

Are the Immediate Challenges Faced by the British Dairy Industry Applicable to Canada?

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■ Take Home Messages

- ▶ The UK faces uncertain times and some interesting challenges in the coming years.
- ▶ Overall, the way forward is for the dairy sector to be inspirational, efficient and to invest for the future.
- ▶ Farmers should adopt an optimal dairy system approach that drives profitability and competitiveness.
- ▶ There is opportunity to raise our standards of animal welfare even higher and differentiate our products in new markets around the world.

■ Introduction

We face uncertain times and interesting challenges over the next few years in the UK. We can look at these as fairly disastrous or the “kick up the backside” we need in order to improve our farm management and supply chain which in turn, increases our productivity and competitiveness. Looking at the positives, we could also lift our good record on animal welfare even higher and differentiate our products from imports as our government strikes trade deals around the world.

What do our dairy farmers need to do?

At the Agricultural and Horticulture Development Board (AHDB) we agreed upon a strategy with our industry that focused on inspiring our farmers and assisting them to do better in a more competitive world. The dairy strategy focused on improving performance by collaborating with the private sector (vets, consultants, banks, milk buyers, etc) when delivering our Knowledge Exchange programme. Our portfolio of research and delivery in genetics,

health, welfare and nutrition will continue to play its part. The dairy promotional campaign further provides a platform for dairy companies to market their brands (this was co-funded by Dairy UK, which is the milk processing organisation in the UK).

■ **Optimal Dairy Systems**

When it came to delivery, The AHDB Dairy Board supported tackling the issue of dairy farming from first principles and in the area which in the past has been tolerated or ignored: systems. Unlike many countries, especially exporting countries where a definitive way of producing milk is applied (extensive production where it's all about producing milk from grass; e.g. New Zealand and Ireland) or Holland and Denmark (intensive high yielding systems), we have more ways of producing milk in the UK than you can shake a stick at!

Our approach has therefore been to very simply divide the industry into two 'Optimal Dairy Systems' (block calving and all year round calving). Our surveys show that 81% of our dairy farmers describe themselves as calving all year round and given that we believe a vast number of these farmers are nowhere near the performance needed, it demonstrates the scale of the challenge. To help focus the mind, we describe our block calving system as a herd of cows which calves in 12 weeks, spring or autumn, or indeed any other time of the year.

According to our research and Brexit scenarios, only the top 25% across all agriculture sectors are safe and will be able to continue without change. Given both greater competition from imports and the partial removal of farm payments, the economic climate will be very different.

Our first question to a dairy farmer is 'Which system do you operate?' Our second question is 'Have you deliberately chosen this system of operation?' Many of the 81% who calve all year round have carried on what their father did in the past, failed to maintain a block calving system, or have been pressured by their milk buyer to supply milk over most of the year through seasonality payments and penalties.

There are of course some excellent farmers who calve all year round who have chosen the system and made it work very well for them; however, we know that a high proportion of the farmers who struggle or actually lose money dairy farming are also in this cohort. There are three main reasons for this: fertility, feed conversion and fixed costs. In 2016, the average calving interval in the UK was 407 days (Hanks and Kossaibati, 2016), very similar to that here in Canada of 408 days (CanWest DHI, 2016). We know that shortening the calving index on any herd can result in financial rewards.

Block calvers do not have poor fertility performance for the simple reason that if they do, they are no longer block calvers! Yes it is intense when the herd has to calve down and they all need to be put back in calf, but intense spotting and serving of bulling cows over a few weeks can be done due to the short duration of that maximum effort.

An average farmer calving all year round will be calving, spotting bullers and inseminating cows most days of the year. Not only is that approach impossible to keep up, but it is much harder to see when things are not going right and slippage occurs. Our key performance indicators for block calvers is 80% of all cows in the herd calved in 6 weeks. That is a clear message that getting cows in calf on this system is of paramount importance, with proper bulling observation both during the day and late at night.

