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THE FUTURE OF THE LIQUID MILK PROCESSING SECTOR

The "Champions League", "Premier League" and the "Challenged League"...

Introduction

Kite Consulting believes that the long-term prosperity of the UK dairy sector requires businesses at all stages of the supply chain – farm, processor and retailer - to achieve sustainable returns. We support this by providing well-informed, innovative and pro-active consultancy and business / market analysis and assessment.

To achieve long-term success, the UK dairy sector needs a viable supply chain for all aspects of the dairy industry – one that meets the needs of consumers, delivers sufficient returns to retailers and processors and provides farmers with long-term supply chains which are functioning properly.

Over the last few months we have been increasingly concerned by the reports of the precarious financial situation in liquid milk processing.

An article in *The Grocer* magazine on 14 December 2018, highlighted the parlous state of liquid processing companies, stating that the "Average profit margins for the seven largest milk processors have plummeted by almost 86% to just 0.14%". It continued, "after an equally punishing 2018, several processors are now understood to be facing financial difficulties." Since then, we have seen Muller's announcement of its £100m Project Darwin cost saving programme.

Uncertainty in the UK liquid milk sector is not something that's new, but the success of the liquid market is the bedrock for UK dairy farmers. As a result, Kite has undertaken this assessment of the liquid milk processing sector to try and determine the short and long-term challenges it is facing, and what clients need to be aware of when planning their long-term future.

Limitations

This review covers the UK's largest 15 liquid milk processing sites. It does not focus on smaller processors and it excludes plants dealing with doorstep delivery, for example Muller's Hanworth factory.

It is also designed as a discussion document – to stimulate debate - rather than being intended as a definitive review on the sector.

Current liquid milk market

Liquid milk has always taken around half of the UK's production of around 14bn litres. Last year some 6.8bn litres were sold for liquid milk, with a rough approximation being that half of that amount is sold by the major retailers with the rest going to smaller retailers (Iceland, Farmfoods) plus food service, independent retailers, garages, doorstep and other outlets.

In recent years, liquid milk consumption has been declining by around 1.5% p.a, equivalent to 70m to 80m litres per year. Indeed, on a 'per capita' basis, consumption has fallen by 26% since 1998, from around 120kg per person to 95kg today. This annual volume decline is equivalent to the capacity of one medium-sized liquid dairy every three years and one large factory every six years.

The value add of liquid milk has also declined, from accounting for 48% of gross value spend on dairy in 1998 to less than 35% in 2018.

Market segmentation

The liquid market is characterised by the significant proportion traded through the major retailers, with different sourcing and buying schemes in place (see figure 1) in order to pay "fair prices" to producers. This follows the negative pressures that built-up over the last two decades, when consumers were

Segmentation of the liquid supply chain at retail level

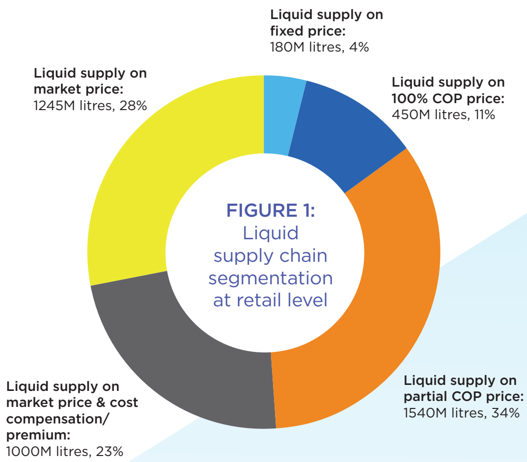


FIGURE 1: Liquid supply chain segmentation at retail level

sympathetic to dairy farmers at very low points in the milk price cycle and when the retailers then acted for brand and reputation protection reasons.

Many retailers now operate these ‘aligned schemes’. They determine the price they pay the farmers, often on cost of production rather than market-related prices, which can differ by several pence from the price paid to farmers on ‘non-aligned’ contracts. The difficulty with these schemes is that they can leave the milk processor effectively as a contract processor, with little ability to influence their margin due to being constrained at both ends of the supply chain.

