Project Reset Why we face a new normal in dairy product prices



Executive Summary

Inflationary pressure is a factor across the dairy supply chain from farm to processor. Recent months have seen sharp increases in the cost of feed, fuel, energy, labour and fertiliser at farm level, which increases the cost of milk production. Meanwhile, dairy processors are seeing increased costs across the board – from energy to transport, labour, packaging, warehousing and distribution.

This inflationary trend also comes at a time when supply chain relationships have never been more important. Retailers and processors need to work more closely than ever with farmers to address the challenges around sustainability, particularly climate change, and success in this area requires long term relationships built on trust.

Given the slim margins across the industry, and the wider context, this inflationary pressure can only be addressed by passing costs on to consumers through a re-basing of 'normal' retail prices for milk, cheese and butter. If, for example, inflationary pressure remains within current parameters, the 'new normal' bulk butter price would need to be between £3,975 - £4,200/t (rather than current £3,200/t) and the milk cheddar bulk price would need to be between £3,425 - £3,625/t (rather than the current £3,000/t). Liquid milk prices would need to be commensurate with these levels to maintain milk supply. Without this, we believe that milk production will fall, and UK dairy production may increasingly be diverted to serving export markets rather than low margin retail and foodservice markets in the UK.

This outlook is not unique to dairy, though, with similar calls for the end of the 'era of cheap food' coming from other agricultural sectors and food businesses too – there is simply not the profitability in the food sector to absorb the levels of inflationary cost increases currently in play. If it is not passed on we ultimately risk the collapse of UK food supply chains.





Introduction

It is fair to say that the dairy supply chain has not seen inflationary cost pressures of the magnitude being witnessed today for many years, if ever. They are ubiquitous across every aspect of the supply chain – from primary farm inputs; to the price of fuel and labour to take the milk from the farm to the dairy; through the processing procedures within the factory; to packaging materials; storage and maturation; and the final transport to the end consumer – be it here or abroad.

This report assesses some of the cost price challenges that farmers and processors are facing, and what processors

are saying about the situation. It has been compiled by Kite Consulting, the agribusiness consultancy specialising in the dairy industry, and Chris Walkland, a leading market analyst in the dairy industry. It also draws on the facts, sentiment and commentary in separate contributory reports by:

- CRM AgriCommodities, on the long-term grain prospects;
- Campbell Gibbons on Future EU Agricultural Policy;
- Kite Consulting's Cost of Production Report September 2021.



Farmer cost price inflation

The 'Three Fs' – Feed, Fuel and Fertiliser – are frequently quoted as being the key variable costs for dairy farmers. Together with labour costs they account for between 60% and 70% of all costs¹:



Cost of Production breakdown



Feed prices

For the vast majority of dairy herds, supplementary feed must be fed at a varying levels to maintain cow well-being and yield, with wheat and protein crops such as soya and rape being important components of the diet. Prices for both are increasing, with compound feed prices for dairy cows climbing towards £300/t, from a medium-term average of below £250/tonne.

Feed price increases are likely to continue in the short to medium term. According to CRM AgriCommodities², "UK feed wheat production is far from certain to keep up with demand" and "Overall, with demand likely to rise, and growing yields unable to keep up with declining areas, the UK is becoming increasingly likely to be in a tight supply situation". CRM believes that "Chicago corn, Paris wheat and UK feed wheat futures could all extend to reach record price premiums, pushing prices to new records."

Long-term predictions of cereal prices are notoriously hard because harvests are very weather dependent and global trade can be very political.

Current futures prices for wheat suggest the market will peak in May 2022, with prices settling after that, but at levels still above the medium-term average.







2) CRM AgriCommodities "The Long-term Grain Outlook".



Fertiliser

Nitrogen fertiliser manufacture is intrinsically linked to the price of gas, as that provides the hydrogen for the NH3 element. Gas prices are rising exponentially (see later), which means fertiliser prices are also rising similarly. In October 2021 prices were reported to be close to £700/ tonne. To put that in context the average price from 2018 to H1 2021 was just over £250/tonne:

A different way of illustrating the impact on farmers of this inflation is to divide the cost of one tonne of fertiliser by the prevailing milk price, to determine how many litres of milk are required to pay for it. From January 2018 to H1 2021 the average has been 900 litres of milk per tonne of fertiliser: in October 2021 it is predicted that it will require over 2000 litres.

