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The Importance of Artisan Cheesemakers in the UK

Written by:

Martin Gott NSch

July 2025

A NUFFIELD FARMING SCHOLARSHIPS REPORT

KINDLY SPONSORED BY:

Alan and Anne Beckett

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A NUFFIELD FARMING SCHOLARSHIPS REPORT (UK)

NUFFIELD Farming Scholarships

"Leading positive change in agriculture. Inspiring passion and potential in people."

Date of report: (July 2025)

Title	The importance of artisan cheesemakers in the UK
Scholar	Martin Gott
Sponsor	Alan and Anne Beckett
Objectives of Study Tour	Originally: The prevalence and importance of indigenous microbes in raw milk cheese. Soon changed to: How the better production of cheese, leads to better farming systems.
Countries Visited	USA. Italy and France
Messages	• Artisan cheese can be successfully made with non-pasteurised milk • But such milk needs to be produced to the highest standards of hygiene. • Cheesemakers can afford to pay a premium for such milk, thus increasing the income of the dairy farmers in a region • Funding should be directed towards the pursuit of technical excellence rather that to farmers or processors (e.g. capital grants)

EXECUTIVE SUMMARY

Properly resourced Cheesemakers benefit both the consumer and farmers.

Where cheesemaking excellence is pursued the resulting increase in value can be shared across a whole region. This increase in value can be measured directly: i.e. achieving higher milk prices: or indirectly through harder-to-quantify values such as increased cultural value or awareness of a region's unique farming practices, people, history or traditions etc.

Where there is more diversity in the size and scale and working practices of cheesemakers, and where there is greater opportunity to develop technical competence of cheesemakers, there will be an uplift in the value of milk, provided all those cheesemakers are able to access that milk.

Current, restrictive milk contracts in the UK are not conducive to a healthy dairy industry and will limit the development of the regional economy where dairy farming is dominant.

Contracts demanding exclusivity are undermining the opportunities that collaborating with artisan cheesemakers could bring: to farmers; the communities those farms exist within; tourism; regional food supply chains; the wider economy and consumers.

Where funding is directed towards the pursuit of technical excellence in cheesemaking within a specific community with shared aims and objectives, the benefits are far greater than when funding is directly handed to farmers or processors ie in the case of capital grants.

There are wider ecological and cultural benefits to be gained by supporting and encouraging cheesemaking as an activity, particularly in remote rural communities and where there is a desire to see more high value tourism.

Collaboration with academia can both highlight and add value to the work that cheesemakers are doing. Similarly academia has much to gain by engaging with cheesemakers particularly where the challenges are complex and require diversity or breadth of understanding.

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DISCLAIMER

The opinions expressed in this report are those of the author alone and not necessarily those of the Nuffield Farming Scholarships Trust, of the author's sponsor, or of any other sponsoring body.

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Nuffield Farming Scholars are available to speak to NFU Branches, agricultural discussion groups and similar organisations.

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1. INTRODUCTION

The author, Martin Gott

My early forays into cheesemaking were not without their challenges. Despite spending time making cheese whilst working for the Kirkham family in Goosnargh and having the opportunity to make cheese and learn from James Aldridge and Mary Holbrook, I really began making cheese for myself with no formal training in the craft or styles I wanted to produce. Whilst working alongside Mary Holbrook in Somerset, I researched as much as I could and initially relied on books and workshops to learn the intricacies of the process. My passion and enthusiasm did at times pay off and, in 2005, I was awarded best Raw Milk Cheese at the Specialist Cheesemakers Association AGM for my newly created St James Cheese. I was handed the award by the patron of the SCA, HRH Prince (now King) Charles, a huge honour for someone so new to an industry at that time. The cheese was a soft, washed-rind cheese made from the milk of the newly-purchased flock of sheep we milked at Sleight Farm in Somerset. Sleight Farm had become my new home after I took the decision (aged 22) to move from Lancashire to work for cheesemaker and farmer Dr Mary Holbrook, in exchange for the use of her facilities and the chance to rent grazing by the day.

My first cheeses were sold at the farmers' market in Bath. This created a real opportunity for me to gauge customer opinion and generate much needed cash to allow me to purchase the necessary materials to start and grow a business from scratch. The customers were engaged and supportive, with more arriving and returning each week to see what 'new cheese' I had come up with. Failure was a chance to learn, and mistakes were plentiful. Learning this way was fun and inspiring, but also surprisingly rapid, as week after week the results were visible, and customers' reactions were delivered directly to me. I continued to hone my

craft, experimenting with different styles and aging techniques. This continued throughout my career and helped to grow the reputation of my cheeses, as I continued to try new technologies and created a range of award-winning cheeses.

In 2005, for personal reasons, my partner and I decided we should return to the north of England. We searched high and low for opportunities and attempted to buy or rent land at any cost. Like many new entrants without a family farm to start from, or support from our parents, our attempts and initial enthusiasm led to disappointment. I had little choice in those early days but to continue doing what was necessary. So I can say it was through a stroke of luck that, at a farmers' market in London whilst selling my cheeses, I had a conversation with Clarissa Dickinson Wright (of the Two Fat Ladies TV show fame). This conversation led to a phone call from the secretary of Lord Cavendish that eventually led to a meeting with the Cavendish Family, and finally secured me an opportunity to sign my first FBT. Lord and Lady Cavendish of Holker Hall in Cumbria were interested in organic agriculture, had an interest in artisan foods and had vacant farms and land. Apparently they also presided over a deficit of creative abiity within their own organisation to put these seemingly complementary factors to good use. It seemed to them, their management team at the time and also to me, that my vision might offer a solution to that problem.

I was lucky in those early years to be afforded opportunity to do things differently. The estate factor at that time - named Dickon Knight - was a traditional countryman and a man who could see the value in people and doing things honourably. He understood that in the end I was the one taking all the risk and our agreement was designed to be mutually beneficial - as far as is possible within the constraints of an FBT. I will forever be grateful to Dickon Knight and Lord and Lady Cavendish for affording me the opportunity to farm in my own right.

