

Farmer Led Animal Welfare; An Opportunity for the Irish Livestock Industry

A Report for



Nuffield Ireland
Farming Scholarships

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2018 Nuffield Scholar

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Table of Contents

| | |
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| Disclaimer..... | 3 |
| EXECUTIVE SUMMARY | 4 |
| Foreword; About the Author | 6 |
| Acknowledgements..... | 7 |
| Objectives | 8 |
| Introduction | 8 |
| What is Animal Welfare? | 8 |
| Understanding Animal Welfare Research..... | 10 |
| Study Tour- Key visits..... | 11 |
| Michael Horsch - Czechia | 11 |
| James Reynolds - California, USA..... | 11 |
| Nina Von Keyserlingk - University of British Colombia | 13 |
| Emily Yeiser Stepp - National Milk Producers Federation, Washington DC | 14 |
| Rob Egerton Warburton- Nuffield Scholar, Australia | 14 |
| Animal Welfare Explored | 17 |
| The new-born Calf..... | 17 |
| Early Slaughter of Bull & Bobby Calves | 17 |
| Mutilations..... | 18 |
| Branding..... | 18 |
| Tail Docking..... | 18 |
| Dehorning & Disbudding..... | 19 |
| Cow Calf Separation..... | 20 |
| Calf Housing | 22 |
| Group Vs Isolation..... | 22 |
| Downer Cows & Euthanasia..... | 23 |
| Lameness | 23 |
| Mastitis & SCC..... | 24 |
| Animal Handling & Transportation | 24 |
| Discussion..... | 26 |
| Conclusions | 26 |
| Recommendations | 27 |
| References | 30 |

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EXECUTIVE SUMMARY

The purpose of this report is to relate my experience of animal welfare across various countries and to assess international research in animal welfare. My hope and recommendation is that farmers seize the opportunity presented by improving animal welfare.

Livestock production is an unrivalled technology in its ability to adapt and help meet challenges such as food insecurity, climate change, and desertification. The use of this technology must be defended. However, the individual experiences of the animals used must be considered. Modern values demand that these animals are treated in a compassionate and humane manner. In order to protect our social licence and way of life, livestock farmers, must more closely align our production systems with consumer values.

This report has been compiled based on my Nuffield study tour to the UK, Netherlands, Czechia, Ukraine, USA, Canada, Kenya, South Africa, Australia and New Zealand. Information was collected from a broad variety of industry stakeholders.

“Farmer led animal welfare” is not a feature of commodity production systems. Many farm leaders have surrendered the term “welfare” to the animal rights lobby. Welfare regulations are being driven by political pressure in response to video exposés and subsequent public outcry. It was disheartening to meet stakeholders who saw increased regulations only as an increased cost. The obvious benefits to animals were either forgotten, dismissed or ignored.

The extreme ideology of veganism represents approximately 2% of the population. This group are against improving animal welfare standards as they see the use of animals in any way as fundamentally unethical. There is no point at which the quality of care is high enough that vegans ever believe it is acceptable to use an animal for human profit or pleasure.

A more significant portion (7%) of the marketplace consists of the rising trend of “Flexitarianism”. These are people who seek to cut down on meat and dairy consumption for health, environmental and welfare concerns. These consumers will continue to choose meat and dairy but are likely to seek out the highest quality and those practices that allay their ethical and health concerns.

This is where the opportunity lies for the Irish livestock industry. Distinguishing our products as the best in terms of health, environment and welfare will allow us to capitalise on this segment of the market which will choose premium products. Aligning our production systems with these core values will protect both our publics’ support and our consumers’ trust. There is previous evidence to support the health claims of grass fed animal products. Our pasture based systems also have been shown to be more beneficial to the environment in terms of biodiversity and carbon emissions. This report focuses solely on animal welfare.

Summary of recommendations

- Create a farming culture that prioritises animal welfare. We should become our own most vocal critics and call out problems when we identify them. The industry’s animal welfare credentials are only as good as the weakest link. Farmers are reserved about criticising other farmers’ husbandry practices. We need a more frank and open culture to encourage progress. We should not allow the fear of offending someone to be a barrier to progress.

- Build education into certification audits. There are many questions pertaining to welfare in the Bord Bia SDAS audit for example. There is very little emphasis on educating farmers on why particular measures are important. Technical knowledge of best practice should not be assumed. I strongly recommend implementing a welfare education aspect in the SDAS audit.
- Support vets to call out poor welfare. The farming community is dependent on the proactivity of vets in ensuring animal welfare standards across the country. It is of vital importance to the entire farming community that vets are supported in whistle blowing or calling out poor animal welfare when necessary. Furthermore, specific training should be provided for vets and vet students on how best to address very difficult conversations about welfare with clients.
- Reduce mutilations and mitigate pain. Mutilations are disfigurements or injuries for non-healing purposes such as; branding, castration, nose ringing, ear tagging and dehorning. Where the practice cannot be eliminated steps should be taken to reduce the severity of mutilations or to mitigate the pain caused through effective pain medication.
- Ensure the welfare of by-product animals. By-product animals such as cull cows and dairy bull calves represent prominent welfare challenges. At a minimum all herds which slaughter bobby calves should be sent material and guidelines on the proper handling and care of bobby calves. This should include advice on how to prevent the production of bobby calves in the future.

Foreword; About the Author

My name is Colm O' Leary and I am a dairy farmer from near Blarney, County Cork. I am the youngest of Tim & Katherine's four children and now farm in partnership with my parents. We milk Jersey/Friesian crossbred cows on our 47ha family farm and another rented farm nearby. I grew up on this farm and have always wanted to be a dairy farmer.

In 2013 I graduated from UCD's Dairy Business. During this course I spent 6 months in New Zealand working on a 1200 cow dairy farm and I also spent a semester in Teagasc, Moorepark. We were the first class to graduate from Dairy Business in 2013 and being part of the inaugural class was a great opportunity and privilege for me. I returned home full time in 2013 and in the intervening years we have grown the herd and focussed on growing more grass and becoming more efficient. I love the life of an Irish dairy farmer and am keen to be the best farmer I can be.

Outside of farming I am an avid traveller, reader and social sport player. The thing I like best about farming is being self-employed and having the flexibility to take time off when I chose and want. I have volunteered twice in Nicaragua with a development NGO based in UCD. Through participation in Macra na Feirme and CEJA I have represented Irish young farmers in Europe and represented European young farmers in China.

My first formal introduction to the topic of animal welfare was during my university semester in Teagasc, Moorepark. Here we were taught about Dr Temple Grandin's designs for animal handling facilities. Further education in this area through discussion group meetings and industry open days heightened my interest in this topic. Implementing new practices on farm and seeing the benefit led me to seek out further education online. In 2017 I completed an online class in Animal Behaviour & Welfare offered by the University of Edinburgh. This course, more than previous exposure, opened my eyes to the opportunity that exists to improve welfare on farms. I was surprised by my own level of ignorance, despite my Agricultural Science degree, regarding animal welfare best practices.

My father Tim had completed a Nuffield Scholarship in 1997 and so I had always hoped to follow in his footsteps. As I began to become passionate about improving animal welfare it was Tim who recommended I chose this area as my Nuffield Study topic.

During recent years there has been a rise in plant-based food products which seek to displace animal products from everyday diets. Vegans holding extreme ideological views have been given a lot of air time by the media where they have denounced modern agriculture as cruel and unnatural. Having grown up on a dairy farm, in a community surrounded with dairy farms this attack on our way of life seems incredibly unjustified. From my point of view, a life lived caring for animals which in turn provided for me and my family seems like the most natural life possible. To call our way of life immoral or cruel seems outright stupid given how cruel nature is. The toughest days on any farm are the days nature beats us; when a pair of foxes takes a new-born calf and my mother finds the missing calf still living but eaten alive. Or when a rare disease strikes down an otherwise healthy and productive animal and we must make the difficult decision to euthanise her to spare her any more suffering. But also, I have lost animals because I was a bad farmer. I forgot to check for a twin. I didn't give the first cow to calve a source of magnesium. I didn't erect that extra barrier I planned to during the winter and a cow tried to jump the old wall and broke her leg. I expect many a farmer remembers with a heavy heart the animals they lost when "if only I had done something more".

