

Beverage Service Association

July/August 2008

in the cup

BEST PRACTICE IN BEVERAGES

£2.50



All white now...

We seem to have been talking about doing an issue of *In the Cup* on milk for ages, so I am really pleased that it is now here. This edition is packed full of information, views and opinions from many people. I have always been a fan of George Orwell (*The Road to Wigan Pier* has a brilliant food hygiene case study where the owner of a guest house that Orwell is staying in empties a chamber pot with his thumb sticking in it and then serves a slice of bread and butter with his thumb sticking in it - nothing to do with milk I know, but interesting nevertheless), and I am fully with him on the issue of whether to pour the milk before the tea or after the tea. You'll find it on page 8.

As the title of this issue implies we often misunderstand or underestimate the importance of milk in the beverages that we all manufacture, sell or serve, but of course it is a major constituent for most hot beverages. If I had a pound for every time I have said that I wish I could sell the milk to go with every case of coffee, tea or chocolate that we sell then I would be a rich man. The milk man certainly does well out of our industry. There are of course alternatives to fresh milk and some of these are discussed here.

Milk nowadays has been raised above the position of mere commodity and has become a medium for modern art as many of our baristas, and especially those taking part in the many competitions that take place now can testify. There are some who think it has all gone a bit far but anything that can convert a basic product into an object of fun and pleasure has got to be a good thing.

As usual I hope that you find this issue interesting, educational and informative. If you have any feedback or wish to comment on any of the issues in this edition or any others then please contact us at the Secretariat.



David, Veal, Chairman,
Beverage Service
Association



15 REASONS

WHY YOU SHOULD JOIN THE BSA

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The pictures in this issue are from various sources – the cover is from Arla Cravendale, the two dramatic pictures of milk drops are by Dror Bar-Natan and used by permission. However, the cow picture on page 3 has been used by so many people, we have been unable to establish who originally took it.

Milk - how much do we know about it?

It is a widely-known statistic that something in the region of 95 per cent of drinks sold in the modern coffee bar feature a heavy milk content. The amount of straight espresso shots, or Americanos, is virtually insignificant; the Tea Council reports that 98 per cent of 'everyday' tea drunk in the UK is white.

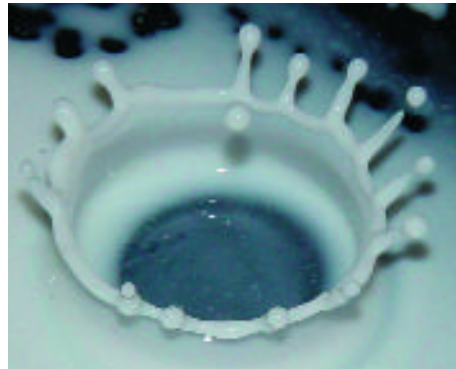
If milk is such a vital factor in the drinks we make and sell, how much do we really know about it and what it can do? Astonishingly, there is very little research into what kind of milk works best with which beverage - but virtually every professional barista has their personal opinion.

"I am not aware of any scientific studies that have looked at how milk affects the character of tea," says Bill Gorman, chief executive of the Tea Council. "There are teas that don't suit milk, like green and Darjeeling, and some say Lapsang, but the general approach would be, you take milk as a personal preference.

"All tea tasters use semi-skimmed milk today when judging the teas they are going to buy. The milk habit with black tea is as strong as ever in the UK and not surprising, as we do enjoy great quality fresh milk - I heard somewhere that 50% of all milk consumed in the UK is with tea."

At Suki Teas, blender Oscar Woolley says: "I

have seen no such reports or tests carried out, but from my personal experience a good full fat creamy milk works perfectly with breakfast tea blends. Some purists may disagree but a light semi-skimmed can complement an Earl Grey very



A high-speed picture of a milk droplet hitting the surface of a drink

well. I am also partial to a full fat milk in my Rooibos. UHT has its place, but it's surely not with black teas."

What of shakes and milky drinks?

"With regard to milk shakes and many blended drinks (Starbucks' Vivano drinks are milk-based)

full-fat tastes best as it gives a more creamy mouthfeel," says Gary McGann at Espresso Warehouse. "However, most people are using semi at home and are accustomed to the taste profile, so if I was an operator I would default to that one. One major customer now uses three different milk types, full, semi and soya, and has separate jugs behind the bar for segregation. For tea (black and Earl Grey) full fat is again best but semi is acceptable."

At Euphoria Smoothies, John Maddocks' default milk is 'two per cent' reduced-fat milk.

"We don't know of any specific work on the subject of milk in smoothies or iced blended latte type drinks, but we do have a view.

