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The Benefits of Raw Milk Cheese Production

By Michael Cains, 2021 Nuffield Scholar
New South Wales

April 2024

Nuffield Australia project number 2104

Supported by:



Royal Agricultural Society of NSW

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Executive Summary

Raw milk cheeses are scientifically proven to be safe if manufactured correctly – especially Australian raw milk cheese (RMC) that meets the Food Standards Australia New Zealand (FSANZ) guidelines. In the current environment, the Australian dairy industry is becoming more industrialised and commoditised, with small dairies at greatest risk of closure. Production of raw milk cheeses present an opportunity to produce higher-value products, monetising region, heritage and production approaches by adopting strategic branding and manufacturing techniques. The purpose of this report is to ascertain the benefits to Australian dairy farmers and the cheese making sector more broadly by producing RMC, and understand market dynamics and opportunities so they can be applied in the Australian context.

The UK cheese industry has benefited from a resurgence in their local consumer pride. And is of particular interest to this discussion. They have built and celebrated brands – old and new – through a highly effective ecosystem of cheesemakers, cheesemongers, distributors, wholesalers, exporters and increasing cultural appreciation.

Given Australians love their cheese, and are trending to consume more per capita, there is an opportunity for Australian cheesemakers to produce cheeses of intrinsically high value. One such opportunity is producing RMC. To realise the potential of this opportunity, this report recommends establishing a commercial ecosystem, and removing some regulatory hurdles.

Keywords:

Raw milk cheese

Cheese

Agriculture

Cheese production

Farming

Cheesemaker

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Foreword

In 2008, at the tail end of the Global Financial Crisis (GFC), I was nutty enough to throw in a perfectly well-paying corporate job to become a farmer. I didn't grow up on a farm, I didn't study agriculture, I don't have the benefit of a multi-generational property – honestly what was I doing!?

Long before becoming cheese makers. My wife Cressida and I met in our early twenties when we were both working for wineries. We shared a love of Australia's great wines and the regions they come from. Barossa Shiraz, Hunter Semillon, Clare Valley Riesling to name just a few. When you drink these wines, they are predictably recognisable, and year after year, an expression of time and place.



**Figure 1 :Author with Pecora Dairy East Friesians
(source:Author)**

As a young man, working for Tyrrells Wines in the Hunter Valley NSW, I was amazed and fascinated at how different “single vineyard” Hunter Shiraz lines could be even though the grapes were grown in close proximity, and made by the same winemaker. From the chocolate soils of Brokenback, the sandy loam of old creek beds at the Casuarina Vineyard, to heavier red clay soils over limestone, and the purple hues of the Stevens vineyard. Each vineyard had a different soil profile, a different heritage, and a different overall story that was best appreciated in liquid form.

In the same way, sometimes words feel inadequate to describe the farm we live and work on. Nonetheless, our high rainfall patch is perched atop the Illawarra escarpment of NSW around Kiama, at the point where the Southern Highlands falls away sharply to the Pacific Ocean coast some 700m below. Our paddocks are intertwined amongst stands of mountain ash and rare cool climate rainforest. We often see sheep graze among wallabies and wombats, as the regular afternoon fog of Robertson rolls down off the mountain. Wetlands spill out alongside

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riparian corridors to the point where our place feels less like a farm, and more like an ecosystem – everchanging. It is also our home. In spring our milk is sweet and bright. By contrast in winter the cream proportion rises to give a more viscous lanolin type mouthfeel. In the year 2022, the annual rainfall on the farm was 4423ml (more than double the annual average). It was a low production year, but seasonal grass growth was phenomenal, creating some of the richest most complex cheeses we have ever seen. Ultimately, raw milk cheeses are like a snapshot in time reflecting the prevailing conditions. This farm has a unique story to tell. The best way to encapsulate the seasons, environment, ecosystem, and wildlife is through RMC. This paper aims to explain why RMC production has a broad benefit for the Australian dairy industry, and outline some successful approaches that can serve as a template.

Table 1: Travel Itinerary

Travel date	Location	Visits/contacts
July 2-3, 2022	United States: Kansas/Missouri	Green Dirt Farm Better Cheddar
March 15-30, 2023	United States: Washington State Oregon California	Beechers Fontanello Cascadia Rogue River Cypress Grove Penny Royal Cowgirl Creamery
May 10-29, 2023	United Kingdom: England Wales	Westcombe Cheddar Montgomerys Cheddar Wandering Ewe White Lake Cheeses Holden Dairy Farm Berkswell Cheese Neal's Yard Dairy Long Clawson Stilton St James Dairy The Courtyard Dairy / Bristol Cheese Shop Stichelton and Lincolnshire Poachers
May 29 – June 6, 2023	Ireland	Sheridans Cheesemongers Chasel Blue Bo Rua Farm
June 6 – 21, 2023	France: Occitanie (Pyrenees, Aveyron, Provence, Bordeaux) Spain: Basque/ Catalan	Laguiole AOP Lionel – Laguiole Benoit – Laguiole Papillon Roquefort Laure Theron dairy farm Emmanuel – Pyrenees Yoghurt Fabienne – Cheese Monger Maider – Idiazabel

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		Rungis International Market Perail AOP Lacaune Sheep association Agricultural high schools x 2 St Emillion x 2 Chateau
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Acknowledgments

A big thank you to the Nuffield Australia team, particularly Jodie Redcliffe, Nicola Raymond, Carol Millar and others for being helpful, responsive, and making me feel supported throughout. A big thank you also to my Nuffield mentor Jane Bennett.

Equally, this experience would not have been possible without the generous financial support of the Royal Agricultural Society of NSW (RASNSW). My thanks to incoming President John Bennett for his mentorship and support. In particular, thanks to Cecilia Logan for her ongoing assistance and support.

A special thanks to Nuffield France, and in particular its President Yolene Pages. Over a very productive week in the Aveyron region of France, Yolene organised accommodation and a weeks' worth of targeted visits which proved invaluable. Thanks also to UK Nuffield Scholar Martin Gott for his time, passion, insights and advice in navigating the UK cheese scene.

Thanks also to Susan Sturman of Monger & Maker based in Paris for her assistance in tapping into her vast network of international cheese professionals. Similarly, thanks to Laura Simon of Calendar Cheese who distribute Pecora Dairy products, and also provided valuable international contacts. I also appreciated the advice and introductions of my friend Will Studd.

I am very grateful for the support of my Global Focus Group (GFP) Cohort. I thank Alex Eivers (Nuffield Ireland Scholar) who gave us accommodation and the use of his vehicle for a week, and Brian McCarthy who let us stay with him near Cork. Special thanks to the other Australians in that group – Andrew McKillop, Fritz Bolten, Lucy Collins, Andrew Rolfe, and Charlie Downey, who are no doubt friends for life.



Figure 17: At Rabobank HQ Netherlands with GFP cohort (source: author)

Not least, a huge thanks to my wife of 20+ years Cressida Cains. First, for picking up all the slack on our farm business while I was away on GFP and the Contemporary Scholars Conference (CSC). Also for being my travel companion, photographer, navigator, notetaker and sounding board through my Individual Study (IS). Thank you to our two smart and independent teenage children Darcy & Vicky who stepped up to the plate and managed just fine without us for the 6-7 weeks we were gone.

Abbreviations

AOP	Appellation d'Origine Protégée
ASCA	Australian Specialist Cheesemakers Association
CCP	Critical control points
CSC	Contemporary Scholars Conference
DAWR	Department of Agriculture and Water Resources
DFSV	Dairy Food Safety Victoria
EEC	European Economic Community
FSP	Food Safety Program
FSANZ	Food Standards Australia & New Zealand
GFC	Global Financial Crisis
GFP	Global Focus Program
HTST	High Temperature Short Time
NSWFA	NSW Food Authority
PDO	Protected designation of origin
RASNSW	Royal Agricultural Society of New South Wales
RMC	Raw milk cheese

Objectives

Understand RMC production. In particular the following:

- What has been the approach to its production (Regional DOP vs farmhouse).
- To what capacity can raw milk cheese derive greater value by tapping into terroir and heritage value.
- What are the opportunities for farmers wishing to create higher-value products with raw milk cheese (RMC).
- How Australian farmers may benefit from RMC production.



