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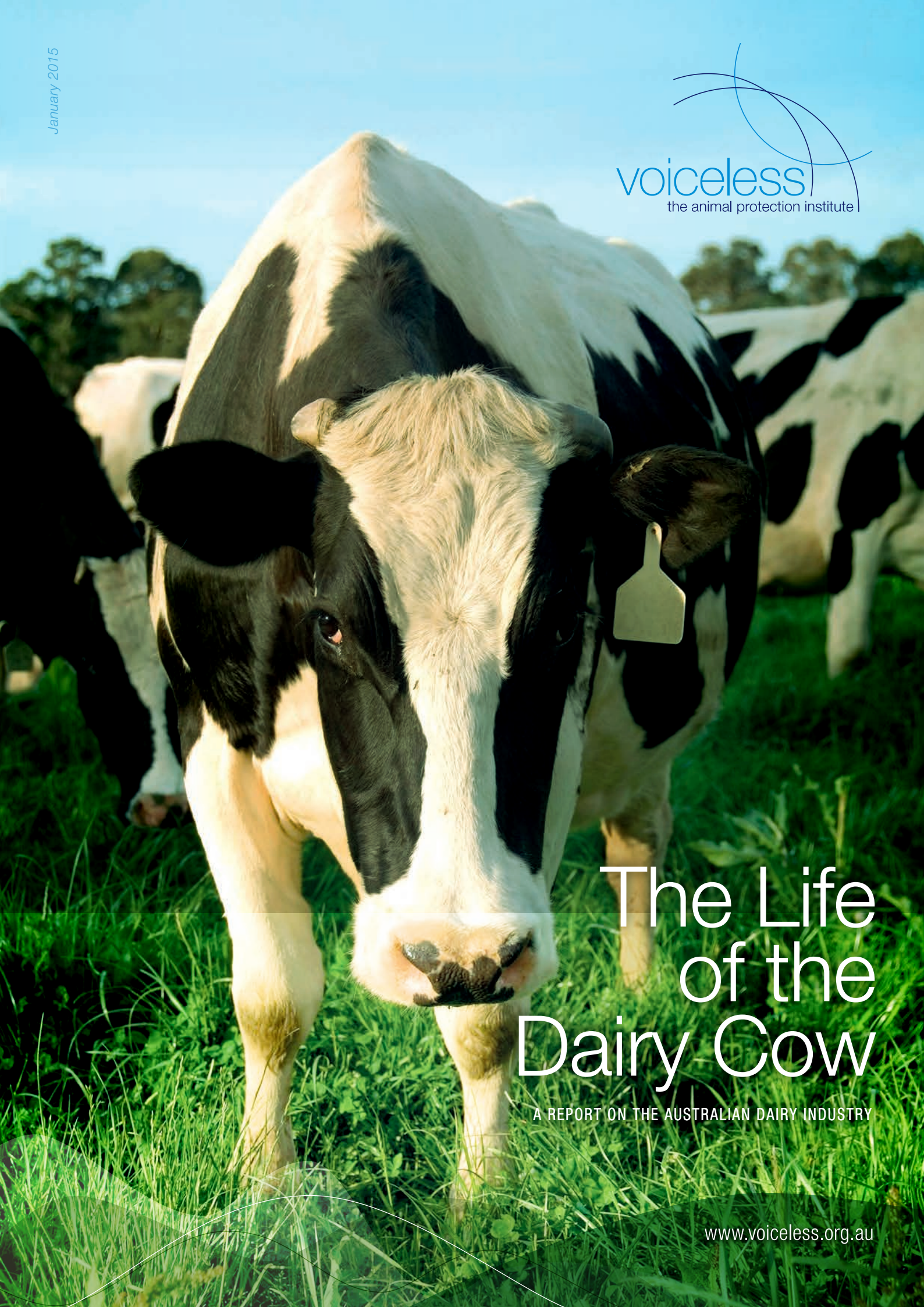

The Life of the Dairy Cow

A REPORT ON THE AUSTRALIAN DAIRY INDUSTRY

www.voiceless.org.au

This report was reviewed by Voiceless's Scientific Expert Advisory Council. It is endorsed by Animals Australia, Compassion in World Farming and World Animal Protection.

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ABOUT VOICELESS

Voiceless is an independent and non-profit think tank dedicated to alleviating the suffering of animals in Australia. Established in 2004 by father and daughter team, Brian Sherman AM and Ondine Sherman, Voiceless:

- Creates and fosters networks of leading lawyers, politicians, businesspeople and professionals to influence law, policy, business and public opinion;
- Conducts quality research on animal industries, exposing legalised cruelty and informing debate;
- Creates a groundswell for social change by fortifying the Australian animal protection movement with select Grants and Prizes;
- Grows animal law as a mainstream practice area to advocate for change in the courts and in legislation; and
- Informs consumers and empowers them to make animal-friendly choices.

Like most Australians, I grew up with pretty pictures of story-book cows cavorting in open green fields. Happy dairy cows living an idyllic life, welcoming their daily milking.

When my father Brian and I founded Voiceless a decade ago in 2004, the dairy industry wasn't one we considered a top priority; we were glad dairy cows, compared to the long-suffering chickens and pigs, were faring well.

In our view, the dairy industry has done a superb job in creating and maintaining a fantasy. But now, with the facts studied and scientific research examined, our eyes have been opened.

Voiceless's in-depth report exposes the sad reality of an industry where the suffering of dairy cows and their almost 800,000 calves is common and accepted.

Through a rigorous analysis of current scientific knowledge on the health and welfare of cows and calves, as well as an examination of relevant law and legislation and the gaps in current Codes of Practice, this report recommends ways in which to address key cruelty issues.

Voiceless is committed to lifting the veil of secrecy and this report, we believe, will be the first step to creating change. However, change relies on co-operation between farmer, industry, advocate, consumer and government, to not simply accept the status quo but have the courage to recognise that change is urgently needed.

This report would not have been possible without the invaluable insights and dedication of contributing author and Voiceless Council member, Dr Deidre Wicks. An academic and author, Deidre is an Honorary Research Associate at Newcastle University, Australia, an Honorary Research Fellow at the National University of Ireland, Galway and has a PhD in Sociology from Macquarie University.

We would also like to thank the eminent members of our international Scientific Expert Advisory Council who reviewed this report in detail prior to its publication: Professor Marc Bekoff, Professor Clive Phillips, Professor Lesley Rogers, Professor Bernard E. Rollin and Professor AJF (John) Webster.

Of course, our thanks to the Voiceless Team for their dedication, passion, in-depth research, editorial and extensive legal work in particular Elise Burgess, Emmanuel Giuffre, Elaine Morris, Eleanor Nurse and Clotilde Hery.

We would also like to thank our research supporters – Sarah Margo, Reeve Koelmeyer, Anwen Price and Sara Gajic, and industry participants who helped to create a thorough and accurate assessment of the Australian dairy industry.

Working together, we can change the lives of millions of animals. We urge you to join us in speaking up for the voiceless.

Ondine Sherman & Brian Sherman AM Hon Litt D (UTS)
Managing Directors and Co-Founders, Voiceless

EXECUTIVE SUMMARY

In the past three decades, Australian dairy cows have been selectively bred to double their lactation - now producing an astonishing 5,525 litres of milk annually, a massive increase from 2,848 litres in 1979.[1]

Genetically altering an animal to produce this quantity of milk, coupled with continuous pregnancy and birthing, places enormous pressure on the animal's body and compromises her welfare.[2]

To address the serious welfare concerns within the Australian dairy industry, Voiceless has examined the following key issues for dairy cows and their calves and has made a number of key recommendations for reform:

- The separation of the cow from her calf
- Calf slaughter
- Dehorning and disbudding
- Tail docking
- Calving induction
- Lameness
- Mastitis
- Live export of dairy heifers and cows

DO WE ASK TOO MUCH OF THE MODERN DAIRY COW?

The dairy cow is subjected to a continuous cycle of calving, milking and impregnation. This is exhausting work that takes a serious toll on her body. For example, producing the peak yield of 35 litres of milk per day has been compared to a person jogging for six hours, seven days a week.[3]

In as little as seven or eight years, milking cows become worn out and when their milk yield falls, or they have repeated bouts of mastitis or lameness, they are slaughtered.[4]

Lameness and mastitis are major economic issues for Australian dairy farmers, which result in pain and discomfort for dairy cows.[5] Standard on-farm mutilation practices such as tail docking, disbudding and dehorning are also a cause of severe pain and distress.[6] Professor John Webster, Emeritus Professor of Animal Husbandry at University of Bristol observes that "the dairy cow is exposed to more abnormal physiological demands than any other farm animal."[7]

FORCED PREGNANCIES

Like other mammals, a mother cow must give birth in order to produce milk. As a result, the separation of the mother cow and her calf is an inherent part of dairy production.

It is recommended by Dairy Australia[8] that dairy calves are prematurely removed from their mothers within 12 hours of birth, yet cows develop a strong maternal bond with their calf in as little as five minutes after birth and separation can be stressful for both individuals.[9]

Over the days after their separation, a mother cow can bellow day and night in search of her calf, often returning to the place where the calf was last seen.[10] Separation before natural weaning also has a negative impact on calf welfare, with initial signs of distress including increased heart rate and vocalisations.[11]

1 Dairy Australia (2014), 'Yield'.

2 "It is an undeniable fact that genetic selection of cows for greatly increased milk yield has made it progressively harder for the farmer to meet their needs, whether for optimal productivity, health or welfare." See Webster, *Animal Welfare: Limping Towards Eden* (Oxford, UK: Blackwell Publishing Ltd, 2005) at 132.

3 Velten, Cow (London: Reaktion Books Ltd, 2007) at 160.

4 Advice from Emeritus Professor John Webster PhD.

5 See Chapter 4.1: Lameness and Chapter 4.2: Mastitis.

6 See Chapter 3.1: Disbudding and Dehorning and Chapter 3.2: Tail Docking.

7 Emeritus Professor John Webster PhD quoted in Masson, *The Face on Your Plate: The Truth About Food* (W. W. Norton & Company, 2010) at 84.

8 Dairy Australia (2014), 'Managing Calf Welfare'.

9 See Chapter 2.1: Mother–Calf Separation.

10 Joy, *Why We Love Dogs, Eat Pigs and Wear Cows. An Introduction to Carnism* (San Francisco: Conari Press, 2010) at 61.

11 Phillips, *Cattle Behaviour and Welfare* (Second ed.; Malden, USA: Blackwell Science, 2002) at 33.

CALVES AS WASTE PRODUCTS

Due to the pressure for cows to continue to produce milk, every year hundreds of thousands of calves are born. The majority of female calves are kept as replacements for the milk producing herd, while most males are considered wastage or by-products.[12]

Each year around 800,000 of these bobby calves are born and either killed on-farm or sent for commercial slaughter within just five days of life.[13]

The Victorian Government advises that 'non-viable' calves may be slaughtered on the day of birth through several options, including chemical euthanasia, the use of a firearm or stunning by a captive bolt. Alarmingly, a newborn calf may also be killed by striking their head with a blunt instrument, such as a hammer. If the calf still shows signs of life, farmers are advised to compress the chest wall with a fist, shoot them in the head or take a knife to their neck or chest.[14]

While many bobby calves are killed on-farm within hours of birth, the vast majority are separated from their mothers, given a last feed and then loaded onto trucks bound for sale yards and slaughterhouses for use in pet food, leather goods, the pharmaceutical industry or to be processed into pink veal for human consumption.[15]

WHY THIS REPORT?

Domestic and international demand for dairy produce is booming but the price of Australian milk has declined steeply in recent years.[16] To meet this demand, both the dairy cow and the dairy farmer are being pushed to their limits.

Dairy farmers are being squeezed by a hyper-competitive market system. The number of farmers has halved over the past 25 years and it is expected that more will walk off farms if prices drop further.[17]

To compete commercially, dairy farmers are forced to maximise production, both in milk volume output and the methods of farming. In fact, it is estimated that around 2% of Australian dairies are now 100% total mixed ration (TMR) systems, where cows have no need to access the outdoors to graze on pasture,[18] and this figure is likely to grow.

The trend towards higher milk output and indoor systems increases pressure on dairy cows. Yet little of this is visible to consumers, many of whom no doubt continue to hold idyllic views of dairy production as it was half a century ago.

This Report, however, comes at a time when there is potential to improve the welfare of dairy cows and their calves.

The existing *Model Code of Practice for the Welfare of Animals – Cattle* (2nd ed) 2004 (Cattle Code) is being re-written to incorporate both mandatory standards and industry guidelines, which are intended to apply nationally. This is an opportunity for real improvement in the treatment of dairy cows in Australia.

Voiceless acknowledges, however, that not all of the welfare issues we address in this Report – such as lameness and mastitis, mother-calf separation, or the management of unwanted bobby calves – can easily be 'regulated away' through tougher criminal sanctions.

A multi-faceted approach is needed to improve animal welfare in the dairy industry, which may include the development of a National Dairy Industry Licensing Scheme to promote best practice.[19] In addition, establishing nationally recognised dairy industry assurance schemes would give ethical consumers a genuine choice to purchase higher welfare dairy produce, and in turn, incentivise producers to improve on-farm practices.

As with the existing regulatory framework, it is only through regular and independent monitoring and enforcement that we can expect to achieve positive welfare outcomes. Accordingly, we advocate for the establishment of an Independent Office of Animal Welfare to provide advice on animal welfare matters and, importantly, to enable regular government and independent veterinary inspection of dairy farms to ensure compliance with minimum welfare standards.[20]

It is time to break the silence on the treatment of the modern dairy cow and her calf. A greater insight into their suffering will promote a wide-ranging and informed public debate about what sort of dairy industry the people of Australia want and how we can achieve it.

12 See Chapter 2.2: Bobby Calves.

13 Primary Industries Ministerial Council (PIMC) (2011), 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement' (1.0 ed) at 3. At the time of publishing the dairy industry claims that this figure is substantially lower as a result of a greater number of dairy heifers being sent for export, the use of semen sexing, and an increase in the number of dairy calves being slaughtered on farm (and therefore, the precise number can not be ascertained), among other things.

14 Victorian Department of Environment and Primary Industries (2008), 'Humane Destruction of Non-Viable Calves Less Than 24 Hours Old'.

15 Refer to Chapter 2.2: Bobby Calves.

16 Stanley, 'Milk Is Now Cheaper Than Water. Dairy Farmers Deserve Better', *The Guardian*, 17 December 2013.

17 Jopson, 'Milk Prices Tumble, and Dairy Farmers Prepare to Walk', *Sydney Morning Herald*, 29 January 2011.

18 Little, 'Feeding Systems Used by Australian Dairy Farmers' (Dairy Australia, 2010) at 2.

19 See Chapter 6.2: The Need for Reform.

20 Ibid.

1. Background

1.1 INTRODUCTION

The first dairy cows arrived in Australia with the First Fleet in 1788. The seven cows and two bulls, like many of the early convicts, escaped soon after landing. After six years in the wild, the original nine had increased to a herd of 61.[21]

Today, the Australian dairy producing herd is made up of 1.65 million domesticated cows[22] and dairy is viewed as an integral component of Australian agriculture. Indeed, the significance of the dairy farm and the dairy cow have entered our consciousness through literature, art and more recently, marketing.

Marketing of dairy has been phenomenally successful. So much so that it seems to many that:

- Dairy is essential for good health;
- Cows need to be milked for their health and comfort;
- Dairy is essentially a 'non-harm' industry; and
- Dairy farmers struggle for a living and deserve public support.

Certainly this last point is true and we at Voiceless do not lightly present a report that may be to the detriment of dairy farmers. In our view, however, the almost universal and unquestioned belief in the first three of the above points has enabled the Australian dairy industry to avoid much of the scrutiny that has been levelled against other animal industries. In short, they have flown under the radar.