There are lifestyle benefits from block calving and whilst the older generation might not know what this is, our younger farmers and workers certainly do. The calving period is intense and after a short break the insemination period is all consuming. But after that, the next few months are much easier and include a month of no milking at all, when holidays can be taken before it starts again. With labour shortages in the UK today, which are going to get worse in the coming years, offering a lifestyle balance is increasingly important.

We must also be more imaginative in our thinking and try and match farmers who are not doing that well or unwilling to change, with young people who want a foot on the ladder in dairy farming. Providing the facilities on the farm, and encouraging farmers and their families to allow new people to make use of the farm and their facilities in return for a share in the profit, can work for both parties. In the UK, share farming has provided great opportunities and the young people (some new to farming) have really made a go of it.

Block calving has been the choice of system as it offers lower costs and greater opportunity for profit due to the cost of production being much lower. Most of this is happening in the west of the country where grass growth is far better due to frequent rainfall. For this reason, there are also many more dairy farms and opportunities on the western side of the UK. Some limitations also exist, such as seasonal labour requirements (if needed) and potentially lower milk price overall due to seasonality. However, higher milk prices due to milk solids compensate for this to some extent.

All year round calving has the benefit of a more regular labour approach, is more aligned to milk buyers and has a potentially higher milk price (due to seasonality). Its limitations include a potentially higher labour cost, no break in the regime, potentially lower margins and farm inefficiencies could remain hidden.

The very best all year calvers are well established, profitable and very good at what they do. Their capital investment can often be much higher and the best systems carry high costs that are covered by high performance. Those who have the same high costs but do not attain the high performance are the ones in trouble and it's a difficult problem to fix. We believe that the average farmer who is struggling would benefit from taking a long look at a block-calving system, where things are simpler and all errors are easily spotted.

The best block calvers approach their farming by applying ruthless simplicity and cost control to everything they do. If they are block calving in the autumn, they will be using their silage clamp (bags, pile, or pit) as a 'vertical paddock', self-feeding behind an electric wire in the way the spring block calves strip graze their grass paddocks.

I know many autumn block calves that are consistently amongst the most profitable dairy farmers in the UK. They are mainly in the East of the country where maize (corn) silage can be successfully grown, which makes up for the drier summers and lack of grass growth. The herd is dry in the worst summer months for grass growth and the grass silage made in the spring combined with the maize (both often self-fed) sets the milk production up for winter with minimum bought-in feed.

All production systems can be profitable and can work well, but there are issues with milk buyers. Milk buyers want level supply in their factories. Whilst we do not necessarily agree with that and we see other countries operating very differently, we took the pragmatic approach of accepting the collective voice of processors. However, that does not mean a level supply from each farm. We have spent our time persuading processors that what they need is a level supply from their milk pool and that a simple computer model can match autumn block calving farms with spring calvers in order to deliver the level supply they need.

We have shown them that a spring calving farm, matched up with an autumn calving farm, delivers a reasonable supply pattern; but if two autumn calving farms are matched up with a spring calving farm, then the milk delivery profile practically matches what they have currently. Given the challenges of Brexit, processors are concerned about their potential milk supply and are therefore interested in ways of ensuring dairy farmers are kept competitive so that they remain in business.

Furthermore, any expansion in dairy farming in this country would currently need to be block spring calving, which produces a heap of cheap spring milk from grass, which does not suit the flat profile processor's demand. They react by penalising these producers, who are the most efficient, with ever greater seasonality adjustments, which is a crazy approach and something no other industry does. We now see several processors looking at our model and

some are actively putting it into action, recruiting spring or autumn calving farms to balance some of the current farmers that supply them or assisting and encouraging those who want to change.

We believe that most dairy farmers who want to block calve in the spring are already doing so or planning to do so in the near future, therefore we believe the greatest opportunity, given that farmers seems to be die-hard spring calving grass enthusiasts, or absolutely hate the system with equal passion, is with block autumn calving conversions.