Figure 18: Author with the goats of St James Dairy in Cumbria UK (source: author)

Introduction

The Southern Highlands of NSW, where our property Pecora Dairy is located, was once a bustling dairy hub. Take, for example, the suburb of Kangaloon near Robertson. It is characterised by high rainfall, volcanic soils, lush-green drought-proof country of rolling hills and disused dairy sheds. Kangaloon is amongst the finest grazing land in the country – yet only one dairy survives – owned by the Whatman family.

The brutal reality is there is no place for small to medium size dairies producing liquid milk in the Australian dairy landscape. In a modern deregulated marketplace, smaller dairy farms are simply not viable. Over 7000 Australian dairies have shut their gates since the start of the millennium according to Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES). The trend is more pronounced given Australian farmers, are amongst the least subsidised in the OECD. (Greenville, 2020)

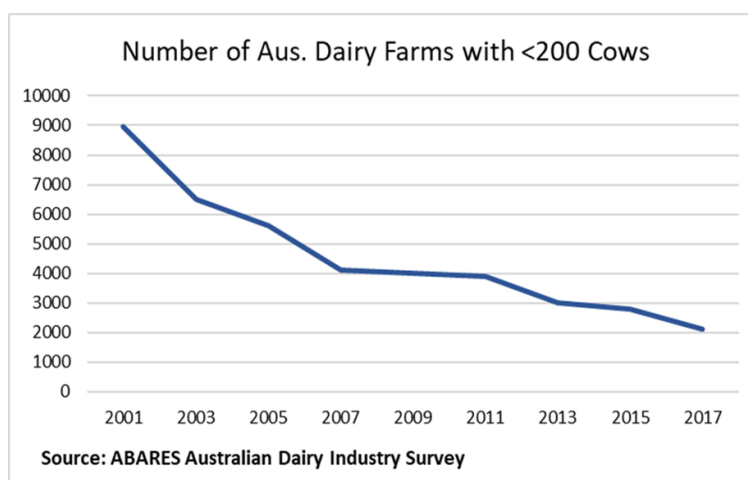


Figure 19: The decline in small dairy farms (source: ABARES)

Circa 500 dairy farmers continue to exit the domestic industry every year. The combination of a highly commoditised industry, with some of the largest and most efficiently run dairy herds in the world, skews the competitive advantage to those with scale (Refer to Table 2). This is especially so in a low subsidy, concentrated market power context.

Table 2: Australian dairy snapshot (source: Dairy Australia)

Australian dairy snapshot by numbers	
15.1	Kilos of cheese eaten per capita by Australians 2022 – up from 13.6kg in 2017/18
373	The average herd size for cow dairies in NSW
28%	The growth in imports over the last 10 years
98,000	Tonnes of imported specialty cheese consumed in 2022
4420	Dairies left in Australia (there was 8005 in the year 2006)
36%	The proportion of Australian milk that ends up in manufactured product- (declined from 56% in 2001)
3102	Tonnes of mould ripened cheese produced in 2021/22 (compared with just over 8000 tonnes in 2008)
270	Tonnes of Australian blue cheese made (compared to 664 tonnes in 2016)
842	Million dollars is the value of dairy exports to China

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As stated by the Australian Government's (DAWR) Agricultural Competitiveness White Paper: "Australia must produce the premium agricultural products that increasingly affluent consumers in overseas markets will want." We need to add value, whether in terms of the quality characteristics of our products, or in how they are packaged or processed. And we need to produce quality, differentiated products (DAWR, 2015, p.5).

Accordingly, the future need not be bleak for smaller family-owned dairy farms. There really are two ways to save smaller family-owned dairy farms. Apart from the obvious (scale up and drive volume), the alternative is to stay small, be branded and high value.

Fortunately, consumer demand for high value dairy does not seem to be a limiting factor. The explosion in the craft beer scene is symptomatic of a trend toward "meaningful consumption", with greater emphasis and appreciation of product provenance, how products are made, and the producers' efforts to address social license issues.

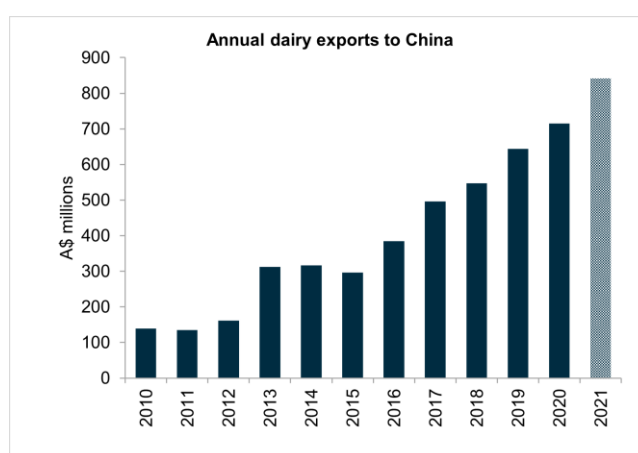


Figure 35: Growth in dairy Exports to China (source: Dairy Australia)

The potential application of "meaningful consumption" is obvious but not easily realised. In 2019, Australians consumed circa 100,000 tonnes of imported cheese, 35,000 tonnes of imported butter and 22 million litres of imported ice cream. Our appetite for specialty high value dairy products is immense.

Despite this, the rapid rise of milk exports (fuelled by Asian markets), and strong commodity prices, have created a production bias towards low value products. Milk has been diverted to meet demand from these markets, away from high value specialty cheese like white mould ripened and blue cheeses.

Perhaps, as Ferris (2011) states, "*Niche is the new Big*". The concept that in trying to appeal to everyone, you may end up appealing to no-one. It is not the volume that matters, it's the profit. This is a particular strategy that requires exploration. The 'niche' is what this paper will explore in reference to 'The benefits of producing speciality RMCs in Australia'.

There are three main sections to this paper. First, it discusses RMC production with reference to the Australian context. Second, how the concept of terroir can be used to position RMCs as niche in the market. Third, there will be an in-depth look into existing small dairy farmers making RMC around the world, and how their methods can be a blueprint for the Australian dairy industry. The paper concludes with various recommendations for RMC production in Australia.

Background to raw milk cheese in Australia

How is RMC different from cheese produced more conventionally?

Most cheeses in Australia are made with pasteurised milk. Let us call them conventional cheeses. This is the legacy of a regulatory regime that until recently has been hostile to the production of RMCs. In 1998, FSANZ effectively banned all domestic production and import of RMC. The risks identified were bacterial pathogens, but also zoonotic viruses like tuberculosis and brucellosis.

Pasteurisation is a critical control point (CCP) in the manufacture of many cheeses, due to the effectiveness of heat-treated milk in deactivating pathogens. Regulators are concerned specifically with the “Big Four” pathogens.

- a) Salmonella
- b) E. coli
- c) Listeria Monocytogenes
- d) Staphylococcus Aureus

These four pathogens are ubiquitous in our environment, However, if allowed to populate within dairy products, they can lead to significant illness and even death. However, pasteurisation is not necessarily an impenetrable armour against pathogens, nor is it always in the best interests of creating quality cheese. As Van Caenegem & Taylor (2016) states:

“Pasteurisation of milk for use in cheese production has been the norm in Australia for decades. Pasteurisation eliminates all bacteria and other microbes, both pathogenic and beneficial, in the milk used for cheese making, a measure destroying both ‘good’ and ‘bad’ bacteria equally. However, it does not remove the universal health risks from post pasteurisation contamination of milk or cheese, such as from working surfaces or workers in factories where contamination by uncontested pathogenic bacteria can be high.”