The purpose of this Report is to reveal what is happening to dairy cows and calves and to break the silence about certain industry practices, no matter how unpalatable they may be.

In this regard, we have taken the position that all animals have intrinsic worth and that their own interests are legitimate subjects of moral concern.[23] In particular, we are guided by scientific research on animal sentience.

This position of concern for the welfare of the animal is no longer a fringe issue. A growing number of consumers are asking important questions about how their food is produced, how animals are treated in this process and about their quality of life. This is especially important now given the push towards mega-dairies: with larger herd sizes, lack of pasture and higher milk yield.

This Report provides a platform for consumers to educate themselves about standard animal husbandry practices within the Australian dairy industry and help them make informed purchasing decisons. This approach will, in time, create a flow on effect for industry and government.

SENTIENCE AND THE DAIRY COW

Sentience is the ability of a living being to perceive and feel things.[24] Beings – human or animal – are sentient if they are capable of being aware of their surroundings, their relationship with other animals and humans and of sensations in their own bodies, including pain, hunger, heat or cold.[25] A sentient animal is one who has interests, who prefers, desires or wants different things.[26]

While most people now understand that animals feel pain, some find it more difficult to consider that animals are emotional beings who also seek pleasurable experiences. And again, there are people who can envisage these characteristics in their dog or cat, but who struggle to extend their empathy to farm or food animals who are often seen to be less intellectually and emotionally complex.[27]

Recent research has provided evidence which shows that this is not the case.

Excitement at solving a problem

For instance, a study by Cambridge University Professor Donald Broom and his team suggested that cows become excited when they solved a problem involving a food reward.[28] Cows who made clear improvements in learning reacted emotionally:

21 Dairy Australia (2014), 'Discover Dairy: Dairy Farming in Australia'.
22 Dairy Australia (2013), 'Australian Dairy Industry in Focus 2013'.
23 See, for example, Regan, *Empty Cages: Facing the Challenge of Animal Rights* (Rowman & Littlefield Publishers, 2005).
24 Mellor and Diesch (2006) at 48; Webster (2006) at 1-3.
25 Turner, 'Stop-Look-Listen: Recognising the Sentience of Farm Animals' (Compassion in World Farming Trust, 2006) at 6.
26 Francione (2012), 'Animal Rights: The Abolitionist Approach'.
27 For a discussion on human perceptions towards companion and non-companion animals, see: Joy, *Why We Love Dogs, Eat Pigs and Wear Cows. An Introduction to Carnism* (San Francisco: Conari Press, 2010) at Ch.2.
28 Hagen and Broom (2004) at 203 - 13.

their heart rates increased and they were more likely to jump, buck and kick when they went down towards the food.[29]

Cows like to be called by their names

At Newcastle University in the UK, researchers designed a study to see whether differences in the way cows feel around humans have an effect on their welfare, behaviour and milk production. The researchers found there was a statistically significant 3.5% increase, or 258 litre increase, in milk yield where cows were called by their names.[30] The survey also demonstrated that where cows were visited more often during rearing, they too had significantly higher milk yields.[31]

Cows are social animals

Working on her doctoral thesis at The University of Northhampton in the UK, Krista McLennan has demonstrated that cows form close personal relationships with other cows. McLennan monitored behaviour to determine the impact of short term isolation. Her research shows when heifers[32] are with their preferred partner, their heart rate remains lower and they are less agitated compared to times spent with a random individual.[33]

During long term separation (two weeks) from preferred partners, cows showed significant behavioural, physiological and milk production changes. These responses subsided, however, on reunion with their preferred partner.[34]

This is consistent with observations that cows and calves will form close friendships, develop dislikes for certain individual cows, bear grudges, and display inquisitiveness such as sniffing the exhaust from cars.[35]

These studies and observations demonstrate the complexity and depth of cow sentience. The science tells us that cows seek positive experiences and seek to avoid negative ones and this should, invariably, be taken into consideration when assessing their welfare.

WHAT IS WELFARE AND HOW DO WE JUDGE IT?

Typically, animal farmers, vets and those concerned with an animal's productivity tend to favour the animal's performance as an indicator of good health and welfare. While a decline in an animal's ability to function (e.g. to produce milk) can be a result of poor welfare, the healthy functioning of an animal alone does not indicate good welfare.[36]

As such, most animal welfare scientists will employ a variety of measures to assess the welfare of animals.

The World Organisation for Animal Health (OIE) defines good welfare as:

> *"Animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter/ killing. Animal welfare refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry, and humane treatment."*[37]

Nearly all discussions on the definition of 'animal welfare' will consider the Five Freedoms and Provisions developed by Dr John Webster and subsequently adopted by the UK Farm Animal Welfare Council, Dairy Australia (the industry representative) and many other bodies. These Five Freedoms are:

1. Freedom from hunger and thirst;
2. Freedom from discomfort;
3. Freedom from pain, injury or disease;
4. Freedom to express normal[38] behaviour;
5. Freedom from fear and distress.[39]

29 Ibid, at 211.

30 Bertenshaw and Rowlinson (2009) at 59-69.

31 Scientist Live (2014), 'Happy Cows Produce More Milk'.

32 A heifer is defined as a young female cow over the age of one, who has never calved or has given birth only once.

33 McLennan, 'Social Bonds in Dairy Cattle: The Effect of Dynamic Group Systems on Welfare and Productivity', Doctoral (The University of Northampton, 2013).

34 Ibid.

35 Young, *The Secret Life of Cows: Animal Sentience at Work* (UK: Farming Books and Videos Ltd, 2005).

36 Fraser et al. (1997) at 191 and 196-199.

37 Terrestrial Animal Health Code, Article 7.1.1.

38 We note that the freedom to express 'normal' behaviour is distinct from 'natural' behaviour, and relates more to the provision of sufficient space, proper facilities and company of the animal's own kind. This is distinct from, but not necessarily inconsistent with, enabling the animal to live out a 'natural' life.

39 Farm Animal Welfare Council (FAWC) (2014), 'Five Freedoms'.

For this Report, we will seek to highlight some of the key welfare concerns in the dairy industry using the following welfare questions developed by Von Keyserlingk et al, which are generally consistent with both the Five Freedoms and the OIE definition of good animal welfare:

1. Is the animal functioning well?
   This addresses issues such as disease, injury, growth rate and reproductive function.
2. Is the animal feeling well?
   This question covers both physical and emotional states, such as the animal's experience of pain, hunger or cold as well as fear, stress and grief. It also includes the experience of positive emotions like pleasure.
3. Is the animal able to live a relatively natural life and express natural behaviour?
   This question deals with whether the animal is able to perform and express natural behaviours throughout their life, such as grazing.[40]

WHAT ARE THE WELFARE ISSUES FOR DAIRY PRODUCTION?

Many of the welfare issues examined in this Report can be attributed to the fact that the dairy cow has been genetically selected to produce such a huge volume of milk that her health and wellbeing are subsequently compromised.[41] Through selective breeding, nutrition and farm management, the modern dairy cow has been bred to maximise udder size and milk production. She now produces more than twice as much milk as a typical dairy cow produced 50 years ago.[42]

The process of lactation is hard work,[43] yet dairy cows can be expected to produce milk at a high rate for ten full months of the year.[44] Dr John Webster describes the modern dairy cow as the apotheosis of the overworked mother and pinpoints the single source of her woes: "Most of the welfare problems (the 'production diseases') of the dairy cow arise from the fact she has to work so hard for so long."[45]

These stressors have serious, sometimes disastrous, consequences for the individual cow. High milk production quickly depletes minerals and nutrients, and it is not uncommon for cows to be undernourished and metabolically stressed due to inadequate feed, or an inability to digest the feed.[46] This makes the dairy cow more susceptible to both viral and bacterial conditions, such as lameness and mastitis.[47]

It is no wonder that while the average lifespan of a wild bovine is around 20 years, commercial dairy cows are generally sent to slaughter before they reach their seventh or eighth year, worn out and no longer producing enough milk to justify the cost of their feed.[48]

"Most of the welfare problems (the 'production diseases') of the dairy cow arise from the fact she has to work so hard for so long."[49]

MILK MYTHS

For decades, peak nutrition bodies and government guidelines have endorsed the idea that the consumption of dairy products is essential for good health and that dairy should be the main source of calcium in the diet.[50]

Australians have clearly taken this advice, and responded positively to the clever marketing of dairy products. On average, we now consume around 107 litres of milk, 14kg of cheese and 4kg of butter per person per year, with the rate of consumption increasing annually.[51]

It must be asked: are the huge amounts of dairy we consume necessary for good health and calcium?

40 Von Keyserlingk et al (2009).

41 Webster, *Animal Welfare: Limping Towards Eden* (Oxford, UK: Blackwell Publishing Ltd, 2005) at 132.

42 Statistics from ABARES identifies over a twofold increase in milk yield per cow since 1968. This summation is based on 2,430 litres per cow in 1968 and 5,389 litres per cow in 2013. See ABARES, 'Agricultural Commodity Statistics 2013' at 58. According to Dairy Australia, the average annual milk production per cow in 2012/13 was 5,525 litres, compared to 2,848 litres in 1979/80. This marks an almost twofold increase in milk production per cow over the last 30 years. See, Dairy Australia (2013), 'Australian Dairy Industry in Focus 2013' at 7.

43 Webster, *Animal Welfare: Limping Towards Eden* at 132.

44 See, for example, Victorian Department of Environment and Primary Industries (2014), 'How Long Will Cows Milk?'.

45 Webster, *Animal Welfare: Limping Towards Eden* at 134.

46 Phillips, *Cattle Behaviour and Welfare* (2nd ed; Malden, USA: Blackwell Science, 2002) at 10.

47 Webster, *Animal Welfare: Limping Towards Eden* at 132.

48 Advice from Emeritus Professor John Webster (PhD).

49 Webster, *Animal Welfare: Limping Towards Eden* at 134.

50 Nutrition Australia (2014), 'The Healthy Living Pyramid'.

51 ABARES, 'Agricultural Commodity Statistics 2013' at 63.

The advice from the Dieticians Association of Australia (DAA), the peak body for dietetic and nutrition professionals, is to consume 2.5-4 serves of dairy foods a day. In the section, 'How can I get more calcium in my diet?' the first seven suggestions involve dairy products. Alternatives such as soy milk are listed for those 'who don't like dairy foods or are lactose intolerant'.[52] It is worthwhile noting that the DAA is sponsored by some of Australia's largest multinational dairy suppliers. DAA's 'Major' and 'Associate' partners include Jalna, Nestle and Unilever as well as peak national dairy industry body, Dairy Australia.[53]

The rhetoric surrounding mandatory dairy consumption is changing in Australia. For the first time in 2013, the Federal Government's National Health and Medical Research Council (NHMRC) included alternatives to dairy, such as soy, almond, rice and oat milk fortified with calcium.[54] Specifically, the Australian Dietary Guidelines, issued by the NHMRC, structures the government's recommendations on types and amounts of food Australians should consume. The guidelines recommend we eat a wide variety of nutritious foods from five groups including 2-4 serves of "milk, yoghurt, cheese and/or **their alternatives**" (our emphasis).[55]

There is no doubt that calcium is important for human health, but in light of the immense suffering experienced by dairy cows and calves as outlined in this Report, now is the time for us to reconsider the huge quantities we consume each year and the potential for other non-dairy sources of calcium to fulfil our dietary needs.

THE IMPORTANCE OF WELFARE

At the heart of this Report is the dairy cow and our concern for her and her calf's welfare. The welfare questions outlined in this chapter (is she feeling well, behaving naturally and functioning well) are applied throughout this Report, and go some way to highlight those key welfare issues that are worthy of our attention and debate. Instead of dairy cows and their calves being viewed as units of production, Voiceless wants to bring their welfare to the fore and ask: how could they fare better?

52 Dietitians Association of Australia (2014), 'How Can I Get More Calcium in My Diet?'.

53 Dietitians Association of Australia (2014), 'Advertising & Corporate Partners'.

54 National Health and Medical Research Council (NHMRC) (2013), 'Eat for Health: Australian Dietary Guidelines', at 56.

55 NHMRC (2013), 'Australian Dietary Guidelines Summary', at 12.

1.2 A SNAPSHOT OF THE AUSTRALIAN DAIRY INDUSTRY

The dairy industry is Australia's third largest agricultural sector with a combined farm, manufacturing and export value of $13 billion in 2013.[56]

Production is focused in eight main dairy regions, most of which are located in the south east of Australia with Victoria alone accounting for approximately 66% of Australia's milk production.[57] See *Map 1: Dairy Farming Areas.*

The national producing herd, which comprises some 1.65 million dairy cows,[58] was expected to produce between 9.1 and 9.2 billion litres of milk in 2013/14, with industry projections for 2014/15 reaching as high as 9.4 billion litres.[59]

Australian milk production has increased dramatically since the 1980s.[60] During this period in Victoria, milk production more than doubled, while individual cow numbers remained constant and effective grazing area reduced by 35%.[61]

In the same time period, the average national herd size jumped from 85 to 220 cows per farm, with an increasing number of farms milking over 1,000 cows.[62] This shows that there are fewer dairy cows in Australia, but that farm herd sizes have increased.

Essentially, **Australian dairy farms are producing more milk using fewer cows and less space than ever before.**

The Australian dairy industry is largely pasture-based, meaning cows are left to graze, however, it is now common for farmers to provide supplementary feeding with grains.[63] As of 2010, it was estimated that around 2% of Australian dairy farms were zero-grazing systems (termed total mixed ration systems by industry), permitting cows to be permanently confined indoors.[64] For more information, see *Fact Box 1: Total mixed ration dairies.*

Producers supply milk and milk products both nationally and internationally, with Australia's domestic market consuming 60% of all milk produced.[65] The remainder is exported to overseas markets, mostly to Asia, which purchases 74% of all Australian exported milk products. Australia is the fourth largest exporter of dairy products in the world, accounting for 7% of the global export market, behind the EU, New Zealand and the US.[66]

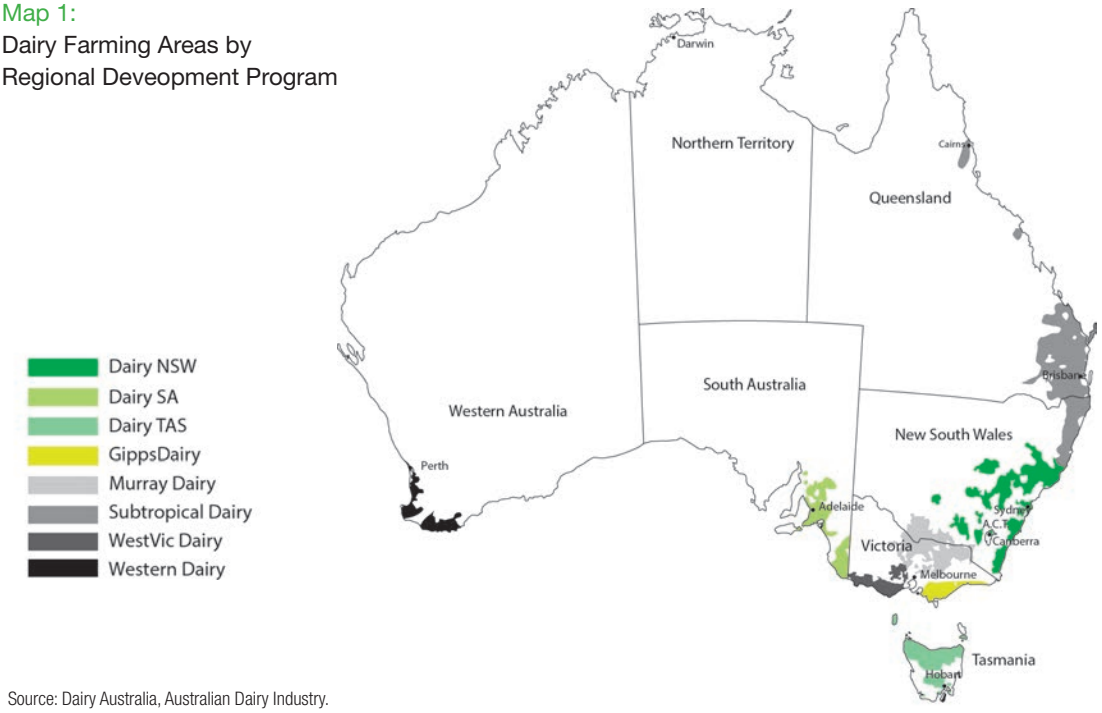
A SHORT, PRODUCTION-DRIVEN LIFE

The average natural lifespan of a beef cow at good pasture, is around 20 years.[67] Most cows used for dairy production, however, will never reach this age. See *Figure 1: Productive Lifecycle.* The harsh reality of commercial dairying in Australia is that these cows are generally slaughtered before their seventh or eighth year.[68] The main reasons for early slaughter are infertility, lameness and mastitis – diseases that are directly linked to the stresses of high production.[69]