At these prices farmers are already assessing how much fertiliser they can afford to apply to their grassland. It is almost certain that less fertiliser will be used next year and that grass yields – and ultimately milk yields from grass - will be reduced accordingly.

However, there is also the potential issue as to whether farmers will be able to source fertiliser in the first place. China has recently banned the export of phosphate fertiliser and it is rumoured nitrogen fertilisers will be next. If China does restrict exports, then there will be even more inflationary pressure on the commodity.







Labour

Labour availability is also increasingly becoming a major issue on farms, as indeed it is with the rest of the economy.

Many farms are reported to be struggling to retain and recruit staff, as they have been reliant on foreign labour who have returned to their homelands because of Brexit, Covid and currency issues devaluing their incomes.

The net result is that farmers are having to pay more to keep or retain staff or are downsizing and cutting cow numbers.



Fuel prices

Dairy farming is an energy intensive business, with farms very reliant on both electricity and diesel. Both are increasing in line with general energy costs and oil prices:





Overall predicted costs of production

Factoring in all these cost increases, the breakeven milk price for the 2022–23 milk season will be between 33 and 34ppl, according to Kite data. This figure is reinforced by the cost tracker used to determine the Tesco Cost of Production related price, which is currently at 33.36p and the Sainsbury's Cost of Production price, which is currently just short of 33p.

These Cost of Production figures are at record highs – and more than 5ppl over the long-term average:



Kite: Break Even Cost of milk production (2022 predicted)



What does this mean?

The implications of farmers not being paid a minimum Cost of Production price are significant, especially in a post-Brexit world where changes in farming policy mean farmers will have the option of taking an incentive to retire, or to farm in a way that prioritises 'public money for public goods' rather than farming to produce food. In either situation, it is easy to see an increase in the number of retiring farmers or land exiting dairy production.

As a result, milk production volumes will almost certainly drop. In fact, they are already doing so, with AHDB having recently adjusted its GB volume projections down 0.2% for the 2021/22 milk year compared to its initial projection of a 0.4% increase. Its 2022/23 forecast is the same as 2020/21 volumes.

The on-farm cost increases, and a Milk Price:Feed Price ratio (i.e. the relationship between the price of milk and cost of feed) that is well below a profitable threshold, mean that milk volumes will be low for several months yet.

Furthermore, this tightening of milk supply is likely to result in more processors opening their recruiting books to new suppliers, something that is already happening in some parts of the country.

Changes to milk contracts and the imposition of new legislation is likely to mean that there will also be a freer movement of dairy farmers in the future.

The combination of the two means that farmers will move to the processors who pay the best price, and recent history shows that cheddar makers have consistently paid better than liquid milk processors – not least due to the amount of cheese now being exported (See Appendix).



exodus of farmers from liquid milk processors to cheese makers when such opportunities arise.

If this differential continues then it is easy to envisage a further

It should be noted that the fall in GB milk production that AHDB is currently predicting, twinned with a swing over time by farmers away from liquid processors to cheese processors to cover the growing cheddar export market, equates to possibly 500m litres. To put that in context, it is equivalent to the milk intake of the UK's fifth largest liquid milk processing plant, and is significantly more than some of the medium and smaller sites:

Capacities of the major liquid milk factories - UK							
		m litres					
Arla	Aylesbury	1000					
Muller	Droitwich	800					
Arla	Stourton	750					
Muller	Bridgwater	600					
Muller	Bellshill	500					
Muller	Manchester	400					
Muller	Severnside	400					
Freshways	Acton	375					
Arla	Oakthorpe	350					
Arla Lockerbie	Lockerbie	200					
Yew Tree Dairy	Lancashire	180					
Grahams	Bridge of Allan	180					
Paynes Dairies	Boroughbridge	175					

It is, therefore, not difficult to envisage the closure of another liquid milk processor in time, following the recent closure of Tomlinsons and Medina.



Processor cost price inflation

It is not an exaggeration to suggest that the current inflationary pressure in the dairy processing sector poses a significant challenge. Anecdotal evidence from a variety of conversations with processors shows that cost increases are unprecedented, with little scope to recover costs through efficiency savings or by passing them on to farmers, as they too face inflationary pressure. The only 'escape route' from this situation is for costs to be passed on to consumers.

What seems clear is that the processing sector is resolute – there is a clear case for price increases based on well-known economic and market factors that is irrefutable. The time of cheap food is at an end.