Turning on the radio or TV to hear an interview with a vegan proclaiming that farmers are rapists and murderers makes me want to stand up and fight for my community and way of life. But I am not writing this report because of vegan propaganda. I am writing this in spite of it. I know that I care deeply for the animals in my care. I recognise and empathise with their pain when it occurs. I smile and laugh with their pleasure when I witness it. For me their lives have value. Yes, they are how I make my living, but they are also a source of meaning and purpose for me. In my community I know that my fellow farmers share these values. Farmers care deeply about the health and wellbeing of our animals. Yet we can do better. New technologies, techniques and practices can help us improve the welfare of the animals that we share our lives with. I hope to help share some insights which may benefit farmers and animals alike. I hope that farmers will appreciate that where I judge a practice to be wrong; I do not judge the farmer. I want to help our community to be true to our values. I believe that if we are true to our values then we will have nothing to fear from any lobby group or propaganda.

Acknowledgements

Firstly I would like to thank my parents Tim and Katherine for their help and support over the last two years. Being able to travel for 16 weeks and know that the farm was in safe hands was an incredible luxury. This entire report has been thrashed out repeatedly over breakfast, lunch and dinner. Thank you for your patience and engagement with the process. Thanks Tim for encouraging me to undertake this challenge and to focus on a topic that I felt passionately about.

To Elaine for her understanding and input. Thanks for always being willing to listen and discuss this topic, whether travelling with me, at home or over the phone it was invaluable to have your perspective. Thanks for all the encouragement too.

I would like to thank my GFP travel companions Josh, Jenna, Solis, Turi, Shannon, Andrew, Jimmy, Alison. It was a pleasure and a privilege to learn with and from you all.

Thanks also to my fellow 2018 Irish Scholars. Joe, Tommy, Karol and Klaus, it has been great fun getting to know you and I couldn't have hoped for a better bunch to go on this journey with.

Thanks to the entire Nuffield Ireland community, from the Board members to the other previous scholars. I feel incredibly lucky to be part of this community and can't thank you all enough for giving me this opportunity and challenge. Thanks especially to John Tyrrell for his support and advice in producing this report. A special thanks also to my mentor Roberta McDonald for her encouragement and sage advice.

I owe a huge debt of gratitude to every single person that hosted me across the globe. The generosity that I experienced in every country was incredible and being invited into people's homes was a wonderful, humbling experience. I have learnt an incredible amount from everyone who made me feel so welcome and so generously gave up their time. Thank you.

Final thanks to my sponsor; Golden Jubilee Trust. This entire experience would not have been possible only for your incredible support and belief in the Nuffield project. This has been a life changing experience and I am eternally grateful to you for making this experience and report possible.

Objectives

The main objective of this report is to communicate the latest international best practice and research in animal welfare. Following this objective this report aims to make recommendations to industry on how to tackle the following critical areas;

- Animal welfare auditing and education
- Animal welfare during handling and transport
- Welfare challenge facing low value animals
- Research gaps and opportunities

Introduction

What is Animal Welfare?

Animal Welfare is a human responsibility that encompasses all aspects of animal well-being, including the need for suitable housing, the need for a suitable diet, the ability to express normal behaviour, the need for disease prevention and treatment, humane handling, and, when necessary, humane euthanasia. Animal welfare also importantly relates to the mental and emotional needs of an animal.

The term “Animal rights” typically refers to the philosophical view that animals have rights akin to human rights. Those who espouse animal rights usually believe that it is completely unethical for humans to use animals in any way.

Animal welfare has 3 important aspects;

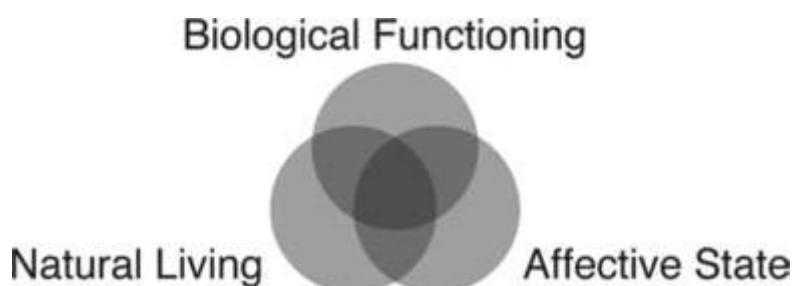


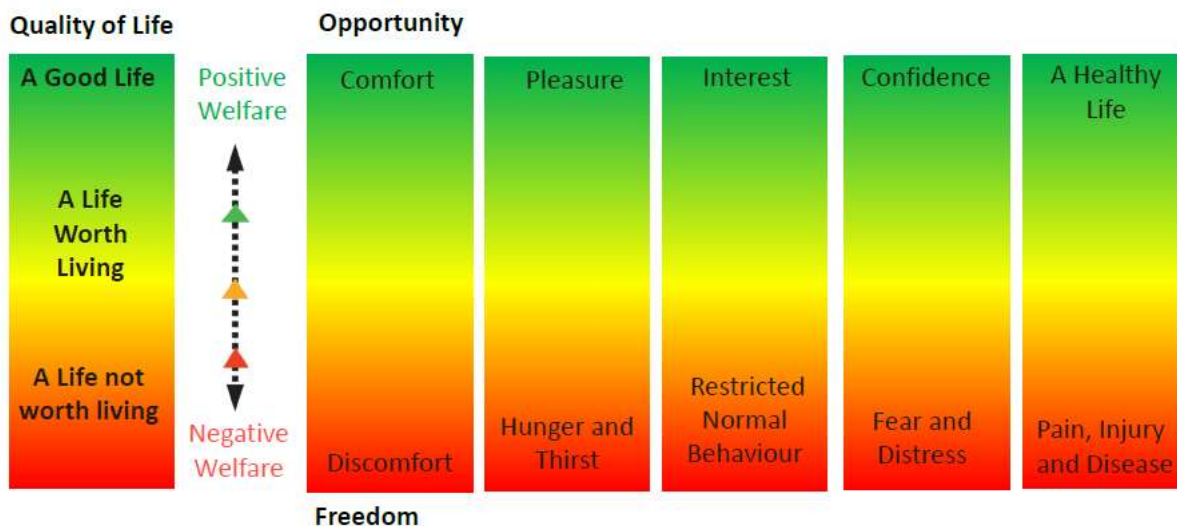
Figure 1. Three overlapping areas of welfare concern. (Keyserlingk et al, 2009)

1. Biological Functioning. This refers to health traits and outcomes which can be measured to give objective data on an animal’s welfare
2. Affective state. The affective state of an animal pertains to its emotions. Is the animal frightened or nervous? The opposite question is equally pertinent. Is the animal confident and happy?
3. Natural living. An alignment with “natural living” and behaviour is seen as an integral component.

In the years preceding this report, animal welfare has been discussed more and more in the media, largely driven by a growth in advertising and media campaigns by activist groups such as “Go Vegan World”. As activist groups seek to undermine and broadcast negative information about animal-based food production, retailers, food processors and farmers are attempting to fight back by highlighting

animal welfare standards. This is also being fuelled by the growth of a new food category –plant-based proteins. Vegans represent only 2% of the population (AHDB, Consumer Insights, 2018) yet they receive a disproportionate amount of media coverage. Furthermore scientific research in the area of welfare has progressed significantly.