During their short lives, a dairy heifer is typically artificially impregnated for the first time at between 15 and 18 months old. After a nine month gestation, she will begin producing milk after giving birth. For dairy farms maintaining a seasonal calving pattern with cows calving every 12 months, a cow will generally be reimpregnated two to three months after giving birth, meaning she will only have up to a 13 month reprieve between the birth of her calves.[70]

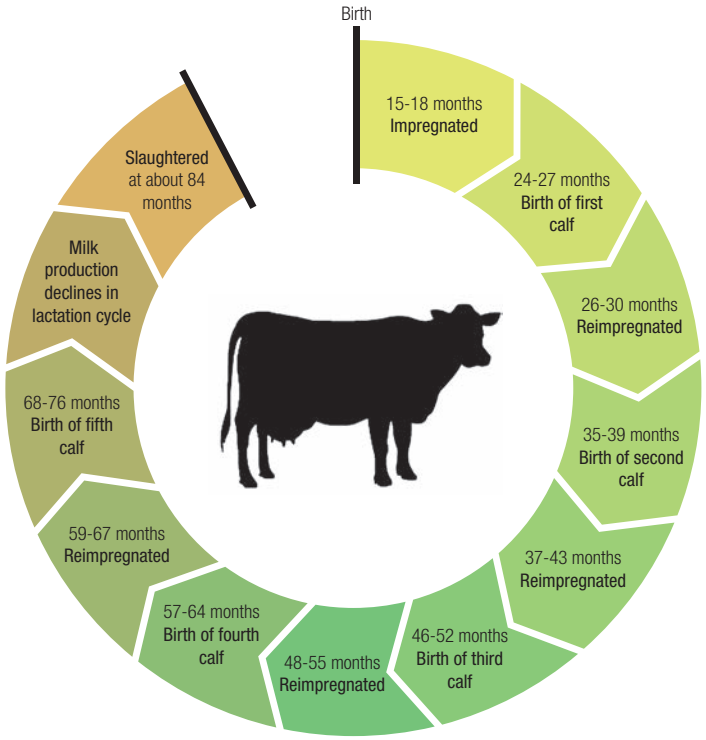
56 Dairy Australia (2013), 'Australian Dairy Industry in Focus 2013' at ii.
57 Victorian Department of Environment and Primary Industries (2013), 'Dairy Industry Profile'.
58 Dairy Australia (2013), 'Australian Dairy Industry in Focus 2013'.
59 Dairy Australia (2014), 'Dairy Situation and Outlook: May 2014 Update'.
60 PricewaterhouseCoopers (2011) at 8.
61 Victorian Department of Environment and Primary Industries (2014), 'Innovation Doubles Milk Production: A Review of Pre-Farm Gate RD&E's Contribution 1980-2010'.
62 PricewaterhouseCoopers (2011), at 6 and 10.
63 Dairy Australia (2014), 'The Australian Dairy Industry'.
64 Little (2010), 'Feeding Systems Used by Australian Dairy Farmers' at 2.
65 Dairy Australia (2013), 'Dairy at a Glance'.
66 Dairy Australia (2013), 'Australian Dairy Industry in Focus 2013' at 22.
67 Advice from Emeritus Professor John Webster (PhD); "The average life-span in intensive dairy systems (about five years) is a fraction of the potential of 20 to 25 years, because of the metabolic strain": see Phillips, *Cattle Behaviour and Welfare* (Second ed; Malden, USA: Blackwell Science, 2002) at 5.
68 Goddard and Madgwick (1989), at 2624–2632.
69 Advice from Emeritus Professor John Webster (PhD).
70 House (2011), 'A Guide to Dairy Herd Management' (2011) at 3.

Map 1:
Dairy Farming Areas by
Regional Deveopment Program



Source: Dairy Australia, Australian Dairy Industry.

Figure 1:
Productive lifecycle of
the modern dairy cow



FACT BOX 1

Total mixed ration dairies

Dairy cows are grazing animals who naturally spend their lives on pasture where they can graze, forage and express their natural behaviours. Today, dairy cows who have been bred to produce huge volumes of milk may not be able to meet the extreme nutritional demands required to maximise milk production with pasture alone.[71]

For this reason, some cows are fed 'mixed ration' diets, a high-energy blend of feedstuffs. Mixed ration can be offered as a 'partial' supplement to cows who are kept on pasture or can make up a cow's whole diet, known as a 'total mixed ration' (TMR) system.

TMR dairy farms present a number of welfare issues for dairy cows. It's common for cows who are consuming large amounts of high energy feed to develop digestive issues like acidosis, which can cause anorexia and diarrhoea in cows and can lead to death if untreated.[72] TMR systems also make grazing redundant, permitting dairy cows to be confined indoors for their whole lives. This increases the incidence of mastitis, restricts space allowance and can frustrate a cow's natural behaviours.[73]

The Australian animal protection framework does not protect dairy cows or their calves from being permanently confined indoors,[74] and while there are only a handful of TMR dairies in Australia,[75] this type of intensive dairy farming should not be permitted to expand. This trend towards TMR is highly concerning, as it will potentially give rise to factory farm style mega-dairies, as seen in the US.

71 Charlton et al (2011) at 3875.

72 Reference Advisory Group on Fermentative Acidosis of Ruminants (RAGFAR), 'Ruminal Acidosis - Understandings, Prevention and Treatment: A Review for Veterinarians and Nutritional Professionals', (Australian Veterinary Association, 2007) at 4 and 5.

73 Charlton et al. (2011) at 3875.

74 See for example, Model Code of Practice for the Welfare of Animals - Cattle (2nd ed) 2004 (Cattle Code) at [2.1.2] which refers to housed cattle. Importantly, neither the Cattle Code, the Draft Australian Animal Welfare Standards and Guidelines for Cattle (Version 1) (Draft Cattle Standards & Guidelines), nor state-based law prohibits the permanent confinement of dairy cows.

75 Little (2010), 'Feeding Systems Used by Australian Dairy Farmers' at 2.

A mother cow will continue to lactate and be milked during her next pregnancy until approximately 50-60 days before giving birth. This period is known as a 'dry off' or a cease milking period, and it allows for udder recovery, the treatment of mammary infections and preparation for birth.[76]

Our concern from an animal welfare perspective is clear: repeated pregnancies and increased production dramatically increases the risk of the dairy cow suffering debilitating disease (particularly as most health and welfare problems occur in early lactation),[77] and potentially, early slaughter.[78]

The life of a typical dairy cow is shown in *Figure 1: Productive lifecycle of the modern dairy cow.*

76 Ibid.

77 Webster, Animal Welfare: Limping Towards Eden (Oxford, UK: Blackwell Publishing Ltd) at 134.

78 See also Chapter 4.1: Lameness and Chapter 4.2: Mastitis.

1.3 REGULATING THE WELFARE OF DAIRY COWS

The welfare of dairy cows is legislated by state and territory governments,[79] with each enacting their own separate animal cruelty legislation[80] and associated regulations.[81] State and territory cruelty laws are generally focused on preventing gross acts of animal cruelty or neglect,[82] while also providing certain minimum safeguards, such as requiring farmers to provide animals with adequate food and water.[83]

Animal cruelty laws are presently complemented by the *Model Code of Practice for the Welfare of Animals – Cattle* (2nd ed) 2004 (Cattle Code), which sets out minimum welfare standards for the treatment of cattle in Australian agriculture, including dairy cows and their calves.

Critically, the Cattle Code only has legal force and effect once its provisions are incorporated, either partially or wholly, into relevant state and territory laws. Otherwise compliance is largely voluntary.

All Australian jurisdictions have adopted the Cattle Code, with the exception of Victoria which has its own *Code of Accepted Farming Practice for the Welfare of Cattle* 2001 (Victorian Cattle Code).

State and territory governments have generally incorporated the Cattle Code into their state and territory laws so that:

- compliance with the Cattle Code can be relied upon as a defence to a charge of animal cruelty;[84] or
- compliance or non-compliance with the Cattle Code can be presented as evidence to show that an individual has complied or not complied with the animal cruelty legislation.[85]

South Australia is the only jurisdiction to have made compliance with the Cattle Code mandatory.[86] Compliance with the Victorian Cattle Code is also a defence under the Victorian legislation.[87] See Appendix 2 of this Report for further details on how the relevant industry codes operate in each jurisdiction.

CURRENT LEGAL REFORMS

The Cattle Code is expected to be replaced by the *Draft Australian Animal Welfare Standards and Guidelines for Cattle* (Version 1) (Draft Cattle Standards & Guidelines), which at the time of publishing this Report, is in its final stages of review.[88]

The Draft Cattle Standards & Guidelines are to contain mandatory 'Standards', which are intended to be enacted nationally either in Regulation or by adoption under the relevant state and territory animal cruelty laws. They will also contain non-mandatory 'Guidelines'.

79 The Commonwealth Constitution does not give the Commonwealth Government express powers to legislate for animal welfare. The Constitution does, however, provide the Commonwealth Government with several indirect powers to regulate on animals, including the trade and commerce power in s 51 (i), quarantine power in s 51 (ix), fisheries power in s 51 (x) and external affairs powers in s 51 (xx). As a result, the Commonwealth Government regulates with respect to animals in international trade, treaties that involve animals, the export and import of animals, biosecurity and customs relating to animals, the management of pest or feral animals or invasive species, and animals for meat exports.

80 Animal Welfare Act 1992 (ACT); Prevention of Cruelty to Animals Act 1979 (NSW); Animal Welfare Act 1999 (NT); Animal Care and Protection Act 2001 (QLD); Animal Welfare Act 1985 (SA); Animal Welfare Act 1993 (TAS); Prevention of Cruelty to Animals Act 1986 (VIC); and Animal Welfare Act 2002 (WA).

81 Animal Welfare Regulation 2001 (ACT); Prevention of Cruelty to Animals Regulation 2012 (NSW); Animal Welfare Regulation 1999 (NT); Animal Care and Protection Regulation 2012 (QLD); Animal Welfare Regulation 2012 (SA); Animal Welfare (General) Regulations 2013 (TAS); Prevention of Cruelty to Animals Regulation 2008 (VIC); and Animal (General) Welfare Regulation 2003 (WA).

82 For example, s 5 of the Prevention of Cruelty to Animals Act 1979 (NSW) makes it an offence, among other things, if a person commits an act of cruelty upon an animal, or fails to exercise reasonable care to prevent an act of cruelty.

83 For example, s 8(1) of the Prevention of Cruelty to Animals Act 1979 (NSW) states: "A person in charge of an animal shall not fail to provide the animal with food, drink or shelter, or any of them, which, in each case, is proper and sufficient and which it is reasonably practicable in the circumstances for the person to provide".

84 See, for example, ss 40(1) and (2), Animal Care and Protection Act 2001 (QLD); s 25, Animal Welfare Act 2002 (WA); s 43, Animal Welfare Act 1985 (SA).

85 See, for example, s 34A, Prevention of Cruelty to Animals Act 1979 (NSW) and s 16, Animal Care and Protection Act 2001 (QLD).

86 Ss 43 and 44(3), Animal Welfare Act 1985 (SA); Reg 5, Animal Welfare Regulation 2012 (SA); Schedule 2, Animal Welfare Regulation 2012 (SA).

87 S 6(1)(c), Prevention of Cruelty to Animals Act 1986 (VIC).

88 At the time of publishing, the Animal Welfare Task Group (AWTG) was seeking the state and territory governments' position on the Draft Cattle Standards & Guidelines to resolve any outstanding issues. It was then proposed that in mid-September 2014 the AWTG would present the final standards and guidelines to the Agriculture Senior Officials Committee and then to the Agriculture Ministers for endorsement. If Ministerial endorsement is received the Draft Cattle Standards & Guidelines would then be used by states and territories as a basis for relevant animal welfare law: Australian Animal Welfare Standards and Guidelines (2014), 'Cattle'.

FACT BOX 2

Welfare words: When is it *reasonable* to strike, punch or kick a cow?

The Draft Cattle Standards & Guidelines is in its final stage of review, and will replace the existing Cattle Code to regulate the treatment of animals on dairy farms. For the reasons set out in this Report, Voiceless considers the Draft Cattle Standards & Guidelines will do little to improve the welfare of dairy cows in Australia.

One of the more absurd provisions of the Draft Cattle Standards & Guidelines is contained in S5.2(3), which provides: "A person handling cattle must not … (3) strike, punch or kick, cattle in an *unreasonable* manner" (emphasis added).[89]

The question must be asked: "When is it *ever* reasonable to strike, punch or kick a cow?" Unsurprisingly, the Draft Cattle Standards & Guidelines do not prescribe the circumstances in which these acts of violence could be deemed "reasonable". This position is inconsistent with international standards for animal welfare[90] and is a clear example of how legal protections can be significantly undermined by the use of 'welfare words'.

89 This provisions is consistent with the SA5.7(v) of the Australian Animal Welfare Standards & Guidelines for the Land Transport of Livestock 2012 (edition one).

90 See Article 7.3.3(3) of the Terrestrial Animal Health Code, which provides: "Animal handlers are responsible for the humane handling and care of the animals, especially during loading and unloading …"

The Draft Cattle Standards & Guidelines contain a number of specific protections for dairy cows, such as requirements to inspect lactating cows daily, to minimise heat stress, and to resort to tail-docking only in the case of injury or disease. The Guidelines include recommendations such as a preference for milking techniques which minimise discomfort, constant access to water in hot weather and regular hoof inspections.[91]

VOICELESS'S CONCERNS WITH THE REGULATORY REGIME

A complete analysis of both the current and proposed legislative framework is beyond the scope of this Report. A critique of the key welfare issues we outline in this Report are, however, provided in the Chapters that follow and a summary of how each Australian jurisdiction regulates some of these issues is provided in Appendix 3 of this Report.

The following section provides a brief snapshot of some of Voiceless's general concerns with the legal protections provided for dairy cows, both under the current and proposed regulatory regimes, and highlights the need for legal reform in this area.

91 See S9, Draft Cattle Standards & Guidelines.

- **Welfare words:** Most jurisdictions prohibit 'unnecessary', 'unjustified' or 'unreasonable' acts of cruelty.[92] The corollary of this is that the law permits cruelty against farmed animals which can be deemed necessary, justified or reasonable.[93] The law does not provide any guidance on what these 'welfare words' mean, but in practice, they operate to permit a number of otherwise cruel husbandry practices. For dairy cows, a clear example of this is the premature on-farm slaughter of thousands of bobby calves per year, a practice which would undoubtedly be unacceptable if it was performed on animals outside a commercial context, such as domestic pets.

92 See, for example, s 5(3), Prevention of Cruelty to Animals Act 1979 (NSW); s 3(c) and 18(2), Animal Care and Protection Act 2001 (QLD); s 13(3)(a), Animal Welfare Act 1985 (SA); s 8(1), Animal Welfare Act 1993 (TAS); ss 9(1), Prevention of Cruelty to Animals Act 1986 (VIC); s 19(2)(e), Animal Welfare Act 2002 (WA); s 8(1), Animal Welfare Act 1992 (ACT); s 9(3)(a), Animal Welfare Act 1999 (NT).

