discounted sector of the market can in part be attributed to consumers searching for better deals, but may also have been due to the active strategy by these retailers to capture some of the margins available on retail milk sales by selling at a lower price. The impact of this was to increase price competition in the retail sector, and early in 2010 most retailers began to offer a 'discount' line of milk to counter the impact of the low prices available in discount and freezer outlets.

In the 2010/11 milk year, despite a situation of increasing dairy commodity prices and increasing production costs, there was no increase in prices for milk at the retail level. In fact, prices were dropped as retailers aimed to regain some of the market share lost to discounters. In August of 2010, Asda began a long-running 'price-war' when it cut the price of its milk from the standard £1.53 for a 4 pint polybottle to £1.00. The other major multiple retailers quickly followed, with various price cuts and multi-buy promotional offers, which remained in place throughout the remainder of the 2010/11 milk year. The impact of these price promotions was that the average price for milk over the year fell 9%, from 65.0ppl to 58.9ppl.

Table 2: Comparisons of liquid milk gross margins

	2000/01		2009/10		2010/11	
	ppl	margin	ppl	margin	ppl	margin
Farmgate milk price (Defra average ⁶)	17.3		23.8		25.1	
Processor gross margin ⁷	14.0	45%	18.9	44%	13.6	35%
Processor selling price	31.3		42.7		38.7	
Retail gross margin ⁷	9.2	23%	22.3	34%	20.2	34%
Retail price	40.5		65.0		58.9	

Source: DairyCo

Wholesale prices for liquid milk also fell in 2010/11 compared to the previous year despite the increasing prices for dairy commodities. AMPE⁸, which provides an indication of movements on commodity markets, increased by 31% on average over the year while in comparison, the average selling price for liquid milk at wholesale level declined 9% (4.0ppl) to 38.7ppl.

Selling prices for liquid milk were heavily impacted by events in the retail market, as retailers looked to regain margins lost due to price competition through negotiating lower purchasing prices. The majority of the large multiple's supply contracts were re-tendered during the 2010/11 milk year, and competition among the liquid milk processors to secure these contracts contributed to the erosion of selling prices.

On the back of the strong dairy commodity markets, the farmgate price increased during 2010/11, with average milk prices increasing every month except for December 2010 and January 2011. On average, farmgate prices rose by 5% during the year to 25.1ppl, compared to the average of 23.8ppl in 2009/10. Combined with the 4.0ppl year-on-year decrease in the processor selling price, this resulted in a squeeze on processor gross margins, which fell by 5.3ppl (28%) in 2010/11 to 13.6ppl. In percentage terms, the gross margin dropped from 44% to 35% over the course of the full financial year. Retailers meanwhile were able to retain a gross margin of 34% despite the 6.1ppl decrease in the average retail selling price.

⁶Please note that farmgate price figures may differ from annual average figures published by Defra for the year in question. This is because Defra's annual average figures are weighted by monthly production whereas the figure used above is a straight average of the monthly average price paid in the year.

⁷Gross margin does not equal profit as it only takes into account the cost of purchasing the milk. Other operating costs and overhead costs are not included.

⁸AMPE is calculated from the returns available on wholesale markets from converting milk into butter and SMP, and as such provides an indicator of the bottom of the milk market.

It is important to note that changes in gross margins do not necessarily imply a similar change in profitability. The impact of changes in gross margins at the different levels of the supply chain will be dependent on how costs and other income streams have changed. The 2010/11 period saw substantial cost increases at farm and processor levels, with the main on-farm input costs of feed, fuel and fertiliser all recording considerable price increases over the period, while processors saw increases in oil and resin related costs. At the same time, they will also have benefitted from the surge in cream prices, which increased by around 30% over the year to just under £1,500/tonne from an average of £1,150 in the previous year. The additional revenues available from cream will have helped to offset part, but not all, of the reduction in margins.

One of the key features of the 2010/11 milk year was the change in market conditions between the two halves of the year. In reaction to the economic recession and to the erosion of market share, retail prices dropped sharply. At the same time, processors were realising improved revenues from high cream prices, seeing input costs increase and competing for large retail supply contracts. It is interesting, therefore, to examine the impact of these events on gross margins in the supply chain between the first and second half of the year.

Six-monthly prices and gross margins were calculated and are presented in Table 3. In the first half of the 2010/11 year (Apr-10 to Sep-10), the average retail price of milk was 61.7ppl, reflecting a 5% reduction in average prices compared to the previous year as retailers attempted to offer a 'discount' option to their customers. In the second half of the 2010/11 year, the average price dropped a further 5.7ppl (9%) to 56.0ppl following the initiation of the 'price war' on milk.