As the tenancy progressed my efforts and vision were rewarded, and I became a respected figure within the UK's artisanal cheese community. During this time I was recognized with numerous awards, including various medals and trophies at the British Artisan Cheese Awards. In those early years I even addressed a consort of 80 professionals from the French cheese industry and received a standing ovation at the ambassador's residence in Paris. In 2010 I opened a specialist cheese shop, off farm in the nearby village of Cartmel, and in 2012 I even established an artisan bakery in the same village .... not bad for a kid that dropped out of school to clean up his father's butcher's shop and cut pigs up on a market stall!

Sadly, this enlightened period of partnership with my landlord and their management team wasn't to last and I found myself at the mercy of an overhaul of the estate management team and system. Such overhauls were becoming common across the country as the big estates found their margins under traditional tenancy arrangements were becoming badly eroded. New arrangements nationally were now frequently becoming based solely on financial considerations and took no account of people.

The outcome of the new management style was, for me, a 30% increase in rent and being offered successive 1 year tenancy agreements. This began in 2016 after our first 10 year FBT came to an end. I only mention this now in order to warn anyone reading this paper that poorly designed and outdated legislation, a change in corporate management style, and the running of England like an old boys' club can catch up with all of us - even the most entrepreneurial - eventually. As Lord and Lady Cavendish took a step back from leading their estate, being at the centre of a landed estate became for me a very difficult experience. It became very clear very quickly that all the power and control of land locally was effectively managed by one individual, the new CEO of Holker Estates Ltd, and when your values and personality don't align there are zero benefits from being the smallest tenant of the area's largest landowner. It was a sad and salutary lesson.

With this new operating business scenario I set out to do what all good business leaders should seek to do in similar circumstances: re-train, re-tool, adapt and - if necessary - plan an exit strategy. My Nuffield Farming Scholarship provided me with an opportunity to learn: but, like so many other Nuffield Scholars before me it seems, the personal challenges came *not* during my scholarship and travel, but *after*. I'm finally writing this report many years later than I should have done, and only after I'd had time to put into action what I'd learned, accept the new realty, and make the difficult changes necessary.

My own farming story '*should*' serve as an inspiring example of how to achieve maximum value for milk produced in remote and challenging farming locations. In 2018 I employed around 5 full and part time staff on a farm of less than 30 acres and we were generating around £12,000 revenue per acre annually on wet, marginal grassland in the Lake District. Despite the business paying a high rent to a (by then) unsupportive landlord, receiving no direct support payments (even though the land was managed by us under HLS) the business was making profit, both from a P&L perspective and adding to the balance sheet.

Unfortunately, despite all this, we were not achieving the value we needed to secure a future for the business. I realise now our new tenancy disputes, plus the challenging business environment in the UK, was putting too much pressure on my ability to make good business and, more importantly, personal decisions. As our scale grew so did the regulatory burden and the expectations of our customers. So when I began my Nuffield journey in 2018, even though it wasn't the topic I had intended to study, I found myself searching for answers to questions I'm sure any new entrant in agriculture can identify with: how do I grow my business without taking on unsustainable debt, and how do I secure more land to ensure that the business has a long term future?

These questions were driving my desire to learn about the technical aspects of cheesemaking , as I firmly believed then - as I still do today - that greater technical competence in my field would lead to greater opportunities in the future.

My commitment to using raw, unpasteurized milk has been a defining feature in my approach to cheesemaking. I firmly believe that this preserves the unique flavours and characteristics of the milk and is necessary to achieve 'world-class' cheese.

It also stemmed from a non-existent start-up budget and a fear of investing in technical equipment I either didn't understand or didn't have the competence to use effectively.

My Nuffield Farming Scholarship was undertaken with a desire to understand how farming systems impact cheese quality. I had learned so much already before my Nuffield Scholarship; but what I was struggling with was how to define 'great' milk when it came to cheesemaking. My original title for this report was "The prevalence and importance of indigenous microbes in raw milk cheese" but, by about the 3rd visit on my study tour and after getting some very glazed looks and the occasional eye roll from farmers and cheesemakers alike, I found myself telling people it was about "how farming systems affect cheese quality".

It is only now that I'm writing this report that I finally realise I had it all the wrong way around. In fact this report is really about "How cheese quality affects farming systems". If we look at the subject from this perspective, then the case I want to make is that 'better' cheese quality or, more precisely, the better production of cheese, leads to better farming systems.

Artisan Cheese: a definition

Cheese crafted with quality is the first and foremost consideration. Artisan cheesemakers operate at various different scales but a commitment to quality of product and process above all else must be evident for this term to deserved.

Typically artisan production would describe a production process where the bulk of the process is still undertaken by hand, and quality is still monitored and managed by people, to achieve a greater perceived quality than would be possible with an automated system.

2: BACKGROUND TO MY STUDY SUBJECT

For small-scale dairy farmers in the UK, the decision to venture into cheese production is often driven by a combination of economic or market-related factors. Throughout my career I have met many cheesemakers who stumbled into cheese in response to failed milk contracts or unsustainable milk prices.

My story was different. I had wanted to pursue a career in cheese from 14 years old as it was around this time I found myself selling cheese on my father's market stalls. I developed a love and respect for the tradition and craft of cheesemaking by hearing about the makers and stories of the cheeses I was selling, and poring over books about cheese my mother had accumulated during her own time selling cheese. Respect of the tradition, craft and science of cheese was a consideration for me in a way it might not be for the average dairy farmer looking to diversify their farming business.