Good Life Opportunities



The progression of thinking on animal welfare. From the 5 freedoms towards “A Life Worth Living” (Edgar, 2013)

The heightened importance of animal welfare is not just precipitated by heightened consumer demand but also by increasing scientific knowledge and understanding. Since the general acceptance of the theory of evolution, the idea of a soul has been called in to question. Nowhere along the evolutionary chain is it possible to say “here, this is where a soul appears and humans are distinguished from other animals”.

Scientific and medical study in the last 100 years has been very successful at mapping neural pathways and understanding the scientific basis for cognition, thoughts and emotion. These are fundamentally very similar between humans and animals.

A yet uncharted phenomenon in this field is the fact of consciousness. To date our best understanding of how the brain works still fails to explain this phenomenon. In fact, we are theoretically unable to prove consciousness. The only person that each of us is 100% certain is conscious is one’s self. For all we know or can prove everybody else could just be responding to some biochemical process.

This conundrum exists for the minds of other animals just as it does for the minds of other humans. We look at other humans and assume that because they are just like “me”, they too must be conscious and sentient. Now that we know animals possess the same neural pathways, the same biochemical equations and fluctuations of hormones is it unreasonable to think that they also might experience consciousness?

At the very least it has become evident that animals experience a much broader spectrum of emotions and cognition than was believed throughout history. Given our greater understanding of animal’s

subjective experiences, it is proper and correct that animal welfare is achieving ever greater importance in our livestock production systems.

On the use of objective scientific measures to assess animal welfare; People have differing standards about how animals should be kept and treated. Amongst dog owners alone there is huge variation. Those who leave their dogs run loose outside and rarely groom the dog versus those who keep their dog indoors, walk them always on a leash and groom them diligently. Either dog lover might argue that the others behaviour is neglectful or impairing the dog's welfare in some way.

This difference in opinion about what criteria constitute a good life for animals is why we seek to objectify animal welfare using scientific measures and studies.

It is important to remember that the study of animal welfare as a scientific pursuit arose because of animal welfare concerns that existed in society. This is not a purely empirical pursuit. The goal of animal welfare research is to address the ethical concerns relevant to an animal's individual experience.

Animal welfare addresses questions of values. It attempts to determine what practices are right and wrong in the rearing of animals. This will always lead to conflict with some producers when new research or the new interpretation of research leads others to believe that your production system or a particular practice is morally wrong.

Understanding Animal Welfare Research

In order for farmers to be able to properly engage with the public on this this issue I believe that it is vital that we understand how animal welfare research is conducted and analysed. The variety of personality, behavioural and motivation tests conducted on animals can be quite ingenious in their construction and design. Understanding these experiments and their outcomes can help farmers to better understand the emotional experiences or animals and the motivating factors for animals.

As farmers we are unable to ask our animals direct questions and yet at times we do have to discern their needs. To read the method of an experiment which seeks to determine what "price" a cow or chicken is willing to pay for a certain need portrays that animal in a much richer light than as a beast following only base instincts to meet its needs.

This research adds nuance to often simplistic questions surrounding animal welfare. I hope to discuss a number of different experiments in order to aid in this regard.

Study Tour- Key visits

During my scholarship I spent a total of 16 weeks travelling internationally. This comprised of 1 week at the Contemporary Scholars Conference in the Netherlands, 6 weeks on the Global Focus Programme, 3 weeks in North America, 4 weeks in Australia, 1 week in Italy and a short trip to the UK. The following are the case studies or interviews which were the most influential on me and my topic. Recounting every single meeting and visit would render this report too long to be useful. For more detail on specific experiences during my travels that influenced this report please see the Appendices.

Michael Horsch - Czechia

In April 2018 my GFP group stopped in the Czech Republic to meet with Horsch Machinery founder Michael Horsch. Michael is extremely passionate about global food production. His machines are responsible for harvesting millions of tonnes of crops around the world. He was eager to tell us about the different innovations his company are working on. His focus was on greater automation and decreasing the use of pesticides and herbicides.

Although this meeting was not directly focussed on animal welfare it has greatly influenced my thinking on the topic. Michael sits on an advisory board for Lidl. In this respect he had a lot of market insight. He recounted how Lidl's customers are concerned about chemical residues in their food but how the farmers seem to be indifferent to the issue. He made a point that struck me as being equally relevant to consumer concerns regarding animal welfare. That is; "we cannot convince consumers that we genuinely care unless we are willing to criticise ourselves". This really resonated with me. I believe that farmers should be the most vocal critics of animal welfare standards. This would prevent others from gaining credibility in this space and help to preserve consumers trust in us.

James Reynolds - California, USA

In August 2018 I travelled to California. I specifically chose California as it is known for its highly intensive dairy farms. I had also contacted a Californian Animal Welfare expert- James Reynolds. Jim is a vet and had been in Ireland a few months prior to my visit conducting a review on the Teagasc Greenfield farm in Kilkenny. The farm had received some very negative press following the unseasonal snow in March 2018 and Jim had been called in to conduct an audit. Jim is often called upon to conduct this kind of audit.

Together we visited a large commercial dairy farm and a calf rearing ranch. The dairy farm was home to approximately 5000 cows and the calf ranch housed up to 80,000 calves at a time from 4 days old to 3 months old. On both farms, we witnessed sub-par animal welfare standards in the handling and housing of calves.

In the calving facility of the dairy farm new-born calves were exposed to heat and flies. Their laboured breathing was evidence of their discomfort. When some farm employees came to remove the calves to their individual pens, the first calf was lifted by its ears. James immediately stepped in to reprimand the employee and instruct him in the proper way to handle the calves. It was astonishing that the employee had mishandled the calf considering that two strange men were watching.

As we discussed other facets of these animals' welfare the employees proceeded to hot iron brand the calves with the ranch's insignia which was standard practice on the dairy farm. It made our

concerns about the animal handling seem trivial by comparison to the discomfort inflicted on the calves with no pain relief.

In the same calving facility, we observed excellent facilities for the storage and delivery of fresh colostrum in an extremely hygienic manner to the calves. The bedding was also clean and dry. There were fans to help cool the area although these were not very effective.



After branding the calves were then moved to their individual calf hutches. Here the calves would remain for the next 80 days. Each calf had access to fresh water, solid feed and was fed milk twice per day. The calves could turn around in the pen but it was too small to walk, run or express other normal calf behaviour. On the calf ranch the floors were slatted wood whereas on the dairy farm they were woodchip beds. The woodchip was initially much more comfortable but over time we could see that the calves' beds became messy and damp. The wooden slats negatively impacted on the calves' posture with them clearly finding it difficult to stand comfortably.

These calves emotional state was also markedly affected by their housing, in that they were poorly socialised. When we approached, the calves were extremely skittish and excited. They were curious and wanted to investigate us but were far too nervous to approach us. They would frightfully back up to the farthest point of their pen. We also witnessed many calves exhibiting stereotypical behaviours such as licking or chewing the metal bars of their pens repeatedly.

After visiting these two farms James and I returned to his home in Visalia, California. We spent an evening in his office watching videos of abuse which James had been sent by activist groups. James told me that in his experience these videos rarely adequately catch the extent of the abuse on the

farms in question. He has found that if he gets to the farm before they are aware of the footage that was captured, the situation is often worse than depicted. James was unequivocal in stating “thank goodness for animal rights organisations and undercover videos, there would be no animal welfare progress in the USA without them”.

Nina Von Keyserlingk - University of British Columbia

After California I flew north to Vancouver in British Columbia, Canada. I was attracted here by the highly regarded research being carried out by Daniel Weary, Nina Von Keyserlingk and their colleagues. I reference many of their papers throughout this report and they are global leaders in their research on animal welfare. It was an absolute privilege to meet Nina and some PHD students and to talk through the research that they are carrying out.