According to FSANZ, pasteurisation can be achieved by operating along a sliding scale of time vs temperature from holding milk at 63 degrees Celsius for 30 minutes or alternatively 72 degrees for 15 seconds otherwise known as High Temperature Short Time (HTST). An alternative method (thermisation) is a pasteurisation equivalent that involves heating the curds after they have been coagulated. Until 2015, pasteurisation and its equivalent “cooked curd” method were the only allowable production methods for the control of pathogens in Australian cheese manufacturing.

The fight for raw milk cheese

The question of whether to allow RMC manufacture and sale in Australia has been characterised as a battle. An example is Roquefort, a high moisture raw milk blue cheese from France and its champion Will Studd, a well-known cheese monger, wholesaler, raw milk advocate and television presenter. In 2002, Studd imported 80kg of Roquefort into Australia, intending to challenge the FSANZ ban. The challenge failed. A court of appeal upheld the FSANZ ruling and ordered Studd to either re-export or deep bury the cheese he had remaining in storage.

Studd says, “I was branded a ‘food terrorist’ by one Australian industry magazine and the French were not happy with the stunt either; Australia’s embarrassing prohibition had established a dangerous trade precedent that could be repeated in larger markets, such as

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the US". In a publicity stunt, Studd orchestrated a fake funeral, shipped the cheese to a land-fill site in a black hearse, draped in the French Flag, and unloaded the cheesy contents to the sounds of the French national Anthem. The battle for the right to both produce and import RMC was on.

Later that decade, Nick Haddow from Bruny Island Cheese was permitted to make C2. C2 is an Australian classic, sometimes called a cooked curd cheese. It is initially produced with raw milk, with the curds then thermised. Bruny Island C2 is quite rightly marketed as RMC. However, authorities found treating such cheeses as equivalent to pasteurised cheeses for the purposes of regulation and administration was an important workaround.

It took a further 12 years for FSANZ to recognise cheeses with physico-chemical properties preventing pathogen growth (e.g. low pH, low water activity, high salt) could safely be made without pasteurisation. There is a method to make cheese safely without pasteurisation or thermisation. Given the right storage and maturation conditions, an 'end product' cheese can be rendered predictably free from pathogens through proper ageing. However, the relevant change to the Food Standards Code did not produce a regulatory pathway for approval without prohibitively expensive producer-funded 'challenge studies'. It was up to state-based food regulators such as the NSW Food Authority (NSWFA) to codify processing standards and approval processes. Thankfully, the nation's state-based food safety regulators worked collaboratively to achieve nationally consistent application of the standards.

It took a further three years (until 2018) before Pecora Dairy became the first licensed cheesemakers in Australia approved to produce non-heat-treated RMCs. The CCP for Pecora Dairy's semi-hard raw ewes milk cheese called Yarrowa is a maturation of 90 days at not less than 12 degrees Celsius. During that time pathogens deactivate due to the cheese's acidity, saltiness, and low moisture.

It is important to note the science of making safe RMCs is well understood. It is not a "cross your fingers and hope for the best" exercise. This is not the same as drinking liquid raw milk. This topic was comprehensively covered in the 2009 FSANZ paper entitled 'Microbiological Risk Assessment of RMCs'. The University of Tasmania used statistical modelling to simulate the growth and die back of pathogens in cheeses. All Australian cheese makers wishing to make RMCs must use these models to satisfy food authorities their cheese is safe to eat.

Standardisation

The industrial scale standardisation of dairy operations and milk has resulted in huge productivity dividends and (mostly) safe food. However, Haddow states this results in a "sameness" that emerges across dairy products. After all, he explains, "if everyone uses the same black and white cows, the same pasture blends of rye and clover, effectively sterilise that milk and introduce mass produced starter cultures then how much variety can we really expect?". Haddow tells me if consumers buy a cheese that tastes the same one month from the next they should take it back!

Studd says "when milk is pasteurised, through heating, it effectively becomes a blank canvas". Conversely, RMCs allow the microbial ecosystem including autochthonous microorganisms found naturally in milk to express itself in cheese. Studd goes on to say that eating industrial cheese "is like watching black and white television, whereas an RMC is like watching technicolour!"

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RMCs are best when the cheesemaker has a deep understanding of the science of cheesemaking, and a commitment to farming practices which produce first class milk. This elevates an RMC to something which is not only delicious, but unique and truly special.

It is argued a “swim between the flags” industrial food system has resulted in cheese product from around the world that is homogenous (i.e. tasting much the same). In the process, regional heritage, customs and flavours of the land are diluted.



Figure 36: Bo Rua Farm raw milk cheddar in Gouda shape (source: author)

Is raw milk cheese safe?

At the outset, it is important to acknowledge RMC manufacture is nothing new. Nick Hadow wears a t-shirt that says, “Jesus ate raw milk cheeses”. The production of cheese pre-dates lab grown starter cultures. Obviously, cheeses were produced without any direct inoculation of lactobacillus starter cultures. The source of fermentation was from spontaneous environmental sources.

Combining endless trial-and-error, alongside the specific technologies, animals and techniques people had to hand, has unsurprisingly resulted in a vast array of diverse cheeses (Bokulich and Mills, 2012). Centuries old practises are explained by the scientific principle outlined by FSANZ which states pathogens will eventually deactivate if given enough time and kept in an environment that is inconducive to pathogen growth and not cold.

Therefore, theoretically, any cheese with the right physico-chemical properties, no matter how riddled with pathogens at first, could be matured to safety if kept warm enough for long enough. Firmer cheeses are inherently safer better candidates for RMC production. On the other hand, some speculate that soft, high moisture, high pH, pasteurised cheeses are in fact *more* dangerous from a food safety perspective than a correctly stored RMC with safer physico-chemical properties.

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*“For example, the Jindi incident in late 2012 concerned pasteurised milk cheese (being Camembert and Brie style cheeses) containing *L. monocytogenes*. It was linked to 28 cases of infection, 2 deaths and 1 miscarriage in five jurisdictions, and is the most severe health crisis in the dairy sector in recent decades” (Government of Western Australia, 2012).*

On the other hand, some RMCs appear to be almost bomb-proof, due to the effects of beneficial bacteria. In their seminal book *‘Reinventing the Wheel’* Bronwen and Francis Percival tell the story of an extraordinary French Appellation d’Origine Protégée (AOP) cheese – Salers Traditional. Most Salers cows are destined for the abattoir. However, a small percentage are milked. A difficult animal to milk, the Salers cows only let down in the presence of their young. Once a calf suckles briefly on its mother’s teats, it is then whisked away from the udder and tethered to its mother neck. Then, a little salt is rubbed on the calf’s head to encourage the mother to lick it while being milked. The milk is emptied into large wooden cheese making vats called *gerles*, which are used season after season for RMC production without the sanitation techniques usually used in modern facilities. On first glance, it’s a wonder such a cheese can be regarded in anyway as food-safe.

“The microbial communities of the gerles and the raw milk they contained, provided a startling conclusion to research scientists. Not only was the wood of properly prepared gerles teeming with microbial life but it also actively resisted attempts to contaminate it with pathogens”. (Percival & Percival, 2017).

Salers Traditional is a cheese not dissimilar in its production to cheddar. However, eating this cheese is like peeling back the layers of an onion. It begins grassy with hints of white vinegar, and slowly reveals musty, earthy savoury notes like onions, truffles and hazelnuts.



Figure 37: Salers Traditional AOP (source: author)

Does raw milk cheese express terroir?

What is terroir?