"In Euphoria Smoothies we always use 2% (reduced fat) milk in our blended smoothies by adding this to our fruit puree and ice. Similarly we use 2% milk in our blended coffee and chocolate drinks. Apart from that our smoothies can be 100% non-dairy (lactose free) - upon request from the customer we would substitute the milk for either soya milk or water.

"We also add a measure of vanilla creme or non fat vanilla yoghurt powder to each smoothie to add creaminess and a hint of vanilla flavour, except of course where lactose-free is requested."

... and what machine produces it?

What produces the perfect milk for cafe use?

According to Dairy Management Inc. of America, the perfect milk for frothing comes from a machine that weighs around 700 kilos, must be stored outside, and works on an energy source of soya bean and grass.

And that last point is the one which gets people aerated. Even those who believe that the best milk comes from a cow agree that the milk quality is influenced by what goes into the cow in the first place.

According to the professor of food science at a noted American seat of research into food technology, the right milk can only come from the right cow. So, he has questioned whether it is possible to breed a 'cappuccino cow', which will produce perfect milk for frothing.

His theory holds that a cow's diet is essential to the final frothing qualities of the milk. The proposed perfectly-bred cow will be given a soya feed which is 'manipulated' by minerals, additives and a kind of heat treatment, which in turn will have the effect of making it pass right through the first of a cow's four stomachs.

The theory says that milk's fatty acid composition, which is critical for frothing and steaming, is achieved either through different



lactation stages within the cow, or by varying animal feed. The scientists argue that if they can change the way the cow breaks down the fat in its food, then they can plan for the perfect milk coming out. One scientist reports already producing different fat yields in milk, based entirely on how he fed the cows.

The general theory is one which baristas have discussed for years. In 2003, when Dan Gilmore of Wales won the barista championship, he remarked that he questioned his local milk suppliers closely on the feed that their cows were on, arguing that a change from winter to summer feed will affect the steaming performance of the milk.

"If I ask our milkman if his cows are on hay

this week, he thinks I'm being silly, but the fact is that if the cows' diet changes, the milk doesn't volumise the same way... I should get six or seven cappuccinos out of the jug we use, but if they have to put the cows on different feed, I may only get four. We had a full month last year where we just couldn't foam the milk the way we liked, because it was too thin."

Drewry Pearson of Marco Beverage Systems has said that this is due to protein, as the main factor determining the quality and stability of foam. "The concentration of Beta Lactoglobulin, the predominant whey globular protein found in bovine milk, varies throughout the year, depending on the lactation cycle of the cow, with its related hormone changes, and also upon the growing season. The concentration of protein levels in the grass fed to the cow is a significant factor in the protein levels of the milk produced.

"The periods of low protein production by the cow are those of early lactation (February to April) and late lactation (September to December). These are months when the milk will not give such good quality froth, but which could be improved with correct feeding."



How important is it that my staff understand milk?

"The \$64,000 question is this - would you prefer a really good coffee, made with a badly-prepared milk, or an average coffee with really well-made milk? The British out-of-home market is not an espresso market, it's a cappuccino and latte market. So you can't over-exaggerate the importance of the milk, and you have to work on it. You'll get by with an average coffee if your milk is well-done, but you won't get away with poor milk, even if you're using a great coffee. It's that critical..." *Barry Kither, Lavazza*

Does the cafe operator have to compromise between 'fresh' and 'long life'?

Is the terminology of milk well understood? Does all fresh milk have a short life? Does only UHT stay OK for days? And what does 'filtered' milk mean?

It was in 2001 that Arla launched Pure Filter milk, a milk designed to last for up to three weeks. Up until then, the only way of making milk stay fresh for longer had been the high heat treatment associated with UHT milk, but the Cravendale pure-filter milk from Arla was made using a ceramic filter that removed the bacteria which turn milk sour. The milk was then pasteurised in the normal way before being bottled, and the result was that a milk that lasted longer than conventional 'fresh' milk.

Why did Arla do it?

"We wanted to launch a milk that would benefit the trade by offering a longer shelf life, thus reducing wastage," explains brand manager Alex Glen. "We wanted to benefit the

consumer by offering a purer milk that was guaranteed to stay fresh for seven days once opened, compared to standard milk which stays fresh for up to four days once opened.

Why physical filtration, and what is the importance of ceramic filters?

"The filtration process was taken from cold beer technology used in Canada. Cravendale is passed through fine ceramic filters, no more than one-fifteenth of a hair's width, before pasteurisation, which removes more of the bacteria that cause milk to sour.