Table 3: Six-monthly comparisons of liquid milk gross margins 2010/11				
	H1 2010/11		H2 2010/11	
	ppl	margin	ppl	margin
Farmgate milk price* (Defra)	24.2		26.1	
Processor gross margin	16.1	40%	11.2	30%
Processor selling price	40.3		37.3	
Retail gross margin	21.4	35%	18.7	33%
Retail price	61.7		56.0	
*full year figures may not be the exact average of reported six-monthly figures due to rounding				

Wholesale prices also fell during the year, from an average of 40.3ppl over the first half down to 37.3ppl in the second half of the year (Oct-10 to Mar-11). This translates to a 7% reduction in wholesale selling prices, suggesting that the retailers were able to pass most, but not all, of the costs associated with reduced shelf prices to the wholesalers through the re-tendering process.

Processor margins were most heavily impacted during the second half of the milk year as the continued pressure from strong commodity markets put upward pressure on prices paid for milk supplies. The farmgate price rose 8% (1.9ppl) to 26.1ppl in the second half of the year from an average of 24.2ppl in the first half. The dual impact of higher farmgate prices and reduced selling prices meant that wholesale gross margins fell from an average of 40% in the first half of the year to 30% in the second half.

Enhanced returns available from cream sales will have contributed to the pressure from dairy farmers to increase milk prices, and perhaps offered processors the ability to fund increased milk prices, although it may be that retailers also put forward the high cream value as a negotiating tool to drive down wholesale prices.

It must be noted that prices paid on liquid contracts are generally at a premium to those paid on cheese or balancing contracts in order to ensure adequate supplies. As the published Defra farmgate price is an average of prices paid for **all** milk delivered to dairies, it will be less than the average price paid on liquid contracts, and higher than that paid on cheese contracts. This means that processor gross margins based on the Defra farmgate price are slightly overstated, although they will still represent the degree of change year-on-year.

To get a more accurate picture of processor gross margins, a basket farmgate price for liquid milk was calculated using the average monthly price paid on liquid milk supply contracts, based on the DairyCo standard litre. It should be noted that a substantial portion of milk purchased by liquid processors is done on retailer aligned supply contracts, which offer a premium on the standard non-aligned milk price. The gross margins using the contract prices are presented in Table 4.

Table 4: Six-monthly comparisons of liquid milk gross margins 2010/11				
	H1 2010/11		H2 2010/11	
	ppl	margin	ppl	margin
Farmgate milk price* (liquid contract prices)	25.1		27.1	
Processor gross margin	15.2	38%	10.2	27%
Processor selling price	40.3		37.3	
Retail gross margin	21.4	35%	18.7	34%
Retail price	61.7		56.0	
*average of major liquid milk supply contract prices (DairyCo standard litre)				

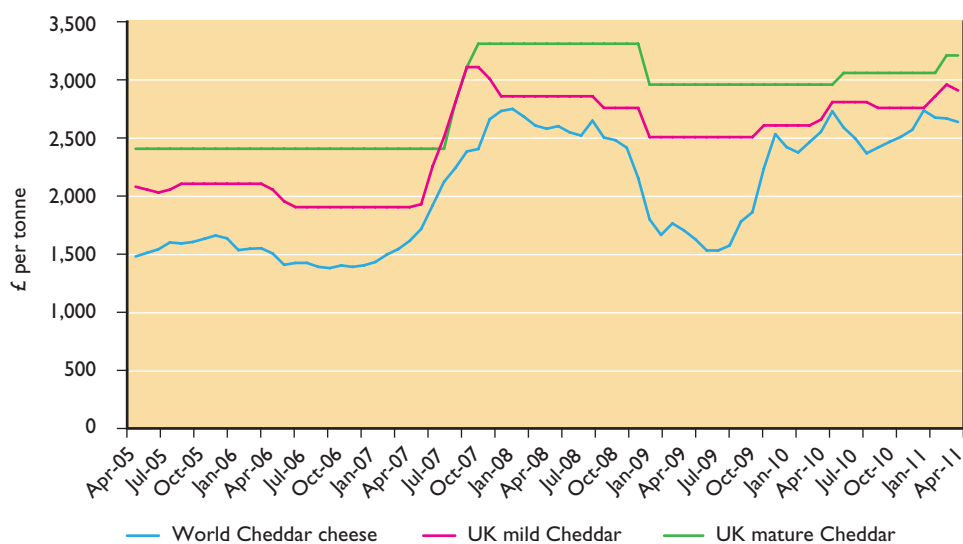
Based on these calculations, the average price paid on a liquid contract is approximately 4% (1ppl) higher than the average Defra farmgate price, reducing the gross margin for liquid milk processors. While gross margins are perhaps more accurate using this method, the direction and degree of change remain in line with those calculated using the Defra average farmgate prices and, therefore, the changes in margins are consistent across both methods.

Cheddar markets

During 2010/11 Cheddar prices on UK markets edged upwards on the back of strong dairy commodity markets and tight supplies. Within the UK, Cheddar production for the year was up 6% on the previous year as processors sought to capitalise on the high prices available and the increased availability of milk. Although Cheddar production increased, exports rose by 17% while total Cheddar imports declined by just under 3%, keeping available supplies for the domestic market tight and underpinning prices.