93 See Sharman, 'Farm Animals and Welfare Law: An Unhappy Union', in White and Sankoff (ed.), *Animal Law in Australasia (Federation Press, 2009) at 51.*

- **Legalised cruelty:** A number of dairy industry practices that Voiceless deems cruel are permitted under the current Cattle Code, including tail docking, dehorning and disbudding, and calving induction.[94] Unfortunately, the Draft Cattle Standards & Guidelines will do little to improve this situation, permitting:
  - dehorning and disbudding of dairy calves under the age of six months old, without pain relief;
  - chemical (or caustic) disbudding of calves less than 14 days old;
  - the killing of one-day-old calves with a blow to the head with a blunt instrument; and
  - calving induction on the advice of a veterinarian, with no express prohibition on its use as a herd management tool or for non-therapeutic purposes.[95]

The Chapters that follow outline the cruelty involved in each of these practices, and yet they continue to be permitted under the current and proposed animal protection legal framework because they serve a commercial purpose. Refer to Appendix 1 of this Report for how the Cattle Code and the Draft Cattle Standards & Guidelines deal with some of our key welfare concerns in the dairy industry.

- **Overlooked welfare issues:** Both the Cattle Code and the Draft Cattle Standards & Guidelines either fail to, or inadequately deal with, a number of the key welfare concerns associated with the dairy industry. Dairy cows are permitted to be permanently housed indoors. As a result, a small but increasing number of wholly intensive dairy systems presently exist in Australia.[96] The provisions relating to the management and prevention of lameness[97] and mastitis[98] are not mandatory and, as a result, are unlikely to deliver positive welfare outcomes for dairy cows. Critically, there is no guidance around the early separation of mothers from their calves, or on the need for farmers to invest in initiatives to reduce the exorbitant number of bobby calves prematurely slaughtered in Australia each year as part of the dairy industry.[99] Each of these welfare concerns are detailed further in the Chapters that follow in this Report.
- **Unenforceability:** As previously noted, the Cattle Code is not mandatory in any Australian jurisdiction, with the exception of South Australia.[100] While the Draft Cattle Standards & Guidelines will contain mandatory 'Standards', most of the provisions relevant to dairy cows are expressed as mere 'Guidelines'. These Guidelines are voluntary, and accordingly, largely unenforceable. Further, many of the protections in the Cattle Code and the Draft Cattle Standards & Guidelines are couched in highly subjective 'welfare words', such as 'should', 'may' or 'reasonably', effectively rendering them legally unenforceable.[101]
- **Monitoring and enforcement:** Monitoring and enforcement of the regulatory framework is the responsibility of state and territory governments, and in most jurisdictions, the Royal Society for the Prevention of Cruelty to Animals (RSPCA). Enforcement efforts are

94 Refer to Appendix 1 of this Report for the relevant provisions of the Cattle Code.

95 Ibid. Note that the Australian Veterinary Association (AVA) supports dehorning only where analgesia is used, where appropriate, to minimise pain and stress. The AVA also opposes the use of topical caustic chemicals for the dehorning / disbudding of cattle: AVA (2014), '8.4 Dehorning of cattle' (31 October 2014).

96 Refer to Appendix 1 of this Report for the relevant provisions in the Cattle Code and Draft Cattle Standards & Guidelines. Note that it is estimated around 2% of dairy farms in Australia are total mixed ration (TMR) systems, where cows are given feed mix and do not require outdoor access to feed on pasture: Little, 'Feeding Systems Used by Australian Dairy Farmers' (Dairy Australia, 2010) at 2.

97 See, for example, [6] of the Cattle Code provides general recommendations on treating diseased or sick animals. In relation to lameness. [4.5] of the Cattle Code states: "cattle should be confined on concrete surfaces as briefly as possible"; and that "[g]ravel tracks to and from paddocks, sheds or dairies should be maintained adequately to avoid excessive hoof wear and consequent lameness". [6.4] of the Cattle Code also states: "lame animals should have their condition diagnosed and appropriate treatment provided. Where possible, movement of the animals should be limited". S3.3 of the Draft Cattle Standards & Guidelines contains a general requirement that "A person in charge must ensure appropriate treatment for sick, injured or diseased cattle at the first reasonable opportunity". G9.3 of the Draft Cattle Standards & Guidelines states: "A lameness management strategy should be implemented and should include practices for prevention, early detection and effective treatment". G9.4 also states: "Lameness assessment and/or hoof inspections should be conducted regularly and hoof trimming carried out when necessary". These provisions in the Cattle Code and the Draft Cattle Standards & Guidelines are non-mandatory.

98 See, for example, [6] of the Cattle Code provides general recommendations on treating diseased or sick animals. In relation to mastitis, [5.3.2] states: "[m]ilking technique must minimise the risks of discomfort or injury to the cow and the development and/or transmission of disease". S3.3 of the Draft Cattle Standards & Guidelines contains a general requirement that "A person in charge must ensure appropriate treatment for sick, injured or diseased cattle at the first reasonable opportunity". G9.5 of the Draft Cattle Standards & Guidelines provides a non-mandatory Guideline which states: "A mastitis management strategy should be implemented and should include practices for prevention, early detection and effective treatment".

99 For further information, see Chapter 2.1: Mother-Calf Separation and Chapter 2.2: Bobby Calves.

100 ss 43 and 44(3), Animal Welfare Act 1985 (SA); Reg 5, Animal Welfare Regulation 2012 (SA); Schedule 2, Animal Welfare Regulation 2012 (SA).

101 For example, [5.1.2] of the Cattle Code states: "Procedures and practices that cause pain should not be carried out if painless and practical methods of husbandry can be adopted to achieve the same result" (emphasis added). S1.1 of the Draft Cattle Standards & Guidelines states: "A person must take reasonable actions to ensure the welfare of cattle under their care" (emphasis added). There are numerous other examples from both the Cattle Code and the Draft Cattle Standards & Guidelines.

heavily dependent on industry self-auditing and reporting to ensure on-farm compliance. Industry auditing focuses principally on food safety and milk quality, as opposed to compliance with animal welfare standards.

Voiceless considers the current dependence on industry self-reporting of regulatory compliance to be severely inadequate. A lack of regular, independent monitoring of on-farm practices makes it nearly impossible to ensure that dairy farmers are engaging in good husbandry practice or complying with those minimum standards that do exist.[102]

CONCLUDING REMARKS

These factors undermine the ultimate purpose of the regulatory framework – to protect the welfare of dairy cows and their calves – and, in our view leaves them to suffer lives of institutionalised and legalised pain and suffering.

In addition to the many recommendations we outline in this Report, law reform is needed to ensure that dairy cows and their calves are treated with respect and compassion: to prohibit unnecessarily cruel practices, like dehorning, disbudding and calving induction; to require farmers to take active measures to prevent and appropriately manage the onset of disease, like lameness and mastitis, and to provide mothers and their calves with the ability to exhibit their natural behaviours.

There is an important distinction to be made between preventing acts of cruelty towards animals and ensuring their welfare. The animal cruelty legislative framework, in effect, operates to protect farmed animals from gross, intentional acts of cruelty or gross acts of neglect when they are detected. It is a sad reality that other considerations – such as the ability for animals to function well, to feel well, and to live out a natural life – are mostly unprotected by law, and are secondary to maintaining the commercial usefulness of these sentient beings.

Of course, Voiceless acknowledges that not all of the welfare issues we address in this Report – such as lameness and mastitis, or the management of unwanted bobby calves – can easily be 'regulated away' through tougher criminal sanctions. A multi-faceted approach may be needed to improve the current situation. This includes:

- Prohibiting unnecessarily cruel practices under the existing criminal law – like tail docking, dehorning and disbudding, killing day old calves by means of blunt force trauma, and the non-therapeutic use of calving induction.
- Implementing a license scheme, which could operate alongside industry Quality Assurance programs, to ensure farmers comply with best practice in animal welfare.
- Developing independent national dairy industry assurance schemes to provide consumers with a genuine choice and give industry a commercial incentive to invest in higher standards of animal welfare.
- Establishing an Independent Office of Animal Welfare to provide advice on animal welfare matters and, importantly, to enable regular and independent oversight of dairy farms to ensure compliance with welfare standards.

We discuss these options further in *Chapter 6.2: The Need for Reform* and hope these possible alternatives will facilitate discussion and debate amongst regulators, industry and the broader community.

102 Under the proposed Draft Cattle Standards & Guidelines, it is anticipated that peak industry bodies will work with jurisdictional governments in a "co-regulatory" environment to establish a primary role for industry Quality Assurance (QA) audit processes to monitor and enforce compliance with standards, with governments maintaining overview (audit) of industry QA systems and intervening directly in response to specific incidents of non-compliance with standards. For a general discussion on the co-regulation of the animal protection framework, see for example Goodfellow, 'Animal Welfare Law Enforcement: To Punish or Persuade?', in White, Black and Sankoff (ed), *Animal Law in Australasia* (2nd ed: Federation Press, 2013) at 183-207.

2. Mother and Calf

PHOTO: MOUNTAIN VIEW FARM

2.1 MOTHER–CALF SEPARATION

Like other mammals, a mother cow must give birth in order to produce milk. As a result, the separation of cow and calf shortly after birth is an integral yet distressing part of modern commercial dairying.

Most dairy calves are forcibly removed from their mothers shortly after birth,[103] causing clear distress to both mother and calf.

There is now an extensive body of research on maternal behaviour in cows that allows us an understanding of the issues surrounding birth and the harmful impact of separating calves before they are naturally weaned.

In our view, mother-calf separation is one of the most psychologically damaging aspects of dairy farming, though it remains largely unknown to the public and is notably absent in the 'feel good' marketing of most dairy products.

CALVING FOR MILK

In order for a heifer to begin producing milk, it is necessary for her to fall pregnant and give birth to a new calf. As milk production begins to fall quite rapidly after nine months, and two to three months is needed to prepare for the next parturition,[104] she will generally be forced to give birth to a calf every 13 months[105] to ensure that she continues producing a high volume of milk into the next year.[106]

There were about 1.65 million productive dairy cows in milk in the Australian herd in 2012/13.[107] With cows being continually artificially impregnated every 13 months, it is clear that a huge number of calves are born each year to keep the herd milking at a sufficiently high rate.

From the viewpoint of the farmer, and the industry more broadly, each calf is a necessary by-product of milk production. From the mother cow's point of view, however, the situation is very different.

PHOTO: JO-ANNE MCARTHUR / WE ANIMALS

103 See Chapter 2.2: Bobby Calves.

104 Independent advice from Professor Clive Phillips BSc, MA, PhD.

105 House (2011), 'A Guide to Dairy Herd Management' at 3-4.

106 This is for dairy farms that maintain a seasonal calving pattern with cows calving every 12 months. Refer to Chapter 1.2: A Snapshot of the Australian Dairy Industry at Figure 1: The productive life cycle of the dairy cow, for an overview of the typical productive life of the modern dairy cow.

107 Dairy Australia (2013), 'Dairy at a Glance'.

WHY SEPARATE?

Under natural conditions, calves will generally remain with their mothers until they are gradually weaned at around six to eight months.[108] The routine practice of separating a calf from his or her mother shortly after birth, however, is usually done to ensure the highest yield of milk is available for sale.[109]

There are differences of opinion as to how soon the separation should be done. In the past, calves would often be left with their mothers for the first 12 to 24 hours in order for them to consume the first milk: the colostrum.[110] Colostrum is essential for calves' health as it contains the antibodies necessary to give them immediate passive immunity to infection.[111]

A 'problem' arises, however, as the longer the cow and calf remain together, the stronger the bond between them.[112]

It is now common practice and recommended by the dairy industry to separate the mother from her calf within 12 hours of birth, then feed the mother's extracted colostrum to her calf from a bottle or bucket. The dairy industry presents this as a 'better' method, as it minimises the calf's exposure to possible harmful bacteria and viruses carried by their mother.[113]

Separation also seeks to address an additional problem: the possible inability of calves to suckle from their mothers. As the udder of the modern dairy cow is so pendulous, her teats are no longer positioned where the calf has been genetically programmed to find them.[114] While this issue may only affect a small proportion of calves, the reality is that **her udder may now be more suited to a milking machine than a newborn calf.**

DENIAL OF MATERNAL BEHAVIOUR

Cows are deeply maternal animals, and a review of the literature shows that they will engage in a number of diverse behaviours to ensure the growth and survival of their calves.[115] Separation denies cows the ability to express their natural, maternal behaviours.

The onset of maternal behaviour begins in the hours before birth when cows, if given the opportunity, isolate themselves to choose a nesting site in preparation for calving.[116]

In the first seven minutes after birth, if left alone, mothers lick their calves and then intensely groom them for the next 30 - 40 minutes.[117] This behaviour is strongly instinctive and satisfying for both mother and calf, and one which is considered essential in establishing their bond.[118] It is also a behaviour that is important in encouraging activity in the calf and which is likely to have other positive effects such as stimulating breathing, circulation, urination and defecation.[119]

Cows will vocalise immediately after the birth of their calves, with quiet grunting sounds used in combination with licking. The purpose of these 'contact' calls is not always clear, although it is suggested they may play a role in allowing the calf to recognise his or her mother's voice.[120]

"As little as five minutes of contact with a calf immediately after birth may be sufficient for the formation of a strong maternal bond."[121]

The early removal of her calf will deny the cow her natural expression of her maternal and nurturing instincts. While the calf must only suffer the stress of separation once, mother cows are forced to endure repeated pregnancies and separations.

PHOTO: MOUNTAIN VIEW FARM

108 Flower and Weary (2001) at 276.
109 Webster, *Animal Welfare: Limping Towards Eden* (Oxford, UK: Blackwell Publishing Ltd, 2005) at 146.
110 Flower and Weary (2001) at 276.
111 Compassion in World Farming (CIWF) (2013), 'Information Sheet 6: Dairy Cow-Calf Separation and Natural Weaning' at 2-3.
112 See, for example, Webster, *Animal Welfare: Limping Towards Eden* at 146; Von Keyserlingk and Weary (2007) at 111.
113 Dairy Australia, 'Managing Calf Welfare'.
114 Webster, *Animal Welfare: Limping Towards Eden* at 146.
115 Keyserlingk and Weary (2007) at 111.
116 Ibid, at 106, 107; Lidfors et al. (1994) at 11-28.
117 Keyserlingk and Weary (2007) at 107.
118 Ibid, at 106-13; CIWF (2013), 'Information Sheet 6: Dairy Cow-Calf Separation and Natural Weaning' at 2.
119 Metz and Metz (1986) at 325-333.
120 Keyserlingk and Weary (2007) at 109.
121 Flower and Weary (2001) at 276.

DISTRESS IN MOTHER COWS

Scientific evidence now tells us that dairy cows are affected by the separation process.