"Pasteurisation destroys all pathogenic bacteria. However, it does not remove the spore-forming bacteria from the milk, which in the right conditions can reform to create milk-souring bacteria. The Cravendale filtration process removes almost all of the spore-forming bacteria - as a result, these bacteria cannot reform, as they are no longer present.

"We use ceramic filters in this process as they are able to withstand higher temperatures during cleaning. This ensures that the Cravendale line remains clean and sterile."

(Recently, some Arla advertising, which said 'Cravendale isn't just any milk, it's filtered to make it purer', was challenged to the Advertising Standards Authority, by objectors who claimed that all milk was filtered. The ASA ruled that all industrial-scale produced milk went through a clarification and separation process, which could be viewed as a form of filtering, but that consumers were likely to understand from Arla's advertising that Cravendale milk was different to normal milk because it went through a special filtration process. The ASA ruled that the advertising was unlikely to mislead.)

But how does this milk perform in a café setting? Arla hired the independent consultant Paul Meikle-Janney, of Coffee Community, who has now released his findings.

"An enduring question has always been 'what milk is best for foaming?'" says Paul.

"Arla, who sponsor the UK barista championship, were receiving compliments from competitors using Cravendale, and wanted to fully understand why. So we devised a series of experiments to more fully understand how milk foams, and perhaps more importantly, why sometimes it doesn't!"

He first defined the different methods of treatment.

"Pasteurisation is the process of heating the milk to destroy most of the bacteria. The milk flows through pipes heated by hot water on the outside to a temperature of 72c for 15 - 20 seconds. Milk undergoing this treatment usually has a 12-day life from production.

"Long-life milk goes through a similar process at higher temperatures. Ultra Heat Treatment takes the milk up to a minimum of 138c for a few seconds, and extends the life of the unopened milk to usually six months from production without the need for refrigeration.

"Cravendale milk follows a slightly different path, through the fine ceramic filter and then pasteurised before the desired amount of cream is added back into the milk. The process extends the shelf life of the milk to 25 days."

Paul Meikle-Janney then foamed and compared 130 samples of all kinds of milk, not in clean-room conditions, but treating milk the way it would be handled in a catering environment..

"We received milk samples in near-perfect condition, but this would not be the case in your average café, where milk would more likely be



Cravendale put through some tough testing

... and do caterers know how much adjustment goes into 'making' a milk?

stored at higher temperatures, often left unrefrigerated. We emulated this by keeping the milk at 3c for the first three days after production and then 8c thereafter.

"We repeated the experiments on milks that had been kept for 6, 9, and 12 days from the date of production. This represented the range that a café would practically be using the milk."

His findings were that foam quality did indeed diminish over time, and quicker when milk was badly stored - as in the average café.

"Our main hypothesis was that as the milk aged, the deterioration would give us diminishing quantities of foam. This did happen to a certain extent but not to the degree we had expected.

"What we did see was deterioration in the foam quality. As the milk got older the foam got softer and softer and the bright shine given from young milks reduced to a dull-looking foam."

Milk kept at less than ideal conditions, which might be considered the average café, showed rapid deterioration, and fresh whole milk became particularly quickly unusable.

"We deduced that all milks deteriorate to an eventual point where they become unusable and this is down to two main factors: over time the bacteria enzymes will break down the protein structure. This breakdown not only gives an off-note in the milk (the cardboard-like flavour), but also increases the risk of separation (casein curd and whey) when heating the milk.

"Lipolysis is the splitting of the fats into free fatty acids and glycerol. This is what gives us the strong foul flavour that we would associate with milk being 'off', or rancid. Bacteria, commonly introduced through poor handling of the milk in our cafes, causes this split, by generating lipase (fat attacking enzymes) that work as a catalyst in splitting the fat."

And so, concluded Meikle-Janney, the filter process used for Cravendale does, like UHT, extend the time that milk can still be foamed effectively for use with espresso.

"Both the Cravendale and the long-life milks tested still demonstrated good foam height a full 24 days after production, when fresh milks had long become unusable.

"Both the pure filter system and the UHT system reduce bacteria that can cause proteolysis and lipolysis."

This is an edited version of the Coffee Community report. The full text of Paul Meikle-Janney's findings can be seen on the Coffee House magazine website, www.coffee-house.org.uk

A milk made for its purpose

How much can milk be technologically 'improved', or 'built' to meet a need? In the espresso world, there is a constant debate about the relative values of fresh milk and UHT. Traditionally, the British prefer fresh, whereas in the home of espresso, where things are accepted to be done 'properly', the Italians always use the longer-lasting UHT. How do we get the best of both?