Given the scale of the task, there is a long way to go. With 81% of farmers calving all year round and only 25% of them doing a good enough job to face the future with any confidence, then logically, 20% should be calving all year round with 80% block-calving. That is such a massive change that we do not think will happen. Whilst Brexit will take its toll and accelerate the leaving rate, some farmers will be able to lift their game and do well enough to continue with all year calving. Many farmers will need to think very seriously about what they are doing and what the future holds for them.

■ Challenges & Opportunities

With challenges comes opportunities and there will be some great opportunities for the best operators, entrepreneurs, and young and new entrants. Land values should fall following the drop in profitability and the end of Common Agricultural Payments (CAP). However, in the UK, land is no longer valued for its agricultural worth. I expect to see land prices easing in the short term and poorer land where it is far removed from the population and tourist areas could fall in value. Land appreciation has kept many inefficient businesses going over recent years. Should land values fall, banks will change gear on loans and borrowed money, which will add extra pressure.

Data

We lack proper and meaningful full data in agriculture in the UK, which is a big problem. We have a lot of data from various sources but not national data that is needed to give us a better understanding of what is happening and the ability to extract proper figures and detailed analysis of farms. There are data sets, but they are for a sample of farms collected by government that are accurate but far from comprehensive. Small retail groups have very good data but are reluctant to share that data, which is understandable. Various large consultant groups have data sets, but like the retail groups, these tend to represent the better farmers.

We do have a good data set for Wales, as we managed to persuade the Welsh Government to exchange EU money given as assistance to dairy farmers in the tough market conditions of 2016, for data from farmers. Farmers were in effect given the money in exchange for data which is now being analysed and will be used to help them improve. Around 60% of farmers participated, which was less than I expected, but way above Welsh Government expectations!

With the data set we have at our disposal, we have calculated that a block spring calving system will typically achieve an extra margin of 2.4p (\$ 0.04) per litre over an all year round operation and an autumn block calving system would achieve 1.4p (\$0.02) per litre. These figures were replicated when comparing the top 25% which gives consistency. However we believe that greater savings are possible as the data sets were from farms which did not have as tight a block (12 weeks with 80% in the first 6 weeks) as we described.

Furthermore, we believe that with effort, an average performer in an all year round system could lift his or her performance in a block calving system as it is simpler (putting all the effort to dealing with one thing at a time) and shows any mistakes easier and earlier. One would imagine that if a farmer takes the big decision of changing systems, then he or she would be committed to making it work well.

We will launch our AHDB 'Farm Bench' system in the spring of next year, where farmers can submit data on-line for bench-marking purposes. This will give us more data which will be more representative. We will also launch our International Bench-marking tool, where UK dairy farmers can compare themselves with countries signed up to this tool, namely New Zealand, Australia, USA and Ireland. These are the most important countries for UK farmers to compare themselves with once we leave the EU.

We are planning to get some EU countries to join and submit data into this model for their own benefit, namely the Netherlands, Denmark, Germany, France and Poland. These are the other major producing countries in the EU and it would be mutually beneficial to have them involved.

Land, Single Farm Payment and Retailers

From all the data we do have, we can see that most farmers would not survive without the combination of the CAP Single Farm Payment each year, land appreciation and in some cases retail premiums received by members of a retailer group that have a milk price based on the cost of production.

The reality facing this rather uncertain picture is that the single farm payment is likely to diminish if not disappear for most farmers, land is unlikely to

continue appreciating at the same rate as interest rates rise, which will attract investment money away from land, and a weaker UK economy will also take its toll. Retailers are now pushing their suppliers very hard on all fronts and those who do not measure up are being dropped. The retail premium is therefore dropping as farmers improve, lowering the cost of production which the model follows, and it slowly spirals downwards and will end up being much nearer to the price everyone else receives.