My conversation with Nina felt like a perfect introductory lecture to animal welfare and public opinion on the matter in North America. We discussed the various aspects of welfare and the dichotomy between biological function and natural living in systems such as the tie stall barn. That is that the animals may appear 100% healthy in terms of biological function but the consumer doesn't need any research or data to inform their opinion that it is “not natural”. Another example of this is the comparison of enriched cages versus free range egg production. She questioned which system farmers would be more likely to invest in for future production or which we think consumers are more likely to choose and that the preference for free range highlights the importance of an alignment with “natural living”.

Nina introduced me to a many very intriguing ideas, including the possibility that cows may suffer from a degree of post-partum depression. If we accept that cows have similar hormones and emotions and humans, then why would we regard this assertion as ridiculous? Nina talked me through trials to measure a cow's “affective state” which use a “latency to eat” measurement to determine a cow's mood. Essentially the longer it takes a cow to approach a familiar feed source, the lower her mood or affective state.

We discussed lameness in dairy cows and I realised that we were discussing pain. In all the discussion group meetings, farm open days or Teagasc courses I have attended I had not discussed or considered the cows' pain a tenth as much as during this conversation. We need to refer more to pain when discussing animal health. We need to keep compassion and empathy in the discussion.

A remarkable aspect of my conversation with Nina was her depth of knowledge regarding Proposition 2 in California. Neither of the people from the Farm Bureau of California or the CDFA (see appendix 1) were able to explain to me in such detail the policy and political landscape surrounding the passing of proposition 2. This really highlighted the lack of preparedness of agriculture to deal with the challenge.

Nina believed the agriculture industry has not adequately considered what the thoughtful consumer on the street expects from agriculture. They do not expect us to change overnight, but they do want us to make progress in the right direction. We discussed the research conducted at UBC that found they could “educate away” consumers' concerns about dairy cow care in all aspects except for access to pasture and cow and calf separation. In their research more education about dairy farm practices in fact increased the consumers' concern about these two aspects of a cow's life.

Emily Yeiser Stepp - National Milk Producers Federation, Washington DC

The National Milk Producers Federation (NMPF) is a trade organisation. Their members are the Co-ops and milk processors. It advocates on behalf of dairy producers to congress, government agencies, media and the public.

I met with Emily Yeiser Stepp the Director of the FARM (Farmers Assuring Responsible Management) Animal Care Program. The FARM programme is an assurance scheme similar to the Bord Bia audit in Ireland. It focuses on animal care, environmental stewardship, antibiotic stewardship and workforce development. It provides education and tools to farmers to help aid improvements in these areas. On farm assessments are carried out and verified by a third party entity to ensure the integrity of the program.

My main interest was the Animal Care component of the program. This program's standards are revised every three years. The program is revised by a technical writing group of 4 academics, 3 veterinarians, 5 Co-op representatives and 2 farmers. The low level of farmer representation has been criticised and they are hoping to correct this by creating a farmer advisory group.

Emily told that me that the NMPF tries to remain facility neutral and uses outcome-based measures to assess animal care (welfare) on farm. The program won't dictate that farmers should move away from tie stalls for example but will encourage these farms to improve their hock scores. The need to remain facility neutral constrains the program from making tougher recommendations on facility design and system type.

This constraint will prevent the program from addressing some consumer concerns such as a cows' freedom of movement but the NMPF does want to defend their producer's freedom to choose their production system. This means that there are still new tie stall barns being constructed and that they are perfectly acceptable under the FARM program.

Emily felt that given the difficult financial reality in the dairy industry in the US that it's a fine line to walk between constantly improving standards in the program without making it feel like adding insult to injury for farmers who may be struggling. She said that the NMPF might try to encourage, for example, pair housing calves but that they mostly expect these changes to happen naturally.

They focus on providing education on issues such as downer cow care and care during transportation. From what I saw and learned of the politics in the USA I think the NMPF is doing as much as it can to progress animal care on farms. However, it is significantly constrained by politics and the conservatism of the average producer and the tight margins on farms.

One of the final things that Emily recounted to me was something one evaluator had said to her. Having been on a considerably poor farm from a welfare perspective the evaluator said that they'll just have to wait for that producer to retire or die in order to improve the standard. This struck me as a poor reflection of those individual producers but also on the industries collective ability to improve standards.

Rob Egerton Warburton- Nuffield Scholar, Australia

I met Rob on his farm in Western Australia (WA). Rob is a former RSPCA board member. WA is like Ireland in so far as the majority of their agricultural produce is exported. WA has a huge live export

trade in lamb with approximately 1.7million sheep exported live each year. In WA there is very little government support for farmers. Farmers there are quite proud of this independence and self-sufficiency. Rob is a 7th generation sheep farmer. He had served for a year on the board of the Royal Society of Prevention of Cruelty to Animals (RSPCA).

Rob epitomised what I was searching for; “Farmer driven Animal Welfare”. Unfortunately, he told me that he only stayed on the board for one year before resigning as he felt the RSPCA was not truly interested in the farmer’s perspective. He felt that when he asked them challenging questions such as about the importance of health outcomes versus an alignment with natural living, instead of engaging they just tried to push him off the board and prevent him from questioning policy.

He was told that they were trying to find a way to get him discharged from the board but that they would not ask him to resign. He told me “it basically comes down to death versus discomfort”. As a farmer the management decision is how to keep animals alive and healthy. Thus, one can justify the practice of “mulesing” sheep.

Mulesing is the removal of skin from the groin of the sheep which prevents the future growth of wool. Mulesing is effective in preventing sheep from contracting and dying from flystrike. However, if you prioritise eliminating discomfort, then mulesing is intolerable. A similar example is the practice of housing chickens to reduce the mortality rate due to disease and predation. It decreases mortality but increases discomfort.

Rob said “I asked someone within the RSPCA about the potential adverse welfare impacts of the campaign to end caged egg production. The dramatically increased death rate resulting from moving chickens out of cages to open barns was considered irrelevant because the chickens would be free and would suffer less”. Rob pointed out that it’ll be the farmer who will have to pick up the extra dead chickens each day.

While we sat on his combine harvester and chatted about all things agriculture, Rob pointed out that we supposedly value expertise in modern society. A farmer can be driving past a flock of sheep and spot a sick animal amongst the thousand healthy ones. They can’t necessarily explain how they know it’s sick, but they can recognise it. Rob thinks that society at large ignores this incredible expertise that exists within the agricultural community. “Farmers deal with animals on a daily basis and have an understanding of animal behaviour that transcends science”. Rob thought that because the average Australian consumer has a dog that sleeps at the foot of their bed, they think they are an expert on animals. On the same note he said that while on the board of the RSPCA he saw a lot of evidence of the abuse that cats and dogs are subjected to by their owners. He said that in comparison to this abuse, farmers have nothing to answer for but that this abuse is what is used by advocacy and activism groups to stir up support for greater animal welfare regulation.

Another issue that we discussed was the fact that welfare lobby groups are also businesses. Rob doesn’t expect that if they succeed in banning live exports that they’ll pack up their bags and find new jobs or causes. They’ll just find the next issue to work on. Not only do they have employees to find work for, but they also fundamentally believe in what they are doing. Just as much as or perhaps even more so, than farmers. In his career of dealing with welfare lobby groups, Rob has found that there is no line in the sand about what is acceptable and what is not. There will always be a problem to be

solved. If you solve one, then the next one pops up immediately. Rob said that he has found there is absolutely no point in talking to activist groups such as PETA or Animals Australia.

Surprisingly, Rob argued that farmers should stick with mulesing because once they stop doing it then the activists will move straight on to tail docking or castration. The mulesing can act as a continual issue or distraction. This said, Rob has stopped mulesing his sheep with over 10 years and he wouldn't encourage any farmer to keep doing it.