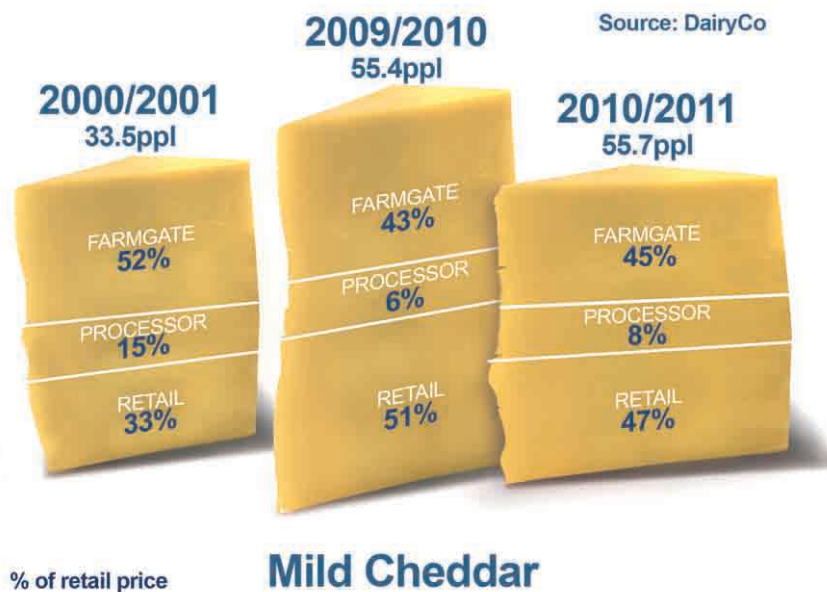
Mild Cheddar prices showed small but steady increases throughout 2010/11, rising to £2,900/tonne, a 9% increase on the average of £2,650/tonne in the previous year. The UK price for mature Cheddar was more stable, with only two increases during the year, bringing average prices up 8% from £2,950/tonne to £3,200/tonne. Figure 4 shows the movement in world and UK Cheddar prices since 2005.

Figure 4: UK and World Cheddar prices



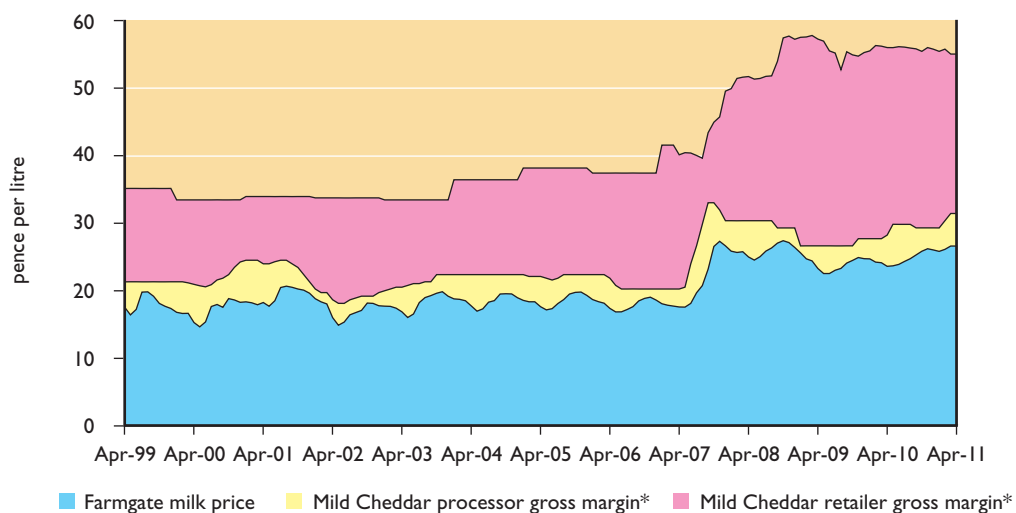
Source DairyCo, DIN

Mild Cheddar margins



The average retail price of mild Cheddar in pence per litre terms remained stable in 2010/11, increasing only 0.3ppl (0.5%) compared to the previous year's price of 55.4ppl. Wholesale prices however increased over the year by 2.6ppl (10%), returning them to 2008/09 levels. Farmgate prices also rose over the period, up 5% to 25.1ppl, compared to the average of 23.8ppl in 2009/10.

Figure 5: Prices and gross margins for mild Cheddar



Source DairyCo

*The gross margin equals the difference between the selling price and buying price for milk

Table 5: Comparisons of mild Cheddar gross margins						
	2000/01		2009/10		2010/11	
	ppl	margin	ppl	margin	ppl	margin
Farmgate price (Defra)	17.4		23.8		25.1	
Processor gross margin	5.1	23%	3.2	12%	4.5	15%
Processor selling price	22.5		27.0		29.6	
Retail gross margin	11.0	33%	28.4	51%	26.1	47%
Retail price	33.5		55.4		55.7	

The impact of the price changes on gross margins for mild Cheddar are summarised in Table 5. The processor gross margin on mild Cheddar increased between 2009/10 and 2010/11, rising by 1.3ppl to 4.5ppl as the 10% increase in selling price compensated for the 5% rise in farmgate prices. In percentage terms, the processors' gross margins increased from 12% to 15%. It appears that processors were able to pass on some of the increased cost of raw milk supplies to retailers in the form of higher selling prices as the retail gross margin fell by 2.3ppl (8%) over the period. With retail prices virtually unchanged, it was this segment of the supply chain that absorbed the impact of the sustained strength in dairy commodity markets.