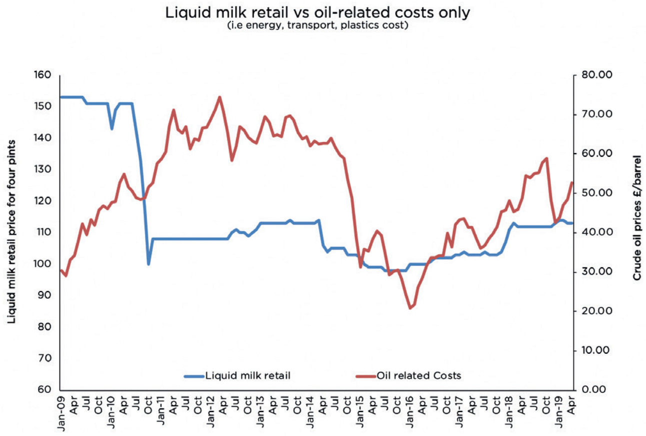
One of the main challenges to the sector, however, has been the changing grocery retail model, with the rise of the discounters post-2008. As the established grocery retailers in the UK reacted to this development, we saw significant retail price discounting on liquid milk between 2013 and 2015, with those lower retail prices largely persisting until now.

Supermarket milk price war timetable

2013	Most retailers at £1.39 for four pints. ASDA is unique in being on £1 for four pints.	
2014	3 Mar:	Tesco cuts price of four pints to £1 from £1.39, to match ASDA
	5 Mar:	Sainsburys and Co-op follow Tesco
	6 Mar:	Waitrose and NISA respond
	7 Mar:	Morrisons cuts price to 96p for 4 pints
	21 Mar:	Aldi cuts price to 95p for 4 pints
	15 Aug:	Waitrose cuts price to £1 for 4 pints
	13 Oct:	Iceland drops price of 4 pints to 89p
2015	5 Jan:	ASDA slashes price to 89p for 4 pints
	25 Jun:	Sainsburys drops 2 pints from 89p to 75p and 1 pint from 49p to 45p
	4 Jul:	Tesco responds on 1 pint prices
	7 Jul:	ASDA follows Sainsbury’s cutting 1 and 2 pint prices
	13 Jul:	Morrisons cuts price of 2 pints to 74p
	24 Jul:	Aldi cuts price of 2 pints to 74p
	20 Oct:	Iceland increases 4 pints to £1
2016-8	Prices stabilise around £1 for 4 pints.	
2019	Currently Tesco, Morrisons and ASDA are selling at £1.09 for 4 pints, with Sainsbury’s at £1.10	

Undoubtedly, this development in the grocery market took value out of the liquid milk sector, with estimates that in 2014 more than £150m of value was removed from the liquid milk supply chain in a single year.

At the time, this erosion of income coincided with a decline in oil-based costs for the processors, i.e. energy for factory running costs, transport and plastics, which helped mitigate the margin reduction. However, those costs have increased exponentially since 2016 and are now close to the pre-2014 levels. This, plus increased costs in other areas such as wages, has led to markedly increased pressures on processors.



Interestingly, at the same time as the price war started, new and world class investment in liquid milk processing facilities was taking place in the UK, notably Arla’s Aylesbury dairy. This resulted in an over-supply of processing capacity in the industry, which has taken several years to reduce through the closures of other, older sites such as Ashby de la Zouch and Hatfield Peverel. The over-capacity also contributed to driving down processor margins, due to the competitive pressures in the marketplace and the need to fill the new factories.

Marginal pricing

In a sector where there is a declining demand it is easy for excess capacity to grow. The danger then is that the sector enters the realms of “last man standing”, where businesses keep operating in the belief that a rival will exit the industry before themselves.

This excess capacity is often traded at marginal prices which, in turn, becomes the “normal” price for the sector, since no customer wants to be disadvantaged by paying a “true” price if they think their competitor will derive competitive advantage by having sourced product at a lower price. An example of marginal pricing in the milk processing sector is shown in Table 1.

Table 1: Full costings for milk processing versus marginal pricing

Item	Full cost (ppl)	Marginal cost (ppl)
Collection	2	2
Processing costs	8 - 10	5
Packaging	4.5-5.5	4.5
Distribution	4 - 6	4 - 5
Net off cream @£1.50-£1.60	-6	-6
Full cost	**12.5 - 17.5**	**9.5 - 10.5**

Effectively, therefore, the marginal litres can become the major driver for the industry. Based on this business model it is very difficult for the sector to become profitable and sustainable in the long term. This, again, has impacted the fortunes of the industry.

What is changing now, however, is that processing capacity is now being removed. When combined with the lack of available investment money and better returns elsewhere, this means that the quality of liquid milk processing facilities is polarising.

Has the market reacted fast enough?

One could argue that the liquid milk processing sector has not responded to the changing market fast enough, which has compounded the issues. Undoubtedly, there is inevitable inertia in an over-supplied market, as competitors seek to out-compete each other to survive, as described above.