Twenty-one percent of dairy farmers have a retail aligned contract and these farmers will at least be shielded from volatility, enabling them to plan and invest more easily. Volatility will be one of the biggest challenges to dairy farm businesses and the timing of major investment will be crucial.

There are few instruments available to a dairy farmer that allows him or her to manage volatility effectively. There is no properly functioning futures market and even in the USA there is not enough liquidity to make this work as effectively as it needs to. We do have a few companies offering future contracts in the UK now and some farmers have been using that mechanism. We have only seen them working on a rising market in recent months though and the real test comes now when the market is turning and farmers face selling their milk in future months for a lot less than they are getting this month.

It is very easy for all these mechanisms to work on a rising market as futures tend to rise ahead of the market offering good prices (which may not be quite as good by the time one arrives at that point) and the worst that can happen is that the farmer has sold for a little less than if he had not. On a falling market, the same is true and farmers are reluctant to sell for less in the first place, but the future prices tend to look worse than predictions and the natural instinct is not to sell. Few farmers have covered themselves by using future contracts for next spring.

Many other tools are being developed (and invented!) and I am sure we will see greater sophistication as time goes on. And if production falls due to hardship and volatility, I expect to see intervention by some processors to assist with this problem. However we believe that 80% of volatility management needs to be on the farm and the best way to manage volatility is to make sure the business is performing well and the money made when the milk price is high is not spent on shiny machinery (deferred rust) enabling the business to survive the troughs.

Brexit

We could argue that Brexit is the “kick up the backside” that British agriculture (dairy included) needs in order for it to do all the things that it should have been doing anyway. Sixty percent of farmers voted to leave the EU and whilst

many were angry and lashing out at any easy target, others thought it could not possibly happen and registered a protest vote. Some farmers seriously wanted change and saw Brexit as taking back control and ridding ourselves of the suffocating EU bureaucracy and ever closer political union.

I am not going to comment further on this other than to say that this was not as simple as turkeys voting for Christmas, which has been the label many have attached to these farmers. I believe many of them would still vote to leave today. Where do we stand as a dairy industry in the UK and what does the future hold for us? What are the opportunities? How can we prosper? Can the UK actually increase its milk production as a nation? Can we compete?

The UK is the best country to produce milk in the EU bar none. That is a fact. We have the climate, the farm size, the farm structure, our very best farmers are as good as any in the world, they are not carrying huge debt and we have a fantastic domestic market that is undersupplied. No other country in the EU has more than two or three of those six points.

I will give two examples from the opposite ends of the spectrum. Ireland for example has also a good climate and very good farmers, but not much of a home market and the farm size and structure is poor. Denmark has the largest average dairy farm size (cow numbers) in the EU, but not the climate, and some environmental challenges and huge average farm borrowings. EU farms will of course benefit from the Single Market and CAP payments in the future which will tilt the balance once we leave the EU, assuming we will not have unfettered access to the single market (highly unlikely).

So we are in a good place to start and if we lift performance by either making a conscious step-change in performance or changing systems, we put ourselves in a competitive position to increase supply to our home market by displacing imports. We need to enhance our offer by lifting animal health and welfare and environmental credentials (already good) higher, but that alone will not be enough.

Productivity and Competitiveness

Productivity and competitiveness are therefore taken as a given and if that can be achieved we can begin to displace imports. Farmers will in the main look at added value and assume that displacing added value yoghurts and desserts, speciality cheeses and so on is the place to be. I do not disagree with that, but if we are really looking at products that use a lot of milk we need volume and that means commodity cheeses. Our market is the second largest net importer of dairy (after China) and we have good public support as farmers for our fresh milk and dairy products; what an opportunity!