This puzzle was recently approached by Pritchitts, which said that it is time the UHT issue was fully debated. Milk is treated like a commodity, said Pritchitts, but it isn't - it's a product with wide chemical variables, and needs to be understood.

So - why is it variable?

A typical issue is the fat content, which a chemist can change to overcome seasonal variations in the cows' feed. Fat does not affect a milk's ability to foam, but it does affect the type of foam which will be produced. A fat-free milk will produce a fluffy airy foam, reduced-fat milk will produce a medium-volume creamy foam, and whole milk will produce a heavy, thick result. So Pritchitts worked backwards, first analysing the kind of foam considered to be ideal for cappuccino, and then looking at the fat content which produced that optimum foam. It was found that a 2.1 per cent fat content worked best - this is above the fat level of a semi-skimmed milk, and well below the level of a full-fat milk. Millac Cappuccino Milk was created to have that fat content.

It is legitimate to use chemistry to achieve a milk that performs consistently, says Simon Muschamp, Pritchitts' head of marketing.

"Milk is a headache for every user, and we have a very long reputation for the creation of cream alternatives in which we have changed the functionality of the product - so we spent a long time working to create a milk which guarantees consistent foam every day of the year, foams to a greater volume than fresh milk, from both ambient and chilled temperature, is equally suitable for traditional machines and bean-to-cup machines, and has a long shelf life of six months.

"We know that all conventional wisdom says you must not foam milk twice. It was when we tested our milk with various baristas that they told us they could foam it more than once, and the taste stayed the same. We said 'is that good?', and they said it was unbelievable.

"This made us try to work out why, and we now believe it is in the way the mix of the stabiliser and protein wraps around the bubble of air... we'll think of it as an unexpected benefit."

The milk is also said to expand to a greater volume during steaming and foaming; there are reports of café managers saying they now serve two large cappuccinos from the amount of milk they used to use for a single.

All this was conceived in a laboratory in Ireland, where Pritchitts R&D manager says that his choice of UHT technique and stabilisers is the most likely key to the milk's performance.

"There have been too many 'cappuccino milks' where the makers just haven't thought about the chemistry, which is essential to the functionality.

"Our steam treatment is the most gentle, so it doesn't ruin the emulsion of the milk. The functionality of the milk is achieved by additional milk protein, and we have put in ingredients which reduce the surface tension of the milk, and allow more air in during foaming. The stabilisers, which are in fantastically tiny amounts but which are the mortar in the building system, impart thickness and body to the foam, and help the foam last longer. Simplistically, the protein grabs the air, and the stabiliser grabs both the protein and the air, and the result is thickness and body.

"And if you want to know what it tastes like, try it on your cornflakes - you won't tell it from fresh milk."

Is UHT milk that acceptable? Yes, says barista Thomas Polti, who is of Italian heritage but a British championship winner, and so knows both markets. "UHT tastes much creamier than fresh milk. How many times have do your customers talk about the coffee on holiday not being the same as at home? It's the milk! It is hard to convince the UK market to use UHT because we have been accustomed to getting the fresh pint delivered to the door, so we perceive fresh as best and UHT as sub standard - yes, maybe UHT is not the better-tasting when drunk cold... but it is not designed for that."



An interesting and useful secret for the caterer can be found in goats' milk, says Henry Elsby of the Delamere Dairy in Cheshire.

"Cows' milk is widely accepted as the standard for this industry. I see that many coffee houses have taken up soya, which is not a natural dairy product - but goat's milk is, and it is not an extreme option. We work very hard to show caterers people that it can be used so well."

The big question is - to what degree can goats' milk be used wherever cows' milk can?

"It can be used exactly the same way, and the main advantage over the other 'dairy alternative' field, which means soya, is that goats' milk mirrors the profile of cows' milk so closely. It performs as cows' milk does, with very little fiddling!"

The advantage of goats' milk, says Delamere, is that while some people have a reaction to cows' milk (an unsubstantiated figure says this can be one person in six) those very same people can often use goats' milk quite happily.

"The two main problems with cows' milk are lactose intolerance and allergic reaction to casein, which is a protein that occurs, to the best of my knowledge, in all mammal milk.

Goats' milk does contain lactose, but the globules are twenty times smaller, and goats' milk is digested three times faster than cows' milk. So it is believed that when it is ingested, it is ingested quicker, and we suspect that any lactose isn't allowed to hang around in the gut."