In a falling market – declining 1.5% per annum – and with value being stripped out of the sector due to the changing grocery retail landscape we have faced in the UK, it is, perhaps, surprising that processors haven't taken liquid milk processing capacity out sooner, either re-configuring operations into different dairy sectors or removing capacity. In addition, there was an expectation that in a post-quota world, processors would implement their own methods of milk supply control to match supply to demand, yet to date we have not seen such moves put in place. Possibly the biggest reason for the pressure on milk prices and returns in the liquid sector must, therefore, be the relatively uncontrolled expansion of supply and processing capacity into a sector that is in decline.

What's next?

There are some major challenges facing the liquid sector over the next few years. These include:

1. Downward trend on consumption from changing consumer tastes (less cereals being eaten for breakfast, plus an increase in alternative tea / coffee, plus the growth of alternative beverages);

2. Continual pressure on the retail food sector;

3. Increased environmental regulations and consumer expectations over carbon, water use, plastics, recycling, traffic, anti-social noise around factories and other issues;

4. Higher expectations and standards over food production standards and food safety / shelf life;

5. Lower vehicle emission rules, not least the expanded Ultra Low Emission Zones in London, which will affect two factories in London from 2021 – Freshways in Acton and Arla's Oakthorpe plant in Palmers Green;

6. Labour availability post-Brexit for factory workers and drivers;

7. Cost inflation on fixed and variable costs.

Current factory capacities and capabilities

The top 15 factories in the UK by estimated capacity are:

1. Arla, Aylesbury
2. Muller, Droitwich
3. Arla, Stourton
4. Muller, Bridgwater
5. Muller, Bellshill
6. Muller, Manchester
7. Muller, Severnside
8. Freshways, Acton
9. Arla, Oakthorpe
10. Medina, Fareham
11. Arla, Lockerbie
12. Tomlinsons, Wrexham
13. Yew Tree Dairy, Skelmersdale
14. Grahams, Bridge of Allan
15. Paynes, Boroughbridge

Within its Project Darwin cost saving project, Muller is consulting on the potential closure of Foston in Derbyshire (which is not listed on the map). This closure takes the amount of liquid milk processing capacity that has closed over the last few months alone to an estimated 600m litres:

- Yeo Valley: 100m litres, business sold to Arla [N.B. organic milk]
- Pensworth: 100m litres, exited liquid milk
- Foston: 400m litres, capacity absorbed into other Muller sites

"Champions League" vs "Premier League" vs "Challenged League" sites

As plants exit liquid milk the question then becomes whether there will be other industry operators who have under-utilised capacity to take up the slack from the closures, or which could easily add marginal capacity. An initial assessment would appear that there might not be – certainly not in the top echelon of plants operating in the UK.

Currently there are only four retailer supplying liquid milk processing factories that can be classed as "Champions League", when assessed on a mixed criteria of location, age, size and scale, technology used, recent investment and accessibility. These are Arla's Aylesbury and Stourton sites, and Muller's Droitwich and Bridgwater plants.

Others can be viewed as being in the "Premier League" (i.e. they are not as big or as new or as good as the "Champions League"). And others can be viewed as being in a "Challenged League" (i.e. they have their own constraints or challenges based on location or age, or technology, that cannot be easily overcome given the current level of margin and reinvestment potential):

An assessment of the major liquid milk processing sites in terms of capacity and future potential

Processor	Factory	Est. m. litres	Major retailer site	Champions League *	Premier League **	Challenged League ***	Reason
Arla	Aylesbury	1,000	✔	✔			
Muller	Droitwich	800	✔	✔			
Arla	Stourton	750	✔	✔			
Muller	Bridgwater	600	✔	✔			
Muller	Bellshill	500	✔		✔		
Freshways	Acton	450				✔	Age, location, investment, ULEZ expansion 2021
Muller	Manchester	400	✔		✔		
Muller	Severnside	400	✔			✔	Age, other processing options
Arla	Oakthorpe	350	✔		✔		
Medina	Fareham	300	✔ (30%)			✔	Age, location, investment
Tomlinsons	Wrexham	270	✔ (30%)			✔	Current finances
Arla	Lockerbie	200	✔			✔	Capacity, other processing options
Yew Tree Dairy	Lancashire	180	✗	Does not supply major retailers			
Grahams	Bridge of Allan	180	✔ (50%)			✔	Expansion constraints
Paynes Dairies	Boroughbridge	175	✗	Does not supply major retailers			
Predicted capacity of main plants		**6,555**					