Given that we have a deficit in dairy in the UK, a lack of added value products in our offer, we should be investing in world class processing to both displace added value and more importantly commodity. We have world class liquid milk processing but our manufacturing processing needs investment. We attract that investment by offering milk pools, which are competitively and sustainably produced. It's chicken and egg; we lift our game which attracts investment, more demand for milk as we displace product and take more of our own market which has an effect on farm-gate price.

We do not export very much dairy from the UK but it should not be ignored. Just as specialist imports into our own markets will continue to satisfy consumers who look for that product (French cheese is a good example), so are consumers in other countries looking for something different, something they have had before or tried when on holiday. It is important that we compete on the International market too and of course the same rules apply.

Whether this is achieved by supplying a Public Limited Company (PLC) or through a Co-operative, it is important the farmer understands where he stands in the scheme of things. We do see more and more dairy farmers in the UK understanding markets and where they are in the supply chain. Shouting at processors and retailers has not made a difference. Calling for consumers to be 'educated' is often misplaced and raging against the world gets you nowhere.

Understanding where you are and becoming comfortable in that environment is important. A dairy farmer is the best definition of a 'weak seller' that I can think of – a producer of an undifferentiated perishable commodity in temporary oversupply. It's important to get to grips with that and understand that the only thing that will raise the milk price is more demand. Competitive, sustainable pools of milk attract investment which increases demand, lifting prices.

We are looking at how we match young people and new entrants in the dairy industry with dairy farmers who are struggling, but have reasonable or good facilities, setting up share-farming or other contractual options, which result in a win-win. The young entrant gets to apply his or her skills, energy and ideas, making a future for themselves whilst the now retired farmer keeps the farm going profitably. We have examples of this already in the UK and the retired farmers say it has transformed their lives.

Again, a block calving system (spring or autumn) is cheaper to set up and operate for the new entrant, offering a simpler system with real lifestyle benefits. It can be difficult for some retired farmers to accept this change in the first instance, but a change from loss-making to a profit-making enterprise does help convince.

Entrepreneurs who expand and have more than one farm offer opportunities for young farmers and new entrants. We have many examples of these in the UK too and some have encouraged their best young people to enter into a share-farming partnership in order to assist them but also retain them in the business. Most of the current ones tend to be block spring calving operations in the west of the country, Wales in particular, and it is really good to see these young people running large herds.

■ **Animal Health and Welfare**

The dairy industry is faced with the challenge of animal health and welfare and consumer understanding and interest in this area. The market and its demands, and of course the pressure groups and NGO's, are a constant irritant and real threat in some respects. The best defense for the farmer of course is to make sure everything is right and proper attention from skilled stockmen over animal care is a given. Treat every day as if there are hidden cameras recording your every move is one approach, and whilst it sounds rather Orwellian, it does at least keep standards very high. Open your farm to the public on occasions, such as 'Open Farm Sunday', liaise with your local community, involve yourself with local schools, go and speak at local events or write a column for your local paper are many tips offered to dairy farmers in the UK.

We accept that one of the greatest challenges that the dairy industry faces is public acceptability of production systems and management practices. The main concerns of our customers and pressure groups are: large herds, all year round housed cows, separation of cow and calf, the fate of dairy bull calves and general well-being (mastitis, lameness, condition score and longevity).

The strategic vision is focused on 'tackling transparency' to help maintain consumers trust and reassure those in the food chain delivering dairy products to consumers. To achieve this vision, dairy farming must be responsible. A responsible dairy farming industry is one that acknowledges its weaknesses, pledges its duty of care to animals by driving for the highest standards of animal welfare, while respecting local communities and the need for good environmental stewardship.

Industry harmonisation and consensus on a range of welfare outcome measures has assisted with the successful roll-out and uptake of these. Since 2013, all major British insurers and retailers score welfare outcome measures during the farm assessment, which helps refocus the assessment onto the animals. In addition, a variety of industry activities promoting better engagement in lameness and improvement in foot health of British dairy cows is having a positive impact, resulting in a downturn in lameness levels. There continues to be year-on-year improvement in udder health performance, with

an increasing percentage of British dairy cows receiving proactive mastitis control.