As with liquid milk, farmgate prices specific to milk for cheese production were estimated using the average monthly price paid on cheese supply contracts based on the DairyCo standard litre. This was done to compensate for the effect that higher liquid milk prices have on the average Defra farmgate price, and the consequent understating of processor gross margins for cheese (mild and mature).

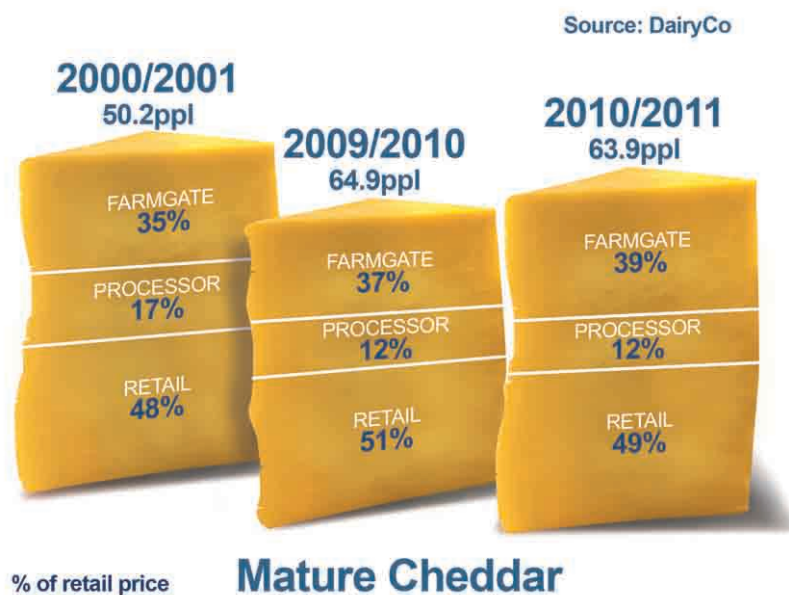
Table 6 below summarises mild Cheddar gross margins for the past two years using the cheese farmgate price⁹. The average price paid for milk on cheese contracts is around 1ppl lower than the Defra average, boosting estimated processor gross margins. As was the case with liquid milk, the gross margins calculated using this method reflect a more accurate level although the direction and degree of change remain in line with those calculated using the Defra average farmgate prices.

Table 6: Comparisons of mild Cheddar gross margins				
	2009/10		2010/11	
	ppl	margin	ppl	margin
Farmgate milk price (cheese contract prices)	22.8		24.0	
Processor gross margin	4.2	16%	5.6	19%
Processor selling price	27.0		29.6	
Retail gross margin	28.4	51%	26.1	47%
Retail price	55.4		55.7	

Retailers are generally able to source comparable products from both mild Cheddar manufacturers within the UK and other countries, such as Ireland and therefore keep wholesale prices competitive. However, during 2010/11 it appears that processors were able to realise higher selling prices, as the cost of imported products increased due to strong commodity markets and limited availability resulting from favourable trade conditions. The relatively weak Sterling helped to make exports more attractive for domestic producers and reduced available supplies on the domestic market. Another factor reducing available supplies was the decline in Cheddar imports, which fell by 2%, primarily as a result of a 35% decline in imports from Oceania, where milk will have been diverted to more lucrative alternative product.

⁹Standard litre data is not available by contract type until 2005, so there is no comparable data for the 2000/01 milk year.