Analysis of processing capacity vs. market demand

Predicted capacity of main plants	**6,555**	*+10% allowance*	*7,211m litres*	
Total market demand vs. estimated capacity	101.6%	*+10% allowance*	*92.3%*	Note 1 (overleaf)
Total capacity of 'Champions League' sites			3,150m litres	Note 2
Retailer demand as % of 'Champions League' site capacity			116.2%	
Total capacity of current suppliers to major retailers			5,750m litres	
Capacity of those plants not supplying major retailers			805m litres	Note 3
Capacity of plants in the 'Challenged League'			1,800m litres	
Capacity of plants in the 'Champions' and 'Premier' Leagues			4,400m litres	
Retailer demand as a % of 'Champions' and 'Premier' League site capacity			**83.1%**	Note 4

**Champions League assessment based on age, scale, capacity, technology, investment and location*

*** Premier League assessment based on scale and ability/willingness to invest in light of other business options.*

****Challenged League assessment based on age of facilities, location, technology used plus unique (cited) challenges, or where they have other processing options, or where current lack of margin may affect their ability/desire to re-invest for the future.*

Major retailer liquid milk demand

Retailer	m litres
Tesco	1,000
Sainsbury's	500
Morrisons	450
The Co-op	400
Aldi	300
Lidl	250
Waitrose	100
ASDA	580
M&S	80
Total	**3,660**
Other	3,000
Overall liquid demand	**6,660**

Notes:

1) Assuming Muller's Foston plant in Derbyshire does close, the capacity of the top processing plants in the UK will then appear to be on a par with the total market demand for liquid milk for retail, independents and food service, at over 100% (101.6%). Even if the factory capacity assessments have been underestimated by as much as 10%, the capacity of the top 15 plants drops to 92.3% of current demand. This points to an increasingly balanced market, perhaps for the first time in years.

2) Retailers are most likely to want as much of their milk as possible to come from "Champions League" factories. The analysis indicates that total demand from the main retailers is already 16% more than the capacity of the four sites that qualify for this status.

3) Three sites – Freshways, Yew Tree and Paynes – predominantly supply food service, independents and smaller retailers and do not supply any milk to the major retailers. The combined capacity of these plants is estimated to be over 800m litres, effectively removing that volume from the retail equation. Frankly, it speaks volumes that three of the top 15 liquid milk processors in the UK actively choose not to do business with any of the major retailers.

4) There are three sites classed as "Premier League" and six sites that have been classed as being in the "Challenged League". The reasons for this vary, from the age of the plant or the technology used (for example contactless fillers vs contact fillers), to their location; known financial difficulties; the challenges of the Ultra-Low Emissions Zone for London from 2021; to investment options. For example, some multi-site factories have the option of investing in liquid milk or cheese / powders, while other companies, like Medina and Freshways, have the option of investing in their factories or in other businesses, like property. Thus, the term "challenged" is not meant to imply these factories have a question mark over their future, only that they are facing challenges that cannot be easily overcome in the current financial environment with the absence of margins and funds for re-investment. The key point is this: if there continues to be no available funds for investment then the technology, service and environmental capability gap between the "Champions and Premier League" sites, and the "Challenged League" sites will only grow and intensify.

The total capacity of plants in the "Challenged League" is 1.65bn litres, with the capacity of the "Champions & Premier League" sites being 4.4 billion litres. Therefore, if we assume that no other retailer or food service operator wants milk from these sites and all of the major retailers do, then the "Champions & Premier League" sites are already at 83% capacity. The reality, though, is that food service businesses do secure milk from these outlets, meaning that the realisation from these sites is significantly higher. In all probability, therefore, these sites are running at or near capacity now.

What are the scenarios for change in the future?

Scenario 1 – Greenfield site

There is no prospect of a new greenfield site liquid dairy being built in England and Wales, although Grahams is applying for planning permission to build a new dairy in the central belt of Scotland, to replace the firm's older plant.

The barriers to entry to create "Champions League" plants, or even "Premier League" ones, are huge. For example, maximum efficiencies and cost effective investment in processing efficiency and environmental management for a "Champions League" site are unlikely to be achieved unless a throughput of around 500m litres can be achieved and the cost of building that from scratch on a greenfield site is likely to be over £200m, and will take the best part of a half a decade. Graham's plans are only viable provided land can be sold for development and that firm has been striving for years to get the necessary approval.

Aside from Grahams, only two companies are likely to invest for the very long term - Arla (a farmer-owned business) and Muller (a privately-owned company). They have longer investment strategies and lower ROC expectations that plc businesses, but neither have the appetite or the need for new liquid plants. Other potential private businesses such as Medina and Freshways also have other business interests such as property, with far greater potential ROI. These alternatives are sure to be higher up the priority list than liquid milk processing. What's more, their current sites are also likely to be worth £millions in re-development potential, resulting in the more likely business decision being to close and re-develop rather than to invest in new greenfield developments.