Despite these successes, there is still a way to go. Tackling the priority issues that need to be addressed (continuous housing, fate of bull calves and cow-calf separation) will require improved alignment between industry practices and societal values, based upon leadership from within the industry and sustained engagement with other interested participants, including retailers, processors, researchers, consumers and the general public.

To address and close the 'transparency gap' between the British dairy industry and consumers, a successful strategy requires significant advancement in leadership and developing an ambitious vision, and the delivery of that vision by direct actions. These include gathering evidence to report and track trends of welfare standards on continually housed dairy systems, better understanding of what is considered acceptable to consumers, building better engagement and empowering key stakeholders.

Higher Voluntary Standards

Currently, there is a push to label dairy products based on system of production; however, labelling welfare outcomes would be a more meaningful and sensible measure to enhance transparency.

Specialists often argue that the public's concern and in some cases rejection of continuous housing and other management practices is a lack of understanding of science and that this knowledge deficit can be overcome by educating the public. Education is an unlikely solution to this scenario. Instead, we should consider viewing this as not just a risk management issue but as a potential source of competitive advantage which could be a central component in building the 'proud of dairy' brand. We can opt to take a proactive approach and create a higher voluntary standard for dairy farming.

This standard will not be specific about how the farm business should run, the system the cows are kept in or what the facilities look like, but instead focus on how healthy and content the dairy cattle are and how the farm observes its responsibility to the environment and the local community.

All metrics to be included in this standard will be based on a weight of scientific evidence with thresholds set to the highest level in the UK, and potentially in the world. The standard will be independently audited, with every cow examined, to ensure these farmers really are delivering on their commitment.

A progressive standard would need to:

- Measure welfare outcomes focusing on survivability (rate of no-economic value losses of cows and calves), disease (including use of antibiotics), mobility, comfort (e.g. injury and cleanliness), nutrition, behaviour and calf management (including bull calf policy).
- Measure environmental outcome focusing on carbon footprint, including soil improvement, biodiversity, energy neutrality and resource efficiency.
- Capture creative solutions and innovations on farm.

Better Understanding of Our Consumers

Whilst better understanding of what is considered acceptable to consumers is important we should not forget that Vegans make up a very small (1%) (The Vegan Society), but growing (x3 over past ten years-source: Kantar World-panel) proportion of the UK population. Although still small, the noisy but well-funded and well-organised vegan lobby represents a disproportionate share of the online and media conversations relating to the dairy industry.

Documentaries and films such as ‘Cowspiracy’ and ‘Carnage’ have entered the media debate and have fuelled greater interest in this area. However, in terms of impact on mainstream consumers those messages are not cutting through strongly. Of 7.2 million online conversations pertaining to Dairy, only 2.4% are related to dairy-free or veganism (Edelman report 2017). Additionally, interest in veganism doesn’t necessarily equate to a wholesale change in behaviour.

Ethical considerations currently play a minimal role in most consumers’ decision making process when purchasing dairy, much less so than for meat. Drivers such as price and quality are much more important at this point and amazingly consumers worry more over the question of ethics when buying juice than when buying milk!

However, we do know that younger consumers, in particular, are more open and receptive to these kinds of messages and 39% of younger consumers say they are cutting back on dairy. By contrast only 14% of older (55 plus) consumers say they are cutting back (Harris Interactive 2017). To address this it is important that we understand the real barriers and concerns that are emerging, particularly amongst younger consumers.

In general, most consumers (60%) feel that UK farmers do a good job looking after their dairy cattle. However, when prompted, 61% report some concern around housed systems, with a need for access to grazing reported as a specific concern. If welfare needs are met, only 23% would actively not purchase milk from cows that are housed for the majority of the year (AHDB

YouGov Consumer Tracker Aug 2017), which does finesse the picture somewhat.