Cheese production offers several advantages for small-scale dairy farmers. Firstly, it allows them to capture a larger share of the value chain, as they can sell their cheese directly to consumers or to specialty retailers, rather than relying on the lower prices offered by large-scale processors. This, when managed properly, can significantly improve the profitability of the farm and provide a more sustainable income for the farmers and their families. It also allows for the sale of milk to be spread across the year, taking advantage of swings in supply and demand from consumers. Another aspect not to be overlooked is the ability to transport cheese – because of its concentrated and preserved nature - to where prices are higher and there is more perceived demand or value. In the first 4 years of our business, despite operating in rural Cumbria, 98% of our cheese was sold in London and the south east, thus achieving the highest prices.

The production of artisanal cheese aligned with the perceived growing consumer demand for high-quality food products. Consumers between 2010 and 2020 were increasingly seeking out unique, hand-crafted cheeses that reflected the terroir of the region in which they were produced. By tapping into this market, we were able to differentiate our products and command the highest prices - the aspiration of any business seeking long term viability. Beyond the economic benefits, cheese production also holds cultural and personal significance for many people and communities. Cheesemaking is a centuries-old tradition in the UK, with deep roots in the country's rural communities. For farmers like me, the opportunity to continue this legacy and contribute to the rich tapestry of British cheese was a source of immense pride and satisfaction.

The process of cheesemaking itself has been deeply rewarding for me and I can say this is true for many of my fellow cheesemakers. It allows us to apply knowledge of dairy farming, experiment with new techniques and technology,

and create products that reflect our individual styles and preferences. The hands-on nature of the craft can also provide a sense of connection to the land and the animals that produce the milk, further strengthening our respect for the farmed environment and commitment to our work.

3. TO PASTEURISE OR NOT TO PASTEURISE, THAT WAS THE QUESTION…

One of the key decisions facing small-scale dairy farmers in the UK who wish to produce cheese is whether to use pasteurized or raw, unpasteurized milk. This debate is at the heart of many complex discussions within the artisan cheese community, as it has significant implications for the final product's flavour, texture, marketability and safety.

This question was also a key issue for me as I realised the most logical way for us to grow our business scale in a way that wasn't restricted by access to land, plus escape my malignant tenancy, was to take the step away from being just a farmer and become a processor. I hoped that if I could purchase milk from other farmers whilst maintaining my reputation for quality and integrity I could grow our business and secure the business's future. The trouble with this was that our products were defined by, and owed all their character to, the fact they were made with raw milk. As I saw it, I had two options: learn about pasteurisation techniques, protocols and equipment and what I could do to recreate the same high quality flavours and characteristics for which our cheeses were known; or learn how to design an equitable milk contract and testing schedule that would enable me to buy milk from other farmers that would meet the rigorous expectations demanded for raw milk cheesemaking. My intention was to explore both of these simultaneously and, after my study tour, implement the necessary changes to grow the business.

For those readers less familiar with dairy processing, pasteurization is the process of heating milk to a specific temperature for a set duration to kill harmful bacteria, such as Listeria, Salmonella, and E. coli. This process is mandated by law in many countries, including the UK, for milk intended for commercial sale: but not for cheese production. The rationale behind this regulation is to ensure the safety of dairy products and protect consumers from the potential risks associated with poorly produced or handled raw milk. However properly conducted cheesemaking will significantly reduce the risks posed from raw milk to consumers.

Despite this, a lack of technical understanding from both legislators and the supply chain has led to increased pressure for cheesemakers to work with pasteurised milk. Many cheesemakers including myself have argued that the use of raw, unpasteurized milk is essential for producing high-quality, world-class cheese. The pasteurization process strips the milk of its natural enzymes and microorganisms, whilst destroying or altering vitamins and minerals and the resulting subtle flavours. This often results in a more homogenized and less complex final product. In fact I would argue it requires far greater technical knowledge to recreate complex, flavourful characteristics in cheese made with pasteurised milk than it does for cheesemakers who have the privilege of working with fresh, well-produced, raw milk.

The aging process of cheese, which can take from several weeks to several years depending on the cheese type, allows enzymes to break down fats and proteins to create flavour and texture in cheese. As I mentioned, the unique makeup of bacteria and enzymes in raw milk contributes unique characteristics to cheeses, whether the cheesemaking milk is pasteurised or not. These seemingly naturally-occurring microorganisms play such a specific role in the maturation and flavour development of artisan cheese that it seemed obvious to me that it would be crazy for me to agree to purchase milk to produce these kinds of cheeses, without first understanding and defining for the milk producers what was required of them.

Advocates of raw milk cheesemaking like myself argue that the risks to the consumer associated with raw milk can be effectively managed through rigorous hygiene practices, careful monitoring of the production environment, and the implementation of robust food safety protocols. I would assert that the benefits of raw milk, in terms of flavour and authenticity, outweigh the potential risks to the consumer, provided that proper precautions are taken.

Whilst critics of raw milk cheesemaking point to the potential health risks associated with the consumption of unpasteurized dairy products, what is rarely considered is the risk to the cheesemaking businesses that sub standard raw milk represents. Whilst, world over, it has been proved that consumer safety can be managed effectively, it is much more difficult to protect the cheesemaking business against the loss incurred by processing milk that wasn't produced to the right standard initally. This issue in the UK has led to a situation where virtually no businesses will process raw milk into cheese unless they are also the owners of the farming business. Throughout my career I watched cheesemakers having to destroy cheeses because the milk supply had undergone some sort of changes and the resulting milk had affected cheese quality. This happened for various reasons but more often well-meaning nutritionists, farm advisors, or even the overly-enthusiastic next generation had made changes to feeding or nutrition; grazing or forage management; or the parlour routine or cleaning; and thus inadvertently destroyed all the value of not only the milk but also the work and skill of a dedicated cheesemaker.

Having watched this happen time and again to my colleagues in the industry, I was certain that, without having the same jurisdiction over other producers that I had over my own herd, it would surely be a fate I would encounter sooner or later if I chose to work with raw milk from other farmers. And so defining what it would take to define great milk for artisan cheesemakers had become my obsession.

