

# Small Scale Farming and Land Access: Micro-dairies in the UK



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# Small Scale and Land Access: Micro-dairies in the UK

**By Harry Greenfield and Tom Carman**

**The Real Farming Trust**

**With thanks to Nick Snelgar and Matt Dale**

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# Part 1: Introduction

## Introduction

The dairy sector across Europe and the UK has recently been facing a number of pressures which have resulted in low milk prices and large numbers of dairies shutting down. Alternative models of dairy farming have started to appear in the UK, however, with a small but energetic sector of micro-dairies and nano-dairies beginning to emerge and build a noticeable market presence.

Interest in micro-dairies is strong, in part because compared to other farming types, there are relative marginal gains that lower future barriers to entry, meaning it can act as a gateway for people to enter other types of farming, as well as the practice itself enabling viable long term livelihoods. In the UK there is a small but growing network of micro and nano-dairy farmers starting to share knowledge and experience.

One of the barriers facing any new entrant to farming is the need to present a business case for how any land they acquire, rent or buy will be used. This paper explores how micro-dairies in the UK have approached this issue, using them as an example of how small scale farming can be profitable. It is generally easier to access small pieces of land for small enterprises but the current business case suggests this is unviable in the long term. Micro-dairies are showing that a viable business can be created on as little as 10 acres using 10 cows.



## Definition

A micro-dairy has been defined as a dairy farm with fewer than 40 cows, with some using the term nano-dairy to describe those with 1-5 cows. The term is not strictly defined, but these figures represent a general consensus amongst current practitioners.

There are other factors that may come into account when defining a micro-dairy, for instance the labour input for farming the dairy, the land used to pasture, or the litres of milk sold. Again, there are no strict definitions for any of these metrics nor guideline number limitations, but as would be expected numbers tend to be proportionate to dairy size. For the purposes of this paper, we will be exploring micro-dairies using herd size.

## Context - Dairy Farming in the UK

Dairying across Europe and in the UK particularly has been under stress for many years. As with most farming sectors, the tendency has been towards industrialisation<sup>1</sup> - increasing the volume of milk produced, using new genetics and high inputs of feed and medicines to create high yielding cows. This is coupled with increasing the number of cows in the herd (and a trend towards mega-dairies and factory-dairying with upwards of 2000 cows); the elimination of labour and its substitution with mechanisation including robotics, and towards housing cattle permanently or mostly indoors. The main driver for this intensification has been that margins on milk production are slim, with supermarkets and processors historically driving down prices, justifying this with reference to global market prices.

The crisis (of plummeting prices)<sup>2</sup> in the dairy industry is a combination of both increased production and a drop in consumption. Multiple factors have caused this including the end of EU milk quotas in April 2016 allowing EU dairy farmers to increase production and a ban on dairy imports by Russia. These circumstances have an impact on UK dairy farmers due to the globalised and interconnected status of the industry, with milk traded as a commodity across the world, often in powdered form. The range of value-added products from milk is vast and while bottled milk or carton milk is well recognised to domestic households, 50% of the milk produced in the UK is used in manufacturing, including cheese, butter and yoghurt. This faces competition from powdered milk which can be imported from abroad and used in many of these products.

With prices from retailers and processors being dictated by global commodity markets, prices are often lower than the cost of production for UK farmers<sup>3</sup>, who lose money on every litre sold. The result is that in the last 20 years the UK has lost over half and perhaps as many as two thirds of its dairy farms, and farmers continue to leave the industry at an alarming rate.<sup>4</sup>

Large parts of the industry see the solution to the problem as a two-way compromise: buyers should pay more, at the very least the cost of production so farmers are not losing money, and at the same time farmers are expected to reduce production costs and increase efficiency. The industry as a whole has largely succumbed to the idea of global competition, believing that production costs must be lowered towards the level of those parts of the world where it is cheapest to produce milk.