Some farmers will argue that immediately after birth certain cows show only a mild response to separation which may include low, soft calls with the mouth closed designed to help the calf locate his or her mother.[122] The cow may then return to feeding, which is taken to mean that separation is not stressful.[123] Research shows, however, that the onset of distress is often delayed and peaks between 12-24 hours after separation.[124]

Behavioural responses indicating stress include restlessness, sniffing, increased vocalisations and activities that would naturally serve to reunite the cow and calf upon separation.[125]

For days after their separation, a mother can bellow day and night in search of her calf, often returning to the place where the calf was last seen. There have even been instances of mothers escaping and travelling for miles to find their calves on other farms.[126]

Both behavioural and physiological distress responses become more intense with late separation and when mother cows are able to see and hear their calf. In addition to time spent together, experience also has a role to play, as cows who have given birth more than once will have a stronger response to separation.[127] Studies also show a mother cow's heart rate will increase when they hear a recording of a calf's call.[128]

There are many descriptions of this distress in the relevant literature. Jeffrey Masson described the experience of John Avizienius, senior scientific officer with the RSPCA Great Britain, who remembers one particular cow who was deeply affected by the separation from her calf:

"When the calf was first removed, she was in acute grief; she stood outside the pen where she had last seen her calf and bellowed for her offspring for hours. She would only move when forced to do so. Even after six weeks, the mother would gaze at the pen where she last saw her calf and sometimes wait momentarily outside the pen. It was almost as if her spirit had been broken and all she could do was to make token gestures to see if her calf would still be there."[129]

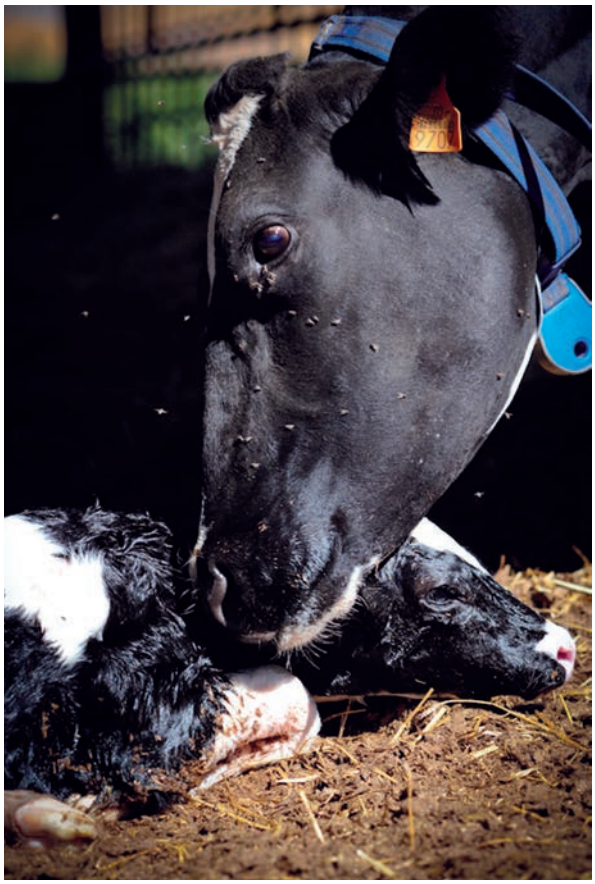


PHOTO: JO-ANNE MCARTHUR / WE ANIMALS

122 Hopster et al (1995) at 5; CIWF, 'Information Sheet 6: Dairy Cow-Calf Separation and Natural Weaning' at 2; Keyserlingk and Weary (2007) at 109.

123 Hopster, O'Connell and Blokhuis (1995) at 5-6.

124 CIWF, 'Information Sheet 6: Dairy Cow-Calf Separation and Natural Weaning' at 2.

125 Keyserlingk and Weary (2007) at 111; CIWF, 'Information Sheet 6: Dairy Cow-Calf Separation and Natural Weaning' at 2.

126 Joy, *Why We Love Dogs, Eat Pigs and Wear Cow*s. An Introduction to Carnism (San Francisco: Conari Press, 2010) at 61.

127 CIWF, 'Information Sheet 6: Dairy Cow-Calf Separation and Natural Weaning' at 2.

128 Marchant-Forde et al (2002) at 24.

129 Masson, *The Pig Who Sang to the Moon. The Emotional World of Farm Animals* (New York: Ballantine Books, 2003) at 140.

There are pro-welfare and pro-health benefits of natural weaning.

Allowing the mother cow to rear her young until natural weaning has been shown to improve her health (by reducing the risk of contracting diseases post-calving), improve her psychological well-being (by reducing separation distress) and, as discussed above, permitting her to express her natural maternal behaviours.[130]

DISTRESS IN CALVES

The natural behaviour of calves is to maintain a strong bond with their mothers, which can last well beyond the point of natural weaning.[131] As such, separation before natural weaning can also have a negative impact on calf welfare.

A 2014 study by Weary et al suggests that calves experience distress following maternal separation at approximately 24 hours after birth, showing signs of low mood and negativity following separation. The study revealed that calves are emotionally impacted by separation, drawing a link with the anxiety experienced by calves following the pain of hot iron disbudding.[132]

Initial signs of mild distress following early separation include increased heart rate and vocalisations. Separation at 24 hours of age can also impair their social development and weight gain compared to calves separated later.[133] While this is clearly problematic for calves that will go on to replace the existing milking herd,[134] it is suggestive of the harmful physical affect separation can have on calves.

The behaviourial responses of calves to separation increase, however, after a stronger maternal bond has formed, with one study showing calves displaying abnormal behaviours, including signs of movement, butting, urination and vocalisation and reduced grooming, lying and eating when separated at 72 hours.[135]

"When cows and their calves are separated, they spend a long time pacing the field boundaries in an attempt to re-unite, as well as standing and watching each other."[136]

Calves separated from their mothers will often suck each other (cross-sucking) and express other oral 'vices' such as fence sucking and pen licking, especially if they are isolated in individual pens.[137]

Allowing calves to remain with their mothers until natural weaning has been shown to improve their health (by reducing the risk of disease and diarrhoea), avoiding the distress of separation, and enabling the calf to exhibit their natural behaviours, like suckling.[138]

RECOMMENDATIONS

Alternatives currently exist to help reduce separation distress, as discussed in *Chapter 2.2: Bobby Calves.*

Ideally, dairy calves would be permitted to wean naturally, minimising distress and improving the emotional and physiological health to both mother and calf. While this may be considered untenable to the high volume commercial dairy industry, it is clear the trend towards mega-dairies is exacerbating this welfare issue, as higher production demands result in more pregnancies and more calves.

A national dairy industry assurance scheme could be beneficial in facilitating a move towards alternative business models that better deal with the distress of early separation. See *Chapter 6.2: The Need for Reform* for further information.

130 CIWF, 'Information Sheet 6: Dairy Cow-Calf Separation and Natural Weaning' at 2.

131 Ibid.

132 Weary et al (2014) at 1- 4.

133 Phillips, *Cattle Behaviour and Welfare* (Second ed; Malden, USA: Blackwell Science, 2002) at 31 and 33.

134 For more information on replacement and non-replacement (or bobby) calves, see Chapter 2.2: Bobby Calves.

135 Solano et al (2007) at 13. Note that this experiment looked at the benefit of providing fence-line contact between cow and calf during temporal separation.

136 Phillips, *Cattle Behaviour and Welfare* at 33.

137 Margerison et al (2003) at 278-284.

138 CIWF, 'Information Sheet 6: Dairy Cow-Calf Separation and Natural Weaning' at 3.

CONCLUDING REMARKS

We know that many mammals grieve the loss of their offspring and dairy cows are no different.[139]

Most Australians do not connect the dots: to provide milk, a dairy cow must give birth to a calf from whom she is then separated. The milk, which should be fed to her newborn, is instead taken away.

As discussed in this chapter, there is clear evidence of the maternal nature of cows. Through the routine practice of separation, these maternal instincts are continually frustrated and exploited for the benefit of high milk yield. The trend towards mega-dairies and greater milk yield will compound this issue. Separation has also been shown to have adverse physiological and emotional effects on not only the mother cow, but also her calf.

In this way, it is evident that in the separation of the cow from her calf, their ability to function well, feel well and to express their natural behaviours is severely impaired. Put simply, this practice fails the test for good animal welfare.

While the calf is only forced to suffer separation once, the current practices of the dairy industry force mother cows to repeatedly suffer in this way over the course of their short lives.

139 See, for example, Bekoff (2000) at 865-866.

2.2 BOBBY CALVES

Every year around 800,000 calves are slaughtered in Australia within the first week of their lives.[140] Labelled 'bobby calves' and treated as wastage by the dairy industry,[141] their suffering is a hidden and disturbing truth of modern dairy farming.

Once they are born, calves are divided into two categories: 'replacement' calves (heifers) who will eventually replace the worn out milking cows and 'non-replacement', unwanted bobby calves, who are destined for slaughter.[142]

Unwanted bobby calves are typically male (bull) calves, but the term can also include those female calves who are deemed unsuitable for herd replacement or milk production.

While many of these bobby calves are killed on-farm within hours of birth, the majority are separated from their mothers before they are one week old, given a last feed and then loaded onto trucks for potentially long distances to sale-yards and slaughterhouses.[143]

In order to keep milk production high, farmers continually impregnate mother cows. This is despite the possibility that they will give birth to calves that are unsuitable for use as milkers and will inevitably need to be slaughtered soon after birth. These bobby calves are in a very real sense, the 'waste products' of the dairy industry.

THE TRANSPORT OF BOBBY CALVES

Due to their low value,[144] unwanted bobby calves are often not afforded the same level of housing, cleanliness or care in handling as replacement heifers.[145]

Around 700,000 calves are transported live for commercial slaughter each year, sold for use in pet food, leather goods, the pharmaceutical industry or to be processed into pink veal for human consumption.[146] The remainder will be slaughtered on-farm at or soon after birth.[147]

In Australia, bobby calves can be transported at just five days of age.[148] Unlike other countries, Australia does not have a well-established industry to process bobby calves, so they are often required to travel long distances to slaughterhouses and sale-yards.[149]

Live animal transport can be a severely stressful process for animals.[150] This is particularly the case for young calves who have not yet had the time to develop adequate coping mechanisms to respond to the stresses of travel.[151]

PHOTO: DIANA SIMPSON

140 Primary Industries Ministerial Council (PIMC) (2011), 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement' (1.0 ed) at 3. At the time of publishing the dairy industry claims that this figure is substantially lower as a result of a greater number of dairy heifers being sent for export, the use of semen sexing, and an increase in the number of dairy calves being slaughtered on farm (and therefore, the precise number can not be ascertained), among other things.

141 "Bobby calves are a by-product of the dairy industry": see Gregory and Grandin, Animal Welfare and Meat Science (New York CABI Publishing, 1998) at 143.

142 See the RSPCA definition of bobby calf, which states *"A bobby calf is a bovine less than 2 weeks old that is not accompanied by its mother. In the dairy industry, bobby calves are the unwanted offspring of dairy cows and generally destined for slaughter rather than herd replacement or rearing for veal"*: RSPCA (2008), 'Welfare of Bobby Calves on Farm, Position Paper B2'. *The Australian Animal Welfare Standards and Guidelines - Land Transport of Livestock* (Version 1.1) 2012 (Transport Standards & Guidelines) defines bobby calves as "A calf not accompanied by its mother, less than 30 days old, weighting less than 80 kg live weight", at 105.

143 PIMC (2011), 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement' at 3.

144 "In April this year the *Warrnambool Standard* reported bobby calves being sold for as little as $12. Two weeks later in The Weekly Times prices were reported to be even lower at $10." See Humphreys, 'Call for Better Life for Dairy's Rejects', *The Age Victoria*, 13 October 2013. See also, PIMC (2011), 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement' at 5.

145 RSPCA (2013), 'What Happens to Bobby Calves?'.

146 35% of these calves are purchased by travelling calf buyers and the remainder are transported to local calf scales, mobile scales or saleyards by small trucks or trailers. See PIMC (2011), 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement' at 4. RSPCA (2013), 'What Happens to Bobby Calves?'; Humphreys, 'Call for Better Life for Dairy's Rejects'.

147 PIMC (2011), 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement' at 4.

148 Refer to Fact Box 3: How long can bobby calves be transported in Australia?

149 Cave et al (2004) at 82.

150 Trunkfield and Broom (1990) at 135.

151 RSPCA (2013), 'What Happens to Bobby Calves?'; PIMC, 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement', at 7.

FACT BOX 3

How long can bobby calves be transported for in Australia?

The *Australian Animal Welfare Standards and Guidelines - Land Transport of Livestock* (Version 1.1) 2012 (Transport Standards & Guidelines) permits the transportation of bobby calves less than five days old and bobby calves between five and 30 days old only if the journey time is less than six hours and 12 hours respectively.[152] This has been adopted in New South Wales, Victoria, South Australia and Queensland.

Tasmania permits the transportation of bobby calves for a maximum transport time of ten hours.[153] Western Australia permits the transportation of calves provided that they are given a rest period after 24 hours (for calves less than one month old, travelling with their mother) and 36 hours (for calves older than one month old). Further, calves less than one month old must be provided with food and water every 12 hours.[154]

As a comparison, in the European Union calves of less than 10 days old may only travel for a maximum of 100 km and a maximum of eight hours, and require once daily feeding.[155]

152 SB4.4 and SB4.5, Transport Standards & Guidelines.

153 [7.2], Animal Welfare Guidelines – Trade and Transport of Calves, Including Bobby Calves, Tasmania (2008).

154 [5.4.5] and [10.2-10.3], Code of Practice For the Transportation of Cattle in Western Australia (2003).

155 Welfare in Transport Regulation (EC) No 1/2005, which states calves less than 10 days old may only travel a max distance of 100km. The EU Directive 91/629/EEC requires feeding once a day.

Travel causes a number of welfare problems for bobby calves, preventing them from functioning well, feeling well and exhibiting their natural behaviours:

- Hunger and thirst
  Calves are inevitably hungry and thirsty during transport. The science shows that calves will naturally suckle from their mother around five times a day and will likely experience hunger about nine hours after their last feed.[156] Despite this, the dairy industry has committed to a voluntary standard which will allow milk to be withheld from calves for up to 30 hours.[157] Water can also be withheld from five day old calves for up to 18 hours,[158] despite potentially being subjected to high stocking densities and extreme heat en route.
- Exhaustion
  Cows and calves are unlikely to lie down in the first 15 hours of transport due to stress, which is unnatural for newborns.[159] They are also likely to suffer from sleep deprivation due to the stress of travel and restrictions on movement.[160]
- Bruising and injuries
  Bruising and injuries are frequently observed in animals following transport (particularly those travelling long distance) as a result of rough handling, increased aggression from mixing unfamiliar animals, poor vehicular design and vehicular movement.[161] As calves lack any learned herd behaviour, they are also less likely to move willingly in groups, meaning they're more likely to be handled roughly by stockpersons.[162]

156 Advice from Professor Clive Phillips BSc, MA, PhD.

157 "All industries involved in the bobby calf supply chain (that is dairy farmers, livestock agents, calf buyers and transporters and calf processors) have agreed to implement a national industry standard that sets a limit of 30 hours TOF for calves aged 5 to 30 days being transported without mothers." See, Australian Animal Welfare Standards and Guidelines (2014), 'Bobby Calf Time Off Feed Standard'.

158 SB4.1, Transport Standards & Guidelines.

159 Rumination, for example, is a marker of relaxation and is significantly decreased during transport. See, Trunkfield and Broom (1990) at 140. After a journey, cattle will lie down for longer than normal, suggesting that it is a high priority for them to maintain normal lying time. See, Phillips, Cattle Behaviour and Welfare (Second ed; Malden, USA: Blackwell Science, 2002) at 39-40.

160 Trunkfield and Broom (1990) at 140-41.

161 Ibid, at 139-40; De Witte (2009) at 150.

162 RSPCA (2013), 'What Happens to Bobby Calves?'; Grandin, (2000) at 5.

FACT BOX 4

30 hours 'Time off Feed'

The science used to support the position in the Transport Standard & Guidelines to allow the withholding of food for up to 30 hours was based largely on the *Fisher et al* study (Fisher Study).[163] It should be noted that the Transport Standards & Guidelines does not expressly specify the time off feed limit, due to a lack of consensus being reached during the consultation process, notably from the Queensland Government.[164]

This Fisher Study was argued to have inappropriate conclusions in an unpublished independent review conducted by Clive Philips and Jim Hogan of the University of Queensland's School of Veterinary Science, Centre for Animal Welfare and Ethics.[165]

Phillips and Hogan found, among other things, that the report ignored the calves' experience of hunger and tiredness during the study, undertook no measurements of cortisol or hormones connected with stress and did not use a control group of calves that were fully fed so that the effect of withdrawal from feed could be made. The recommendation that 30 hours off feed is acceptable was challenged by Phillips and Hogan, on the grounds that hunger would have been felt well before this time.