It's important to add here that whilst there is a role for farmhouse cheesemakers who process solely their own milk, there are a myriad of reasons why this is problematic for external cheesemakers and not, in my opinion, the only way that artisan cheese should be produced. My opinion is based on seeing first hand the

benefits a healthy and diverse mix of cheesemaking businesses can have for consumers and farmers and the wider rural economy.

Along with around 30 cheesemakers across the UK, Europe and the USA my study included visits and conversations with world-leading experts on the micro-biology of cheese and raw milk: notably Dr Katherine Donelly, Dr Benjamin Wolfe, Dr Dennis D'Amico, Dr Rachael Dutton and Dr Noella Marcelino. During my travel to the USA I also visited researchers who focused on milk and dairy more broadly and so I visited the University of Wisconsin, University of Connecticut, and Tufts University at Harvard. In the UK I visited and, as a result contributed to, Dr Katherine Walker's study into the microbiology of raw milk and starter cultures at University College London.

4. IS CHEESEMAKING SCIENCE OR CRAFT?

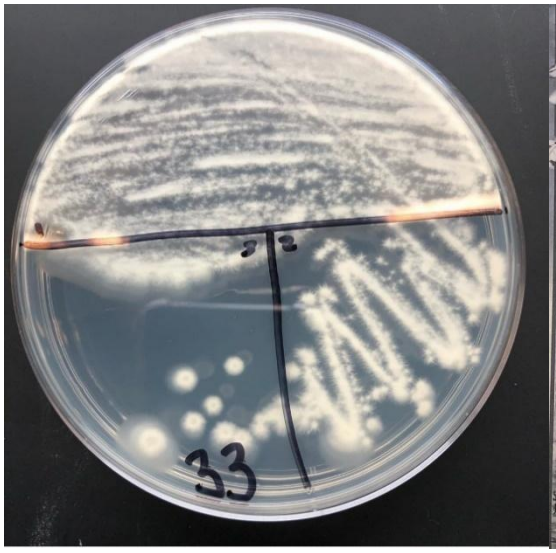
The ongoing debate surrounding the use of pasteurized versus raw milk in cheesemaking highlights the delicate balance between science and craft that small-scale dairy farmers in the UK must navigate. On one hand, cheesemaking is a highly technical process that requires a deep understanding of microbiology, chemistry, and food safety principles. On the other hand, it is also an artisanal craft that relies heavily on the skill, intuition, and personal touch of the small cheesemaker. When milk is processed raw and in small batches from equally small herds, intuition and experience cannot be ignored as important contributors to cheese quality.

The scientific aspect of cheesemaking involves the careful control and manipulation of various factors: such as temperature; acidity development; moisture content; and the composition of the milk. Cheesemakers must have a thorough understanding of the role played by different microorganisms, enzymes, and chemical reactions in the transformation of milk into cheese. They must also be able to monitor and adjust these variables throughout the production process to ensure consistent quality and safety.

4a. Case Study: Jasper Hill (Vermont)

Jasper Hill Farm has developed a global reputation for cheese. That fact shocks and amazes most people outside of the cheese world when I tell them it's an American Farmstead cheesemaker. Matteo and Andy Kehlar began their business with the desire to create meaningful work for themselves, their family and their community in a place where they grew up and loved. Their commitment to understanding the science behind their craft is what sets them apart. Matteo put into words something I had understood my whole career but had never been able to articulate. It was this understanding that had compelled the brothers to really understand the science behind what they were doing; "*If you were considered a great carpenter turning out the most beautiful and highly polished tables and chairs but every 15th table or chair you turned out, had one wonky leg, you'd be a shitty carpenter in my opinion*".

The Jasper Hill Farm and their cellars project serves as an example of what can be achieved when you collaborate with the right minds and seek scientific validation of beliefs rather than relying on ideology and resting on the laurels of tradition.



Plated colonies at Jasper Hill's on-site lab.

Jasper Hill logo. Sums up their fresh approach to cheese that's given them cult-like status

The craft element of cheesemaking, on the other hand, is often rooted in tradition, intuition, and the personal touch of the cheesemaker. Experienced cheesemakers develop a deep understanding of the unique characteristics of their milk, and the nuances of their aging environment. They use this knowledge to make subtle adjustments to their recipes and techniques, allowing them to create cheeses that are distinctly their own.

4b. Case Study: Black Sheep School: looking back to go forward

I first encountered David Asher on social media. As a cheesemaker I couldn't help but be inspired by his work. Images from his Instagram account (back in the earlier days of the platform) hinted at a unique understanding of dairy technology and cheesemaking. David has spent his life learning about the practical craft and traditions around small-scale dairying. By travelling to parts of the world less often travelled by those of in the west, he has learned a huge amount about historical practices by spending time with goatherders and nomadic and subsistence farmers still practising methods long forgotten in Europe and the West. His social media images and stories were notably different to how we perceive cheese and dairy here in Europe. This whole discipline he has defined as 'natural cheese'. As a discipline it has grabbed attention and steered and inspired a new generation of cheesemakers and farmers across the USA and Europe to try new (to them) old ways of producing dairy products. I was keen to explore David's ideas, so I contacted him about courses he was running in Mexico and Canada. As the conversation progressed and I realised the dates weren't going to align, somehow

I agreed to host the UK's first 'Natural Cheesemaking' course. At this point I was excited but also if I'm honest I was a little sceptical of David's work, as he confessed to having no commercial experience of cheesemaking. I was curious to see how much of what he had to teach could be transferred to cheesemaking businesses in the UK. In a situation like this there is only one obvious solution. I needed a fall guy ..... so I partnered with the only other person in the UK cheese scene at that time who was prepared to look sillier than me, the owner of the nearby local cheese shop, The Courtyard Dairy, Andy Swinscoe.

Together we recruited a group of other cheesemakers looking to learn about 'natural' cheesemaking. We took their money, organised David's flights and set about structuring the course. Neither my nor Andy's initial concerns were alleviated when David mentioned in passing that we needed a 3-week old calf to kill as part of the course!!! Our foray into dairy innovation was starting to feel less likely to get us both an OBE for services to British cheese and more likely to end up as a scene from the film The Wicker Man... !!