Yet despite this, there are widespread reports of customers pushing back on price increase requests or failing to even engage in the discussion. The strong feeling in the market is that this will not continue – processors will simply stop supply. This introduces an interesting dynamic to the market, particularly at a time when supplies are being interrupted due to lorry driver availability and COVID, as well as more complex trading with the EU.

The following sections of this report review the current inflationary pressures at a processor level.

Current estimated processor costs for dairy products

In its July 2020 review³ of its two dairy market indicators - known as AMPE (which reflects the value of butter and SMP) and MCVE (which reflects the value of cheese) - AHDB assessed all the major (non-milk) costs for processing milk into different products:

AHDB's Processing costs for major dairy products (\pounds/t)							
	Butter	SMP	BMP	Cheddar	Whey powder		
Energy	43	138	138	50	134		
Labour	70	70	70	75	70		
Raw material	21	21	21	61	21		
Chemical/water	10	25	25	12	25		
Maintenance	20	25	25	25	25		
Storage	20	6	6	30	6		
Depreciation	30	50	50	42			
General/admin	30	30	30	35	60		
Total	244	365	365	330	341		



3) AHDB Review of market indicators – AHDB



Major dairy costs

AHDB Processor costs - Butter



AHDB Processor costs - Cheese



AHDB Processor costs - SMP



AHDB Processor costs - Whey



From this it can be clearly seen that three cost areas – raw materials, energy and labour – account for between 55 and 65% of the costs of the products.



Raw material costs - milk prices

Milk prices have risen significantly during 2021 compared to previous years, to record levels for some milk buyers. Overall, the milk price for 2021 is projected to be the highest of the last seven years and the third highest of the decade, after the exceptional (weather driven) years of 2013 through to 2014. Nevertheless, the 2021 price is still below the current Cost of Production for most farmers of 30.98p².



Labour

Labour accounts for between 20% and 30% of manufacturing costs, if direct and indirect labour is included (i.e. employed/ agency workers and those used by third party hauliers or storage companies).

Processors are fighting to attract staff, and burnout of those they have is a worry as a result. Staff availability is also becoming a real challenge for some and the reason for this is simple - the number of vacancies in the UK following Brexit and Covid is the highest in history at over 1m for the first time. And neither is there an end in sight to this recruitment challenge.

A recent cross industry report⁴ has recently estimated that there were as many as 500,000 vacancies in the food and drink sector alone. Wage inflation is extensive. According to the ONS "annual growth in total pay for May to July 2021" was up 8.3%, and regular pay was up 6.8%".

Indeed, it is known that some processors have proactively increased their salaries by around 10% on the basis that retaining staff has become 'business critical'. This fact is also borne out by ONS statistics which show that wages in food manufacturing are rising higher than general wage inflation.





The challenges of finding labour seem to be somewhat of a virtuous inflationary circle: a processing business increases wages to retain existing staff, but then another industry matches or exceeds that rate, and workers are lost again.



Transport and Logistics

Drivers

Transport costs are also significantly affected by increases in labour on the back of the shortage of 100,000 HGV drivers. This manifests in difficulties with on-farm milk collection, through to final product deliveries for both the domestic market and export. At the time of writing this report in October 2021 a Google search for "milk tanker driver jobs" revealed 86 vacancies. In September a similar search produced 97 vacancies.

Although most milk is still being picked up from farms, there have been some well publicised cancelled collections, with milk being dumped. And processors are having to pay significantly more to secure drivers. Anecdotal conversations with processors suggest that milk collection costs are increasing by between 15% and 30%. There is even some talk of force majeure being threatened by hauliers if the processors don't agree to the increases.

There will be no easy fix on this issue. The Road Haulage Association has warned that there will be no early easing of the situation and that "it will take at least 18 months to train 100,000 HGV drivers". Nor does the Government's latest visa scheme looks as it will be a knight in shining armour. At the time of writing, of the 5,000 additional lorry driver visas the Government has agreed to issue just 300 drivers have applied, and 20 have been issued.

Fuel prices

In addition to driver wage inflation, fuel costs are now at eight-year highs, and well above the average price since 2014.

Again, diesel prices are unlikely to fall in the short time, with 2022 projections little different to current prices.







Re-distribution

What's clear is that labour and fuel prices aren't the only logistical problems. Some processors use third-party distributors to unpack and repack larger shipments into smaller pallet size loads for onward transit to customers. Staff shortages and the added complexities of trade with the EU have, in some cases, made distribution services harder to procure or less reliable. This is resulting in delays, incomplete deliveries and poor service – all adding cost and inconvenience into an already challenged supply chain.