“Terroir is the sense of “placeness”. In its strictest definition, it refers to the soil and the climate of a particular place, and the marks these local conditions leave on the foods grown there... It is the sum of its parts.” (Percival & Percival, 2017)

Terroir provides another dimension to scarcity, provenance and quality. The reason is that terroir encompasses the particular environment either at the farm level or a region more broadly. It is synonymous not just with organoleptic or sensory properties of the product, but also the social and cultural attributes embedded in artisanal foods. These attributes make such foods distinctly different in nature and proposition than those cheeses that arise from industrial commodity production.



Figure 38: French DOP Marketing of Pyrenees Cheeses ‘A Sheep, A History and Cheeses’
(source: Les Fermes Des Artisans - Rodez)

Terroir is therefore integral to the appeal of RMCs. RMC appeals to the discerning consumer market who look for authenticity beyond industrialised ‘supermarket cheese’. They would reject the dominant standardised cheese models, where price is the most important consideration. Indeed, this type of consumer will pay a premium to receive authentic local food with provenance and high production values, including addressing social license issues like organic production, animal welfare and carbon neutrality.

It is obvious that RMC has a contribution to make in the overall consumer appreciation of Australian cheeses. Australian cheese products have the capacity to be just as original, varied and sophisticated as Australian wine or craft beer.

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“Guided by sensory perception refined over time, skilled artisan cheese makers can adjust their methods to work with, rather than against, seasonal and climatic variations in milk that affect fermentation and congealing as well as the sensory characteristics of the cheese” (Kindstedt, 2005).

The ordinary understanding of terroir as a concept is heavily derived from the wine industry, where it is usually applied to regions. Consumers understand, for instance, the distinctive grassiness of a Marlborough sauvignon blanc, the minty cherry chocolate tones of a Bordeaux blend or Coonawarra cabernet blend, or honeyed apples and toast of an aged Hunter semillon. Consumers come back to these products like an acquaintance with an old friend.

So too, in the world of dairy, some cheeses are synonymous with a geographical identity. Normandy camembert, blue cheeses of Roquefort or Stilton, Parmigiano Reggiano to name a few. Wine has given us the gold standard on applying terroir – providing a template for geographically based cheesemakers considering branding and production. Regional DOP structures have been useful in creating globally-recognised cheese brands. Others chose to express terroir at the more granular farm level. The characteristics of a singular farm can be celebrated without the need for regionality. It need not be esoteric to claim that RMC can be the ultimate way to taste a farming system on a plate.

“Cheese gives us a unique opportunity to taste the totality of a farming system to experience an agricultural system within a single product. In the case of growing cereals, fruit or vegetables, the consumer can only taste the single end product of the farmers endeavours. When animals are kept for meat, your approach to raising them for slaughter might reflect the biodiversity of a farmer, stewardship of the land, but any sense of our farming at the microbial level is lost at the instant of butchery. It is only cheese that gives us the potential to taste every systematic decision made by the farmer, from macro to micro, encompassing flora and fauna.” (Percival & Percival, 2017)

It is obvious the prevailing macro-climatic conditions of a farm will influence the base conditions for terroir. Various factors, such as regional micro-climates including rainfall patterns, temperature variations and averages, may all contribute to seasonal variation in milk characteristics.

In terms of the environment factors affecting the microorganisms found in raw milk, the most cited are “pasture use, the types of bedding, feed, cleaning in and around the milking machine, milking sanitation and hygiene, and the state of herd health, the quality of raw milk in terms of cheese making and safety depends most of all on milk production practices” (Desmaures et al., 1997).

Unlike wine, cheese has the capacity to express more than just macro factors. It is proposed that each facility develops its own ecosystem of microflora. Carla Meurs from Holy Goat in Castlemaine, Victoria explains: “we have analysed the micro-biome of our plant and have come to the understanding that over the years our own strains of geotrichum have emerged maybe we should call them geotrichum Holy Goatii?!”.

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Figure 39: Flow chart showing how variables influence cheese (source: author)

Therefore, the notion that cheese might be one of the only foods which can develop characteristics truly unique to its particular location and context is something that requires further inquiry. “House microbiota have been implicated in the production of many traditional cheeses and regional, site-specific microbial patterns have been linked to the chemosensory properties of water buffalo mozzarella and Pecorino Crotonese, suggesting that house microbiota may partially drive the sensory characteristics of cheeses from different facilities” (Bokulich and Mills, 2012).



Figure 40: Applebys Cheshire maturing on racks (source: author)



Figure 41: Making cheese at Applebys Cheshire (source: author)

Building a story around a cheese is not limited to the sensory experience of taste. The history and legacy of cheeses like Roquefort create desirability in and of themselves, by virtue of their heritage and tradition. Take Cheshire for example. According to Michelson (2010) “Cheshire is believed to be Britain’s oldest cheese”, dating back to Roman times. Paul and Sarah Appleby are deeply aware of the heritage. Making Cheshire with them at their creamery at Hawkstone Abbey Farm in Shropshire, UK is quite the experience.

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Sarah says, of her cheeses, that “these time capsules are matured in old barns with Napoleonic timbers. The provenance and flora of our natural surroundings give our Appleby’s cheeses a flavour that is totally unique.” Made from ancestral recipes, using mechanically wound basket presses and matured for 12 months, Appleby’s Cheshire is buttery and earthy, with granny smith apple tartness coming through. Sarah says that in this way they make “edible heritage”.

Is there a market for raw milk cheese?

RMCs are associated with traditional cheesemaking practices. They are considered scarce, and highly valued for their complexity and depth of flavour. For instance, those consumers that go to farmers markets will often seek out artisanal, small-batch or specialty cheeses. RMCs are often considered higher value because they are typically made by smaller, independent producers who might employ high production values like regenerative farming.

Postmodern consumer theory is compatible with the rising market share of specialty cheeses globally, (Arnould et al., 2018).

Postmodern consumer theory stipulates that purchasing decisions are characterised by consumers who have ‘hostility towards generalisation’ (Knoll, 2005). This hostility creates a value for postmodern consumers who desire diversity and originality of products, and whose identity is forged by the act of exercising choice and developing connoisseur skills (Kupiec and Revell, 1998).



Figure 42: Jamie Montgomery from Montgomery’s Cheddar and author (source: author)

Undeniably there is an opportunity for RMC to tap into growing markets, where discerning buyers reject mass produced often bland product marketed to the masses. RMCs are inevitably associated with distinctive qualities, which separate them from industrially-made

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cheeses. Features include a limited number of suppliers, low food miles, and connection with the farmer/producer. This includes “smaller production facilities resulting in greater control over production and less mechanisation; and, more varied sensory traits” (Kupiec and Revell, 1998).

The existence of a market opportunity however is not sufficient by itself to spawn RMC makers, and commercialisation of more RMC brands. The reasons why the market fails to respond in this instance requires further inquiry.

Costs and benefits

One limiting factor to the success of operations that produce RMC, globally, is the cost associated with production.

The production of RMCs, in most countries and contexts, will involve smaller-scale operations and artisanal methods, which are labour-intensive and time-consuming. Hand crafted cheeses, by their very nature, are not highly mechanised or automated. The care and attention required in sourcing high-quality raw milk, as well as the additional steps required to ensure safety and compliance with regulations, can increase production costs. It must also be factored in that RMC making is sometimes unpredictable. It is foreseeable that some batches don't make the grade, and disposal of these batches will be necessary.

The input costs of raw milk will often be higher. Given that farmhouse cheesemakers will be accessing milk from small herds, they are unable to take advantage of scale. Other costs that must be accounted for are incurred when cheeses are made from high-quality milk, sourced from well-cared-for animals, on land which is managed using more progressive land management. Farmers who produce raw milk for cheese-making may follow specific farming practices, such as organic or biodynamic methods, and using cross bred cows with healthy milk but lower yield. This may further contribute to higher costs.