Rob is of the opinion that the live export of sheep is going to be banned or phased out over several years. He argued that this will be devastating for the lamb producers of WA but that it will not improve the welfare of the lambs produced for these markets. Instead of sourcing their lamb from Australia, markets such as Kuwait will simply turn to African nations that have little if any welfare regulations. It is ridiculous that Australian animals' rights activists ignore this reality. They give little thought or concern to the broader implications of their lobbying on a global scale.

Animal Welfare Explored

Below are the key areas pertaining to animal welfare on Irish dairy farms. Please see Appendix for some further exploration of less immediate welfare concerns.

The new-born Calf

The new-born calf is the focal point of many animal rights campaigns. This is likely due to its “cute and cuddly” appearance and its vulnerability which makes us feel it is an animal in need of protection. The welfare of calves is of critical importance due to the heightened public scrutiny of their care as a result of campaigns such as the “Dairy takes babies” slogan brandished by the GoVeganWorld movement which highlights cow calf separation. New born calves also have increased vulnerability to disease, exposure, pain and emotional distress. The new-born calf is particularly sensitive to welfare stressors due to 4 risk factors;

- Low body fat reserves: If the calf goes without feed and energy supply for even a short period it can become malnourished and run out of energy more easily than adult animals
- Poor herding behaviour: Calves do not exhibit the same herding behaviour as older cattle being more likely to balk at novel environments and situations. This results in them being more difficult to handle and transport, increasing their risk of mishandling, injury, discomfort and pain during handling.
- Less adaptable to stressors: Calves do not respond with stress hormones like cortisol in the same way as adult animals which means they are potential less able to adapt to stressors such as handling and transport.
- Immature immune systems: Calves’ immune systems are reliant on colostral antibodies which makes them more vulnerable to disease particularly when there is a failure of passive transfer of antibodies from the dam to the calf.

Early Slaughter of Bull & Bobby Calves

Of growing concern internationally is the practiced early slaughter of dairy non-replacement calves. These “bobby calves” are typically separated from their dam within 24 hours. They are usually a dairy breed which has poorer beef traits such as Jersey, Kiwi-cross or Holstein Friesian breeds. Bobby Calves are typically slaughtered between 5 to 10 days of age. Bobby calves are typically bull calves but can include heifer calves of low genetic merit.

This practice of early slaughter of calves has been common place in New Zealand and Australia for many years with each country slaughtering approximately 2,000,000 and 400,000 (Dairy Australia accessed, April 2019) calves respectively each year. The numbers of calves slaughtered at this age in Ireland are a tiny fraction of these numbers however there is industry concern regarding the trend over the last number of years.

Crucially the early slaughter of calves is objectively not considered a negative welfare outcome. Provided calves are handled, transported and slaughtered appropriately their welfare can be protected. However, the practice does risk causing reputational damage to the industry as the practice is not in line with public values surrounding the ethical use and treatment of animals. For most of the public, and indeed for the majority of Irish farmers, the early slaughter of calves is seen as distasteful and possibly unethical and something which should be minimalised and eliminated if possible. Farmers typically choose the early slaughter option as it allows more milk to be sold, reduces the labour

required to care for young calves, reduces the risk of disease in calf rearing facilities due to reduced stocking rate and reduces the need for increased capital investment in calf rearing facilities. These are valid considerations but if the practice is to continue in Ireland we must ensure best practice is utilised and that we endeavour to reduce the number of Bobby calves produced.

Mutilations

There are several standard husbandry practices carried out on calves and cattle which are termed as mutilations. Mutilations are disfigurements or injuries for non-healing purposes such as; branding, ear notching, castration, nose ringing, ear tagging, tail docking, teat amputation and dehorning.

Branding

Freeze-branding is common practice on dairy farms in Ireland. This is for the simple reason that it makes it extremely easy to identify cows from behind in the milking parlour. From the pit of the milking parlour it is very difficult if not impossible to read a cows' ear tag. Therefore a brand is placed on her flank where it is easily legible. In the USA hot-iron branding is quite common. It is even legally required in some states. Brands are applied at any age. Freeze-branding has been shown to be less painful than hot-iron branding (Lay et al, 1992). However, it still results in a 3rd degree burn on the animals' skin.

Freeze-branding results in depigmented hair so that the desired mark is legible whereas hot-iron branding leaves a permanent scar. Hot iron branding has been shown to take at least 8 weeks to heal and it remains painful for that length of time (Tucker et al, 2014). In this study a nonsteroidal anti-inflammatory drug (NSAID) was shown to have no effect at mitigating the pain caused by branding. It would not be unreasonable for one to assume that the extent of the pain caused by freeze-branding is similar to pain caused by hot-iron branding.

Given that there is evidence of animals experiencing pain for 8 weeks after branding it is very difficult to defend this as a routine practice. How can we genuinely convince our customers and the public at large that we care about our animals' welfare if we routinely carry out a practice which causes this long period of pain? Since learning of this research during my study I have decided to cease freeze-branding on my own farm. I believe that there are simple enough technological or management solutions to overcome the lack of freeze-branding. A simple ID bracelet could be placed around cows' ankles. Electronic ID tags could be used which could be read with a wand in the milking parlour. Other visual aids can be used to identify cows such as tape on tails or stock marker on the udder. I believe that the elimination of the pain caused by branding merits the mild inconvenience that the absence of brands will cause.

Tail Docking

Although tail docking is an extremely common practice amongst lambs and pigs it is prohibited in cattle in the EU. Tail docking is still carried out routinely in some parts of North America. It is thought by those who practice it to improve cow hygiene and cleanliness, improve udder health and improve milker comfort (e.g. being hit in the face with a tail). Most dairy farmers are only too familiar with this discomfort. Docking was first popularised in New Zealand but quickly spread through the globe. Images of cows' tails being removed with a large blade are quite distressing to watch. There is no doubt but that it is extremely painful. It has been shown not to improve udder health (Matthews et al, 1995). It also does not improve hygiene and cleanliness (Tucker et al, 2001). The only possible argument for carrying out this practice is the assertion of "milker comfort". This nebulous claim carries

little weight with me personally as I think a wayward slap in the face once every 6 months pales in significance in comparison to tail amputation. Cutting cows' tails can cause neuromas to form in the nerves. These neuromas may cause chronic pain similar to the phantom pain experienced in humans that have had limbs amputated (Eicher et al., 2006). Tails have also been shown to be important for social signalling and communication (Albright and Arave, 1997) and the practice of removing the tail may impact this. Cows with docked tails also have a diminished ability to deter flies which can lead to greater irritation and thus impact further on their welfare. Farmers or regulators should have no tolerance for those who insist on persisting with this practice.

Dehorning & Disbudding

The removal of cows' horns is once again a question of safety for those who work with the animals. Removing horns also reduces the risk of injury amongst herd mates. Consequently, it is probably accepted as necessary by the non-farming public. However, this justification is complicated by the ability to genetically select or breed for polled animals. It can reasonably be argued that we do not remove horns surgically for safety but that we do so because it is significantly cheaper than breeding for genetically polled animals. Not selecting for genetically polled animals allows farmers to maintain selection intensity and traits which yield greater financial performance such as milk production, carcass confirmation and fertility traits.

Disbudding is the destruction of the horn bud before it has a chance to attach to the skull and begin to form a horn. Dehorning is the amputation of this horn once it has begun to form and grow. Disbudding is considered to be much less painful as there is far less vasculature and fewer nerves present at the site. However, disbudding must be carried out in the first 35 days of life to be effective. This is a time when calves are more vulnerable but also much easier to handle.