Further, the calves used in the experiment were fed five litres of milk prior to transport. This appears to be based on the assumption that it is possible to 'load up' calves with a large feed of milk and then starve them for up to 30 hours with little or no welfare consequences. This is an unnatural way for calves to feed and has potentially serious adverse physical implications for the calves.

Phillips and Hogan conclude that the calves experienced hunger for the majority of the study and probably tiredness as well. The evidence for these alleged adverse effects on welfare includes reduced blood glucose concentrations (and the associated increase in 3-hydroxy butyrate), increased creatinine kinase concentrations and lying times that were probably reduced.

163 Fisher et al. (2010).

164 Biosecurity Queensland raised concerns about deficiencies in the behavioural data and aspects of the conclusions in the paper by Fisher et al (unpublished) upon which many of the Decision Regulatory Impact Statement assumptions were based. See, Biosecurity Queensland (2011), 'Bobby Calf Time Off Feed Regulatory Impact Statement Submission'.

165 Phillips and Hogan, 'Independent Assessment of Dairy Australia Project No. Tig 124 "Determining a Suitable Time Off Feed for Bobby Calf Transport under Australian Conditions" by Andrew Fisher, Peter Mansell, Bronwyn Stevens, Melanie Conley, Ellen Jongman, Mariko Lauber & Sue Hides' (School of Veterinary Science; Centre for Animal Welfare: University of Queensland).

- Deaths en route
  While dairy cows and their calves generally do not suffer high mortality rates associated with transport, studies indicate that transported calves are more likely to die than those that remain on-farm,[166] and that this mortality increases exponentially with the distance travelled.[167] Using a study from 1998-2000, it is estimated that approximately 4,500 calves would die en route annually in the current industry, not including sick or injured calves that will die on arrival. [168]

- Illness
  Calves often succumb to post-transport respiratory and gastrointestinal infections.[169] Depending on the time of year and location, they may also suffer from either thirst, heat stress or hypothermia.[170]

166 Trunkfield and Broom (1990) at 137.

167 Cave et al (2004) at 83.

168 Ibid, at 82.

169 The extreme stress experienced during transport has the effect of an immunosuppressant. Consequently, there is a higher incidence of disease amongst transported calves. See Trunkfield and Broom (1990) at 139.

170 Young calves are highly susceptible to hypothermia. See [G4.1], Animal Welfare Guidelines – Trade and Transport of Calves, Including Bobby Calves 2008 (TAS); Phillips, *Cattle Behaviour and Welfare*, at 41.

ON-FARM SLAUGHTER – BLUNT FORCE TRAUMA

Calves who are not transported to farms, sale-yards or slaughterhouses are either sold for dairy or beef rearing or killed on-farm. It is estimated that over 65,740 calves are slaughtered on-farm each year, their carcasses either immediately disposed of or processed at local knackeries.[171] Discussions with industry indicate that this figure may be substantially higher.

Alarmingly, blunt force trauma is a routine and lawful method of slaughter for those bobby calves who remain on farms.[172] This involves the delivery of a forceful blow to the skull of a newborn calf with a hammer or blunt instrument. Farmers also have the option to shoot calves with a firearm or a captive bolt device,[173] but blunt force trauma is a cheap method of slaughter.[174]

The Victorian Department of Environment and Primary Industries (VDEPI) provides a number of options for the "humane destruction" of unwanted calves, including chemical methods, firearms (penetrating captive bolt or rifle) and the use of "external trauma" caused by a heavy blow to the crown of the head. See *Fact Box 5.*[175]

Manually applied blunt trauma has been found by veterinary experts to be a cruel, imprecise and inhumane method of slaughter that cannot and should not be justified on economic grounds. The American Veterinary Medical Association (AVMA) deems it an unacceptable method of euthanasia for calves because their skulls are too hard to achieve immediate unconsciousness or death. Furthermore, the method requires considerable skill to be successful on the first attempt and the degree of restraint required makes consistency near impossible.[176]

INDUSTRY RESPONSE

In recent years the issue of bobby calf welfare has come under close public scrutiny. In response, Dairy Australia has emphasised that the ethical management, transportation, handling and marketing of bobby calves is a priority for the Australian dairy industry, drawing attention to initiatives like their Calf Management Program.[177]

This industry response will do little to reduce the number of bobby calves slaughtered in Australia.

Unlike many other countries, Australia does not have a well-established industry for rearing surplus dairy calves for beef or veal production.[178] Despite this, it is estimated that the total value of the bobby calf trade is worth $40 million annually at the farm gate, with approximately $76 million for the transport, slaughter and processing chain.[179]

It is important to reiterate that bobby calves as individuals are of low monetary value which ultimately affects their treatment. The trade as a whole, however, is of significant economic importance to the dairy industry and stakeholders along the supply chain.

With so many farmers accustomed to supplementing their annual income with takings from the sale of unwanted bobby calves, it would be naïve to hope that an industry-driven solution to reducing the number of these bobby calves will be developed in the near future.

PHOTO: JO-ANNE MCARTHUR / WE ANIMALS

171 PIMC (2011), 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement' at 50-51.

172 The transport guidelines permit blunt trauma to be used on calves less than 24 hours old, where there is no other recommended option available and is followed by a second procedure to ensure death. See, SA6.5, GB4.17, GB4.19 Transport Standards & Guidelines. The Draft Cattle Standards & Guidelines allows for the use of blunt force trauma for calves less than 24 hours old: S11.5.

173 A captive bolt pistol is a device used for striking a shallow blow into the forehead of an animal usually for the purpose of stunning it prior to slaughter.

174 Animal Health Australia (2013), 'Proposed Australian Animal Welfare Standards and Guidelines - Cattle: Decision Regulation Impact Statement' (1 ed), at 36.

175 Ibid.

176 American Veterinary Medical Association (AVMA) (2013), 'AVMA Guidelines for the Euthanasia of Animals' at 56-57.

177 Dairy Australia (2010), 'Calf Management Across the Supply Chain' at 2.

178 Cave et al (2004) at 82.

179 PIMC (2011), 'Bobby Calves Time Off Feed Standard - Decision Regulation Impact Statement' at 5.

Blunt force trauma

According to the VDEPI, the use of external trauma is only suitable for immature or induced calves on the day of birth. The blow can be delivered to the same site as for shooting by a "short-handled 1.2 kilogram hammer with a striking face of approximately 4 x 4cm".

The VDEPI provides the following instructions for delivery of blunt force trauma to a calf's skull.

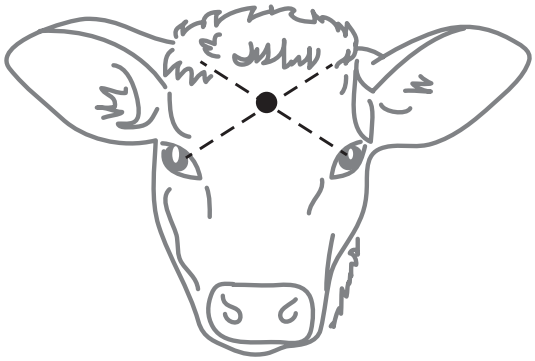


IMAGE: ARTISTS IMPRESSION OF INSTRUCTIONS

"Step 1: The target area is in the middle of the forehead, at the crossing point of two imaginary lines drawn from the middle of each eye to the opposite horn bud."

"Step 2: The aim should be initially at right angles to the skull and then tilted slightly to direct the shot through the lower brain and into the higher reaches of the neck."

Following the use of blunt force trauma, the VDEPI states that if the calf is showing signs of life, a calf resumes breathing or "blinks when a finger is placed on the eye", there is a danger that the calf could regain consciousness. According, the VDEPI recommends:

- if the calf is giving occasional gasps but is unconscious, he or she can be killed by compressing the chest wall with a fist while the calf is lying on its side;
- if the calf is unconscious, he or she can be "bled out" using a "neck stick" or "chest stick";
- the calf can be shot with a .22 calibre rifle; or
- the calf can be shot with a captive bolt, followed by bleeding out.

Source: Victorian Department of Environment and Primary Industies (2008), 'Humane Distruction of Non-viable Calvles Less Than 24 Hours old'.

PHOTO: DIANA SIMPSON

REGULATION OF BOBBY CALF WELFARE

Few legal protections exist to protect unwanted calves on-farm. The Cattle Code[180] states that calves less than one month old "should" not be deprived of access to food for more than 24 hours;[181] they "should" receive at least two litres of colostrum within the first six hours of birth,[182] and "should" be weaned only when their ruminant digestive systems have developed sufficiently to enable them to maintain growth and well-being.[183]

These requirements are largely unenforceable, with compliance left to the discretion of producers. We know, for example, that the bobby calf industry permits calves to go without food for up to 30 hours before slaughter.

Attempts have been made to improve welfare outcomes for transported calves with the introduction of the Transport Standards & Guidelines, which places responsibility for the welfare of bobby calves on all handlers along the supply chain – from farm to slaughterhouse.[184] As outlined above, however, the Transport Standards & Guidelines do little to protect these bobby calves from hunger, thirst, exhaustion, injuries, disease and mortality en route.

While stronger legal protections may bring small improvements to the lives of unwanted bobby calves, they will do little to address the fundamental problem that these animals are created only to be destroyed.

AN ALTERNATIVE BUSINESS MODEL

The following case studies look at two Australian dairy farmers who have unique systems in place to manage non-replacement calves.

180 Note, a distinct code operates in Victoria: Code of Accepted Farming Practice for the Welfare of Cattle.

181 [1.3.1], Cattle Code.

182 [3.6], Cattle Code.

183 [5.10.6], Cattle Code.

184 SA1.1, Transport Standards & Guidelines.

CASE STUDY 1

B.-d. Farm Paris Creek, Adelaide Hills[185]

B.-d. Farm Paris Creek, a biodynamic dairy farm in the Adelaide Hills allows all calves to stay with their mothers for the first few days after birth, ensuring they have access to their mothers' colostrum. According to B.-d. Farm Paris Creek:

> *"Our yards and small paddocks are set up for calves and mother cows, where calves stay with mother cows until they stop feeding. That can take until 2 to 3 months … To keep the calves with their mothers in the first few days is not only important for the calves but also for the mother cows [who] otherwise could become stressed if they lose their calves at this early stage."*

The calves are kept together in a calf yard for the first few days, where they can receive fresh milk direct from their mothers and later they will live with an "adoptive" mother cow for several weeks.

The female calves grow up to become replacement milking cows. The bull calves are either delivered to local small hobby farmers to graze on excess pasture, provided to beef farmers to put on to adoptive mother cows producing excess milk, or otherwise sold after several months. B.-d. Farm Paris Creek also raises calves occasionally, to grow up on their paddocks if they have customer requests for meat.

185 B.-D. Farm Paris Creek (2014), 'Questions and Answers'.

CASE STUDY 2

Mountain View, Gippsland[186]

At Mountain View Farm in the Gippsland region, replacement heifers are "reared by hand in a nursery", as they find cow-rearing results in their heifers becoming unsettled or "flighty".

PHOTO: MOUNTAIN VIEW FARM

The dairy has a no-kill policy for non-replacement calves and all male calves are raised mainly on retired, or "Nanny" cows, before being sold between 12 – 15 months to be slaughtered at a local abattoir.

Cows are retired from milking after a maximum of five lactations, at around 7-8 years old, however cows are able to retire earlier to raise their own calves. According to Mountain View:

> *"Our model is certainly more suited to the smaller farmer as it would definitely be ideal for a smaller herd… What we have done is create some stability and certainty. We have set prices for both our milk and meat, and found markets which has enabled us to run a softer system that is kinder to all involved; the land, the animals and to us."*[187]

186 Mountain View Farm Pty Ltd (2013), 'Herd Share Agreement'.
187 Correspondence with Vicki Jones, Mountain View Farm.

SEMEN SEXING

Semen sexing can also help reduce the number of unwanted bobby calves born on dairy farms.[188]

Semen sexing is the process of selecting semen to produce dairy calves of a preferred sex.[189] This breeding technology can be used to avoid the wastage of young male dairy calves by selecting female calves to replace the existing dairy herd. While the use of this technology offers farmers a number of potential benefits,[190] conception rates are generally lower with sexed semen, resulting in a low on-farm adoption rate.[191]

From an animal welfare perspective, semen sexing is not a straightforward solution. Use of sexed semen gives a 90% chance of conceiving a heifer, so there is still a 10% chance that sexed semen will produce an unwanted male bobby calf.[192] Further, an oversupply of female calves could potentially create a boom in the live animal export industry and may not actually reduce the level of suffering.

RECOMMENDATIONS

The separation of the calf from the mother cow, followed by often gruelling transportation and arguably cruel deaths of very large numbers of newborn calves, are shocking facts of the modern dairy industry that few consumers know about.

What is needed is a concerted effort by industry to reduce the breeding of unwanted calves, to have farming systems that enable calves the ability to be naturally weaned, and to provide calves with the most natural and humane lives possible.

PHOTO: JO-ANNE MCARTHUR / WE ANIMALS

In the meantime, Voiceless recommends that the Transport Standards & Guidelines must be immediately reviewed to assess the number of hours that a bobby calf between five and 30 days old can go without feed. As indicated in this Chapter, the currently permitted 30 hours off feed is not based on adequate scientific evidence, and unnecessarily compromises the welfare of unwanted bobby calves.

Further, the use of blunt force trauma as a means of slaughtering unwanted bobby calves must be prohibited.

A national dairy industry assurance scheme could be effective in incentivising more dairy farms to move away from the early slaughter of unwanted bobby calves. See *Chapter 6.2: The Need for Reform* for further information.

CONCLUDING REMARKS

So long as the present business model of large herd, high production commercial dairying continues, dairy calves will continue to be taken from their mothers, endure the stresses of long distance travel, and be prematurely killed, often brutally, in their hundreds of thousands.

If it were happening to a companion animal, there would be a huge outcry and public reaction. As these calves are a by-product of our desire for their mothers' milk, we are complicit in their slaughter. It is important to remember calves are sentient and sensitive creatures, longing for their mother, her milk and physical contact, warmth and safety.

This is the true cost of cheap milk; ultimately, otherwise well-intentioned consumers will have to decide whether cheap milk is worth this amount of suffering.