Figure 43: St Nectare DOP production (source: author)

Aging and storing RMC requires longer aging periods compared to cheeses made from pasteurized milk, because of the requirement to deactivate pathogens. This extended aging process will add to production time, increased storage costs, and have cash flow implications.

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The production of RMCs is subject to regulations that may restrict or limit the number of producers. Additionally, the demand for RMCs tends to be smaller compared to more mainstream cheeses. This should be offset by higher margins. Factors that result in limited availability should translate to higher prices due to supply-demand dynamics.

Farmhouse cheesemakers who are more interested and engaged with meeting and developing consumer palates and consumer demand are well placed to carve out a profitable niche. The RMC story fits perfectly within this new agricultural archetype, whereby growth in consumers' disposable income, including in Asia, has created new opportunities for Australia's premium agriculture. Relevant to the debate about RMC, most growth in the cheese sector is situated in the high-priced product range, such as specialty and artisanal cheeses. Growth opportunities for the industry exist in new product developments, technological innovations, and export markets, especially in Asia and the Middle East (IBISWorld, 2015).

Opportunity

Australian-produced milk is among the best milk in the world. It is the envy of European farmers given that we have almost no necessity to shed our animals. The requirement for shedding typically employs more labour units and creates hygiene risks. By having pastured animals in our Australian dairy system, we have more pronounced seasonal variations. These can be marketed by associating cheeses with the season they are made, and the pastures on which the animals are fed.

There is French notion – transhumance. In practice, it means dairymen and women follow their animals up the mountains as snow melts, to where there is nutritious spring green pick and wildflowers. The cheese made in situ represents seasonality, and the unique biodiversity of the landscape. Look out for cheeses that bear the term 'd'Alpage' such as Raclette d'Alpage, Gruyere d'Alpage and so on.

“In these environments, cheeses need to be made quickly so the herders can get back out and look after the animals and they need to be stable and long lived enough to make it back down the mountain later in the season. Large mountain style cheeses such as Gruyere Beaufort.” (Percival & Percival 2017).

The composition of the milk might be influenced by which grass grows, and the altitude and soil type. Macro and micro factors play their part in this context. The point is that seasonality and milk variability can be used to Australia's advantage.

Given Australia's milk supply is largely green grass-dependant, it is reasonable to assume we have interesting and variable milk. Milk that has composition, flavour and micro-flora unique to where it is collected. Variability that is lost in the industrial food system.

“As the production of our food and farms becomes more globalised and industrialised. With it comes a loss of plant and animal diversity that results in a loss of food with regional character. In spite of this, farms that operate traditionally, sustainably and ethically are thriving around the world as people are seeking a stronger connection to their food and those who grow and make it. These are the farms where real butter, yoghurt and cheese comes from” (Haddow, 2016).

As shown in Table 2, the proportion of Australian milk used to make manufactured product has fallen since the start of the millennium. In 2001, 56% of Australia's dairy was used for

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manufactured product. Today that figure is 36%. Our production has been skewed to more commodity-type items, like milk powder for the Asian market. Therefore, production of high value cheeses – such as soft, white, mould-ripened cheese and blue moulded cheese – continue to decline.

The question, what is the highest and best use of Australia's extraordinary milk product? needs to be given deep consideration. We need to acknowledge that moving towards more commodity and less manufactured products, exposes the Australian dairy market to concentration and sovereign risk.

The economics of making a specialty cheese shows us farms can, potentially, be just as profitable making product that attracts higher value while being less intensive, using less nitrogen and inputs, and generating lower carbon emissions (see Table 3).

Table 3: Income scaling up the value chain

Operation Type	Income per cow
Conventional milk operation	\$4,500
Farmhouse branded milk	\$15,000
Farmhouse yoghurt	\$24,000
Farmhouse RMC cheese producer	\$29,000

**Based on Dairy Australia figures of Australian cows converted to supermarket product pricing*

Are there benefits for small dairy farmers to make raw milk cheeses?

Case Study: The many shades of blue

An example of how DOP structures can be problematic is found in both UK Stilton and French Roquefort. Stilton is sometimes referred to as the “King” of British cheeses. It is among the finest blue cheeses in the world. It has a characteristically buttery texture with earthy, mineral notes, and citrus-like acidity. It is a cheese that is naturally rinded, which makes it distinctive from most ‘modern’ styles of blue. It has a history that goes back a millennium, possibly to the Norman invasion in 1066. By the late 18th century, Stilton had become enormously popular (Studd, 2007). Stilton is now a cheese that is part of the British Christmas tradition. According to Clauson Farms (one of five producers making Protected Designation of Origin (PDO) Stilton), half of all production is sold at Christmas time.

One hundred and fifty years ago, within the counties of Nottinghamshire, Derbyshire and Leicestershire, there were many dozens of small dairy farms producing Stilton without pasteurisation. However, between November 1988 and January 1989, 155 people (across 36 reported outbreaks) suffered gastrointestinal symptoms associated with eating Stilton cheese produced from unpasteurised cow's milk. Symptoms were suggestive of a staphylococcal illness. However, extensive laboratory testing of the cheeses implicated failed to detect any pathogen, toxin or chemical. Control measures were implemented. These included a voluntary withdrawal of the implicated Stilton cheese from shelves on 23 January 1989, and a subsequent decision to use pasteurised milk in production of the cheese (Maguire et al, 1991).

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In 1989 Colston Basset made the very last raw milk Stilton. Contrary to hundreds of years of tradition, from that point on, those responsible for developing Stilton PDO stipulated it had to be pasteurised. To make a blue cheese that bears the name Stilton it *must* be pasteurised. Today there only five Stilton producers.

The story of Stilton saw a new twist in 2006. Joe Schneider, an American, and Randolph Hodgson, an Englishman from Neal's Yard Dairy, had a vision to restore Stilton's rightful tradition as an RMC.

Accordingly, the Stichelton Dairy (with its partner Welbeck Abbey Farm near Mansfield, Nottinghamshire) started producing raw milk blue cheeses. The production lies within the protected geographical area for Stilton. However, they were unsuccessful in their request to use the name Stilton. Consequently, Stichelton was born. Stichelton is an enormously respected cheese throughout the UK. It is a must-have stocked item in any self-respecting cheesemongers cabinet, and is considered progressive and exciting. Stichelton has a thick crusty rind (as is the tradition), but the paste is vibrant and layered. Despite making it in a traditional way using unpasteurised milk, the product is not allowed to be sold as Stilton. Ongoing attempts to restore RMC production to the Stilton PDO have been unsuccessful. Joe Schneider believes this is a clear example of how regional PDOs might be good for branding, but stifle innovation and evolution.



Figure 44: Stichelton Cheese at Melton Mowbray Cheese Festival (source: author)

Stilton's counterpart from across the Channel is Roquefort. It is both a cheese, and a mediaeval hill town in the Aveyron region of France. A beautiful village looking over the rolling hills of the French Pyrenees. Incredibly, fewer than two hundred people live here. Unless you work in cheese production, or you are a tourist, there is little reason to be there. Therefore, at night, Roquefort is a ghost town.

Roquefort is many things all at once. The word Roquefort is synonymous with RMC, the town, its history, mythology, and its caves. Legend has it that a love-struck shepherd boy forgot his lunch of rye bread and sheep curds in the caves of Roquefort when he went to pursue a girl he had his eye on. When he returned several weeks later, the bread was mouldy, and the cheese had developed blue mould internally. The synergy of the caves with their natural

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ventilation, together with the rye bread, the cheese, and the blue mould, had created Roquefort. Voila!

To be regarded as Roquefort, and in keeping with the legend of the shepherd boy, the young cheeses must be non-pasteurised and kept for two weeks minimum in the caves beneath the town of Roquefort. This is regarded as so vital to the process, that in 1411, King Charles VI granted exclusive use of the caves for ripening cheese.