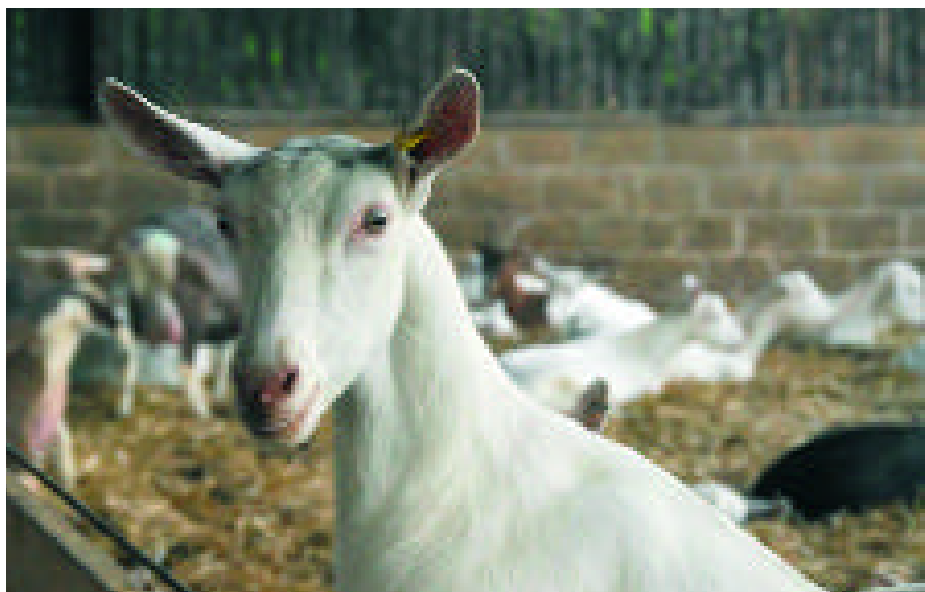
As well as allowing our digestive enzymes to complete their breakdown more rapidly, goats' milk proteins also form a softer curd in the stomach which helps with digestion - as a result, says Delamere, goats' milk is often useful for children, the elderly, and those with digestive difficulties.

The allergic reaction to casein may also be overcome by using goats' milk.

"The casein in goats' milk is in a different form from cows' milk, and it appears that it does not trigger a reaction in most people. Reactions to casein vary, but can involve respiratory problems. Cows' milk is also mucus-forming, and that is also a reaction to the same problem."

The big question with any kind of milk is - what it does it taste like, look like, and how does it perform?

"It tastes slightly different from cows' milk," says Henry Elsby. "We are used to a strange reaction from consumers when we ask them to taste it, but in general, they say they can't taste the difference. There is a difference - it's stronger, and probably more scented, than cows' milk, but as we say, you don't expect a



Goats' milk hits the mainstream

courgette to taste like a carrot. We say that the difference is something to be celebrated.

"If you use it in tea, it's absolutely fine - no change in colour consistency, and perhaps a very slight taste difference. I think it works well with a breakfast tea, and for something like an Earl Grey, you just use a little less of it. A very popular use is with chocolate, and I also think it may work better with flavours, in that it heightens the taste.

"It's a brighter white than cows' milk, and while we worked with a barista champion a lot, and used it in several local coffee shops, we saw no significant difference in working with it."

Curiously, the goats at the Delamere farm live in luxury compared to the average herd of milk cows. Most of the goats producing the milk are white British Saanens, which are not commonly kept outdoors, because they don't have the oil in their coats, as for example sheep do, to protect them from the wind and rain.



Delamere goats' milk is available to the trade from the major foodservice distributors, and unusually, is also available in powdered form.

This, says Henry Elsby, is for the real enthusiast.

"The value of dried goats' milk is for those people who are so insistent on it, and are so worried that they won't be able to get it, that they take their own supplies with them!"

Ask the
BSA... ?

What is 'the tapioca effect'?

In the café trade, it is widely reckoned that nobody knows more about milk than baristas - they are the people who work with the stuff every day, all day. They almost certainly handle more milk than the average farmer. One influential barista, the three-time champion Simon Robertson, has become so fed up with what he refers to as 'the tapioca pudding effect', or sometimes 'the frog-spawn effect' in his milk that he has now spent some considerable time researching the matter, and has begun to seriously question dairies, from the giant companies to the small independents, on exactly what they are doing with milk. "I'm sick of hearing what some of them say," he told us. And is Simon qualified to talk about it? Well, apart from being a champion barista, he has four years at agricultural college behind him, and practical farming experience.

We have promised to report his findings as soon as he allows us to.

Organic milk - is it really any better?

Critics of organic milk say there is no proof that organic farming makes any positive difference.