Storage and warehousing costs

Dairy processors manufacturing butter and cheese rely on cold stores to mature or store their products – in the case of cheese for up to a year. In these two cases storage costs account for between 8 and 10% of all costs.

Although some firms have sizeable stores of their own most cheese manufacturers use third party storage firms. Again, cost price rises here are significant - not least because labour is a major proportion of the cost of warehousing.

The UK Chartered Institute of Logistics and Transport estimates that between 24 and 35% of overall logistics costs relates to warehouse activities and, of that, labour costs account for 48% to 60% of the cost, with the actual cost of the storage space being 25% to 42%.

There are also significant pressures in the sector, and cold stores are struggling to retain staff because working in a cold store is less attractive than working in an ambient premises for comparable or better wages.

The labour shortage is also coinciding with a boom in new ambient warehousing and job opportunities, not least due to the rise in home shopping - it is estimated that the UK needs around 15% more warehousing space to satisfy demand. And it is being built - quickly. Put simply, those who wish to work in a warehouse are spoiled for choice and will be for the foreseeable future. Consequently, cold stores will have to pay over the odds for staff.

Processors have reported costs are up between 5 and 15%, with the mean being around 7 to 8%. And that's so far this year, with prices continuing to increase.

The largest warehouses under construction in England will have up to 2.5m sq ft of storage space



Source: Guardian / Savills



Kite Consulting



Energy costs - Natural gas

The energy demand of dairy plants is huge, in the case of drying milk for powders the energy cost represents 38% of all costs, according to AHDB. For butter and cheese the energy cost is between 15 and 18%.

By the very nature of dairy processing, many dairy plants are reliant on natural gas because it is more flexible and thus compatible with the many peaks and troughs in the energy demands of factories. Heavy oil is less attractive than gas because it must be delivered by tanker rather than via a pipeline, which is less convenient. Nevertheless, a few factories are not on the gas mains and reliant on heavy oil.

Some firms also utilise a biomass option for drying SMP or whey, whilst others have electric driers or dual fuel boilers, or their own CHP plant – but those are, again, reliant on gas.

As a result, the reliance on gas in the dairy industry remains significant and prices are rising exponentially. On Wednesday 6 October, for example, the UK gas price traded as high as 400p a therm (before falling back).

The degree to which firms will be hit by this largely depends on how long they have their current fixed rates for, and when they must re-fix their supply price. Undoubtedly, some firms will have their energy prices locked down for this year but, given the exponential price rise, even if some are covered for the short term, gas price inflation will impact at some stage.







Energy costs - Electricity

As with gas, major dairy plants also have a significant demand for electricity – both for the production processes and refrigeration.

Electricity prices are also increasing in line with other costs, not least because gas remains a major fuel for electricity generation -responsible for generating nearly half of all the UK's electricity for H1 in 2021.

According to analysts, there are more electricity price increases to come: wholesale electricity prices in the UK are predicted to increase by 30%, with green policy costs set to account for more than a quarter of electricity bills. While investment in solar and CHP biogas plants by some companies will help to mitigate electricity costs, the price of electricity is set to rise for the foreseeable future.



Energy sources for electricity generation H1 2021





Packaging materials

Plastic

Milk bottles are manufactured from HDPE plastic, with prices closely related to the oil price because plastic is derived from petroleum. The trend lines diverged during Covid, with HDPE prices surging after lockdown and at time of supply chain shortages, before realigning with the oil price in Q3:



As oil prices are projected to increase then so too will HDPE and other plastic prices.

Processors are also reporting a shortage of plastics, including milk polybottles and bottle tops. There have been reports that one liquid processor ran out of bottles and had to import them from Ireland, for example. The reason is simple – the added cost and time delays are affecting supply.

Previously successful 'just in time' supply chains have meant that there has never been a need for liquid processors to store plastic or resin for more than a week, for example. But, because supply chains are breaking down due to haulage issues and availability problems, there is a need for greater storage with added cost.

Although the amount of recycled HDPE is increasing in the dairy supply chain, the price of recycled HDPE (rHDPE) material is also increasing in line with that of virgin product, so this offers little insulation from price inflation.