In practice this has led to more technology which aims to shave fractions of pennies off the cost of production to help competitiveness. Investment, often incurring debts for farmers, is encouraged in robotic milking, expert nutrition and genetics, and a supply chain branded as 'modern and efficient', but often long and complex. A key way to reduce costs is seen as be reducing labour and land use, both of which are higher-priced in the UK than other parts of the world.

### Context - Micro-dairies in the UK

Micro-dairies offer a different vision for the future. Keeping herd size small and relatively more manageable; making the most of British grass as feed (and the native breeds that use it most efficiently); milking using mobile milking parlours or small static ones; processing in small processing hubs and delivering the resulting milk (and associated products) locally.<sup>5</sup>



Micro-dairies can arise from two possible sources in the UK: either existing dairy producers choosing to downsize and change their business model, or new entrants to the industry using micro-dairies as a convenient entry point to agro-ecology. There are currently around 50 micro-dairies in the UK, although there may well be more, especially if smaller “nano-dairies” are included.

The Real Farming Trust has been closely involved with the development of the micro-dairy sector, a key part of which has been the coming together of a self-identified movement of those either already involved in micro-dairies or with an interest in becoming so.

With links to the agro-ecology, Community Supported Agriculture and Pasture-Fed Livestock movements, the micro-dairy movement has seen gatherings or discussions in the last 3-4 years, including a two day conference in early 2016, bringing together 50 people from across the country to discuss the micro-dairy scene. The interest does pre-date the most recent dairy industry crisis, but the crisis has had the effect of bringing renewed attention to the micro-dairy solution.<sup>6</sup>

## The Micro-dairy Business Model

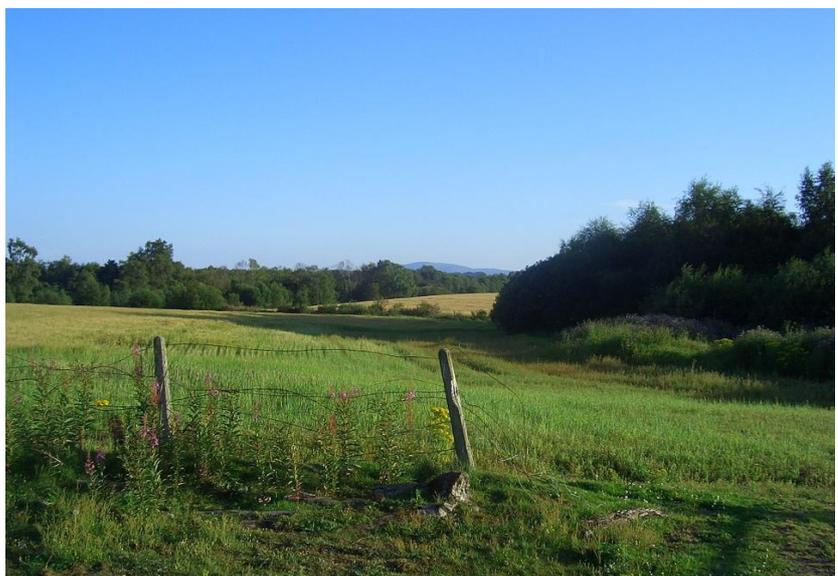
The micro-dairy business model takes its benefits from the reduction in herd size. This reduction in size is accompanied by a reduction in costs of production by using fewer inputs and more grass, usually with more labour involved. Importantly, the price paid to the farmer is increased, usually through selling retail rather than wholesale. By selling direct to consumers, or into local shops, the farmers retain a far higher proportion of the value of the milk. The milk provided by an average dairy cow annually is worth between £6,000 and £14,000 when sold retail – compared to £2000 if sold to a processor. Following the micro-dairy model, a herd of 20 cows might bring in a turnover of over £100,000.

The business model also includes other parts of the supply chain, and can work best with a network of small herds feeding into a small processing facility, followed by delivery rounds and selling into shops. Processing does not need to be done by the same person as the producer but producers can form a cooperative to invest in processing and other parts of the supply chain.