The caves are dank and dark. Only the ones with natural vertical fissures that allow ventilation can be used for ripening cheese. Somewhat bizarrely, to own the caves beneath the town of Roquefort, one must own the land and properties above. Thus, the entire town is owned by cheese companies! To illustrate, within the Papillon caves, there are long straight areas that have no cheese racking. The rest of the caves seem packed to the gunnels with maturing blue cheese. Inquiries uncovered that these vacant areas correspond with roads above – therefore, there is not permission to mature cheese there.

There is no question, that Roquefort is regarded as one of the world's great cheeses. It is next-level delicious. Primarily creamy and salty, but with underlying austere, musty minerality, dried fruits and citrus. The burning question we are left with is – how has Roquefort benefited the farmers? A handful of producers own all the means of production.



Figure 46: Papillon pack and wrap
(source: author)



Figure 45: Lacaune Sheep of Laure Theron's Farm
(source: author)

After all, if you don't own property in the town, how do you get access to the caves? Laure Theron, Nuffield scholar, milks circa 400 lacaune sheep that produce milk for Roquefort. She is not convinced the benefits of producing milk for one of the world's best cheeses fully trickle down to the farmers. That perhaps EU subsidies do not always benefit the farmers. In contexts like this, if farmers are price takers, then the beneficiaries of these subsidies are often those further up the value chain. This is a very different scenario to say Long Clawson – Stilton. There, 31 farms enjoy being part of the co-operative, sharing the benefits of category growth and product extensions like Red Leicester. They get paid for their milk, and receive a share of profit distributions. This tale of two blues shows AOP structures provide benefits, but also disadvantages, particularly regarding flexibility and innovation.

A millennium of cheese history against which to leverage a blue cheese brand might be useful, but it is not essential. The example that proves this is case is the Grubb/Furno family operations in Cashel, Ireland (near Tipperary). This third-generation operation makes an internationally-acclaimed cheese called Cashel Blue, producing 380 tonnes per annum. Australia's closest equivalent is a sixth of the size - Berry's Creek blue from Gippsland

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produces 60 tonnes. Ireland does not have any ancient blue cheese tradition – this is a brand that has been built on the back of continual improvement and refinement.



Figure 47: Cashel Blue Farmhouse (source: author)

One third of the milk is from their own herds, with the remainder coming from producers within a 25-mile radius. Sarah and Sergio, who run the Cashel operations these days, tell us 70% of their produce is sold domestically on the island of Ireland. It is worth remembering here for comparison purposes, that Ireland has just over 5 million citizens, whereas Australia has over 26 million. However, becoming a national staple took significant work. Just 15 years ago, only 30% of their product was eaten domestically.

Sergio and Sarah come from wine backgrounds, and they have brought a greater appreciation for the organoleptic properties of Cashel Blue. They have driven consistency, efficiency of process and brand awareness that has taken this cheese to the next level. Cashel is a blue cheese that is finely crafted. It is a moist, creamy rindless blue. Beneath, the chalky minerality gives way to milky-lactic characters, and sweetness of apricots.

Culturally there is no history of blue cheese being eaten by the Irish. Similarly, there is no deep-seated blue cheese legacy in the United States of America. At Rogue River in Oregon USA, their raw milk blue cheese, wrapped in vine leaves and soaked in macerated pear, is a sweet salty umami mouth bomb. It's a cheese inspired by place. Local vineyards and a high-alcohol pear brandy bring together that sense of place and ground this product to its provenance. What better name for it than Rogue River Blue. Unsurprisingly, Rogue River Blue is one of America's most loved, and most expensive, cheeses. It won the world's best cheese in 2019, and is a complex whirlwind of flavours.



Figure 48: Rogue Creamer and a symbol of heritage (source: author)

Both the Cashel Blue and Rogue River Blue show that terroir, provenance, and brand do not need DOP/AOP structures to thrive. Across France there are 46 AOP cheeses with varying degrees of rules, from strict authoritarian codes that dictate everything from the breed and management of animals, to the size and shape of the product, and the cultures and production machinery used. In Roquefort for instance, a centralised breeding program ensures strict governance over the genetics of replacement ewes.

In Roquefort, silage must not be fed, and teat sanitisation is forbidden. In St Nectare, the stainless vats, pressing machines, process, cultures and breed of cow are all prescribed by the AOP governing body. These are legacy structures from ancient traditions, and need not be applied to new-world cheeses.

Case Study: Westcombe Dairy

Richard Calver and his son Tom Calver, based in Somerset, represent the progressive edge of traditional British territorial cheeses. Regenerative farming, modern cheese making, brand extension and social license are an essential part of the story of this traditional cheddar cheesemaker.

Richard Calver took over operations at Westcombe Dairy in the 1980s. The 60s and 70s were dominated by commodity milk. The common market resulted in cheap imported milk. The requirement to change their business model saw them turn to cheesemaking. They decided reviving traditional artisan methods of producing unpasteurised cheddar was the way forward.



Figure 49: Westcombe farmgate shop (source: author)

Controlling every element of the cheesemaking process, from the field to the dairy, is essential to producing a high-quality product. Westcombe Farm has a long tradition of cheddar making, with cheese being made at the site since the early 1900s. Richard and Tom Calver respect the traditions of the farm and the region they live in by producing beautiful cheeses, including their famous Somerset cheddar. The fertile soils, lush grasses and fresh spring water provide the perfect climate for cheese making.

These days Westcombe use milk from three farms: Milton, Manor and Wessex. All three are set in Somerset, on beautiful country with rolling hilly topography. In 1991 Richard knocked down the old factory and built a new one, initially making block cheese. In an early example of diversification, they also made chutney – why not? Because what goes with cheese? Chutney.

In 1997 they began making traditional cheddar. At the time, Tom was a chef in a private London kitchen for an investment bank. Understanding the value of well-made food, Tom was the driver for pushing the farm's products from volume end to high end. In 2002/2003 they worked with Neal's Yard Dairy in a collaboration which assisted ongoing refinement of their product.

Tom says, "Terroir is everything – commercial cheddar tends to be flat and two dimensional, whereas raw milk cheddar is 3D. It has length, complexity, expression of place". Tom and Richard are fierce advocates of an approach that is simply described as:

"Healthy Soils with diverse microbiome = Healthy Plants + Biodiversity of Insects

*Healthy Plants with a diverse species including legumes grasses and herbs
= Healthy Animals*

*Healthy Animals that are mixed breed, robust and not pushed to their limits
= Healthy Milk*

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Healthy Milk = Healthy Milk Microbiome which in turn = Bloody Delicious Cheese!"

The progressive nature of their operations is a signature. Herdsman Nick at Milton is well into the process of multi-species pastures, with a full pallet grazing model that is found down the regenerative route. They rely less on traditional ryegrass and maize pastures. Instead using more herbal lays including chicory, brassica, trefoil and plantain, to access an abundance of flavour and nutrition.

Calver says winding back the clock on the mindset that pastures must respond to nitrogen requires work, but it can be done. Diversity in the pasture creates diversity in the microbiome, which flows through into the milk. There is safety in the positive pressure of an established microbiome. That is, the competitive nature of microbiology. Calver says, "We have done microbiological surveys on raw milk and they change every day. There are hidden benefits of positive microbiology that the industry should recognise."

When it comes to cheesemaking, Westcombe takes a gentle approach. Less aggressive pumping is a key. They use slower speed variable pumps when they must, and gravity wherever possible. Calver tells me that "this is vital to not oxidise and destroy fats, as is typical in industrial cheeses". Tom is keen to move away from mechanisation as much as possible. He instead prefers to take an instinctive approach to cheesemaking, seeking to express the milk's true character. It must be said that mechanisation is very welcome in the maturation room where a mesmerising robot, "Tina the Turner" picks up each micro-chipped cheese, rubs the rind and perfectly places it back in position on the shelf.