Nevertheless, all David's requests were met and, as planned, during the course we humanely despatched the calf with the purpose of extracting rennet from the abomasum as is done all across the world routinely as a necessary part of the cheese production process*****. (We collectively consumed the meat via BBQ later in the course so as not to waste the life of the animal.) It was probably one of the most striking and unforgettable experiences I've ever had on my global mission to understand cheesemaking and there is something comforting and inspiring in that fact, especially if you consider that the course took place in a backyard yard just outside Settle in North Yorkshire.

What was great about the course was that we had filled it with some amazing technically-minded, progressive cheesemakers, who all took things away from the course, whilst also sharing a new perspective with David who was able to share those new ideas in future courses he holds all across the world.

For artisan cheesemakers anywhere in the world, navigating this balance between science and craft is crucial to their success. They must be able to apply scientific principles to ensure the safety and consistency of their products, while also maintaining the artisanal attention to detail that sets their cheeses apart in the market.

**See photos on next page*

Abomasum extraction

Abomasum ready for washing

Abomasum being cleaned

For artisan cheesemakers anywhere in the world, navigating this balance between science and craft is crucial to their success. They must be able to apply scientific principles to ensure the safety and consistency of their products, while also maintaining the artisanal attention to detail that sets their cheeses apart in the market.

4c. Case Study: Sister Noella Marcllino

The most inspiring thing about cheesemaking for me is where craft and science combine. So of course my trip to the USA would eventually lead me to Sister Noella Mercellino at the Abbey of Regina Laudis in Connecticut. Sister Noella rose to fame in the USA as the cheese making nun, a title she told me she never appreciated but nonetheless it had stuck. Every day Sister Noella makes a cheese named Bethlehem from the convent's 4-strong herd of belted Dutch cows. After a period of aging it is consumed on site by the sisters and visitors to the Abbey. You'd be forgiven for thinking that's the most striking part of her story.

Whilst visiting a cheesemaking nun makes a great story I actually had very serious reasons for visiting this particular lady. My visit to Dr Noella Marcellino was to discuss her work cataloguing the various strains of Geotrichum (a strain of cheese mould) found on the rinds of the famous French cheese, St Nectaire. Sister Noella took a sabbatical for 2 years to study cheese in France and afterwards had returned to the abbey with a doctorate.

Sister Noella is probably the only cheesemaker in the USA making cheese in a wooden vat. This unique feature led her to collaborate with Professor Dennis D'amico at the University of Connecticut in his work to examine the safety and possible benefits to using wooden tools in cheesemaking, Through his work plus utilising cheeses made by sister Noella he was able to prove that using wooden vats, when cleaned and managed properly, significantly improved the safety of cheesemaking with raw milk.

Sister Noella

Sister Noella

I later met with Dr Katherine Donelly at the University of Vermont in Burlington who referred me to similar studies done on Ragasanu cheese in Sicily, Italy. This interplay between what industrial or commercial practitioners perceive to be true and what we can prove with science and data is a theme that runs through artisan cheese time and again.

In my opinion, to be truly innovative in artisan cheese is to be prepared to apply new or under-employed methods in new and instructive ways. It has been my experience that the more cheesemakers, farmers and academics collaborate on projects the greater the benefits to both disciplines and the greater the opportunity for genuine innovation.

5. TAKING CHEESE TO MARKET AND THE BREXIT EFFECT

The challenge of supplying the market is the key consideration for artisan cheesemakers who wish to stay in business. Cheesemakers must identify and cater to the specific needs and preferences of their target consumers, which can vary depending on the market being served.

The most successful cheesemakers demonstrate the technical competence most valued by the markets they choose to serve

Cheesemakers must develop a deep understanding of their customers' preferences and effectively communicate the story and values behind their cheese products. This may involve building relationships with specialty retailers or participating in local food festivals and farmers' markets; it may involve leveraging social media and other marketing channels to reach their target audience; but the key factor is that the storytelling should be relevant to the markets served.

5a. Case Study: Willi Lehner

I visited several creameries in Wisconsin but one of the cheesemakers I met, that I've thought about again and again, was Willi Lehner. Willi grew up living above the town cheese factory where his father was the head cheesemaker. I had a chance to visit the old creamery building - which now hosts a micro brewery - and you can still see pictures of Willi's father making cheese in the old copper vats in photos hung on the walls in the Bar.

When I visited Willi's home and facility near Mount Horeb I was immediately confused as there were no milk tanks or creamery building. Instead, I was greeted by Willi and his wife and taken to visit his beautiful underground cheese store in the back garden of his peaceful rural home. Willi explained that the legislative landscape in Wisconsin had created such a huge burden that it was just impossible for him to meet the regulations and run a small cheesemaking business. So instead, as a Wisconsin licensed and qualified time-served cheesemaker, he rented empty capacity in a nearby facility and used his knowledge and skill to make batches of cheese as needed, choosing to instead focus his attention on the maturation and marketing of these cheeses. He sold most of his wares at local farmers' and foodie markets and shipped some to retailers he'd built a relationship with over the years. His approach allowed him to produce niche products but at a batch scale that allowed him to be economically competitive with other producers in Wisconsin. There was no doubt to me that his skill, knowledge and experience was adding value to milk in a way that also took advantage of operating in a region that would look unattractive to many other small producers.

Willi Lehner in his store

The store with cheese

Willi in the Old Town Creamery

In the years following my study, the UK cheese market has also been significantly impacted by the country's withdrawal from the European Union (Brexit). The changes in trade regulations, tariffs, and bureaucratic processes have presented new challenges for artisan cheesemakers who wish to export their cheese products to the EU, which had up until Brexit, been a significant and growing market.