The model works as the consumer does not pay much, if any, more for the product but significantly more of the price they do pay goes to the farmer. Additional revenue can be gained from some consumers or processors prepared to pay a premium for a high quality product - fresh, tasty, agro-ecologically produced milk delivered by the farmer or someone close to them. By cutting out the middlemen and keeping the supply chain as close to the farm as possible, the price paid by consumers can remain in the business. It is possible to make a decent income with 40 cows, rather than struggling to get by with 400.

## Part 2: Access

Micro-dairies represent an important model in creating access opportunities for farming infrastructure - accessing the tools required for farming enterprise can be simpler through micro-dairies than other farming types. There are, however, some gaps in the availability of infrastructure and support, which could create barriers that slow development of the sector.



## Land

Land prices and the resultant challenge this causes to land access continue to be a problem in the UK. However, the micro-dairy sector has made significant progress compared to other agricultural types (horticulture for instance), in part due to the relatively low costs. Security of tenure is an issue for many micro-dairy farmers though.

Micro-dairies have been seen as simpler and less risky enterprises to be involved in a share farming agreement. Operating on small areas of land, they are attractive enterprises for land owners who want to engage in share-farming on only a part of their land. Many dairy farmers are looking to leave the industry, and this could accelerate after Brexit and the resultant subsidy change. There is a need to capture the knowledge of these farmers, by working in partnership with younger more entrepreneurial new entrants and micro-dairying, and share farming is a popular mechanism to achieve this.

In addition, the livelihood opportunities for micro-dairy farmers are enhanced from stacking enterprises, for instance adding laying hens to dairy operations does not require extra space as they are able to follow cattle through grazing rotations. When stacking enterprises are mixed with share farming, it can make the share farming agreement much more attractive to both parties as it increase the chance of profits, and can open up more land owners to sharing parts of their land with micro-dairy farmers.

## Markets

There is plenty of potential to access markets for micro-dairies. As there are retail infrastructures in place that micro-dairies can sell through, market building can be simple, but requires hard work. Due to their relatively narrow geographic scope, micro-



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dairies have strong connections with people and other marketing options local to them such as retail shops. The experience of established micro-dairies in the UK tends to show that consumer demand exists if farmers are able to tap into it.

The creation of new local markets for fresh milk, delivered by the farmer or with a short supply chain is also

generally positive. As well as keeping money in the local economy, there are benefits to having closer links between producers and consumers, in terms of raising awareness about where food comes from and how it is produced.

## Credit

Credit markets for farming generally are underdeveloped in the UK and this affects the ability of micro-dairies to access credit, which is often needed in early stages of the business cycle. Unlike other agro-ecological sectors though, micro-dairies would be able to generate cash much quicker as products can be sold within a few months of operations starting. Access to finance is also key. Although not a low cost route into farming, support through grants or government subsidies and affordable loan finance are really important to accompany credit and reduce credit risk.

## Technology

Whilst land access can be achieved and flexible costs are relatively low, there are technology and capital needs faced by micro-dairies. Initial capital investments can be quite high if production and processing equipment are all needed from the outset. In general, there is a lack of technology for small scale enterprises in particular, though some producers have looked to international plant and machinery markets which may help with this, importing machinery from countries where small-scale farming remains more prevalent. There can be some infrastructure savings in micro-dairying, as capital costs can be low compared to more intensive or larger scale operations.

## Support and Professional Services

Support and professional services are also underdeveloped for micro-dairies. There is no one service provider for targeted micro-dairy services, and whilst there are good networks of farming consultants and enterprise consultants in the UK they are often unaffordable for enterprises of the micro-dairy scale. The Real Farming Trust, along with the Pasture Fed Livestock Association, has helped to create and manage an online 'Alternative Approaches to Dairy' forum where peer-to-peer support is being used to share ideas and experiences.