Skills required of the cheesemaker at Westcombe are the ability to be instinctive, reactive and adaptable, and challenge the cheese. "We don't make by the clock; we are constantly tweaking", Calver says. Westcombe cheddar is made to ancestral recipes from the 1400s – a time when there was no laboratory-grown cultures. They have learned to constantly adapt and accept that things go wrong.

In 2006 Tom created a cheddar vision webcam, where people online could watch a cheese being matured. Worldwide there were 1.8 million hits. Americans wrote poems about his cheese, and he was featured on CNN and numerous radio programs. He has successfully managed to leverage brand and social media to position these cheeses as niche and high value.

The Westcombe farm gate bustles with activity. It is open for business direct to the consumer, with cheese being just the start. There are dizzying brand extensions into craft beer, charcuterie and bread. This is an innovative, professional, and diverse dairy business, and an example of how a small-to-medium dairy business can break the shackles of commodity milk.

How the UK cheese scene went from zero to hero

The UK cheese scene is somewhat of a blueprint for how an industry can thrive with an active, supportive industry framework. The defibrillator was applied back in the 90s to a laid-out domestic cheese scene thought of as old fashioned. The health scares were another factor in a perfect storm lashing the domestic cheese industry. "I really believed it would be the end of the great tradition of cheesemaking in the UK once and for all," says Randolph Hodgson, founder of Neal's Yard Dairy and Stichelton.

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Aware of the troubles in this industry, in 1993 then Prince Charles (now King) made himself a patron of the UK cheesemakers. He invited cheesemakers and cheesemongers to his country pile, along with civil servants from the Ministry of Agriculture and government ministers, to see what could be done (Rowlatt, 2022).

The Holden Dairy Farm is set in the deep green rolling hills of Wales, at the end of endless hedged laneways where fat sheep graze on verdant pasture. Patrick Holden has had a lifelong commitment to regenerative agriculture and is considered an expert in that space by the agricultural industry. He says the efforts of King Charles as a champion of British cheese saved the farm.



Figure 51: Colston Basset Stilton with iconic Sheridan's Cheese Shop wrapping (source: author)



Figure 50: Cressida with Becky of Holden farm (source: author)

Hafod, from Holden Dairy Farm, uses unpasteurised milk from their 75 Ayrshire cows to make an outstanding cheddar. The palette is buttery, musty, bright and lively all at the same time, with a spine of oniony umami.

30 years after the interventions of champions like Randolph and King Charles, the British Isles have a deep love and respect for their thriving cheese industry. They have newly coined the phrase “British territorial cheeses” to describe the resulting products.

The saying goes that it takes a village to raise a child. So too, it takes an ecosystem of cheesemakers, cheesemongers, restaurateurs, wholesalers, distributors and exporters to coalesce a dynamic domestic cheese scene. It doesn't hurt to have a cheese obsessed national icon in Wallace and Gromit.

Wensleydale is a case in point. The cheese was originally made by Cistercian monks who settled in the region in the Middle Ages. Until the 1990s, it was made in small quantities. Unfortunately, the last creamery making Wensleydale hit trouble in 1992. A series of ownership changes and production facility movements saw the style fall out of favour, and production was on the verge of suspension.

Enter Wallace and Gromit. Good fortune struck in 1995, when Wallace proclaimed Wensleydale as his favourite cheese in 'A Close Shave'. Wensleydale had previously been mentioned by Wallace in 'A Grand Day Out', when he wistfully dreamed of the moon being made of Wensleydale.

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Animator Nick Park said he picked the cheese solely because of the way it sounded with Wallace's Yorkshire accent, with its drawled vowels. Fast forward to the modern day, and Wensleydale turns over around £30m per annum and exports across the globe.



Figure 52: Wallace and Gromit 'A Grand Day Out' 1989 (source: Aardman productions)

The influence of Randolph Hodgson from Neal's Yard Dairy as a champion of British cheeses should not be underestimated. Furthermore, Graham from Mrs Kirkham's Lancashire says, "In the early 1980s, Randolph Hodgson began a quiet campaign to save what was left of our farmhouse cheeses and encourage others to start making their own cheese, particularly with raw milk". (Dillon, 2015)

St James Dairy in Cumbria is run by current UK Nuffield Scholar Martin Gott, and his capable wife Nicola. They run a dual flock of sheep and goats and are deeply committed to RMC production. Martin tells me that St James is "an expression of milking on that day. Not getting hung up about what's a perfect batch. That the value of the cheese cannot be detached from the value of the farm". On the development of the UK cheese scene he says, "We didn't know if we'd have any customers, and we wondered what we were doing. But it seemed as long as Randolph was there, nodding and encouraging and visiting us every few weeks, it would be all right. We've had tough times, but it was all right. Without him we wouldn't be here." St James Ingot is a golden bar of cheese made with sheep's milk. It has a rich washed rind, honeyed, clotted cream and sweaty, smoky meaty notes. It is a staple on the cheese board of local three Michelin star 'L'enclume'. Chef Simon Rogan relays that "my relationship with cheesemakers such as Martin Gott and Berkswell from Ram Hall dairies is important to our restaurant, it grounds us to who we are and where we are".



Figure 53: St James Dairy Ingot (source: author)

Undeniably, Neal's Yard Dairy is an icon. For cheese lovers, the shop front at Borough market is like a sacred site. They are now exporters, distributors, cheesemongers, affineurs and undisputed industry leaders. However, there are newcomers dedicated to championing British cheeses – Andy from Yorkshire cheese shop 'The Courtyard Dairy' (ex-Neal's Yard Dairy). Courtyard opened five years ago on a site which really is in the proverbial middle of nowhere in the Yorkshire countryside. Yet on a Sunday afternoon, one can observe a bustling trade of people pouring over three large cheese counters, with not a single imported cheese among them.



Figure 55: Author with sheep from Rams Hall Dairy (source: author)



Figure 54: Modern day Wenslydale at The Courtyard Dairy (source: author)

What Neal's Yard Dairy is to Britain, the Iconic Sheridan's cheesemongers is to Ireland. The Anne Street store is a plentiful display of the best of Irish cheese, with infectiously enthusiastic cheesemongers passionate about cheeses from the so-called "Emerald Isle".

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In 2020, 380 enterprises were actively operating dairies and producing cheese in the UK. This is an increase of 71 companies compared to a decade earlier. Then Prime Minister Liz Truss famously proclaimed in a speech that the UK now makes more varieties of cheese than France. The UK exports 512,000 tonnes of cheese. Between 2001 and 2013, cheese production in the UK ranged between 393 thousand and 351 thousand tons. (See Figure 26). (Bedford, 2023)

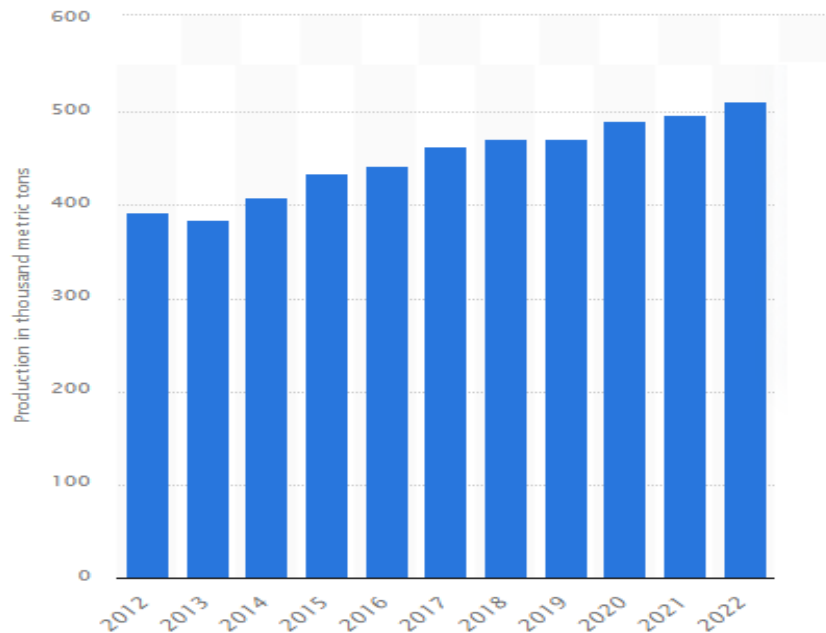


Figure 56: Strength of UK domestic cheese industry (source: IBIS world)

The UK cheese industry is an example of how an industry can thrive with a network of supporting structures, an ecosystem, that co-ordinate to promote and achieve a common goal.