However, in May this year, a research study in Newcastle concluded that organic milk is indeed healthier than conventional dairy produce. Researchers from the Nafferton Ecological Farming Group at the university showed that milk from organically-reared cows contains significantly higher beneficial fatty acids, antioxidants and vitamins than other milks. The content in Omega3 increases; the unwanted Omega6 stays the same, but the balance between the two is improved.

"This clearly shows that letting cows graze naturally, using forage-based diets, is the most important reason for the differences in the composition between organic and conventional milk," said the project manager. "We've also shown that significant seasonal differences exist, with nutritionally-desirable fatty acids and antioxidants being highest during the summer when the cows are eating fresh grass and clover."

Organic cattle in the South of England spent most of their lives out of doors but in the North and Scotland cattle are brought indoors to live in sheds from the end of September or October, depending on rain and cold temperatures. Researchers found that by adding a mix of soya beans, rapeseed and linseed to the daily food rations for each cow kept indoors, milk quality improved and was comparable to the milk from an outdoor cow eating a fresh grass diet.

"Our future research is now focusing on how to improve the nutritional composition of milk during the winter, when cows are kept indoors and fed mainly on conserved forage," she said.

The scientists also discovered interesting results from a group of low-input farms in Wales, which are not certified organic but use very similar production methods, with very little fertiliser or antibiotics. Their milk also had significantly higher levels of fatty acids and antioxidants, which was a direct result of the extensive outdoor rearing and fresh forage intake.

The policy director of the Soil Association has, not surprisingly, welcomed such proof of the benefits of organic milk.

So, why is there still any problem with organic milk for catering use?

"The problem is not with organic milk as such," says one typical producer, Roskilly's of Cornwall. "The problem is a localised one, based on the processing of a lot of small producers, who don't have the facilities to homogenise satisfactorily. The additional problem is that in a single-producer herd, as the feed changes, then what's in the milk will change - proteins and fats will fall or rise over perhaps a six-week cycle.

"Therefore, small producers are inconsistent. And what a café owner wants is a milk that foams the way he wants, every time."

One rural barista has said that café owners must talk to farmers.

"What I would encourage café owners to do is to seek out local milk producers and talk to them about what a café needs. You will probably find a perfectly good deal, and you will benefit from the current enthusiasm in the market for locally-sourced produce."

Is it difficult to find organic milk of a consistent quality? Does talking to the farmer help, and can the barista learn about milk this way? One barista who has tried this is the reigning British barista champion, Hugo Herod of the Relish deli in Wadebridge, who tried hard to source a local Cornish organic milk. It is, he reports, hard work.

"I did indeed use a well-known local brand for a while, and sometimes



it was lovely, if a little inconsistent. On more than a couple of occasions it was complete ****. Considering the price I was paying for milk they were selling as 'good for baristas' I was thoroughly put out when I phoned to return a batch of 50-odd pints of utterly un-stretchable milk to be told they didn't take back milk and it was my problem... needless to say they lost the business.

"Through a friend who works for the Soil Association, I found another local dairy. They were processing organic milk, could deliver daily and were far better priced. Again, there was inconsistency and in long conversations we tried to get to the bottom of the problem - it was that they supply through a co-operative, whose milk isn't traceable. Some herds produce better than others and you can't control whose milk you get, so I gave up on it.

"However, two men farm a herd of their own Holsteins to 'virtually organic' standards and could supply milk guaranteed from that herd, with far improved consistency. It's great, incredibly fresh, stable and cheaper. The food miles are tiny and all my money's going local, with no cut in any co-operative. On top of that I took their milk to the world barista championships in Copenhagen and it performed admirably despite being frozen for the journey.

"So the simple answers are - organic cannot be consistent when milk is bought from a dairy that's part of a co-operative. Yes, I have talked at length to a thoroughly honest and straightforward farmer, unlike some I have dealt with.

"However, I think he learned more from me than vice versa!"

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There is a view that soya milk is increasing in popularity - it was, at one time, thought to be a nuisance product, which had to be kept for customers who were vegetarian or allergic to cows' milk. Now, although there are over a million vegans in the UK, and around four million UK consumers who are lactose intolerant, producers of soya milk say that their product has become a mainstream one with a large following of patrons who choose it by preference.

The first branded soya milk product devised specifically for the catering trade is Café Expert, a non-GMO product from the Soya group of Cheshire.

"We are talking about the better mousetrap," he says. "This is a milk which can work at high temperature and foam well. It no longer needs to be seen as a nuisance for baristas.

"The UK market for soya milk is about 80 million litres, expected to double in the next five years. The majority of this market is no longer vegetarians - it has become the lifestyle choice for a healthier product, for Joe Public."