Prior to Brexit artisan cheesemakers in the UK could easily access this lucrative market, taking advantage of the free movement of goods and the harmonized regulatory framework. This allowed them to expand their customer base and increase their overall sales, contributing to the viability and growth of their businesses.

However, the post-Brexit landscape has introduced new barriers to trade: such as increased bureaucratic requirements; additional paperwork; and the potential for tariffs on exports. These changes have made it more difficult and costly for Uk businesses - in particular the specialised wholesalers and distributors servicing these markets - to reach the EU market. This initially forced these businesses to focus more resources on the domestic UK market to maintain volumes and sales which, at the same time, was seeing constraints on demand due to other Brexit-related issues: e.g. inflation and outgoing migration of European consumers and hospitality workers.

This shift in the dynamic of the market without doubt pushed down returns for producers as the supply chain battled with reduced demands and increased costs and competition within the home markets. While the domestic market still presents opportunities for artisan cheesemakers, the increased competition, the need to adapt to new regulatory requirements and a changed hospitality scene all add significant complexity to their marketing and distribution arrangements.

Cheesemakers must continue to carefully evaluate their production and marketing strategies to ensure that they can continue to meet the evolving needs of their customers, both within the UK and potentially in other international markets. It is true that the reduction in the value of sterling and the withdrawal from the EU represents new opportunities for producers, but under economic constraints, increasing costs and stagnant prices it’s difficult to imagine how small-scale artisan cheesemakers will be able to take immediate advantage of this situation. Even for those able to adapt to the challenges, in all honesty it’s unlikely this will offset the losses incurred as a result of having left their most lucrative and fastest-growing pre-Brexit market in such a poorly managed way.

During Covid and following Brexit some cheesemakers explored alternative distribution channels, such as direct-to-consumer sales, online platforms, and

collaborations with local food hubs. These strategies allowed them to maintain a closer connection with their customers and potentially offset the impact of the changes brought about by Brexit. This strategy had a benefit for early adopters. For those that succeeded and executed it well there will be continued benefit; but as other producers follow suit it's difficult to see how the benefits will be shared for smaller more specialist cheesemakers who rely on being part of a cheese selection rather than the whole offer.

6. IS BRITISH CHEESE STILL WORLD-CLASS?

World-class cheese in my opinion is the result of a dedicated, long-term commitment to excellence and innovation, whilst at the same time ensuring the preservation and promotion of traditional cheesemaking techniques. These cheeses are highly sought after by cheese enthusiasts, gourmet food lovers, and Michelin-starred chefs alike. The following attributes would be considered important to define a cheese as world class:

1. Exeptional taste and texture

-Complex, nuanced, and well-balanced flavours that showcase the terroir (the unique environmental factors) of the region where the cheese is produced.
- Smooth, creamy, or firm texture that is appropriate for the cheese variety and enhances the overall eating experience.
- Consistent quality and flavour profile across batches.

2. Artisanal Production Methods:

- Handcrafted techniques that showcase traditional methods and attention to detail.
- Use of high-quality, locally sourced milk.
- Careful control of the cheesemaking process, including temperature, humidity, and aging.

3. Recognition and Awards:

- Prestigious awards and accolades from respected cheese competitions and organizations, such as the World Cheese Awards or respected national awards, ie British Artisan Cheese Awards, American Cheese Society Awards etc
- Positive reviews and high ratings from renowned cheese industry experts, respected food critics, and publications.
- Widespread popularity and demand among discerning consumers and specialty cheese shops.

4. Unique and Distinctive Characteristics:

- Cheeses that showcase the distinct flavours, textures, and cultural heritage of a specific region or country or its people.
- Innovative approaches that push the boundaries of traditional cheesemaking while maintaining quality and authenticity.
- Ability to stand out in a crowded and competitive global cheese market.

5. Sustainable and Ethical Production:

- Commitment to environmentally sustainable practices, such as the use of renewable energy, water conservation, and responsible waste management.

- Ethical treatment of animals and fair labour practices for the cheesemakers and dairy farmers.

- Traceability and transparency in the supply chain.

If we use these criteria it is clear Britain has some world-class cheesemakers, but they are few and far between. Moreover those that fit this criteria are in some cases businesses with over 100 years of legacy behind them.

With this in mind the question perhaps is not: do we still have world class cheesemakers?: but, instead: are the conditions in place to ensure we will still have world class cheeses in the future, and if not what should be done about that?

Cheesemakers must continue to carefully evaluate their production and marketing strategies to ensure that they can continue to meet the evolving needs of their customers, both within the UK and potentially in other international markets. It is true that the reduction in the value of sterling and the withdrawal from the EU represents new opportunities for producers, but under economic constraints, increasing costs and stagnant prices it's difficult to imagine how small-scale artisan cheesemakers will be able to take immediate advantage of this situation. Even for those able to adapt to the challenges, in all honesty it's unlikely this will offset the losses incurred as a result of leaving their most lucrative and fastest growing pre-Brexit market in such a poorly managed way.

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increase their overall sales, contributing to the viability and growth of their businesses.

7. THE TRUE VALUE OF CHEESEMAKERS

My study taught me that processing capacity and technical competence of cheesemakers has a significant impact on the value of milk produced in their locality. Here's how this relationship works:

1. Processing Capacity:
- Adequate processing capacity allows dairy cheesemakers to handle the milk supply from local farmers (or their own farm(s)) efficiently and without waste or spoilage.
- When processing capacity is limited, dairy farmers may face challenges in selling their milk or handling seasonal swings in milk supply, leading to potential price discounts or even the inability to sell/process their milk at all.
- Conversely, when processing capacity is sufficient or even exceeds the milk supply, dairy farmers can command higher prices for their milk, as processors compete to secure the available supply or, in the case of farm production, high standards are maintained leading to more availability of a high quality product.