Cardboard

The dairy industry, like most food industries, is also heavily reliant on cardboard and other packaging materials for its "store to shop floor" supply chain. Again, prices have increased exponentially. The same is true for wood pallets:





CO₂

The availability and cost of CO_2 were thrust into the spotlight at the end of September with the abrupt shutdown of fertiliser plants in the UK, and the indirect impact that had on CO_2 manufacture.

The dairy industry largely uses CO_2 in the cheese packing process but is not as reliant on it as other industries. Nitrogen gas can be used instead, but because nitrogen is not absorbed by the cheese, like CO_2 , the packs are less "snug" and attractive to consumers. However, the cost of both gases has increased exponentially in recent months.



Shipping costs

Imports

Many raw materials have their origins in the US or Asia. For example, nearly 75% of the world's HDPE comes from Asia, North America or The Middle East and, although most UK milk processors rely on EU sources, the high shipping costs have an inflationary effect on the overall market price. China is also one of the main sources of cardboard.

Global shipping costs have increased exponentially since the start of 2021. For example, pre-Covid shipping costs for a 20ft container from Asia to Northern Europe was around £1,000, but costs have risen to £8,000 to £10,000 per container now:



Some processors are also reporting that it used to take around 30 days from the point of dispatch in China to the receipt of goods, but now it is taking three times longer. Ports are described as "facing their biggest crisis since the start of container shipping 65 years ago". (Source: FT).

Experts are predicting that the supply chain problems with shipping and containers will get worse before they get better. The net result will be companies holding more stocks, for longer, at additional cost.



Potential impact on processor's cost of production

The reality is that each dairy processor will be subject to different rates of inflation, depending on the structure of their business and the terms of the various supply agreements they have in place.

We have taken four scenarios to assess likely or potential overall cost rises:

- "Light scenario" the processor is well covered with its fixed energy contracts but has some exposure to the current situation and inflationary pressures.
- "Medium scenario" the processor has a medium level of exposure to the current market situation, particularly energy.
- "Extreme scenario" the processor has high exposure to market inflation, particularly energy.
- "Full exposure scenario" the processor is either totally exposed to current energy prices or energy prices remain at current highs for a considerable period of time.

These scenarios have been sense checked across the industry, and are deemed to represent the current situation, and potential future situations should cost prices remain as they are.

Energy assumptions

We have used the following assumptions on energy prices:

Start point - May 2021 (six months ago): the gas price was 65p/ therm; electricity was £75/MWh.

Current point - October 2021: the gas price averages 250p/therm; electricity £215/MWh.

Therefore, over the last six months the gas price has risen by 280%, electricity by almost 200%:

Assumptions:

- Light scenario: the processor is 75% covered; 25% exposed. Energy increases by 50% overall.
- Medium scenario: the processor is 50% covered; 50% exposed. Energy increases by 100% overall.
- Extreme scenario: the processor is 25% exposed; 75% exposed. Energy increases by 150% overall.
- Full exposure: the processor is entirely exposed to the energy market or energy costs remain at current levels for a significant period of time. The processor also has a high exposure to other costs increases too.





Light scenario:

Under this scenario energy costs increase by 50%. Labour is up 8% and (non-milk) raw materials are up 10%. Other costs have been projected to increase between 7.5% and 10%:

Estimated new costs for major dairy products Autumn 2021: Light increases								
	Assume (%)	Butter	SMP	BMP	Cheddar	Whey		
Energy	50.00	64.5	207.0	207.0	75.0	201.0		
Labour	8.00	75.6	75.6	75.6	81.0	75.6		
Raw material	10.00	23.1	23.1	23.1	67.1	23.1		
Chemical/water	10.00	11.0	27.5	27.5	13.2	27.5		
Maintenance	7.50	21.5	26.9	26.9	26.9	26.9		
Storage	8.00	21.6	6.5	6.5	32.4	6.5		
Depreciation	0.00	30.0	50.0	50.0	42.0	0.0		
General/admin	8.00	32.4	32.4	32.4	37.8	64.8		
Total		280	449	449	375	425		
Original		244	365	365	330	341		
Difference / t		36	84	84	45	84		
% Difference		15	23	23	14	25		

From this we can see the production cost per tonne, excluding milk, increases by between 15% and 25%, depending on whether the milk is dried or not.