Scenario 2 – Retailers to build-up smaller players into larger ones

Other commodity sectors, such as bread, have gone through similar pressures in the 1990s to those that the milk processors are facing now. The industry consolidated into "too few players", according to the obvious view of the retailers, who addressed this by encouraging new players into the market. A similar phenomena then occurred with eggs, when retailers felt threatened by processor dominance in the early 2000s, when Noble foods emerged as market leader. Other egg businesses subsequently emerged, for example Griffiths' family farms and Glenrath Eggs and these were assisted in their growth by changing demand for free range eggs, which meant their business model could adapt. This lowered the barriers to entry, so new players could enter and develop in a mature market.

To some extent this is happening now in dairy, with Sainsbury's move to bring Tomlinsons and Medina in as new suppliers over the last few years. However, it is not a secret that this has been a challenge for these sites.

As a result, it is currently impossible to find any other processor in the industry that does not currently supply major retailers with milk, who is queuing up to do so. In other words, the current appetite from smaller players looking to be grown into larger ones by supportive retailers is zero.

Scenario 3 – Promotion from "Premier League" to "Champions League"

There are currently no obvious "Champions League" promotion hopefuls from the "Premier League" for many different reasons – not least their age, size, scale, locations and investment requirement.

"Premier League" sites are likely to stay as "Premier League" sites, therefore.

Scenario 4 – Promotion from "Challenged League" to "Premier League"

The promotion of existing "Challenged League" sites to the "Premier League" is possible, but can only occur if there are greater margins in the supply chain and sufficient funds for satisfactory, comparable ROI. The benchmark return for new investment to come back into the sector to promote sites up the league table needs to be in the region of 8-12%, based on market models in other sectors. It is currently nowhere near that level in liquid milk.

Longer-term outlook and conclusion

The industry is entering a new phase when major retailers and food service operators will want their suppliers to adopt ever higher standards of food safety, better shelf life and environmental performance as well as better cow welfare and traceability on farm. Ultimately, this is likely to mean that major retailers will continue to be served by "Champions League" or "Premier League" sites. There is, however, a need for more money in the supply chain to facilitate the continual development, improvement and promotion of all sites in the UK, whatever level they are at.

If the industry is continually starved of the necessary re-investment money required, it risks more rapid decline and further factory rationalisation of capacity. A minimum of 2ppl is required for reinvestment in order to move forward, but that is not the sum total of the investment requirement – the sector also needs the resources to protect and promote its primary product, milk, in the first place and to develop more added value milk brands. For example, Arla brands account for 33% of volume, but 66% of value in their business.

The sector also needs to recognise that retailing is changing as new entrants and disruptive technologies come into play. A healthy industry will need profits to invest in new areas of growth to meet consumer demands. The objective has to be a "win-win-win" for retailers, consumers and the industry. This industry can give retailers what they want - world-class suppliers with world-class factories. But they can't do that in the absence of sufficient returns right down the chain and there clearly aren't sufficient returns at the moment.

It is easy to think that this additional margin must, ultimately, come from consumers paying more for milk. The grocery retail environment is more price conscious than it has ever been and so no single retailer is likely to step out of line to increase consumer prices. In reality, simple economics also comes into play – in an over-supplied market price will always be under pressure and the biggest opportunity to re-balance the sector and improve margins is as supply and over-capacity is removed, reducing the frequency of marginal pricing and matching capacity to demand.

As it stands, we will see change in the liquid processing sector, which is also likely to become increasingly polarised. The "Champion" and Premier League" sites will get better, the "Challenged League" sites risk becoming even more challenged and falling behind in their capabilities at a time when expectations on them are rising.

This report also concludes that the capacity of the "Champions League" and "Premier League" sites is already maxed out, or close to being maxed out. Where once there may have been excess capacity, there is far less of it now and very little, if any, among the very best, most sustainable plants in the country.

Actions and recommendations

Hopefully, returns to liquid milk processing will improve for processors and farmers. If they do, then a win:win scenario can be envisaged. If not, then the gulf between the "Champions League" and "Premier League" sites and the "Challenged League" factories will widen markedly due to the lack of investment and there will be many losers throughout the supply chain.

All businesses, from retailers to farmers, need to identify if their processor partner is, at best, in the "Champions League", or the "Premier League", or capable of getting there/motivated to get there, given the obvious challenges ahead on investment capability and the increasing environmental and consumer expectations.

Now is the time to align with those who will end up winners.

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