Arguments for and against soya milk have continued for years. Milk from the soya bean contains the same amount of protein as dairy milk, and provides all eight of our essential amino acids. It is rich in polyunsaturated fatty acids including omega-3, and is free of cholesterol. It contains vitamin B, calcium, iron and zinc, and fibre.

Six years ago, the Joint Health Claims Initiative did say that "the inclusion of at least 25 grams of soya protein per day as part of a diet low in saturated fat can help reduce blood cholesterol", and in America the FDA approved a health claim saying exactly the same thing, although that was later contested.

On the other hand, it is not fat-free, though widely believed to be so, and has only about a quarter of the calcium of cow's milk. It is not generally suitable for babies, although Farley's has created a soya formula for infants which was approved by the Vegan Society.

There is also the GM scare - in 2006, 89 per cent of soya grown in America was classed as GM, but in July this year the Organic Consumers' Association reported, surprisingly, that a new non-GMO soya bean would now show a ten per cent greater yield than GM ones. Last year, around 14 million acres of non-GM soybeans were grown in the USA.

The technical needs of the espresso coffee sector have been a major hurdle to overcome, agrees Robin Gleave.

"Curdling was an acknowledged problem with soya. This was not visually appealing, which makes it a problem in catering. The natural yellowish appearance also tended to put people off.

"And previously, soya milk did not always work well at high temperature, in the steaming and foaming for espresso-based drinks. There was a reaction to do with the acidity of the coffee, and it separated. It tasted OK, but looked awful, and some cafes even served drinks at lower temperature to get over this problem.



Soya - lifestyle milk

"And in years gone by, soya was 'an acquired taste'. People had to persist until their palate got used to it, because it's true that soya does taste like soya, and even those consumers who bought it as part of their lifestyle did not necessarily like the taste of the soya milks they were able to get. I think 'grassy' is the nicest comment we've had about usual soya milk.

"But we've now got the taste profile right - we've cracked it!

"We have worked towards a blander product, and ours tastes somewhere between a maltiness, a beaniness, and a nuttiness. It steams and foams well, holds its foam, tastes right, and looks right... ours is white.

In some coffees it enhances the coffee taste. It

has no natural sweetness, and although we make some unsweetened soya milk, for café use we have produced a 'slightly sweetened' one."

Shelf life is twelve months, ambient or chilled; national distribution is already set up.

The important thing about soya milk in catering, says Robin Gleave, is to shout about it.

"In the UK, we have had a problem of 'availability'. When consumers are sure that their outlet will have soya milk, then they order it. Having it on the menu is the important thing - at the moment it's largely a footnote, and that is limiting the market. Put it on your menu, bold as brass, and see how it drives demand.

"I don't expect it to be top of the café menu - but being on it at all is very important."

Ask the
BSA... ?

Which first - the tea or the milk?

The big issue with milk and tea is - which goes in first? We have had several explanations - typically, a former resident of India says that there, if the quality of the milk was in doubt, then putting the milk in first was a more effective way of scalding it and killing the bacteria. Drewry Pearson of Marco Beverage Systems, tells us he has heard the same. So, putting your milk in first could be a subtle insult, showing doubt about your host's housekeeping!

Elsewhere, it is said that putting the milk in first originated when users of fine china decided it was dangerous to pour in the hot tea first, in case the cups broke. A similar school of thought says that as the milk is probably cold, putting the milk in first allows the entire contents of the cup to warm up gradually. By contrast, 'milk last' runs the risk of scalding the milk, and getting a burned milk flavour.

What of the milk-in-last view? Well, there is a female opinion which says that only men put milk in last, because they can't judge the quantities when putting it in first. Indeed, in his 1946 essay, A Nice Cup Of Tea, no less than George Orwell wrote: 'my argument is unanswerable - by putting the tea in first and then stirring as one pours, one can exactly regulate the amount of milk'. Another author, Evelyn Waugh, referred to the expression 'he's rather milk-in-first' to mean someone lower down the social scale - or perhaps the snobbery scale. Even a BBC English-language course, using the scenario of 'Tea at the Ritz' said milk goes in last.

One school of thought, without any scientific backing behind it, says that when using loose leaf tea, milk-first encourages any stray leaves to sink to the bottom.

And while preparing this magazine, Oscar Woolley of Suki tea wrote to us, emphatically - "the golden rule is... milk in last!"



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The catering industry and the café trade are phenomenally large users of cows' milk - which means, according to one recent report, we are doing vast harm to the nation's health.

Dr Justine Butler, health campaigner of the Vegetarian & Vegan Foundation, has written *White Lies*, a report described as 'a ground-breaking campaign to raise awareness about the enormous health consequences of consuming dairy products'.