## Part 3: Enterprise

Micro dairies switch around the productionist logic of the dairy industry which calls for scaling up, reducing costs and letting the less productive, generally smaller farms disappear. Instead, the micro-dairy movement argues that it is the larger farms that should change, in some cases by downsizing, and that the price consumers pay may have to rise. The justification for a smaller size is based on the over-supply of milk at the global level. Removing some of this over-supply would be beneficial to the industry as a whole, and if down-sizing can achieve this, while also allowing farmers to continue to make a living, or even improve it, then this offers a clear benefit to producers. Micro-dairies have lower costs, lower sales volume but a higher price and this leads to a higher

profit margin. The production logic would argue that this is untenable as consumers will never accept higher prices. In the dairy sector, however, the insanity of the logic of ever-cheaper food has been made clear, and even the most ardent free marketeers realise that customers cannot be allowed to pay less than the cost of production. Consumers may in any case be prepared to pay more, as some research<sup>7</sup> implies they would. Against the pressure from imports and cheap, industrial, home-grown milk, the case for high quality, local milk is gaining ground.

It is notable though that in the UK the situation is not as clear cut as having an oversupply. When milk quotas were first created, the UK quotas were equivalent to 80 per cent of its consumption. Trade figures today show the UK imports large amounts of dairy products, while also exporting some.<sup>8</sup> Although we import plenty of cheese and even a small amount of liquid milk, we also export dairy products too, in some cases more than we import (such as powdered and liquid milk). Overall the trend is for the largest and most efficient producers, in the UK and abroad, to look for markets to sell their high volumes of product into, while smaller producers are put under pressure. Although imports may be a relatively small part of UK consumption now they may well increase, especially in the post-Brexit world, offering large retailers the temptation to look for cheaper non-UK dairy products.

## Inputs

Although micro-dairies do not have to be low-input, the models discussed here tend to assume this. The use of pasture instead of imported feed, mobile or low-cost infrastructure and a small herd size all help to reduce input costs.

A notable requirement for micro-dairies is processing capacity, which does require some investment. Some micro-dairies have converted existing buildings into processing units, but an alternative model is to form a network or hub to share one processing centre among several nearby micro-dairies.

## Outputs

The Real Farming Trust's interest has focused on the financial and business case for micro-dairies, with a particular interest in how the micro-dairy model can assist the entry of new people into the farming sector. There are significant entry costs, especially access to land, livestock and milking capacity, but these are lower on a low-input, largely outdoor, micro-dairy than many other forms of agriculture.

Whilst use of robots may seem more efficient (although the accompanying debt used to buy the equipment is not), reducing labour has negative socio-economic effects. Micro-dairies are showcasing agro-ecological livelihoods, by making it credible to use human labour in place of robotics.

## Part 4: Impacts

The micro-dairy model has significant livelihoods benefits for farmers. The model has additional scope for wider social and environmental benefits, with some of these benefits being observed already. Some impacts are more difficult to recognise or measure, in part because these are longer term outcomes, or are not outcomes that naturally motivate micro-dairy farmers.

### Environment

More importantly, perhaps, than the macroeconomics of the dairy industry, smaller scale production brings other benefits too. Smaller businesses will be less able to invest in capital-intensive technology. While some technology is beneficial, for example in milk processing, this can be shared on a cooperative or hub model. In general other aspects of dairying technology tend to have negative effects. So the use of indoor housing for cattle year round has both environmental and welfare implications. High levels of feed and antibiotic use are also largely negative.

While it is not guaranteed that small farms are better for the environment, in practice a largely grass-based and small scale dairy system will tend to have a relatively smaller environmental footprint due to less energy use; fewer inputs imported from off-farm; lower levels of waste; and the possibility of waste recycling on-farm.

### Community Benefit



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Junior farmers take 'Custard' on walkabout to our local garden centre and landlord Gordon Riggs.

Community benefit is difficult to measure, but given the natural market places for micro-dairies are amongst local people, there is often a strong connection between micro-dairies and the communities they serve. Some of the wider benefits are qualitative, such as bringing livestock to visit local people and creating a stronger awareness of where our food comes from or using dairy experiences such as petting livestock or learning to milk to generate funds for other local causes.