2. Technical Competence:
- Cheesemakers with advanced technical competence can extract more value from the milk they receive, through efficient processing, product innovation, and quality control.
- Cheesemakers with strong technical capabilities can produce a wider range of high-value dairy products, such as specialty cheeses, yogurt, or premium butter etc, which can command higher prices in the market or supply valuable niches.
- Technically competent cheesemakers are also better equipped to ensure food safety, meet regulatory requirements, and maintain consistent product quality, all of which contribute to the overall value of the milk supply.

3. Milk Quality and Pricing:
- Cheesemakers with advanced technical competence can provide valuable feedback and guidance to local farmers on herd management, feeding practices, and milk handling techniques, which can improve the quality and consistency of the milk supply.
- Farmers who produce higher-quality milk can often negotiate better prices with technically competent processors, as the processors can extract more value from the higher-quality raw material.
- This virtuous cycle of improved milk quality and higher prices incentivizes farmers to invest in better practices, further enhancing the value of the local milk supply.

4. Market Access and Competitiveness:
- Technically competent cheesemakers are better positioned to access and compete in broader, more lucrative markets, both domestically and

internationally.
- This expanded market access can translate into higher prices and more stable demand for the milk supplied by local farmers, increasing the overall value of the milk produced in the locality.

By ensuring efficient handling, quality control, and product innovation, where they are well supported, technically competent cheesemakers actually raise the value of the output of the whole region.

The single biggest determinant of the value of milk, time and again, was ease of access to a proficient technically-competent processor. That processor needs to be appropriately scaled to handle the volumes of milk produced by the farm or collective farms supplying the unit. This statement remains true for both a 1000-strong herd of Holsteins in Wisconsin or a 16 head herd of Northern Dairy Shorthorns on a hillside in Yorkshire.

As commercially successful processors grow in scale, failure to adapt infrastructure and processes, and failure to improve technical competence, can limit quality and ultimately will impact profitability. This in turn almost always has a negative impact on milk producers, whether the business is processing the milk from one farm or a hundred.

Where consolidation within the industry happens and processing capacity and/or competence moves out of a region or off a farm, there is almost always a negative impact on the price paid for milk. Where milk is collected and haulage costs are a consideration the smallest producers will always be the most affected.

7a Case Study: Pleasant Ridge Reserve

The first cheesemaker I visited when I landed in the USA was Andy Hatch. Andy is a time-served Wisconsin cheesemaker. To be a licensed cheesemaker in Wisconsin you need to undergo a strict industry training programme. This creates limitations for farm producers but is designed to ensure the quality of cheese produced in the region meets a certain standard. If the state of Wisconsin was a country it would be the 4th biggest cheese-producing country in the world, after the USA, Germany and France. Cheese here is big business, defines the landscape and even gives its name to the local football team, the Green Bay Packers aka the Cheeseheads.

A typical dairy farm in Wisconsin is 250 cows, but it's not unusual to see herds of 500-1000 cows and even herds of 5000. At the time of my visit locals were complaining of poor milk prices (Trump's trade war with Mexico and Canada had reduced export demand for cheese) and farmers told me that 500-cow herds were being seen as the minimum viable scale in the region.

Pheasant Ridge Reserve

Pheasant Ridge Reserve

Scotty Leone

Andy Hatch(left)

Just outside Dodgeville at Pleasant Ridge, Andy runs the creamery business at Uplands Farm and his business partner Scotty runs the farm and manages the herd. The structure is: two businesses, i.e. a creamery and a farm, with Andy and Scotty each owning 50% of each business, but with ultimate decision-making falling to Andy for the creamery and Scotty for the farm. Each partner takes a salary linked to what they would achieve in their respective roles elsewhere and profits from each enterprise are shared equally. They have a board of non-executive directors (including some family members) who can be called on to give advice or help to resolve issues if they arise (although the close working relationship and shared values means this isn't called upon). The herd is managed under a New Zealand-style system with Scotty focusing on producing as much milk from grazed grass as possible.

Scotty is in my opinion a great herdsman and Andy possibly the best cheesemaker I've ever met, so it's unsurprising that the cheese made here is considered World-Class and sought after all over the USA and even further afield. It's clear to anyone visiting that the facility is designed precisely to make the 2 cheeses (Pleasant Ridge Reserve and Rush Creek) that Uplands farm is known for. Few people know that in fact it was designed by a team of cheesemakers and specialists at the Centre for Dairy Research in Madison to produce consistent, high quality cheeses from raw milk from the 180 strong herd on the farm. The value of a well designed creamery, designed to complement and accommodate the scale of the farm, with a suitably trained and experienced team, is so clearly evident here that it made me wonder if I even needed to visit any other cheesemakers! The fact is, having visited cheesemakers and farms producing cheese most of my life it occurred to me then and there - and has amazed me even more since then - how few cheesemaking businesses I'd seen that operate like this. I would urge anyone interested in a career in artisan cheesemaking to seek out this business and the great people there. Simply, they are doing so many things, from farming to marketing, so well.

CHAPTER 8: CONCLUSIONS AND RECOMMENDATIONS

1. Properly resourced Cheesemakers benefit both the consumer and farmers.

2. Where cheesemaking excellence is pursued the resulting increase in value can be shared across a whole region. This increase in value can be measured directly: i.e. achieving higher milk prices: or indirectly through harder-to-quantify values such as increased cultural value or awareness of a region's unique farming practices, people, history or traditions etc.

3. Where there is more diversity in the size and scale and working practices of cheesemakers, and where there is greater opportunity to develop technical competence of cheesemakers, there will be an uplift in the value of milk, provided all those cheesemakers are able to access that milk.

4. Current, restrictive milk contracts in the UK are not conducive to a healthy dairy industry and will limit the development of the regional economy where dairy farming is dominant.

5. Contracts demanding exclusivity are undermining the opportunities that collaborating with artisan cheesemakers could bring: to farmers; the communities those farms exist within; tourism; regional food supply chains; the wider economy and consumers.

6. Where funding is directed towards the pursuit of technical excellence in cheesemaking within a specific community with shared aims and objectives, the benefits are far greater than when funding is directly handed to farmers or processors ie in the case of capital grants.