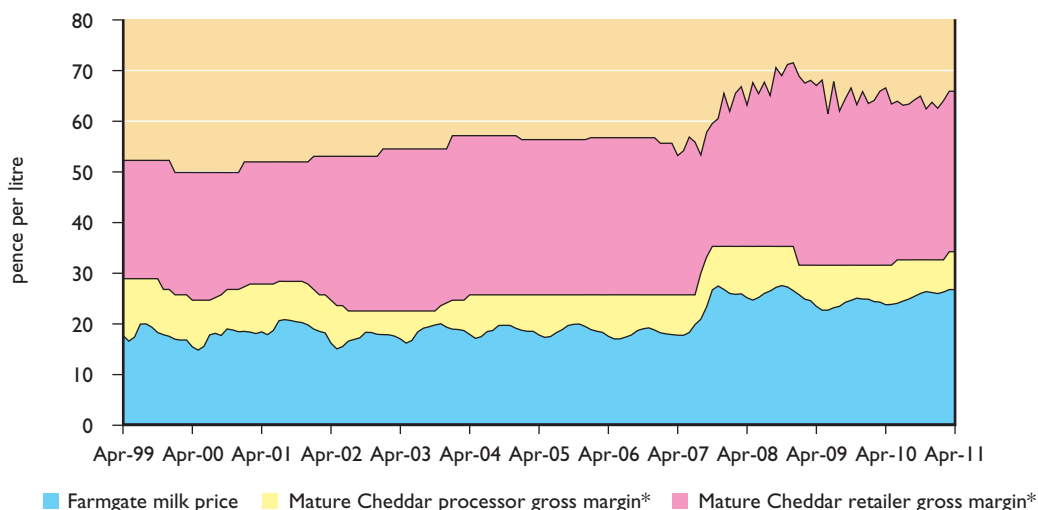
Mature Cheddar margins



Prices for mature Cheddar at the retail level fell marginally in 2010/11, dropping 2% (1ppl) from the previous year to the equivalent of 63.9ppl. The continuation of price promotions in the mature Cheddar market in the past year, particularly on branded mature Cheddar, will have contributed to this. With consumers shifting demand from mild and medium Cheddar towards mature Cheddar, it appears that promotions are being used by producers to increase (or maintain) their share of this growing market.

Wholesale prices increased during the year, with the average selling price for mature Cheddar rising by the equivalent of 1.0ppl (3%), although this does not take into account the cost of promotions which are generally paid for by processors rather than retailers. While this will have the effect of reducing the wholesale gross margin, improved returns from whey will have helped cheese manufacturers to absorb any promotional costs, as well as the increased cost of milk, which rose by 1.3ppl to 25.1ppl, 5% up on the previous year's value of 23.8ppl.

Figure 6: Prices and gross margins for mature Cheddar



Source DairyCo

*The gross margin equals the difference between the selling price and buying price for milk

Gross margins for mature Cheddar are summarised in Table 7. With the relatively larger increase in the average farmgate prices compared to wholesale selling price between 2009/10 and 2010/11, processor gross margins fell slightly from 24% to 22%, representing a drop of 0.3ppl.

The retail gross margin fell by 2.0ppl (6%) over the period as both a decline in average retail prices and an increase in average wholesale prices occurred during the 2010/11 year. While the retail gross margin dropped from 52% to 49% over the period, it remains in line with the five-year average of 50%.

Table 7: Comparisons of mature Cheddar gross margins						
	2000/01		2009/10		2010/11	
	ppl	margin	ppl	margin	ppl	margin
Farmgate price (Defra)	17.4		23.8		25.1	
Processor gross margin	8.5	33%	7.6	24%	7.3	22%
Processor selling price	25.9		31.4		32.4	
Retail gross margin	24.3	48%	33.5	52%	31.5	49%
Retail price	50.2		64.9		63.9	

Table 8 below summarises gross margins for mature Cheddar for the past two years using the average cheese farmgate price¹⁰. The lower average price paid for milk on cheese contracts has the effect of increasing estimated processor gross margins to 26%, compared to the 22% value obtained using Defra prices. As with the liquid milk and mild Cheddar gross margins, the use of standard litre contract prices allows for a more accurate gross margin figure, but does not change the nature or degree of changes to margins, which gives confidence in the methodology used.

Table 8: Comparisons of mature Cheddar gross margins				
	2009/10		2010/11	
	ppl	margin	ppl	margin
Farmgate milk price (cheese contract price)	22.8		24.0	
Processor gross margin	8.6	27%	8.4	26%
Processor selling price	31.4		32.4	
Retail gross margin	33.5	52%	31.5	49%
Retail price	64.9		63.9	

During 2010/11, despite continued discounting, a decline in prices at retail level and increased farmgate milk prices on cheese contracts, processors were able to maintain their gross margin at around 26%. The presence of strong branding in the mature Cheddar market, along with firm commodity markets and limited supplies have helped to insulate cheese processors from any downward pressure on selling prices. The increased selling price, supported by healthy returns from whey, has meant that processors have been able to afford to pay the higher milk prices and to report improved profits from cheese, as evidenced by the improved operating profits reported by Dairy Crest and Milk Link¹¹, two of the largest Cheddar producers in GB.

¹⁰Standard litre data is not available by contract type until 2005, so there is no comparable data for the 2000/01 milk year.