## Welfare

The micro-dairy movement is often accompanied with a move towards more natural levels of production, milking less frequently, using breeds that may be more efficient at converting grass into milk, and farmers that care deeply for the ecological welfare of their cattle. Cows may also be permitted to produce milk for longer as less intensive dairying can allow for cows that produce less milk but over a longer time period, especially as the overhead costs of keeping the cows is less per day or year.

## Part 5: Findings and Conclusions

### Summary: Access, Enterprise, Benefits



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Micro-dairies offer a number of benefits, not only to the beleaguered dairy sector, but social, environmental and animal welfare advantages too. They are a great example of how operating on a small scale can be better than a large scale and offer an alternative to continuous increases in scale and intensity. Farmers finding ways of processing and marketing milk directly will recapture the profit that would otherwise be creamed off by corporations elsewhere in the supply chain.

In this way, micro-dairies are helping to counter the idea of global competition between all farmers in milk markets, which causes producers to continually attempt to lower production costs. Micro-dairies are helping to de-commodify a commodity-market.

As Maple Field Milk, North Aston and others elsewhere are showing, micro-dairying offers another low-cost route into farming. It is sound ecologically, morally, and socially, and offers a long-term future the high-tech, high-capital, high-input mega-units do not.

Of notable interest are the accessibility avenues that micro-dairies afford, through the livelihood and revenue returns it can afford. Whilst the complexities of micro-dairying (such as high capital investment, finding a market for a perishable product, and demanding health and safety issues) mean that it isn't always the easiest farming sector to enter, dairy will give higher returns on a given area of pasture than any other farming activity, which can lead to micro-dairying being a more attractive farming type for new entrants over other produce. This is exciting as it allows for land to be used and managed agro-ecologically, as well as more agro-ecological food to be produced and consumed.

## What have been the challenges

To summarise, challenges are a) micro-dairying is operating against all trends in dairy (and politics/culture/society) b) there is a lack of knowledge and research to show benefits c) there are practical challenges for farmers wanting to get into the sector.

- Micro-dairy farmers are not ‘productionists’ like much of the dairy industry, which calls for scaling up and reducing costs. Micro-dairy farming movement is making credible the idea that larger farms should change, in some cases by downsizing, and that the price consumers pay may have to rise, or at least correspond to the cost of production plus a fair farmer income.
- Despite the progress of the micro-dairy model, this is still against a backdrop of severe access to land challenges for all farmers and farming entrants in the UK. Swifter progress could be made with easier, simpler and cheaper land access routes.
- There is also a lack of research, knowledge and dissemination about micro-dairies, which could help micro-dairy practice become even more credible.

## Recommendations

- **Recommendations for micro-dairies and the dairy sector**

The current trend is to push for exports to deal with extra supply, but the recent situation has shown how unreliable this strategy can be.

- Dairies should focus on local markets and also on down-scaling existing dairies. Turning normal-sized dairies into micro-dairies will contract supply, which in turn will increase the price. The aim should be to supply liquid milk to UK consumers and negotiating a fair price for this (based on direct interaction between consumer and producer if possible) rather than producing a high volume and then looking for markets for it.
- Current micro-dairies should continue making small scale agro-ecological farming credible, by demonstrating a practical alternative to the large-scale intensive model, and showing the benefits this can bring.
- Current micro-dairies should continue to collaborate, share ideas and over time come to an agreed vision of what they would like the sector to look like. Matt Dale’s vision for instance is of “*a network of 500-1000 micro-dairies across the UK and beyond*”. He sees these as “*being around every small town and village in the country*”

- The existence of mega dairies could threaten the continued existence of small or medium scale dairies directly.<sup>9</sup> As part of a visioning exercise, the micro-dairy sector needs to consider whether coexistence between the two ‘versions’ of dairy farming is possible and decide whether micro-dairies should advocate for stronger support if not.
- Whilst dairy farmers are busy, they would benefit from increasing collaboration and partnering with support to share knowledge and stories and to help educate consumers about milk and dairy farming.