As there is a reasonably large timeframe in which to disbud a calf the practice of dehorning should be discouraged. It is more painful and creates a much larger wound which increases the risk of infection. There are a number of methods to disbud calves. By far the most prevalent method in Ireland is hot iron cauterization. This involves placing a hot iron in a ring shape around the unattached bud. The heat destroys the blood supply to the bud which will subsequently die and fall off. Another method is the use of a caustic paste which results in chemical cauterization. This caustic paste is applied to the bud which will be destroyed over the next 12 hours.

A study in Italy found that the majority of farmers (70%) that carried out their own disbudding had received no formal training and that very few (10% and 5% respectively) provided anaesthetic or post-operative pain relief (Gottardo et al., 2011). The authors of this study speculated that the disinterest amongst farmers for using pain relief was due to insufficient knowledge of the long-term pain caused by disbudding. I suspect that the findings of a similar study carried out in Ireland today would find very similar results. When disbudding calves there is more than one source of pain or discomfort.

Firstly, the stress of handling can be a welfare challenge in itself. Due to calves poor herding behaviour it can be difficult to restrain calves correctly for disbudding. This can result in calves being chased or handled incorrectly. Where facilities are not well designed for handling calves it is possible to see calves caught and dragged by their tails or ears and to hear vocalisations due to distress.

Once in a dehorning crate calves are visibly stressed by being restrained. They continue to struggle and vocalise.

In the absence of pain relief, vocalisation and more frenzied struggling is ubiquitous amongst calves when the hot iron is applied. It seems completely redundant to find a peer reviewed scientific article to cite the pain which is caused by dehorning or disbudding. This extreme pain is evident to anyone who has witnessed calves being dehorned without pain relief.

This is not the case with chemical cauterization as there is no extreme heat.

The use of a local anaesthetic and NSAID for longer term pain relief have been shown to effectively mitigate acute pain responses and decrease the reduction in play behaviour seen in calves which were disbudded (Mintline et al., 2013). The reduction in play behaviour typically observed post disbudding is interpreted as evidence of pain. Local anaesthetic and NSAID are effective at relieving the pain caused by both hot iron cauterization and chemical cauterization.

A sedative administered before disbudding can help reduce the stress and discomfort associated with the handling and restraining of calves for disbudding. (Keyserlingk et al., 2009). However, the use of a sedative when disbudding a large group of calves may present a health risk. Some animals may be more susceptible to sedation than others and there is a risk of accidentally killing some calves if used incorrectly. This should not discourage investigating the use of a sedative but those administering it should be properly trained and have the correct facilities and skill to carry it out safely for the animal.

From the literature I have read and the experts that I have discussed this issue with I think that the optimum disbudding procedure would be to give a calf a shot of a sedative while it is feeding. This will eliminate any pain from handling and restraint. Once the calf is unconscious the local anaesthetic and NSAID can be administered. At this point there is a quandary when choosing between chemical or thermal cauterisation. Calves that are disbudded using chemical paste will potential experience less pain due to the absence of extreme heat. The heat of the hot iron has been shown to denature proteins in the brain. It is unclear whether this necessarily causes pain as there are no pain receptors in the brain, yet it is probably still undesirable. However, these calves will have to be isolated while the caustic paste is applied. This is to prevent calves from licking the paste from one another. This isolation may in turn cause stress and discomfort for the calves. Calves which are thermally disbudded do not need to be isolated.

Cow Calf Separation

The contemporary practice of separating cows from calves with hours of birth has been pursued for several commonly held beliefs surrounding management and perceived health benefits;

- Removing the calf and subsequently feeding the cows colostrum artificially allows the farmer to ensure that the calf receives adequate colostrum and antibodies
- Removing the calf increases the amount of milk available for sale, by reducing the amount that the calf drinks thus increasing profit
- Removing the calf early facilitates easier milk let down as the cow does not attempt to retain milk for her calf to suckle
- Removing the cow from the calf makes it easier to keep the calf in a hygienic environment as the cow's urine and faeces would soil the bedding
- Removing the calf from the cow shortly after calving reduces the acute distress response caused by separation. This is because the maternal infant bond forms and strengthens over several days after birth.

The above reasons for cow calf separation are commonly held amongst farmers in Ireland. These reasons are often surmised as “it is better for the health of the calves to separate them from the cow quickly”. I personally have justified this practice to non-farming acquaintances by pointing out that we need to ensure the calf receives adequate colostrum, the cow’s faeces may be a source of disease such as Johnes’ disease, her nose may be a source of respiratory illnesses, her hooves or another cow may be the cause of accidental injury. However, this answer is an oversimplification. A more accurate response might be that “the nature of the margins in commodity food production globally is such that we are unable to invest adequately in the resources and time necessary to ensure the calves good health and welfare if left with the cow”. This is due to the amount of extra bedding material, extra cleaning of the cow’s udder, supervision of the calf suckling and other myriad tasks required ensuring optimum hygiene, environment and nutrition for the new-born calf.

One fact that is clear is that the public which is unfamiliar with dairy farming is broadly concerned about the practice of early cow/calf separation. A study in North America asking “should dairy calves be separated from the cow in the first few hours after birth?” received a 76% negative response amongst participants with no contact with the dairy industry, (Ventura et al, 2013). In the same study farmers responses were not uniformly positive which indicates that this is a contentious practice even within the industry.

As public scrutiny is being drawn to this practice, I believe that farmers need a much better understanding of the effects of cow calf separation and the trade-offs being made for health, productivity and welfare. Some experts suggest that a proportion of transition cow disease or the negative energy balance witnessed in dairy cows after calving may be caused by something akin to post-partum depression. The suggestion is that cows when separated from their calves experience a degree of anhedonia; the inability to feel happiness. This in turn causes reduced feed intakes and thus exacerbates negative energy balance and transition cow diseases. This possibility is investigated using “latency to eat” studies. Essentially a cow is timed each day on how long it takes her to approach a source of feed each day.

Although I am sceptical of the suggestion that we should leave calves with their dams, I think we as farmers need to be able to back up our assertions with scientific data. If there is a possibility that leaving calves with cows could lead to better health and production outcomes as well as the improved welfare and marketing merits of such a system, then this practice needs to be investigated in a scientific but commercially applicable manner.

Throughout Europe there is a growing trend of dairy “cow and calf units” which allow the calf to suckle the dam in addition to milking the cow to sell milk. An example is the “Ethical Dairy” in Scotland or the “Calf at foot Dairy” in the UK. These businesses aim to create a niche market and added value product for dairy products produced while leaving calves with their dams. Companies like these will cause future pressure on the status quo dairy industry insisting it is not possible to leave calves with cows. This reaffirms my conclusion that this practice needs to be investigated in a scientific but commercially applicable manner.

Calf Housing

Group Vs Isolation

In the typically dairy system in Ireland calves are removed from their dams within 24 hours and then housed in a specific calf rearing building or location. This is the norm throughout developed dairy industries. They are either group or pair housed, or housed in individual pens. In herds which practice compact calving, group housing of calves has become very common. However, the housing of calves in individual pens is much more common in other countries such as the US, UK and Canada. Those who keep calves in individual pens believe it is superior as it;

- Prevents cross suckling
- Prevents aggression
- Prevents disease transmission
- Prevents competition for resources

There is little empirical data to support the above claims. In contrast housing calves individually has been shown to impair calves' social skills, impair calves' abilities to cope with new situations and lead to some cognitive deficits (Costa et al., 2016).

One of the ramifications of separating calves from their dams or other social groups is that the calf can show abnormal social behaviour as a result. This behaviour is tested by conducting a variety of personality or behavioural tests on calves.