There is a level of concern around housing and fully housed systems would be a concern for 61% of consumers, but for most not a barrier to purchase. Farm size is less of a concern and there is little sign that this is a growing trend. For most consumers issues around cattle housing are not currently on their radar until prompted. However, that does not preclude it becoming a problem in the future and there are currently some gaps in our knowledge in this area.

Further research to deepen our understanding of consumer attitudes towards these issues will be needed as follows:

1. Establish whether the importance of ethics as a purchase driver is growing for the dairy sector specifically and understand how specific ethical concerns, including housing, come through for consumers on a spontaneous basis.
2. Assess what the remaining knowledge gaps are in understanding specific consumer concerns. AHDB Dairy are currently funding a programme of work in this area.

Building Better Engagement

Communication alone is not the solution. A successful strategy must recognise operational practices and decisions have to be able to stand scrutiny of the 'reasonableness' test. Consumer and citizen expectation is that farmers and others in the supply chain will do the 'right' thing and in return the public freely give their trust. Consumer behaviour is influenced by many things, but emotion usually over-rules logic.

The dairy industry needs to continue to communicate proactively, in a creative way that is not perceived as defensive. Working with key stakeholders (e.g. DairyUK, Dairy Council, BCVA, retailers, processors and the unions in the UK) will assist with re-balancing the debates around dairy production systems and welfare – specifically to increase dialogue around public trust and build our reputation with influencers (e.g. government, journalists, dietitians, science writers and food bloggers).

Responsible Use of Antibiotics

Our other pressing issue in dairy farming, as it is in the whole of livestock farming across the world, is antimicrobial resistance in humans. This is a huge global threat, causing severe problems in human medicine, and shining a light on what we do in agriculture. There is no doubt that globally,

agriculture is not in a good place, with 70% of medically important antibiotics used in animals (O'Neill, 2015).

The EU is leading the way here as it puts huge effort into solving this problem, led by Scandinavian countries which use the least, the north west of Europe using less than the south and east. As part of the north west of Europe, the UK has a good record here, but needs to do more in order to place itself in an even better position from an animal health and welfare perspective. Responsible use of antibiotics has a good story to tell when marketing dairy products both at home and abroad post Brexit.

I Chair the Responsible Use of Medicines in Agriculture Alliance (RUMA), which celebrated its 20th anniversary this year, showing that in UK agriculture we have been promoting responsible use of antibiotics (and all other medicines), well ahead of the recent interest in this subject by the general media, politicians and pressure groups.

Why are we under such pressure to reduce antibiotics in agriculture? Our history in this area does not help us. Throughout the 1950s and 60s, agriculture was transformed around the developed world as a combination of science and technology, breeding and genetics, medicine and veterinary input completely changed our industry. This was hailed at the time as the green revolution. Starvation in mainland Europe (following the Second World War) and food rationing in the UK (until 1954) were both solved by a huge increase in food production. Agriculture was seen as a technological marvel.

Governments across mainland Europe and the UK had a policy to drive modern agriculture to provide plentiful food of high quality. Then a cheap food policy followed, where the percentage of disposable income spent on food would fall. We are now into the consumer society, moneyed and fashion conscious teenagers, holidays and cars, household appliances and so on.

The UK joined the EU in the early seventies (called The Common Market in those days) and farmers benefitted from greater production subsidies and encouragement to continue developing the industry and provide even more food at even lower prices. The agricultural miracle was often used in the UK to compare the huge productivity gains achieved on farms with our car industry and other manufacturing sectors who struggled with poor management, trade union dominance and so on.

However, government policies are blunt instruments which are slow to react and as farmers increasingly reacted to government/EU policy (and not the market), developed more intensive systems, removed hedges and trees in order to improve productivity and increase efficiency, compromised animal welfare and used antibiotics and other substances to increase production in our livestock systems, there was a backlash.