- **Recommendations for land access**

The planning system often makes it difficult to farm on a small scale. For dairy this is particularly true as it is hard for a farmer to get permission to live on a small farm (if accommodation is not already available).

- Land access continues to be an issue in the short and long term for the dairy farmer. A short term solution to address security of tenure concerns would be to legislate for Farm Business Tenancies to have a 10 year minimum term.
- In the long term, we would recommend a thorough exploration and analysis of the policy mechanisms that would help open up more land to agro-ecological, small scale farming, with a commitment from policy researchers and policy makers to work together to ensure that research recommendations are fully implemented.

- **Recommendations in the context of Brexit**

The decision by the UK to leave the European Union brings into sharp relief the state of UK farming, for generations determined from Brussels. There is a marked tension between those who want to see British farming enter even more into the globalised market place, encouraging trade and letting those who can compete do so while all else is abandoned, and those who are nervous about this prospect. In some ways the dairy sector offers a vision for what such a world could look like, as the sector has increasingly been subjected to the vagaries of global commodity markets.

If, however, the UK chooses to re-assess what we want from a food and farming policy that is nationally determined, then the example of micro-dairies could act as a demonstration of a more localised, small-scale farming.

- A new farming policy should have a progressive and accountable policy framework that encourages and supports small scale, innovative and mixed farms and delivers very clear public benefits

- In addition, we would recommend protection from damaging free trade deals - standards and regulations especially in the areas of worker's rights, food safety, animal welfare and protection of the biosphere need to be assured.

- **Recommendations for support organisations**

The micro-dairy model is making progress in de-commodifying a commodity, and it appears to be having strong benefits for those involved.

- Support organisations should use the lessons learned from the dairy sector and start to apply them to other agricultural commodity markets, such as arable crops.
- Support organisations also need to help resource some of the missing infrastructure that would help develop the micro-dairy sector further, such as professional support services, credit options or impact measurement, as well as carry out quantitative business research.
- Support organisations have a role to work closer and collaborate with the dairy sector and share knowledge and stories and to educate consumers about milk and dairy farming.
- There is a need for training bursaries, new courses and additional new entrant schemes in dairying. It is less clear who's role it is to provide these, but the support organisations should help to frame discussions on whether it is the sector, government, civil society or a mixture of some or all of these stakeholders to resource these.

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<sup>1</sup> The UK produced 14.6 billion litres of milk in 2014, the highest annual figure since 1990.

Bate, A. (2016). *Briefing Paper 2721: UK Dairy Statistics*. London: House of Commons Library.

<sup>2</sup> In the UK in 1995, a pint of milk cost an average of 37.9p on the doorstep and 23.9p from retailers. By the end of 2015, a pint cost 81p on the doorstep and 24.8p from retailers. *Ibid*

<sup>3</sup> Farm-gate milk prices for August 2015 were 23.3 pence per litre, the lowest monthly figure since August 2009. *Ibid*

<sup>4</sup> The number of registered dairy producers in the UK fell from 35,741 in 1995 to 13,815 in 2014, a 61% reduction *Ibid*

<sup>5</sup> (Pasture Fed Livestock Association, 2016) <http://www.pastureforlife.org/media/2016/01/pfl-it-can-be-done-jan2016.pdf>

<sup>6</sup> For instance, see this article in the Guardian

<https://www.theguardian.com/lifeandstyle/2014/aug/20/micro-dairies-small-farmers-fight-back>

<sup>7</sup> A survey of 1,270 milk drinkers by Mintel in 2015 found 51% would be prepared to pay more than £1 for four pints of milk. The average price people were willing to pay was £1.28. Currently, normal supermarket prices range from 89p to £1. <http://store.mintel.com/added-value-in-dairy-drinks-milk-and-cream-uk-may-2015>

<sup>8</sup> <https://www.gov.uk/government/statistical-data-sets/overseas-trade-in-food-feed-and-drink>

<sup>9</sup> <http://fcfn.org.uk/research-library/wspa-briefing-weighing-economics-dairy-farms>