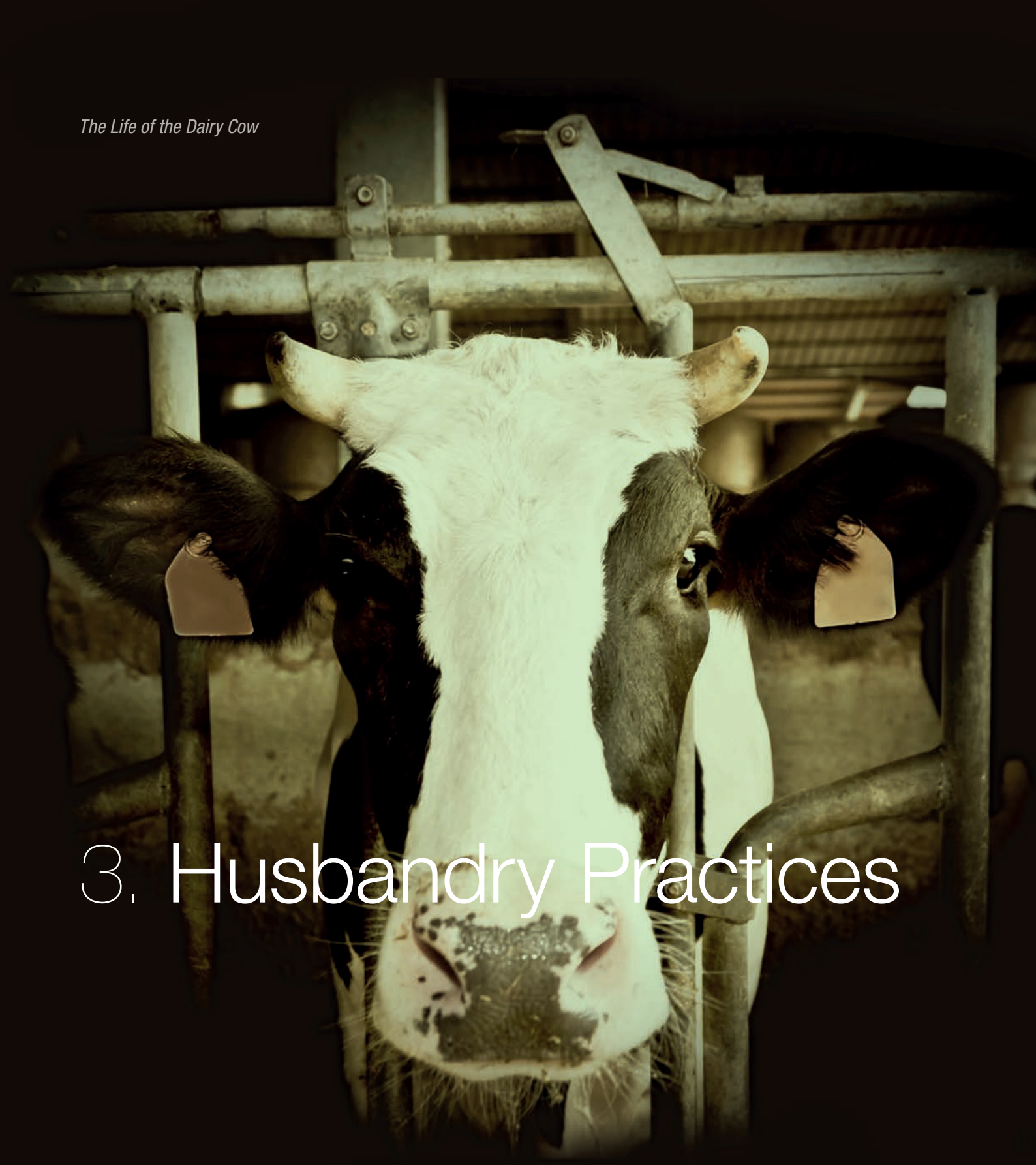
188 Semen sexing will provide more immediate benefits to farms that currently use artificial insemination. Although establishing artificial insemination programs can be costly, the long term benefits of reduced wastage are still desirable. See, CSIRO (2012), 'Mating and Calving Management of Dairy Heifers' at 195-212; Seidel (1999), 'Sexed Semen Applications in Dairy Cattle' at 186.

189 This is achieved through the use of semen with up to 90% concentrations of either the X or Y chromosome. See, Western Dairy Incorporated (2014), 'Striving for Genetic Excellence Using Sexed Semen'; Seidel (1999), 'Sexed Semen Applications in Dairy Cattle', at 184.

190 For the benefits of using sexed semen for farmers, see, for example, CSIRO (2012), 'Mating and Calving Management of Dairy Heifers' at 204; Compassion in World Farming and RSPCA (2008) 'Beyond Calf Exports: The Efficacy, Economics & Practicalities of Sexed Semen as a Welfare-Friendly Herd Replacement Tool in the Dairy Industry' at 2.

191 This is particularly true for cows who are already lactating. See, Western Dairy Incorporated (2014), 'Striving for Genetic Excellence Using Sexed Semen'; De Vries (2009) at 3; CSIRO (2012), 'Mating and Calving Management of Dairy Heifers' at 203; Seidel (1999), 'Sexed Semen Applications in Dairy Cattle' at 184.

192 CSIRO (2012), 'Mating and Calving Management of Dairy Heifers' at 195, 203; De Vries (2009) at 2.



3. Husbandry Practices

3.1 DISBUDDING AND DEHORNING

Disbudding and dehorning are standard mutilation practices used to remove or stop the growth of horns in livestock. Despite claims to the contrary, all methods of dehorning and disbudding cause chronic and acute pain to calves and adult cows.[193]

Disbudding is the removal of the horn bud (and horn producing cells) before it attaches to a calf's skull,[194] and is usually performed on calves less than two months of age.[195] Disbudding typically involves the removal of the horn bud with a hot iron scoop or through chemical (caustic) application.[196]

Dehorning is the process of removing the horn and surrounding tissue of older dairy calves and adult cows after the horns have attached to their skull.[197] This is performed using a variety of tools, including a dehorning knife, hand and electric saws, guillotine shears or scoop dehorners.[198]

While the dairy industry recognises that both procedures can be painful to some degree,[199] both dehorning and disbudding can be routinely performed in all Australian jurisdictions without pain relief.[200] Yet the procedures are seen as necessary by industry to limit horns causing injury to farmers or other cows.

Figure 3.
Frontal sinus shown by arced line in red.

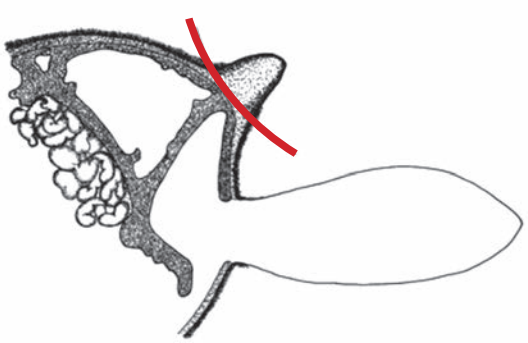
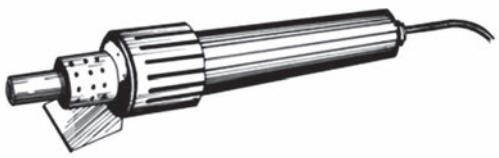


Figure 4.
A Barnes-type dehorner scoops the horn and horn-producing skin surrounding the horn base.

Figure 5.
An electic hot-iron dehorner will destroy the horn-producing skin at the base of the horn bud.



193 Von Keyserlingk et al (2009) at 4105; Anderson (2010), 'Dehorning of Calves'; McMeekan et al (1998) at 281.

194 RSPCA (2009), 'Why Are Cows/Calves Dehorned/Disbudded?'.

195 This is because the horn becomes attached to the skull at around 2 months of age. See Anderson (2010), 'Dehorning of Calves'; Espinoza et al (2013) at 2894.

196 Vickers et al (2005) at 1454.

197 RSPCA (2009), 'Why Are Cows/Calves Dehorned/Disbudded?'.

198 Cattle Standards & Guidelines Writing Group (2013) at 7.

199 Dairy Australia states that disbudding is "the least painful approach when done correctly." See Dairy Australia (2013), 'Disbudding Calves'.

200 Refer to Appendix 1 of this Report on the way in which the Cattle Code and the Draft Cattle Standards & Guidelines regulate the use of both chemical and non-chemical dehorning and disbudding. Appendix 2 details the treatment of the Cattle Code in each Australian jurisdiction. Appendix 3 also details how these practices are regulated in each Australian jurisdiction.

CHRONIC AND ACUTE PAIN

There is a wealth of scientific evidence which shows that all methods of disbudding and dehorning cause distress and pain to the calf and adult cow.[201]

In younger calves, the process of cautery disbudding generally results in a significantly smaller cortisol response (indicative of a lower level of pain) than dehorning.[202] Despite this, disbudding still causes pain and there is no evidence that young calves experience less pain than older calves.[203] Vigorous and violent escape behaviours displayed during disbudding further indicate that cows experience pain and distress. Evidence also suggests that low-grade pain and discomfort may continue for up to 24 hours after disbudding.[204]

In older calves and adult cows, dehorning elicits a significant increase in cortisol (up to nine hours), a hormone which is a good physiological indicator of stress caused by painful or potentially harmful mutilations practices. Behavioural studies have also found that calves that have been dehorned become highly restless (increased head and tail shaking) and stop ruminating in the six hours following the procedure, indicating that it caused them significant pain.[205]

Beyond the immediate experiences of stress and pain, dehorning often causes trauma to the cow's frontal sinuses posing the risk of infection, excessive bleeding and prolonged wound healing. These complications are in some cases fatal.[206]

Often the cow is not effectively restrained, making both these procedures even more stressful for the animal.[207]

"Dehorning, depending on the specific procedure, appears to be one of the most aversive procedures used on cattle." [208]

201 See Sylvester et al (2004) at 699; Von Keyserlingk et al (2009) at 4105; Vickers et al (2005) at 1454; Faulkner and Weary (2000) at 2037.

202 Stafford and Mellor (2005) at 347. A preference for disbudding is outlined in G6.19, Draft Cattle Standards & Guidelines.

203 Anderson (2010), 'Dehorning of Calves'.

204 Cattle Standards & Guidelines Writing Group (2013) at 8.

205 Ibid, at 7 and 9.

206 Meat & Livestock Australia (2014), 'Patching up dehorned cattle'.

207 RSPCA (2009), 'Why Are Cows/Calves Dehorned/Disbudded?'.

208 Cattle Standards & Guidelines Writing Group (2013) at 7.

THE USE OF PAIN RELIEF

Disbudding and dehorning can be routinely performed in Australia without the use of pain relief. The use of pain relief may be prohibitive to some farmers due to its expense and lack of availability in regional areas. The Australian Veterinary Association, however, only supports dehorning where analgesia is used appropriately to minimise pain and stress.[209]

In cases where a local anaesthetic is administered, it may only be effective in reducing cortisol levels for between two and four hours,[210] following which there is a rapid cortisol increase. Studies have indicated that physiological and behavioural signs of distress can persist for 24 to 48 hours after a cow is dehorned or disbudded.[211]

It is also becoming clear that the use of a local anaesthetic alone does not mitigate the pain associated with these procedures or provide adequate post-operative relief.[212] Instead, adequate pain relief should seek to address the onset of pain before, during and after the procedure.[213]

The use of a sedative for disbudding of calves may also help with the procedure by minimising the need for restraints.[214]

A number of sources also recommend a three pronged approach of a non-steroidal anti-inflammatory drug (NSAID), sedation and local anaesthetic to be used in both disbudding and dehorning to minimise suffering.[215]

209 Australian Veterinary Association (AVA) (2004), '8.4 Dehorning of Cattle'.

210 Phillips, *Cattle Behaviour and Welfare* (Second ed; Malden, USA: Blackwell Science, 2002) at 35.

211 World Society for the Protection of Animals (WSPA) (2013), 'WSPA Submission on Cattle Draft Standards and Guidelines' at 9.

212 Von Keyserlingk et al (2009) at 4105. It appears that local anaesthetics merely postpone the pain response instead of eliminate it: Cattle Standards and Guidelines Writing Group (2013) at 10; Faulkner and Weary (2000) at 2038; McMeekan et al (1998) at 284-85.

213 Vickers et al (2005) at 1454.

214 Von Keyserlingk et al (2009) at 4105; Vickers et al (2005) at 1457-58.

215 See, for example, American Veterinary Medical Association (AVMA) (2007), 'Welfare Implications of the Dehorning and Disbudding of Cattle' at 5; Von Keyserlingk et al (2009) at 4105; Cattle Standards & Guidelines Writing Group (2013) at 9; Vickers et al (2005) at 1454; Faulkner and Weary (2000) at 2040; Fisher and Webster (2013) at 925; Sylvester et al (2004) at 700.

FACT BOX 6

Critique on the Draft Cattle Standards & Guidelines permitting caustic disbudding

In an unpublished paper, Malcolm Caulfield BSc PhD and Heather Cambridge BSc PhD BVMS critiqued the decision to permit caustic disbudding in the Draft Cattle Standards & Guidelines. The authors note that it appears the reason for this decision is a de-emphasis of the significance of a paper by Morisse et al (1995) and an emphasis on a more recent study by Vickers et al (2005). The *Proposed Australian Animal Welfare Standards and Guidelines - Cattle: Decision Regulation Impact Statement* (1st ed) (RIS) states further that "caustic disbudding at a very young age is relatively low impact and any pain may be transient…"[216]

Caulfield and Cambridge note that neither the papers cited in the RIS nor other work or commentary (not cited)[217] on caustic paste disbudding supports the assertion in the RIS that younger animals suffer a "lower impact". Moreover, these papers found that an analgesic pre-treatment was quite ineffective in relieving the pain associated with the procedure, which argues against the description in the RIS of caustic paste pain as "relatively low impact."

The reliance of the RIS on the paper by Vickers et al (2005) to support the view that caustic paste disbudding causes less pain than hot iron treatment was considered misguided, as those authors pre-treated their experimental animals with the sedative xylazine 20 minutes before treatment with the paste. This compound is not only a sedative, but is also a powerful analgesic.[218] Moreover, Vickers et al used twice the recommended dose (which is 0.1 mg/kg, intramuscularly, for dehorning).[219]

Caulfield and Cambridge refer to papers published by Stilwell et al (2008 and 2009), which cite references which describe human pain caused by caustic paste as "chronic". Indeed, the study of Morisse et al (1995) found that caustic paste was more painful than hot-iron disbudding, a view consistent with the European Food Safety Authority (EFSA) report on the subject.[220] Caulfield and Cambridge conclude that it is reasonable to assume that a calf will experience similar sensations after caustic paste disbudding, and that the pain could last for at least three hours, maybe more.[221]

216 Animal Health Australia (2014), 'Proposed Australian Animal Welfare Standards and Guidelines – Cattle: Decision Regulation Impact Statement', at 42.

217 Stafford and Mellor (2011) at 226-31; Stilwell et al (2008); Stilwell et al (2009) at 35-44.

218 Bayer Animal Health notes that "[c]attle are the most sensitive of all species to xylazine…" and that the drug produces sedation, muscle relaxation and analgesia. See Bayer Animal Health (2014), 'Rompun: The Triple Action – Sedation, Muscle Relaxation and Analgesia'.

219 Stafford and Mellor (2011), at 231 note: "the use of xylazine may have influenced the results and further work needs to be carried out to compare these two disbudding techniques."

220 Animal Health and Animal Welfare Unit - European Food Safety Authority (EFSA) (2009).

221 In a review of these studies, it was noted "all these results suggest that caustic paste disbudding causes distress in young calves for at least the first 3h." See Stilwell et al (2009); Stafford and Mellor (2011); Morrise et al (1995).

CAUSTIC DISBUDDING

In addition to heat cauterisation methods of disbudding, Australian dairy farmers also have the option of chemical cauterisation, known as 'caustic disbudding'. This involves the application of an acidic paste to the horn buds of calves to destroy horn-producing cells.[222]

Even though it has been argued that the pain may be less severe than hot iron disbudding, chemical cauterisation is known to cause extreme pain, with tissue damage increasing whilst the chemical is active.[223] It is also possible for the corrosive chemicals used in caustic disbudding to spread to other delicate tissues, such as the calf's face or eyes, particularly in rainy conditions[224] or even to other animals who come into contact with the calf.[225]

The Cattle Code states that cattle must not be dehorned with corrosive chemicals, although this is only mandatory in South Australia.[226] The Draft Cattle Standards & Guidelines which are expected to replace the Cattle Code, however, permit the use of this method in certain conditions, including when the calf is less than 14 days old, can be segregated from his or her mother for four hours after treatment, can be kept dry for 12 hours after treatment, and is not wet.[227] It is important to note that caustic dehorning is opposed by the Australian Veterinary Association.[228] See *Fact Box 6: Critique on the Draft Cattle Standards & Guidelines permitting caustic disbudding*.

THE INDUSTRY RESPONSE

The dairy industry encourages farmers to disbud calves at 6-8 weeks of age rather than dehorning older cattle because it is deemed "the least painful approach when done correctly" and "less likely to cause infection". As such, disbudding is the most common form of horn removal on Australian dairy farms.[229]

A 2012 Dairy Australia survey found that around 87% of all calves were born on farms where horns are removed before six months of age.[230] However, it is unknown how many of these calves were disbudded within the approved Dairy Australia timeframe of 6-8 weeks of age.