Conclusions

For many decades Australian cheese has been exclusively pasteurised. However, with a mixture of targeted opposition and collaboration, Australian producers are now free to produce RMC. By turning the trend towards mass produced commodity product on its head, and producing niche high value product, there is a viable pathway to resilience and profitability for Australian dairy farmers. Furthermore, to have cheese which reflects our unique Australian terroir is important for agriculture more broadly and reflects the maturity of Australian cheese on a world stage.

RMC has the potential to tell the story of Australian farms on a plate, and thereby create value. This is because, embedded in the brand and the price, is more than just the organoleptic properties of the cheese. Within it are the farming systems, time, place, heritage and connectedness. Australian farms do not need a millennium of cultural cheese-eating history to create strong brands, profitable business models and dynamic consumer demand. However, producers cannot do it by themselves. The UK example has shown the potential that can be unearthed if there is an ecosystem of dairies, cheesemongers, distributors, exporters, affineurs and policy makers, combined with public enthusiasm to get behind local producers.

Recommendations

1) **Celebrate Australian cheese** - It is clear there is great opportunity in Australia to realise the cultural and financial benefits of producing more RMC. There are encouraging green shoots sprouting that should bring optimism about the future of Australian cheesemaking. It is particularly encouraging to see cheesemongers who are passionate about Australian cheeses, such as Penny's Cheese Shop in Potts Point, and Hakim from Ripe Australian Cheese at Queen Victoria Market. Equally there are chefs, like Shannon Bennet at Vue de Monde, and Peter Gilmore at Bennelong, who refuse to have international cheeses on their cheese boards. We need to find a way to celebrate the best use and promotion of Australian cheeses by businesses, perhaps as an adjunct to cheese awards.



Figure 57: Andys 'The Courtyard Dairy' – not a French cheese in sight (source: author)

2) **Revitalise peak body** - Australian Speciality Cheese-makers Association (ASCA) is a body of which the author has been part. They have laid the groundwork for vast improvements in knowledge and skills within the industry. ASCA has done great work bringing educators like Ivan Larcher to Australia, and providing cheese makers with access to more niche, specialised cultures. Recently they have begun conducting what they hope will be annual conferences with a multi-faceted approach. However, ASCA has resisted promotion and marketing to grow the domestic cheese industry, preferring to focus on education. This approach should be revisited. Upon visiting the Californian Artisan Cheesemakers Festival and the Melton Mowbray Annual UK Cheesemakers Festival it is obvious these contribute significantly to community and collegiality within the cheese community and invite the public to share the journey. Especially in relation to facilitating an ecosystem around cheese production. Involvement and celebration of the nation's best examples of cheese in the food service industry would also be helpful. We can surely walk and chew gum simultaneously.

3) **Change-up distributor models** - Australia is a vast country, and farmers are not always easily accessed. Distributors are vitally important in a cheesemaker's ability to get their product to market. Too often, these distributors are distracted by higher returns achievable by selling cheap industrial or heavily subsidised processed French cheeses like d'Affinois. These

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same distributors often sell bulk dry goods, and do not have staff that can hand sell and tell the stories of RMCs. It might be time for Australian cheesemakers to set up their own distribution mechanisms, providing the industry with the greater sales focus it needs until distributors can adapt their focus.



Figure 58: Farmhouse Idiazabal from Pays Basque (source: author)

4) Prohibit inflexible processor arrangements - In the UK there is flexibility in the agreement that dairies have with processors. It is not unusual for cheesemakers to use what milk they need and sell the excess to processors. This is in stark contrast to highly prescribed systems and contracts in Australia, which actively seek to prevent dairies from selling to cheesemakers.

5) Remove red-tape - For decades Australian state-based food authorities have been conditioned to fear RMC. They continue to adopt a cautious and sceptical approach, despite the findings from their own expensively commissioned research. To this day, food authorities insist producers spend \$400 on each batch testing for the big four pathogens, on top of milk testing, which ordinarily cheesemakers are not required to undergo. There remains a significant disincentive to produce RMC because of the burdensome administrative effort. In reality, science tells us an RMC that passes the guidelines has even lower possibility of being a reservoir for listeria than, for example, a supermarket camembert. The testing regime needs to be realigned with science, equity and commonsense.



Figure 59: Author at sacred site, Neal's Yard Dairy at Borough Market (source: author)

6) Dairy industry strategic direction requires modernising. In 2006 there were 8005 Australian Dairies. Today there are just over 4000. They say output (per cow, and therefore per dairy) has doubled over that time, creating efficiency benefit overall. That would be true if one places no value on small family-owned dairy farms. It would be true if one is content with increasing industrialisation and commoditisation of dairy – in which commodities are exported and high value dairy products are imported. Dairy Australia's lack of active pathways to allow small dairy farms to work up the value chain, as an alternative to closure, will one day be seen as highly regrettable and myopic. The slow decline of Australia's manufacturing capacity in favour of commodity exports might leave Australia exposed. Reduced production of specialty mould-ripened cheese is an example of an industry favouring commodity export. Dairy Australia holds what they regard as Australia's premier cheese awards – The Australian Grand Dairy Awards. Until recently, non-bovine cheeses were excluded for consideration as the Champion Cheese. So far, no non-bovine cheese has ever won the Champion Trophy. It should be noted also that Dairy Australia actively opposed the FSANZ regulation changes that allowed RMC. Dairy Australia should not fear RMCs or cheeses made from the milk of other animals. A diversified industry is desirable, and a rising tide will float all boats.

7) Australian International Trade Policy - The Australian government needs to be vigilant in ongoing EU trade agreements. EU subsidies heavily weigh down the price of European cheese. Australians constantly see European cheese on our shelves for a price lower than production value. Danish fetta for instance at \$6.99 AUD at the supermarket is an impossible price for local producers to match. We must also be aware that regional protection of names goes too far when trying to protect generic names like feta, which is made in every Greek village. This would be akin to protecting the word 'pate'.



Figure 75: Display of exclusively British cheeses at Neal's Yard Dairy (source: author)

8) Dairy processing education – Training specific to RMC making is also in its infancy. Other regions around the world such as Vermont in the USA, have a specialised Artisanal Cheese Making course. The course is taught by master cheesemaker and educator Ivan Larcher, in partnership with the Cellars at Jasper Hill. It provides cheesemakers with scientific and traditional practices specific to small-scale artisan cheese-making, including making RMC. Thankfully, Ivan Larcher has a relationship with *The Cheesemaking School* in Castlemaine, Victoria. However, its fully-fledged development as an educational facility was hindered by the onset of COVID-19 and 250 days of statewide lockdown over 2020-2021. A cheesemaking course focusing on RMC could be built upon to include learning about marketing and establishing facilities and farms. This would not only encourage new entrants into the industry, but also streamline the journey towards a profitable business. In short, it will take an industry-level coordinated effort, driven by a player of influence, to create the cheese making community we know could be.

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