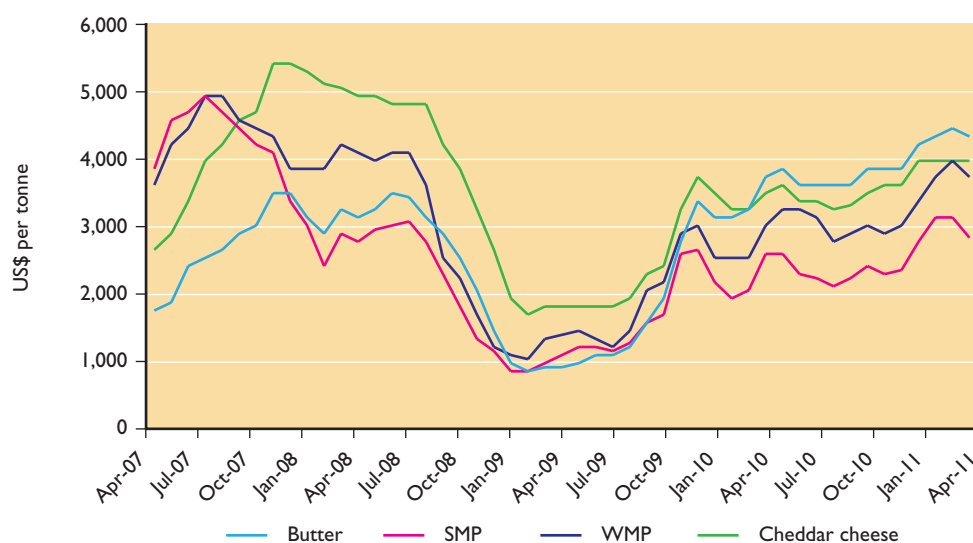
¹¹Dairy Crest reported cheese segment profits of £28.0m for 2010/11, a 66% improvement on the previous year. Milk Link reported operating profits of £25.0m, up 27% from the previous year.

What happened in 2010/11

Following on from a year of highly volatile prices, the predominant feature of the 2010/11 milk year was the strength of the world dairy commodities markets. Prices for the main dairy commodities remained high, and in some cases reached new record highs. Butter prices remained above 2007 levels throughout the year, peaking in March 2011 at \$4,700 per tonne. While prices for powders and Cheddar stayed strong through the year, they did not quite match the highs reached in the price surge of 2007.

After the recovery in world prices, which began in the second half of the 2009/10 year, prices for dairy commodities on world markets maintained their upward movement on the limited growth in dairy production from the main producing nations, while strong demand from Russia, India and China underpinned high market prices.

Figure 7 World commodity prices



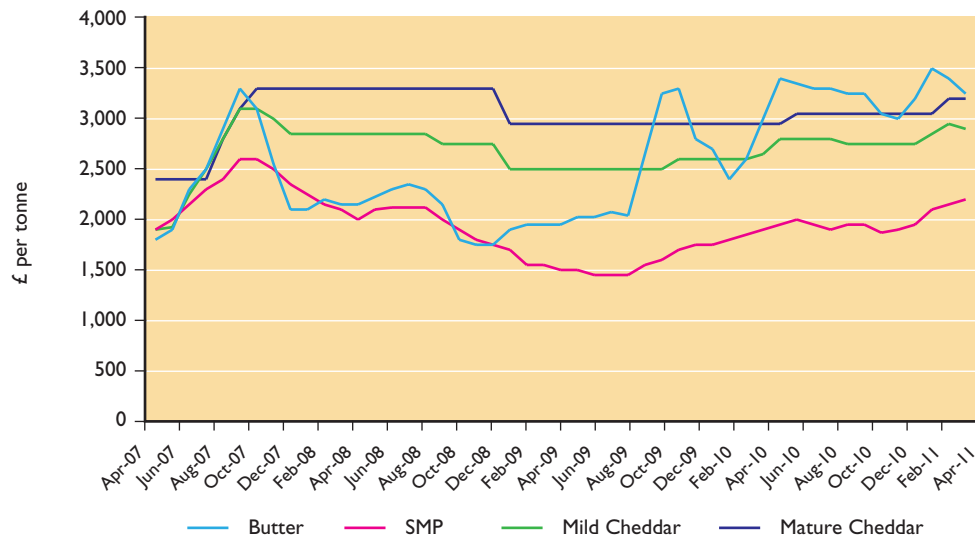
Source DairyCo

UK markets did not show the same degree of volatility or price increases experienced on world markets in 2010/11, although butter and SMP did experience substantial price increases. SMP prices in the EU and UK rose steadily through the year despite the release of intervention stocks. Increased milk production throughout Europe, along with high world prices for dairy commodities and a favourable exchange rate, led to increased exports. This created some supply shortages within the EU, supporting strong powder prices.

Increases in butter prices were primarily driven by reduced availability. Strong prices for other dairy commodities, especially cream, diverted production away from butter, which along with enhanced exports, created supply shortages. The absence of intervention stocks, or large quantities from the private storage aid scheme, added to the pressure on supplies and further supported rising butter prices.

With UK wholesale Cheddar prices remaining above world prices, there was little change in wholesale prices during the year, although these did record some upward movement. SMP prices recovered during the year, although with intervention stocks overhanging the market, the rate of increase has not matched that which occurred on world markets.