Modest increases:

Under this scenario energy costs are assumed to have doubled. Labour is up by 9% and (non-milk) raw materials are up 15%. Other costs have been projected to increase by 10%:

Estimated new costs for major dairy products Autumn 2021: Modest increases							
	Assume (%)	Butter	SMP	BMP	Cheddar	Whey	
Energy	100.00	86.0	276.0	276.0	100.0	268.0	
Labour	9.00	76.3	76.3	76.3	81.8	76.3	
Raw material	15.00	22.9	22.9	22.9	66.5	22.9	
Chemical/water	15.00	11.5	28.8	28.8	13.8	28.8	
Maintenance	10.00	22.0	27.5	27.5	27.5	27.5	
Storage	10.00	22.0	6.6	6.6	33.0	6.6	
Depreciation	0.00	30.0	50.0	50.0	42.0	0.0	
General/admin	10.00	33.0	33.0	33.0	38.5	66.0	
Total		304	521	521	403	496	
Original		244	365	365	330	341	
Difference / t		60	156	156	73	155	
% Difference		24	43	43	22	45	

Overall cost price increases are up between 20% and over 40%, depending on whether the milk is dried or not.



Extreme increases:

Under this scenario energy costs are assumed to have increased by 150%. Labour is up by 10% and (non-milk) raw materials are up by 20%. Other costs have been projected to increase between 12% and 15%:

Estimated new costs for major dairy products Autumn 2021: Extreme increases							
	Assume (%)	Butter	SMP	BMP	Cheddar	Whey	
Energy	150.00	107.5	345.0	345.0	125.0	335.0	
Labour	10.00	77.0	77.0	77.0	82.5	77.0	
Raw material	20.00	25.2	25.2	25.2	73.2	25.2	
Chemical/water	20.00	12.0	30.0	30.0	14.4	30.0	
Maintenance	15.00	23.0	28.8	28.8	28.8	28.8	
Storage	12.00	22.4	6.7	6.7	33.6	6.7	
Depreciation	0.00	30.0	50.0	50.0	42.0	0.0	
General/admin	15.00	34.5	34.5	34.5	40.3	69.0	
Total		332	597	597	440	572	
Original		244	365	365	330	341	
Difference / t		88	232	232	110	231	
% Difference		36	64	64	33	68	

Overall cost price increases are up between 30% and over 60%, depending on whether the product is dried or not.

Full exposure increases:

Under this scenario energy costs are assumed to have increased by 200% to cover a situation where a company is fully exposed to increased energy costs, or energy costs remain at current levels for a significant period of time.

Labour is also deemed to be up by 15% and (non-milk) raw materials are up by 25%. Other costs have been projected to increase between 15% and 25%:

Overall cost price increases are up between 40% to 90%, depending on whether the milk is dried or not.

Estimated new costs for major dairy products Autumn 2021: Full exposure							
	Assume (%)	Butter	SMP	BMP	Cheddar	Whey	
Energy	200.00	129.0	414.0	414.0	150.0	402.0	
Labour	15.00	80.5	80.5	80.5	86.3	80.5	
Raw material	20.00	25.2	25.2	25.2	73.2	25.2	
Chemical/water	25.00	12.5	31.3	31.3	15.0	31.3	
Maintenance	25.00	25.0	31.3	31.3	31.3	31.3	
Storage	15.00	23.0	6.9	6.9	34.5	6.9	
Depreciation	0.00	30.0	50.0	50.0	42.0	0.0	
General/admin	20.00	36.0	36.0	36.0	42.0	72.0	
Total		361	675	675	474	649	
Original		244	365	365	330	341	
Difference / t		117	310	310	144	308	
% Difference		48	85	85	44	90	



The 'new norm' butter and cheddar prices

Using AHDB's downloadable AMPE and MCVE calculator⁵, and working back from the required break-even milk price of 33-34p, we can then use the new cost figures to determine "new norm" butter and cheddar prices for each of the scenarios:

Light scenario

Under the "light scenario" cost price increases, the calculation indicates that butter will need to be £3975/tonne to deliver a break-even price to farmers, compared to the £3200/tonne average of the last three years. The calculation assumes the SMP will track in line with the butter price at the average ratio that is has done since 2019 (i.e 62%).