- Novel object test; for this test a novel object such as a ball or bucket is placed in the pen with the calf. The calf can exhibit a number of potential reactions such as avoidance, ignoring, investigating or play.
- Novel animal test. This is very similar to the above text but is when a novel animal enters the pen. The same reactions are available to the calf.
- Novel location test. This involves moving the calf to a new location and then observing the degree of exploratory behaviour exhibited.
- Social motivation test. This is where an animal is removed from the group and then timed to see how quickly they return to the group. This will demonstrate how motivated the animal is to be with their peers

Studies using behavioural tests such as these have found that calves which are housed in isolation react much slower to novel situations. They are far less likely to investigate a new feed or environment. This has been shown to negatively impact on calves' growth rates particularly when transitioning onto a solid diet from milk. This is due to the importance of social learning for young mammals. In a natural setting calves would graze with their dams, learning what forage to select. Naïve calves introduced to pasture with an experienced herd mate have been shown to begin grazing more rapidly (Costa et al., 2016). This highlights the importance of social learning for calves and its potential value to Irish farming systems. Ensuring that calves grazing intakes are maximised will produce healthier and more productive animals.

Given the negative impact that individual housing has on young calves and the benefits to their behaviour gained through social learning, calves should undoubtedly be group housed.

Downer Cows & Euthanasia

The occurrence of downer cows is an unfortunate reality on dairy farms. As the name suggests, a downer is when a cow cannot stand and can be caused by injury or disease. Accidental injuries and disease happen despite farmers best efforts. However, how downer cows are treated is crucial as they are so vulnerable to pain and suffering. Many of the most damaging video exposés feature footage of downer cows being dragged roughly with chains or beaten to try to get them to stand up. Due to the tight margins of commodity production, farms are typically running at maximum capacity.

Most farms will only have enough labour to care for all the animals if everything goes to plan. On intensive farms the time taken to provide nursing care is seldom budgeted for. This means that when there is a downer cow situation, her care is typically low priority and the last task performed that day. The rough handling of downer cows is exacerbated by the fact that they typically weigh >500kg and are difficult to manoeuvre and handle. A further exacerbating factor is the time of year when downer cows are most likely to occur; during the calving season. This is when farmers are under the most pressure in terms of workload and having a down cow to care creates a lot more work.

Many illnesses can lead to a down cow situation;

- Difficult calvings resulting in temporary paralysis or dead legs
- Metabolic disorders such as milk Fever, Grass staggers, and other mineral deficiencies.
- Digestive disorders such as a displaced abomasum, bloat or acidosis.
- Injuries; Broken bone, doing the splits and damaging tendons and ligaments
- Infectious diseases.

In Ireland it is not uncommon to see a downer cow out in a field in the springtime propped up with a bale of straw. Farmers often take a passive approach to the issue, leaving the cow to her own devices to see if she will get up in her own time. Others intervene by lifting the cows sporadically in order to try and aid in her recovery. The appropriate treatment will depend on the cause of the downer cow situation and thus diagnosis is essential. Depending on the diagnosis farmers should make a clear decision on whether to treat the down cow or whether to euthanise her. If the farmer decides to euthanise then this should be carried out as soon as possible by the appropriate professional. Euthanasia is a preferable welfare outcome to a cow suffering for several days before eventually succumbing. If the farmer decides to treat the cow then they should create a nursing or treatment management plan. Where cows are going to be lifted with hip clamps, this should only be done by someone with appropriate training and with the appropriate machinery and gear. Cows should not be transported or dragged using hip clamps.

Lameness

Lameness is one of the most common welfare challenges facing the Irish dairy cow. It is a topic which has been covered in detail by previous scholars (O' Keefe, 2015) and academics so I will not go into depth here. Suffice to say that lameness is a source of pain for dairy cows. As cows are prey animals, they attempt to conceal any injury for as long as possible. This is to avoid being singled out as easy prey by a predator. Therefore when a cow is exhibiting visible signs of being lame it is because she is in severe physical pain. Unfortunately, farmers find it difficult to identify lameness in the early stages of injury (Whay et al., 2003). Locomotion scoring has been encouraged in recent years as a means of detecting sub-acute cases of lameness however this practice is not widespread.

Due to the delay in detecting cases and the often slow treatment of cases, prevention is the best solution. Lameness can be caused by infections, injuries or poor management. Minimising these causes requires improved farm design, better livestock handling techniques and improved hygiene standards. Improving these areas can drastically reduce the incidence of lameness on dairy farms thus improve the animal welfare outcomes. Farmer training in this area such as that offered by Neil Chesterton (Lamecow.co.nz) or the “Cow Signals Training Company” (Cowsignals.com) is particularly effective as it has a long term preventative impact.

Mastitis & SCC

Bulk tank Somatic Cell Count (SCC) has been shown to correlate with animal welfare on dairy farms (De Vries et al., 2011). Once again this is an area which has been the focus of much academic research and has been very successfully tackled in recent years by dairy co-operatives, Teagasc and Animal Health Ireland (AHI). Similar to lameness, mastitis is a common welfare challenge and a source of pain for dairy cows. High cell counts are thought to also be indicative of stress or immunological challenge in a dairy herd. Therefore SCC may act as a proxy for other welfare stressors on a dairy farm. Due to the financial incentive to treat and cure cows with clinical mastitis and to not supply milk with a bulk tank SCC >400,000 cells/ml the average SCC of milk supplied has been consistently dropping in Irish herds. This is indicative of improving welfare. There remains scope for this to improve further as prophylactic antibiotic use is still the norm at dry off and this may be regulated against in the future. Removing the ability to use blanket dry cow treatments may create a heightened welfare challenge from mastitis infections. Where SCC are extremely low throughout lactation there is no need to use prophylactic antibiotics. Initiatives such as the AHI Cellcheck awards highlight the excellent performance that can be achieved on farms in terms of SCC and this in my opinion has been effective at changing farmers’ expectations for SCC levels. Whereas before the target was simply to avoid penalties for supplying milk with a SCC of over 400,000 now farmers are increasingly aware of the production benefits of a herd SCC consistently under 100,000.

Animal Handling & Transportation

Proper Animal handling is a keystone in ensuring a positive animal-human relationship. “The handling of animals should foster a positive relationship between humans and animals and should not cause injury, panic, lasting fear or avoidable stress”. (Fraser et al., 2013). There is wide variation between the styles of animal handling used on all farms but typically the stockmanship of employees in “zero grazing” dairies is characterised by more severe negative behaviour and fewer positive tactile behaviour than on grazing dairies (Renie et al., 2003). This is a broad generalisation and there is almost certainly equal variation within dairy systems as between dairy systems. It may be taken for granted that handling welfare are superior on pasture-based farms. Since beginning my Nuffield scholarship, I have had numerous farmers tell me “horror stories” of poor handling practices that they have witnessed or heard of. There is ample anecdotal evidence to suggest that a proportion of farmers require upskilling in this area. The spectrum of animal handling technique ranges from low energy to high energy handling. Low energy handling is characterised by preparation, quiet and patient handling of animals whereby animals are given time to adjust to their surroundings and are kept in a low state of excitement. High energy handling is characterised by shouting, the use of canes, and rushed animals in a high state of excitement.

Some animal handling related poor stockmanship may be blamed on poorly designed facilities however, Dr Temple Grandin has stated that in her “experience people are often more willing to

purchase new equipment than they are to use easy-to-learn, low-stress handling techniques. Even when financial benefits are clear, some people find it difficult to believe that a behavioural management method really works.” (Grandin, 2003).

Routine handling on a dairy farm tends not be an issue as cows are creatures of habit and will quickly learn how to operate within an environment. If there are issues with routine handling such as in the milking parlour or on farm tracks leading to and from the parlour than it is indicative of quite poor design and animal handling from a welfare perspective. Non-routine handling events such as around calving time or transportation are more likely to be a challenge as cows are placed in a novel environment or situation and (due to time pressures) are often not given enough time to adjust to their new surroundings. Subsequent rough handling of reluctant livestock causes stress, fear and is more likely to lead to injuries in both man and beast. Poor handling behaviour and techniques are also a risk for the entire industry as footage of poor handling such as abuse with canes is often captured by undercover activists. In order to mitigate this risk and to improve the welfare of animals on all farms, farmers must be educated as to proper handling techniques. Education of management techniques should then inform farm building design.