Figure 8 UK wholesale prices



Source DIN Consultancy

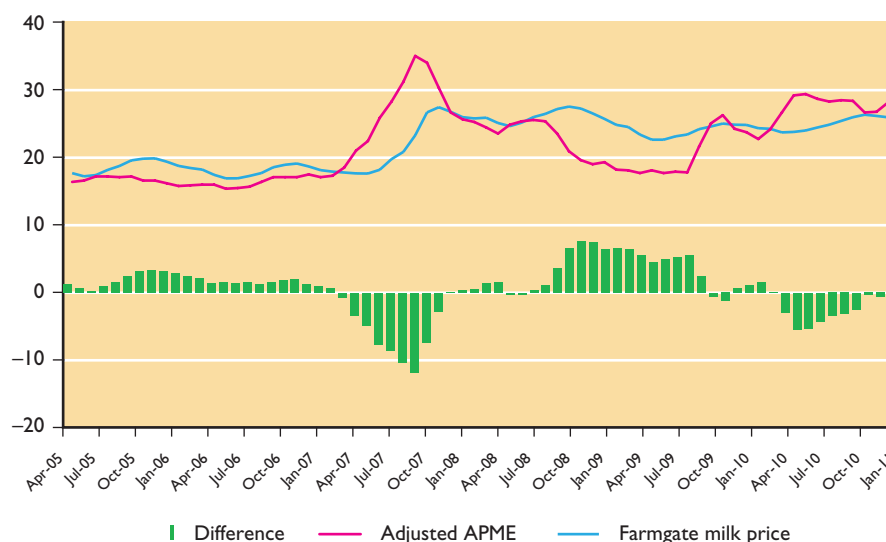
As a result of increasing dairy commodity prices, market indicators such as AMPE (Actual Milk Price Equivalent) rose during 2010/11.

What is AMPE?

AMPE or Actual Milk Price Equivalent gives a market value (in pence per litre) for raw milk which is manufactured into butter and SMP. It is a factory gate price and therefore, in order to compare it with a farmgate price, an assumed amount for delivery to the dairy must be deducted. The AMPE figure published by DairyCo is based on the wholesale prices published monthly on DairyCo Datum's website.

Figure 9 shows the historical relationship between an adjusted AMPE figure (adjusted for delivery costs) and average farmgate price. Until 2007, the farmgate price has tracked AMPE, although with time lags between when wholesale prices rose and when these increases were reflected in farmgate prices.

Figure 9 Farmgate milk price vs. adjusted AMPE



Source DairyCo, Defra

The structure of the UK dairy market means that AMPE should, on average, represent the bottom of the market. With over half of the milk produced in the country directed towards satisfying the liquid market and a further quarter directed towards cheese production, processors usually need to offer a premium over commodity market returns in order to secure supplies. This means that over time the average farmgate price would be expected to be higher than the average value of AMPE.

During periods of imbalances in supply and demand on the world commodity markets, it may be the case that AMPE rises above the farmgate price although, following a period of adjustment when milk processors compete for milk supplies, the liquid and cheese premiums should be re-established. With the increasing use of dedicated supply contracts, it may be that the adjustment time will increase slightly as processors will need more time to renegotiate their contracts and pass on price changes to the farmgate.

It can be seen in Figure 9 that prior to 2007, the farmgate price was, on average, above AMPE and displayed a seasonal pattern of highs and lows. The sharp increase in AMPE in early 2007, combined with concerns over declining milk production in the UK created pressure on processors and retailers to increase the milk price, and the farmgate price moved up in response.

Since 2007, the world commodity market has been more volatile. The farmgate price has continued to exhibit the same seasonal pattern as previously, although at the higher level while AMPE has shown large fluctuations in values, following the significant swings in world dairy commodity prices which have occurred over the past three years. The main reason why AMPE is considerably more volatile is that, unlike in the period prior to 2007, it has been well above the EU intervention price (IMPE), and is therefore more subject to price movements on world markets. Farmgate prices, on the other hand, have become less influenced by variations in commodity markets, partly due to the introduction of dedicated supply chains for liquid milk.

During the 2010/11 milk year, AMPE rose rapidly, in line with movements on commodity prices, and remained above the farmgate price for the year. The gap between the farmgate price and AMPE only narrowed in the autumn months when seasonal premiums are generally paid in the UK and due to world commodity prices declining on the back of rising supplies in Oceania. Despite non-seasonal increases in farmgate prices in the early months of 2011, the gap increased again to reach 3.8ppl in the spring.

Conclusion

A prominent feature of the 2010/11 milk year for the dairy industry was the sustained high level of wholesale prices for dairy commodities on world and UK markets. While prices exhibited some volatility during the year, resulting from the increasingly integrated world markets for dairy products, this was less dramatic than in the previous years, and most product prices remained at high levels. Underpinning the market was strong demand from China, Russia and India which was not fulfilled by production growth in the main exporting nations.

With world commodity markets strong throughout the year, the expectation was that farmgate prices would rise in response. The factors which may have hampered this response varied according to the sector of the market. In general, margins in the liquid milk supply chain remained relatively stable at retail level, with processors suffering the largest decline in margins and farmers receiving a higher milk price. For the Cheddar supply chain, a different pattern emerges, with farmers seeing higher returns, and wholesalers improving their gross margins at the expense of retail gross margins.