The aim of the report is to show that the major ingredient of most drinks served in coffee bars every day is harmful to humans.

Even to suggest this, agrees Dr Butler, strikes at the very heart of our beliefs - how can such a natural food be unhealthy? Her answer is that cows' milk is not a natural drink for humans.

Her argument seeks to show that cows' milk is responsible for vast amounts of breast cancer and prostate cancer, heart disease, type 1 diabetes, and rising levels of obesity.

It is also a myth, say the critics of milk, that milk is valuable source of calcium.

According to Dr Butler, the dairy industry has been unable to answer her allegations. "The *White Lies* report has had a phenomenal impact, and the dairy industry has been able to respond only half-heartedly to it," she told us.

The Dairy Council has taken the expected line, that dairy products provide protein, carbohydrate, fat, B group vitamins, calcium, phosphorus, magnesium, iodine, and potassium, and many other things that are good for us. It says that milk products are the primary calcium source in the UK diet, that there is evidence to show that eating three portions of low-fat dairy products with five servings of fruit and vegetables as part of a low salt diet has greater blood pressure lowering effects than fruit and vegetables alone.

The Dairy Council also cites a study with findings directly opposite to those of Dr Butler - this one says that 48,000 women who drank milk during their childhood and lifetime had a much reduced risk of breast cancer, in comparison to women who do not drink milk.

The British Nutrition Foundation is reported to be critical of *White Lies*, saying that the human race has evolved to become dependant on milk for many nutrients, and that we need to be aware of the consequences should we stop drinking milk. By contrast, the Allergy UK organisation raises the often-heard line that three-quarters of the world population is lactose-intolerant, and that it is only Western Europeans who can tolerate milk, because of a kind of genetic mutation - we have become used to it.

There appears to be no general view from doctors, although several quoted in Dr Butler's work do of course agree with her. One wrote: "We have a long way to go until the truth about dairy is generally accepted."

Milk - is it really good for us?



... or not?

Another doctor wrote: "There is no doubt that the evidence on dairy is sufficient, at a minimum, to question the rather specious claims of health for cow's milk that have been made by the industry."

With regard to beverages, the European Heart Journal made an interesting report. The Journal said that it is better to drink tea black,

because the beneficial effects of tea are greatly reduced upon adding milk. While tea on its own is believed to have extremely healthy qualities, these researchers concluded that drinking tea with milk is no more useful than drinking water!

The *White Lies* report can be read, in full, at www.coffee-house.org.uk; look at the Trade Reports section

Whiteners - how good can they be?

What of the milk which is not milk - how good are 'whiteners'? This, says Martin Lines, marketing director at Nestle Professional is a sector in which research doesn't stop, and some modern products have become very good indeed. So much so, that when Nescafe ran some focus-group tests, the responses from the public were quite puzzling. Members of the public blind-tested coffees made with Gold Blend and a variety of whiteners, including real milk (a semi-skimmed from Safeway), a variety of Nestle's own products, and a couple of competitor whiteners.

There were some curious findings. Real milk turned out to be the 'most-liked whitener' - but one of Nestle's own skimmed-milk powders ran it close. Certainly, said Nescafe, some consumers can tell fresh milk a mile off, and won't settle for anything less - but one group of people liked skimmed-milk powder and disliked real milk. In another test, a certain number of blind tasters reckoned that the real milk was 'not milky enough!' Consumers were also sensitive to smell - certain synthetic whiteners have a distinct 'off' smell.

Is a whitener supposed to have any taste attributes, or be entirely neutral?

"The primary function is colour, but dairy whitener does have a more natural taste," says Martin Lines. "It's not meant to be a milk

substitute, and not for cornflakes!

"There are different whiteners - a non-dairy whitener is made from milk proteins, vegetable oil, glucose syrup, and flavourings. Apart from the milk proteins, it isn't made from milk as such, and we can't call it 'dairy'.

"A 'dairy' whitener is taken from milk which has been spray-dried or freeze-dried, into granules or powders. It's very much like the soluble coffee process. In coffee made with a premium dairy whitener, there is a distinct difference in mouthfeel over the one made with non-dairy whitener."

Is a whitener an alternative to real milk? No, says Nestle - except when taken in the context of automatic machine-made drinks, when it is a good alternative.

And there are examples. At certain rail station cafes, the option is offered of a cappuccino made with a bean-to-cup machine and real milk, or the one made with soluble coffee and frothy whitener. There is a difference of about 30p between the two drinks - and it has been reliably reported that some travellers do choose the instant version.

And that, says Nestle, proves that all whiteners are not the same... and that a well-chosen one will satisfy the consumer.

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