Discussion

The public's concern about animal welfare is genuine and here to stay. If anything, we are likely to see evermore scrutiny of animal production systems. At the outset of this study tour I was more concerned about the potential impact an animal abuse exposé would have on our industry. Having visited the places and met the people I have in the last 18 months I am less worried about this eventuality. I think it is inevitable. We came very close to seeing such an exposé with the Irish calves being mistreated in France during the Spring of 2019. I find this prospect less worrying now because I believe that it may help to improve welfare standards on Irish farms. Unfortunately, there is a proportion of farmers who are unconcerned with animal welfare, handle animals roughly and I suspect disregard regulations which are intended to safeguard animals against mistreatment. I expect that an exposé would encourage the genuine, empathetic farmer to pressure the "bad actors" into improving their production methods. We also have a role as farmers to identify, highlight and rectify bad practice and endeavour to help each other to improve the situation collectively.

During my travels I met some of the world's leading researchers on animal welfare. The research in this area is new and exciting. Yes, it will challenge some of our production models, but it will ultimately help us to create better systems which will deliver better animal health and performance. I found those at the cutting edge of welfare research to be optimistic about livestock production and excited about the potential improvements. In contrast I found farmers to be far more pessimistic about the challenge that animal welfare concerns present. There was a tendency to focus on the extremist activists that seek to end animal-based agriculture as opposed to the informed and concerned consumer that currently buys our products. Amongst farm representatives there was a tendency to argue that we needed to better educate the consumer and that the issue is how disconnected the consumer is from farming. These representatives were ignorant of the research which shows that we cannot "educate away" genuine concerns about farm animals leading "a life worth living".

Conclusions

- Animal welfare matters to the public. Consumer concerns about animal welfare are genuine and thus increasing public scrutiny of production practices will remain a reality of farming life.
- The Animal Rights lobby is a business. Animal advocacy groups that have employed staff will strive to justify their existence and their funding. This means that there is no end point at which they will cease lobbying against animal based production systems. Farmers must be aware of this reality and focus their efforts on maintaining the public trust.
- Many Farm representative organisations are too focused on defending the status quo and are in denial regarding animal welfare standards.
- Accreditation audits are more focussed on rubber stamping current production standards as being adequate in terms of animal welfare as opposed to actively educating and encouraging farmers to improve welfare standards.
- Ireland is well placed to be a leader in animal welfare. Our pastoral systems combined with a profitable industry, cooperative ethos and highly respected research institutions will enable us to adopt new technologies and practices to improve animal welfare.
- Technological innovation poses a huge opportunity to improve animal welfare.

Recommendations

- Align production methods with public values and farmers values. Current evidence suggests that international consumers and the Irish public trust Irish farmers. I believe the best way of safeguarding this trust is to align everything we do with our own and the public's values. "How you do anything is how you do everything". With that statement in mind it is crucial that every step in our production chain aligns with the values we hold. I believe that the fundamental value is "providing our animals with a life worth living". The subsequent recommendations are proposed in pursuit of this goal.
- Culture: we need to create a farming culture that prioritises animal welfare and addresses the problems in our production systems. We need to become our own most vocal critics and identify, interrogate and rectify welfare problems diligently. The industry's animal welfare credentials are only as good as the weakest link. Farmers are typically reserved about criticising other farmers' husbandry practices or handling techniques. We need a more frank and open culture in order to expedite welfare improvements and developments. We must do this proactively, confidently and without fear. The fear of offending someone is a barrier to progress.
- Education and Auditing: We need to build education into our certification audits. There are many questions pertaining to welfare in the Bord Bia SDAS audit for example. There is very little time spent educating farmers on why a certain measure is of importance. Technical knowledge of best practice is taken for granted. I strongly recommend implementing a welfare education aspect in the SDAS audit.
- Veterinary Support: The farming community is dependent on the proactivity of Veterinarians in ensuring animal welfare standards across the country. It is of vital importance to the entire farming community that vets are supported in whistle blowing or calling out poor animal welfare when necessary. Furthermore I believe specific training should be provided for vets and vet students on how best to address very difficult conversations with clients. Currently we assume that technical ability is enough however these crucial conversations are a very different skillset to veterinary medicine.
- Mandatory Reporting: Further to the above point. In order to ensure animal welfare issues are identified and addressed we should consider implementing mandatory reporting. This would be a radical measure which would require service providers such as AI Technicians, Veterinarians, Hoof Parers and Relief Milkers to report animal abuse to an overseeing body. This body could be established and run by the farm organisations, cooperatives, AHI and department of agriculture. It might be worth considering including an organisation such as the ISPCA.
- Handling & Transport: There needs to be much more focus given to education surrounding animal welfare in handling practices and transportation. I recommend that this be built into the mandatory Health and Safety course that farmers are required to take in order to secure grant approval for farm developments. This would help ensure that best handling practices and facility design are considered on new farm investments. Farmers also need guidance from research on suitable handling facilities and should be

moving towards a standardised design for loading and transportation. This will minimise animal stress and injury while also reducing the risk of worker injury.

- Long term vision for transport; as an industry we must recognise that the transport of animals represents a significant cost and risk. In a utopia, animals would live and die on the same farm without the need for transportation by road or sea. On farm slaughter to the best standard is the optimum welfare outcome. This would greatly reduce any stress on the animals. Although this is hard to envision as an industry wide solution the first steps in this direction are being taken internationally with public scrutiny and political pressure coming on live exports and long distance transportation by road.
- Mutilations: Every effort should be made to reduce mutilations, reduce the severity of mutilations or to mitigate the pain caused through effective pain medication. Mutilations represent a cause of pain to animals and a cost to farmers due to, lost production due to stress/pain and the direct cost of carrying out the mutilation. Farmers need education on the pain and production loss caused by mutilations, the best practice for carrying out necessary procedures such as dehorning, pain mitigation and alternative practices.
- By-product or “waste animals” such as cull cows and dairy bull calves represent a prominent welfare challenge. The majority of bobby calves in Ireland come from a small proportion of herds. The industry (Co-ops & Bord Bia) needs to nudge these herds away from this practice as it does not align with our values as farmers or the values we want to promote to our customers. The ideal solution for these animals is to create added value markets to facilitate their rearing and productive use.
- This may be feasible due to new evidence surrounding the eating quality of Jersey beef and consumer concerns about low carbon meat. However, the current processing sector in Ireland is not conducive to this outcome. A more robust short-medium term strategy is to minimise the number of these animals being produced by using better genetics, sexed semen and better herd health. At a minimum all herds which send bobby calves to slaughter should be sent material & guidelines on the proper handling and care of Bobby calves. This could be included with advice on how to minimise the production of future Bobby calves.
- Downer cow protocols: I recommend that Cooperatives disseminate information on the care of downer cows on dairy farms. Farmers need education on how to diagnose and treat injuries but also on when to decide to euthanise. Education on this topic should begin with information on how to minimise the incidences of downer cows and cover all aspects of their care up to and including how to move a dead cow appropriately and with respect.
- Calf Housing: The industry should plan a phase out of individual calf housing. The research in this area is very clear and the image of calves kept in solitary pens is extremely damaging to our image. This practice should be discouraged and phased out completely.
- Cow calf separation: I would like to see Irish research into this topic. The practice of keeping calves with cows is growing in popularity and this is likely to create a demand amongst consumers. We need research to discern the optimum time and method of separating calves from their dams and to explore the practicalities of operating such a system on a typical Irish

farm. Our approach to this topic should be based in science and not in a desire to maintain the status quo.

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