It was a small minority to begin with, but it quickly grew and agriculture policy started to change, but it was far too late and severe reputational damage had been done. We now live with the aftermath and whilst our systems and approach to livestock farming has changed hugely, the environmental lobby and animal welfare lobby are very powerful and they want to see things change further.

As a result of that, politics and public pressure, not science, drive the agenda. We also see past practices which have been banned in the EU for many years, used against us as if they continue to this day. Global 'Anti-Microbial Resistance' figures and statistics, which are a huge concern, are talked about as if it is the same in the UK. This has led to a blame culture which permeates throughout our industry and is uncomfortable.

When antimicrobial resistance first became a big issue and the UK government decided to lead the world in its defeat, it was seen as a human medicine issue. Government's own strategy on the subject states *'Increasing scientific evidence suggests that the clinical issues with antimicrobial resistance that we face in human medicine are primarily the result of antibiotic use in people, rather than the use of antibiotic use in animals'*. However, agriculture has been blamed for this problem, largely driven from the human medical fraternity including the senior medics.

This has been a huge problem for us and we are only now making inroads to putting it right by hosting senior medics on farm and accepting invites to speak at human medicine conferences and universities across the UK. The problem was that medics had no idea of what veterinary practitioners did in agriculture and of course no understanding of agriculture itself. Given that their information was all provided by NGO's and pressure groups, it was no wonder that they acted as they did.

Having joined 'Antibiotic Guardian' and spoken at many events and universities, I have been able to inform at least some in the medical fraternity of what goes on in farming and the role of the farmer and veterinary surgeon as the primary link in the food chain. I have also been able to inform them that we have reacted positively to our government deciding to lead the world on antimicrobial resistance.

Having reached our overall government antibiotic use target of 50 mg/kg two years early, reducing antibiotic sales to farmers by 27% (the lowest since records began), and reducing critically important antibiotics (Colistin by a huge 83%), we are on the right road. Our critics are now struggling as we forge ahead in each sector to deliver the targets set by our RUMA Targets Task Force. This will continue to drive usage down, but in a way which safeguards welfare – the critical balance which must be maintained.

Poultry have led the way with a huge 71% reduction in use over the last 5 years and many lessons can be learnt in the way they achieved this, especially for the pig sector. Poultry is, of course, a fully integrated system, where there is whole-chain involvement and fewer very large players in the main. However, the risks taken in order to 'test' the traditional reliance on antibiotics, the attention to infrastructure (especially water quality), removal of in-feed antibiotics and eventual removal of some critical antibiotics should be a lesson to us all in how to approach radical change and improvement.

We hosted a large group of very impressive and knowledgeable senior medics, including the Chief Medical Officer, on a pig farm recently and they were very surprised by certain aspects of the operation. Agriculture is, in fact, ahead of human medicine in some respects and many of those medics now speak very differently about our industry. But there is more to do and I would encourage the veterinary profession to join us in talking about what we all do and how agriculture works.

In agriculture it is vital we protect and look after the antibiotics we have. Any new antibiotic development will not benefit us and, therefore, it is important we minimise use by highlighting responsible use in our sector. After all, healthy animals are more profitable and easier to look after and all farmers should be encouraged to look at how best to achieve high welfare.

There is a need to recognise that we do have a cohort of farmers in the UK who are unable to invest in better infrastructure which is vital in order for them to have the same opportunity to improve animal health and welfare, cutting their use of antibiotics. As we leave the EU and the new Agricultural Bill is being drawn up, there is a need for government to take some responsibility to enable these farmers to invest and raise their game, benefiting their animals and having the chance to reduce antibiotic use.

There is no shortage of challenges as we strive to compete and increase productivity, change and adapt some of our practices, improve health and welfare further, cut down on unnecessary antibiotic use and live by the 'responsible use' mantra. Interestingly, all these things are linked and will provide UK farmers with a better and more prosperous future.

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