In the liquid milk market, market conditions changed substantially between the first and second half of the year as the large multiples entered into intense price competition with the discount sector in order to recapture lost market share. While average retail prices fell in the first part of the year as retailers aimed to deal with value conscious consumers, the realisation that discounters were gaining market share led to more extreme discounts in the second half of the year, impacting their margins. The competition among liquid milk processors during the retendering of major supply contracts allowed retailers to regain part of the lost margin from reduced wholesale prices. Adding to the pressures on processor margins, prices for milk also increased in the second half of the year as cheese manufacturers began to pass on improved returns in the form of milk price increases. The degree to which margins have been put under pressure is evident in the profit warning issued by Robert Wiseman Dairies late in 2010, followed by the 30% reduction in operating profits reported in its annual accounts.

In the Cheddar markets, retail prices remained stable between 2009/10 and 2010/11, although retailer margins were reduced as processors selling prices increased. Limited supplies of Cheddar on the domestic market resulting from the combination of reduced imports and increased exports, driven by favourable exchange rates, meant that retailers had limited scope for negotiating lower prices. The strength of the market for dairy commodities kept upward pressure on wholesale prices, improving returns for cheese manufacturers and allowing them to increase the price of raw milk at the farmgate. Supported by improved returns from whey and improved gross margins, cheese manufacturers were able to absorb this increase in the cost of milk, as evidenced by the improved operating profits reported by both Dairy Crest and Milk Link, two of the largest Cheddar manufacturers.

With the expectation that input costs will continue to rise in the short to medium term for dairy farmers, the fact that farmgate prices have not responded to the same degree as commodity markets has caused great concern in the industry. It has made gaining an understanding of the process of price adjustment along the supply chain a priority. Examining whether short term differences between AMPE, which measures returns from commodity markets, and the farmgate price balance out over time is key to this understanding. If this were not the case, farmers might lose out in the long term.

This question will in part be examined in research undertaken by Portsmouth University for DairyCo. The research has looked into the rate at which prices along the dairy supply chain adjust to change and how this may affect farm revenues. Findings from this report are due to be published at the end of July 2011.

Appendix 1

Data Sources

Following is a list of the data used in this report, the source of data and its characteristics.

Farmgate milk prices

Farmgate milk prices are provided by Defra on a monthly basis and represent average prices received by producers, net of delivery charges and excluding any retrospective bonuses. The prices are obtained by Defra from a monthly survey of registered milk purchasers in England and Wales, which records volume, value and protein content of milk purchased from farms in England and Wales. All major milk purchasers (those purchasing over 2 million litres of milk per year) take part in the survey and approximately 91% of milk purchased from UK farms is accounted for.

The Defra published prices are weighted according to the volume of milk purchased and averages are therefore influenced by the larger milk purchasers.

For the supply chain analysis, annual average farmgate prices are not weighted but are simple averages of the twelve months of data.

Liquid milk contract prices

For comparison purposes, a simple average price paid for liquid milk was calculated using the DairyCo standard litre milk prices for a basket of liquid milk contracts. These included Dairy Crest liquid and aligned contracts, Robert Wiseman Dairies Partnership and aligned contracts, and Arla's aligned and non-aligned contracts. The average standard litre price for each liquid milk contract is a weighted average, using an average yearly distribution of milk deliveries.

Milk for cheese contract prices

For comparison purposes, a simple average price paid for milk for cheese was calculated using the DairyCo standard litre milk prices for a basket of cheese contracts. These included the Dairy Crest Davidstow contract, First Milk's compositional and Highlands & Islands contract, Milk Link's manufacturing contract, Joseph Heler and Wyke Farms.

Wholesale prices

UK wholesale prices are collected on a monthly basis, and for the supply chain analysis, annual averages are a simple average.

UK wholesale prices are not published, but data is collected by obtaining quotations from traders and milk processors during the month.

For mild and mature Cheddar, prices collected are based on spot prices and relate to larger quantities of a container or more on a delivered price basis per tonne. These figures are then converted to a ppl equivalent using milk equivalent conversion factors.

Due to the commercial sensitivity of this information, there are no published sources of wholesale prices for liquid milk, and they are therefore estimated. This is done by deducting the value of the excess cream obtained during the separation stage of processing milk for consumption from the total value of the milk. The value of the excess cream is based on the annual average of monthly quotations of the ex-dairy spot price for cream at 40% butterfat for export.

Once wholesale prices are estimated for the year, the data is validated through discussions with the industry to ensure that they are within reasonable bounds. In addition, information obtained from company accounts of processors helps to validate the figures.

Retail prices

Retail prices for liquid milk and Cheddar cheese are obtained from the Kantar Worldpanel which collects survey data from consumers on the volume and value of purchases. For liquid milk, annual average milk prices were calculated from 4-weekly data on total expenditure and volumes of sales in multiple retailers for pasteurised milk.

For Cheddar cheese, annual average prices for both mild and mature Cheddar were calculated using 52-week data on expenditure and volume of retail sales. As sales volumes are recorded in kilograms, they were then converted to a ppl basis using a 9.4litres/1kg cheese conversion factor.

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