7. There are wider ecological and cultural benefits to be gained by supporting and encouraging cheesemaking as an activity, particularly in remote rural communities and where there is a desire to see more high value tourism.

8. Collaboration with academia can both highlight and add value to the work that cheesemakers are doing. Similarly, academia has much to gain by engaging with cheesemakers particularly where the challenges are complex and require diversity or breadth of understanding.

CHAPTER 9: AFTER MY STUDY TOUR

After my study tour I returned to Holker Farm and expanded the business. 2020 was set to be the biggest year ever for our business with sales up 75% YOY by March. Sadly, the world had other plans for our business. When covid struck in March of that year we lost 95% of our business overnight. As a partnership we weren't entitled to salary support, and, as a farm business not paying rates we weren't entitled to any support other than the (poisoned chalice) of bounce back loan.

The animals still had to be fed and milked and the milk still had to be handled if we were to retain any hope of selling produce in the latter half of 2020. I was fortunate to have learned a huge amount in my travels, so we changed our production schedule overnight to develop hard cheeses we could age until the market recovered. This was challenging but led to some new products which allowed us to lift sales significantly the following year.

The work involved took its toll on the partnership and both my and my partner's physical and mental health suffered considerably. Even though we had grown the business significantly by 2023 (3x the level of sales as in 2019) the increase in fuel and feed costs due to the Ukraine war eroded all our profitability and the last of our reserves almost overnight. We maintained the business (whilst making no profit) until we saw prices and inputs stabilise. We continued to be plagued with tenancy disputes. Our landlord's ever-changing management team repeatedly fobbed us off and made my tenancy there untenable.

Finally, just as it looked as though we were going to come through the hardship of Covid 19, the Ukraine war, Brexit and all the associated price inflation and tenancy disputes, my relationship broke down. All the external factors it seemed were merely incidental as it was a very internal struggle that finally ended the business for me. There is a saying that I learned recently that the sheep spend their life in fear of the wolves only to be eaten by the shepherd, and it sums up the end of my time farming in Cumbria very accurately.

At the zenith of a bitter partnership dispute and break-up, I left Holker Farm and the business in April 2024, to walk the 500 miles of the St James's Way in Spain. Whilst walking I was contacted by a specialist recruitment firm about a cheesemaking role in the Middle East and decided to take it. My ex-partner signed a new lease with the landlord and continues to make cheese on the site and supply some customers.

But then my story began to take a distinct turn for the better

I accepted the cheesemaking role in the Middle East.

My new appointment began in July 2024 and is based in Oman in the Gulf Co-operation Council. My role here is to establish a new creamery on an organic farm with the milk of a small herd of organic Jersey cows for a large private household. It's a long way from the Lake District and I'm a very long way from the UK artisan cheese scene, although contacts and friends there keep me abreast of events and changes.

Figure 1 : Map to show location of Oman

Oman is 27% larger than UK
Pop. 4.6m. 40% are foreign nationals
GDP per person roughly half that of UK
Cosr of living is roughly half that of the UK

There is a strategic vision in the region to reduce the reliance on imports and shift the economy away from oil to tourism, high quality manufacturing and other sectors. So I've found myself in a place where I'm able to put into practice some of the ideas and lessons I learned through my career in food and farming. My role so far has been to develop pilot facilities and design the new creamery facility. I've had the chance to canvas and visit the leading cheese equipment suppliers across Europe as part of my role, and have spent time developing a range of yoghurts and gelato. I would welcome visits from any Nuffield Scholars looking to learn about the practicalities of developing dairy processing facilities and anyone with an interest in organic farming.

Today my new organisation/employer is the largest Gulf Collaborative Countries fully-certified organic grower boasting dairy, meat and poultry production plus 134 types of fruit and vegetables. We grow organic crops all year round at temperatures that range from 12 degrees C to 52 Degrees C with less than 2 days of rainfall per year. I would encourage anyone who's interested in dispelling myths

or ideology regarding the Middle East to visit us here and to see first hand some of the incredible work being done in this under-appreciated region. I would particularly welcome those who expect their commentary on organic farming to be taken seriously in a changing and modern world where lived, actual experience will be the real measure of value and sustainability.

I love the place in which I have found myself and the project is as exciting and interesting as anything I've ever done before. There is a strong sentiment in the Gulf Collaborative Countries that, having learned lessons from Covid 19, they are going to implement radical reforms to food procurement and production. This is something that I firmly believe should be replicated in the UK but I'm sad to say I see little evidence of it actually happening.

CHAPTER 10: ACKNOWLEDGEMENT AND THANKS

I would not have been able to learn what I have had it not been for the opportunity awarded to me by Anne and the late Alan Beckett, my sponsors. On a more personal note, when I first met Alan he had a huge impact on me and inspired in me a need to challenge my preconceptions. I think in a small but positive way a fear of disappointing him was a factor in the development of my understanding of my subject. Honestly I'm both particularly saddened, but also somewhat relieved, that he won't now get to read my report. Without Anne Beckett this report simply may have never been written. Somewhat in contrast to Alan, her unending and quiet, gentle yet reassuring pressure over time gave me the necessary nudge to finally submit my ideas for scrutiny.

The Beckett Scholars as a whole and individually, have been supportive and offered clarity when I needed it and I would like to thank them also for inspiring me and supporting me through this process. I would also like to thank the Nuffield Farming Scholarships Trust which, after receiving my initial application, insisted that I attend the initial interview. The less self-assured version of me which existed back then, very nearly didn't.

I would also like to thank my fellow 2018 Scholars who simultaneously taught me both how little I knew and how valuable my contribution to farming and agriculture could be. My son Daniel and daughter Zara inspire me to be a better person. In my view that means to fully embrace every opportunity no matter how much it scares you or how much you need to learn to make the best of it. So my thanks go to these two amazing young individuals too.

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Martin Gott
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