Mild cheddar will need to be around £3,425/t compared to its £2,900/tonne average. This assumes the whey price will track in line with the SMP price at its average rate since 2019 (34.4%):

<u>A</u>	DB						
AI So	MPE & MCVE to urce: AHDB	ool		LIGHT SCEN	ARIO CO	ST PRICE INCREASES	
	YOUR DATA leave blank if not avai	iable AMPE	MCVE	BASE DATA These figures will be wherever your data i Milk composition:	used by the c is not provided Combined	alculator	
	Fat Protein Solids Not Fat	4.10% 3.35% 8.77%	4.10% 3.35% 8.77%	Fat Protein Solids Not Fat (3yr average figures	4.10% 3.35% 8.77% used for comp	calculated osition)	AHDB Calcs RESULTS AMPE: 37.82 ppl MCVE: 37.70 ppl
	Costs (£/t product): Butter SMP BMP Cheddar Whey Powder	280 449 449	<u> </u>	Costs (£/t product) Butter SMP BMP Cheddar Whey Powder	: Combined 280 449 449 375 425		AFTER PROFIT MARGIN AMPE: 35.60 ppl MCVE: 35.47 ppl
	Whey Butter Prices (£/tonne): Butter SMP	3975 2465	280	Whey Butter Prices (£/tonne),Cu Butter SMP	rrent: 3975 2465	Estimated at 62% of butter price = Average since 2019	AMPE: 33.56 ppl MCVE: 33.42 ppl
	Lactose powder BMP Mild Cheddar Whey powder Whey butter	872 2362	3425 848 3675	Lactose powder BMP Mild Cheddar Whey powder Whey butter	872 2362 3425 848 3675	From GDT,Lactose Estimated using SMP price -103 Estimated at 34.4% of SMP price = Average since 2019 Estimated using butter price -300	Forecast COP 33.5

5) AHDB AMPE and MCVE Calculator, amended for new costs and milk price requirements. https://ahdb.org.uk/dairy/ampe-mcve-calculator

(SMP prices derived from its recent historical relationship to butter; whey price derived from its relationship to SMP.)

Kite

Modest scenario

Under the "modest scenario" cost price increases, the calculation indicates that butter will need to be £4,050/tonne to deliver a break-even price to farmers.

Mild cheddar will need to be around £3,500/t:

AHD	B								
AM Sou	PE & MCVE to rce: AHDB	ool		MODEST SCE	ENARIO (COST PRICE INCREASES			
ļ	OUR DATA	lable		BASE DATA These figures will be wherever your data is	used by the c s not provided	alculator			
1	lilk composition:	AMPE	MCVE	Milk composition:	Combined				
F	at	4.10%	4.10%	Fat	4.10%		AHDB Calcs		
F	rotein	3.35%	3.35%	Protein	3.35%		RESULTS		
5	olids Not Fat	8.77%	8.77%	Solids Not Fat	8.77%	calculated	AMPE: 37.82 ppl		
				(3yr average figures	(3yr average figures used for composition)				
0	osts (£/t product):			Costs (£/t product):	Costs (£/t product): Combined				
E	lutter	304		Butter	304				
5	MP	521		SMP	521		AFTER PROFIT MARGIN		
E	MP	521		BMP	521		AMPE: 35.56 ppl		
0	heddar		403	Cheddar	403		MCVE: 35.64 ppl		
N	Vhey Powder		496	Whey Powder	496				
N	Vhey Butter		304	Whey Butter	304				
							FARM GATE PRICE		
F	rices (£/tonne):			Prices (£/tonne).Cu	rrent:		AMPE: 33.56 ppl		
Ē	lutter	4050		Butter	4050		MCVE: 33.64 ppl		
5	MP	2511		SMP	2511	Estimated at 62% of butter price = Average since 2019			
ī	actose powder	872		Lactose powder	872	From GDT,Lactose			
E	MP	2408		BMP	2408	Estimated using SMP price -103	Forecast COP		
1	lild Cheddar		3500	Mild Cheddar	3500				
٧	Vhey powder		864	Whey powder	864	Estimated at 34.4% of SMP price = Average since 2019	33.5		
V	Vhey butter		3750	Whey butter	3750	Estimated using butter price -300			

Extreme scenario

Under the "extreme scenario" cost price increases, the calculation indicates that butter will need to be £4,125/tonne to deliver a break-even price to farmers. Mild cheddar will need to be around £3,550/t:

АН	DB						
AI So	MPE & MCVE t urce: AHDB	ool		EXTREME SC	ENARIO	COST PRICE INCREASES	
	YOUR DATA leave blank if not ava	lable	MOVE	BASE DATA These figures will be wherever your data i	used by the cost of the cost o	alculator	
	Fat	4 10%	4 10%	Fat	4 10%		
	Protein	3 35%	3.35%	Protein	3 35%		RESULTS
	Solids Not Fat	8.77%	8.77%	Solids Not Fat	8.77%	calculated	AMPE: 37.76 ppl
		277774		(3yr average figures	used for comp	osition)	MCVE: 37.73 ppl
				.,			
	Costs (£/t product):			Costs (£/t product):	Combined		
	Butter	332		Butter	332		
	SMP	597		SMP	597		AFTER PROFIT MARGIN
	BMP	597		BMP	597		AMPE: 35.46 ppl
	Cheddar		440	Cheddar	440		MCVE: 35.42 ppl
	Whey Powder		572	Whey Powder	572		
	Whey Butter		332	Whey Butter	332		
							FARM GATE PRICE
	Prices (£/tonne):	4125		Prices (£/tonne),Cu	rrent: 4125		AMPE: 33.50 ppi
	SMP	2558		SMP	2558	Estimated at 62% of hutter price = Average since 2019	
	Lactose nowder	872		Lactose powder	872	From GDT Lactose	
	BMD	2455	_	BMD	2455	Estimated using SMP price -103	Eorecast COP
	Mild Cheddar	2433	3550	Mild Cheddar	3550	Estimated using own price - 105	, orecust cor
	Whey powder		880	Whey powder	880	Estimated at 34.4% of SMP price = Average since 2019	33.5
	Whey butter		3925	Whey butter	2825	Estimated at 64.476 of Sam price - Average and 2013	
	They build		3023	whey boller	3025	Countries using butter price -300	

Full exposure scenario

Under the "full exposure scenario", the calculation indicates that butter will need to be £4,200/tonne to deliver a break-even price to farmers. Mild cheddar will need to be around £3,625/t:



"Reset prices" required to deliver 33.5p break even milk prices at difference cost scenarios





Conclusion

Cost price rises in the dairy industry are rampant on every front – from primary farm level through to dairy processors. Given the slim margins made by UK processors¹ these costs cannot be absorbed by processors, and nor can they be passed back down the line to farmers, as they are facing their own inflationary challenges². There is no choice but to pass these costs on to consumers through higher prices, and this will result in "new reset" prices for liquid milk, cheese, and butter.

For example, if the current cost increases in the supply chain remain as they are now, the "new reset" bulk butter price will need to be around £3,975 - £4,200/t (rather than current £3,200/t) and the milk cheddar bulk price would need to be around £3,425-£3,625/t (rather than the current £3,000/t). The liquid milk price needs to be commensurate with those levels to keep milk flowing into liquid dairies, as cheddar makers are consistently out-paying liquid processors and attracting ever more farmers (See Appendix.) Indeed, some liquid processors are already heavily reliant on the spot market for their milk supplies, as they have insufficient farmer suppliers to meet their needs.

If cost compensation is insufficient then milk volumes from farms will fall, and more of what is produced may effectively migrate away from the UK market and on to the global market. This statement is reinforced by the fact that almost all UK cheese makers and butter makers have significantly increased the amount of cheese they export, and this is expected to continue, despite the complexities associated with sales to the EU after Brexit. (See Appendix.) Indeed, current dairy futures prices suggest that equivalent ex-farm returns of around 34ppl are possible from export markets going forward and, whilst these markets can be volatile, many cheesemakers are developing profitable export cheddar sales, so it cannot be ignored.

The exponential rise in on-farm and processor inflation across every cost price element, plus the opportunities for export and the challenges on milk supply in Europe, means that the time has come for a revision, or 'reset', of relationships, expectations and price levels across the dairy supply chain.

The cost price squeeze will put more pressure on UK farmers and dairy processors, some of whom are vulnerable already, and may not survive. What's more, these businesses and individuals are essential partners for retailers looking to address concerns around climate change and biodiversity, which requires long-term collaboration, whilst also maintaining high quality, traceable food supply.

As such, there has never been a more urgent need for a reset in consumer prices to ensure that long-term, mutually beneficial relationships with sustainable processors and their farmer suppliers can be maintained across the UK dairy industry.



1) UK Dairy Processing Industry 2014 to 2018 Performance Review and 2025 Outlook – Strategic Analytical Services

2) Cost of Production Report September 2021 – Kite Consulting; Restricted document.

Appendix



UK cheddar export growth from the UK

UK butter export growth from the UK



NB. 2020 figures affected by Brexit.

The lure of the cheddar makers – how they are out-paying liquid processors