Despite the specific welfare concerns surrounding caustic disbudding, an industry survey showed 40% of Australian dairy farmers indicated a high level of interest in using caustic paste for disbudding. In fact, in a joint submission by Australian Dairy Farmers Limited and Dairy Australia on behalf of the Australian dairy industry, the industry bodies advocated against a ban on caustic disbudding on the basis that it requires minimal restraints to be used on calves and no specialised equipment.[231]

Broadly, the dairy industry justifies the use of all these methods for dehorning and disbudding on the grounds that cows with horns are more likely to injure farm handlers and other cows.[232] It is important to balance these justifications with the extreme welfare concerns outlined above. While good husbandry can negate some safety concerns, a clear and humane alternative may exist with the industry investing in the development of 'polled' breeds who do not naturally have horns.[233]

POLLED BREEDS

To reduce the need for disbudding and dehorning, national strategies need to be developed with breed associations to transition towards polled herds.[234]

This transition also has the support of most farmers,[235] and in 2012, semen which would produce only polled offspring was made available in Australia for the first time.[236] Despite this, the dairy industry is well behind the beef industry in the development and uptake of polling technology and acknowledge more research and development is needed before this becomes a viable and profitable alternative.[237]

222 Stafford and Mellor (2005) at 345; AVMA (2007), 'Welfare Implications of the Dehorning and Disbudding of Cattle' at 1.

223 Vickers et al (2005) at 1454.

224 Stafford and Mellor (2005) at 345; Animal Health Australia (2014), 'Proposed Australian Animal Welfare Standards and Guidelines - Cattle: Decision Regulation Impact Statement' at 29; AVMA (2007), 'Welfare Implications of the Dehorning and Disbudding of Cattle' at 1; Phillips, Cattle Behaviour and Welfare at 35.

225 Cattle Standards & Guidelines Writing Group (2013) at 9.

226 [5.8.4]. Refer to Appendix 1 of this Report on the way in which the Cattle Code and the Draft Cattle Standards & Guidelines regulate the use of both chemical and non-chemical dehorning and disbudding. Appendix 2 details the treatment of the Cattle Code in each Australian jurisdiction. Appendix 3 also details how these practices are regulated in each Australian jurisdiction.

227 S6.5, Draft Cattle Standards & Guidelines.

228 AVA (2004), '8.4 Dehorning of Cattle'.

229 Dairy Australia (2013), 'Disbudding Calves'.

230 Dairy Australia (2012), 'Animal Husbandry Survey 2012' at 2.

231 Australian Dairy Farmers Limited and Dairy Australia (2013), 'ADF and DA Submission on Draft Australian Animal Welfare Standards and Guidelines for Cattle' at 2.

232 Phillips, *Cattle Behaviour and Welfare* at 35.

233 Anderson (2010), 'Dehorning of Calves'; AVMA (2007), 'Welfare Implications of the Dehorning and Disbudding of Cattle' at 5.

234 The AVA recommends the breeding of polled cattle and the development of methods for determining the carrier status for horn genes as alternatives to dehorning: see AVA (2004), '8.4 Dehorning of Cattle'; Cattle Standards & Guidelines Writing Group (2013) at 1. This is provided in G6.19, Draft Cattle Standards & Guidelines.

235 A 2012 survey reported that 52% of farmers expressed interest in semen from polled sires: Dairy Australia (2012), at 2.

236 Cattle Standards & Guidelines Writing Group (2013) at 2; Reynolds and Pryce (2013) at 139.

237 Cattle Standards & Guidelines Writing Group (2013) at 2.

There may be an industry preference for horned breeds as it was traditionally believed horned cattle had superior production traits to that of polled cattle.[238] Recent studies, however, have shown that productivity and behaviour are not linked to polled genes.[239]

With the use of modelling techniques, Reynolds and Pryce (2013) found that breeders were able to maintain poll within herds with the use of only one generation of poll breeding. That is, only one poll sire was needed to insert the poll gene, following which, farmers could continue to use horned sires to maintain a poll population. The study suggests that polled breeds are relatively simple to introduce in dairy herds, and provided a method to potentially mitigate the assumed impact on productivity.[240]

RECOMMENDATIONS

All forms of dehorning and disbudding, both caustic and chemical, must be prohibited unless performed by and on the advice of a veterinarian for therapeutic reasons. Alternatives in transitioning to polled breeds and good workplace, health and safety practices obviate the need for these painful procedures to continue.

Where the procedure is deemed necessary by a veterinarian, a combination of sedation, local anaesthetic and NSAIDs must be used to minimise the cow and calf's suffering.

A transition to polled dairy cattle of high genetic potential for milk production is the ideal solution to ending the cruelty associated with dehorning and disbudding. Voiceless supports extensive industry investment in this area to improve its availability, as well as the promotion of its use on Australian dairy farms.

CONCLUDING REMARKS

Voiceless is opposed to all forms of animal mutilation practices. Dehorning and disbudding, in particular, have a legitimate alternative in poll breeding, although we acknowledge it may take some time for this to become a viable alternative.

It is important to remember a key welfare question: is the animal feeling well? Given the science indicating the pain and distress caused by dehorning and disbudding, it is clear the answer is no.

While dairy farmers practice disbudding and dehorning to avoid the potential for later injury, in our view, dairy cows should not be maimed. Instead, on-farm infrastructure and practices should evolve to accommodate the cows' natural characteristics.

238 AVMA (2007), 'Welfare Implications of the Dehorning and Disbudding of Cattle' at 4; Cattle Standards & Guidelines Writing Group (2013) at 1.

239 AVMA (2007), 'Welfare Implications of the Dehorning and Disbudding of Cattle' at 4; Stafford and Mellor (2005) at 337.

240 Reynolds and Pryce (2013) at 138.

3.2 TAIL DOCKING

Tail docking involves the amputation of a cow's tail, usually without pain relief. While this painful practice is no longer endorsed by the Australian dairy industry,[241] and under proposed reforms, may soon be prohibited,[242] it is currently legal in many Australian jurisdictions[243] and was performed by 18% of dairy farmers in 2012.[244]

Tail docking was originally introduced in New Zealand in the early 1900's to improve workplace health and safety for farm handlers[245] and because of the belief that it improves the cleanliness of the milking shed as well as udder hygiene.[246]

Scientific evidence, however, does not support these claims. What the science does provide is evidence that tail docking can cause acute and chronic pain and the use of a local anaesthetic offers little to no pain relief for cows.[247] Accordingly, veterinary associations and animal protection groups both in Australia and globally want to ban tail docking.[248]

The Draft Cattle Standards & Guidelines, which is intended to replace the Cattle Code, expressly prohibits the tail docking of cows unless it is performed on the advice of a veterinarian and only to treat injury or disease.[249] Once implemented, this will hopefully see an end to this cruel practice.

METHODS OF TAIL DOCKING

Tails can be docked using a number of methods, including the application of a rubber ring to a calf's tail, the use of a hot docking iron to sear off the tail or amputation with a knife.[250]

The application of a rubber ring is the most commonly used method and is considered preferable to hot iron docking as the risk of haemorrhaging is reduced.[251] The rubber ring is applied at about 10 days of age and it cuts off circulation to the tail until it falls off or is amputated.[252]

Amputation by cutting is the most hazardous method as it attracts a greater risk of bleeding and infection.[253] Although the Cattle Code instructs that animals being docked surgically must receive pain relief, this requirement is only mandatory in South Australia and accordingly, amputation is usually performed without pain relief in most other Australian jurisdictions.[254]

WHY DOCK TAILS?

Tail docking was originally practiced to avoid leptospirosis in farm handlers, a disease which can infect humans exposed to animal urine.[255] No scientific evidence exists, however, linking tail docking to the reduction of leptospirosis,[256] with herd vaccination and improved worker hygiene being more effective means of reducing the risk of human infection.[257]

241 Australian Dairy Farmers Limited and Dairy Australia (2013), 'Submission on Draft Australian Animal Welfare Standards and Guidelines for Cattle' at 3; Dairy Australia (2012), 'Animal Husbandry Survey 2012' at 2.

242 S9.3, Draft Cattle Standards & Guidelines.

243 See Appendix 3 for how tail docking is currently regulated in each Australian jurisdiction.

244 Dairy Australia (2012) at 2.

245 Cattle Standards & Guidelines Writing Group (2013) at 1; Tucker and Weary (2001-2002) at 1.

246 Australian Veterinary Association (AVA) (2013), '8.2 Tail Docking of Cattle'.

247 Von Keyserlingk et al (2009) at 4106.

248 See, for example, Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Tail Docking Discussion Paper' at 8-10.

249 [S9.3], Draft Cattle Standards & Guidelines.

250 Phillips, *Cattle Behaviour and Welfare* (Second ed; Malden, USA: Blackwell Science, 2002) at 36; AVA (2013), '8.2 Tail Docking of Cattle'; Sutherland and Tucker (2011) at 188.

251 Sutherland and Tucker (2011) at 188. A 1999 study found that 75% of Victorian dairy farms used the rubber ring method: Barnett et al (1999) at 742.

252 Phillips, Cattle Behaviour and Welfare at 36; Sutherland and Tucker (2011) at 188.

253 Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Tail Docking Discussion Paper' at 3; [6], Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 (New Zealand).

254 [5.6] of the Model Code of Practice for the Welfare of Animals – Cattle (2nd ed) 2004 (Cattle Code) recommends that only females calves under 6 months should be tail docked, and only for therapeutic reasons or by veterinary prescription. Further, anaesthetics must be administered for surgical docking, the tail should be removed between bones (as opposed to through bones) and sufficient length should be left to cover the cow's vulva. Refer to Appendix 1 of this Report on the way in which the Cattle Code and the Draft Cattle Standards & Guidelines regulate tail docking. Appendix 2 details the treatment of the Cattle Code in each Australian jurisdiction. Appendix 3 also details how these practices are regulated in each Australian jurisdiction.

255 Cattle Standards & Guidelines Writing Group (2013) at 1, 4; National Animal Welfare Advisory Committee (NAWAC) (2005), 'Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 Report' at 46. In a study of a rotary parlour in New Zealand, milkers' faces only came into contact with cow's tails once every 1,000-1,500 milkings: Stull et al (2002) at 1302.

256 Cattle Standards & Guidelines Writing Group (2013) at 4. "Tail docking does not appear to be related to signs of exposure to leptospirosis among milkers"; NAWAC (2005), 'Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 Report' at 46; Tucker et al (2001) at 84.

257 Dairy Australia (2011), 'Myths about tail docking' at 2; Tucker and Weary (2001-2002).

It is also argued that tail docking reduces mastitis and milk contamination, improves cow health and reduces the soiling of teats and udders.[258]

According to the Cattle Standards and Guidelines Writing Group, support for these claims is largely anecdotal.[259] A British Colombian study of 500 milking cows found no difference in terms of cleanliness, udder health or mastitis between docked cows and those with their tails intact,[260] a finding which is consistent with a number of other studies.[261] In addition, researchers acknowledged other factors such as shed design and good husbandry practices as more influential on udder and teat cleanliness than the length of the tail.[262]

UNNECESSARY CRUELTY

All methods of tail docking have been shown to cause some level of pain, distress and chronic irritation.[263]

Cows docked by hot iron docking (heat cauterisation) can suffer second or third degree burns, resulting in intense pain.[264] The rubber ring method has also been found to cause immediate distress and longer term irritation.[265] A New Zealand study on tail docking using rubber rings on three-to four-month old calves reported that 67% showed an immediate behavioural response following the procedure, including tail shaking, crying and restlessness.[266] This is consistent with a number of other studies which have shown mild distress occurs in cows immediately after the procedure.[267]

"Tails are richly supplied with nerves and blood vessels so that their removal is significant for the animal."[268]

Critically, docked cows may go on to experience ongoing discomfort and chronic pain due to inflammation and the development of lesions, or nerve tumours (neuromas) as a result of the sectioning of tail nerves. This may result in cows going on to experience phantom pain, similar to that experienced by human amputees.[269]

"[T]here is no benefit to tail docking in dairy cattle. Presently, there are no apparent animal health, welfare, or human health justifications to support this practice."[270]

Cows use their tails as an indicator of their mood and for social signaling with other cows in the herd. As such, the removal of the tail limits their social behaviour and impedes their normal activities.[271] Cows will also use their tail to swat flies so, particularly in the warmer Australian climates, tail docking can cause irritation from biting flies[272] and result in the potential use of insecticides and other pest control measures by farmers.[273] In addition to social communication, the tail may be a tool to dissipate surplus heat and cool down in hot weather.[274]

All of these welfare concerns have compelled legislators in a number of countries, including the Netherlands, Norway, Germany, Sweden, Switzerland, Scotland, Denmark and England to ban tail docking. These countries prohibited the practice over 30 years ago.[275]

258 AVA (2013), '8.2 Tail Docking of Cattle'; Barnett et al (1999); Dairy Australia (2011), 'Myths about tail docking' at 1.

259 Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Tail Docking Discussion Paper' at 1. Other studies also present evidence against such claims: AVA (2013), '8.2 Tail Docking of Cattle'; Sutherland and Tucker (2011) at 187.

260 Tucker and Weary (2001-2002).

261 See, for example, Von Keyserlingk et al (2009) at 4106; Sutherland and Tucker (2011) at 187; NAWAC (2005), 'Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 Report' at 47; Schreiner and Ruegg (2002) at 2510; Tucker et al (2001) at 86.

262 Dairy Australia (2011), 'Myths about tail docking' at 2; Schreiner and Ruegg (2002) at 2510; Stull et al (2002) at 1302.

263 [6], Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 (New Zealand); Petrie et al (1996) at 8; Stull et al (2002) at 1300; Halverson (2002); AVA (2013), '8.2 Tail Docking of Cattle'; Von Keyserlingk et al (2009), at 4106.

264 Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Tail Docking Discussion Paper' at 3.

265 Ibid; Petrie et al (1995), 58-60.

266 See, Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Tail Docking Discussion Paper' at 5; Petrie et al (1995) at 58-60; Petrie et al (1996) at 8. Other behavioural responses include kicking, tail grooming and biting, which indicate irritability, discomfort and pain: see, NAWAC (2005), 'Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 Report' at 47.

267 NAWAC (2005), 'Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 Report', at 47.

268 [6], Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 (New Zealand).

269 Eicher et al (2006), at 3047-54; Barnett et al (1999) at 747; Sutherland and Tucker (2011) at 189; Stull et al (2002) at 1300; Halverson (2002); AVA (2013), '8.2 Tail Docking of Cattle'; Von Keyserlingk et al (2009), at 4106.

270 Stull et al (2002) at 1302.

271 Phillips, *Cattle Behaviour and Welfare* at 36; Halverson (2002); Sutherland and Tucker (2011) at 188; Petrie et al (1996) at 8; Stull et al (2002) at 1299-1300.

272 Dairy Australia (2011), 'Myths about tail docking' at 1. "[E]ven at high fly densities, the tail is almost completely effective at eliminating fly predation." Further, alternative fly avoidance behaviours are ineffective: Stull et al (2002) at 1299-1301.

273 AVA (2013), '8.2 Tail Docking of Cattle'.

274 Stull et al (2002) at 1299-1300.

275 Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Tail Docking Discussion Paper' at 9.

THE INDUSTRY RESPONSE

In 2012, some form of tail docking was carried out on 18% of dairy farms in Victoria and Tasmania, an increase from 13% in 2010.[276]

The persistence of tail docking is a reflection of habit and tradition, rather than necessity and its use can't be justified on scientific grounds.[277] The Australian dairy industry no longer supports tail docking and Australian Dairy Farmers and Dairy Australia have both supported a ban.[278]

Industry also points to effective alternatives to tail docking such as switch trimming (cutting the loose hair at the bottom of the tail),[279] shed design, fly control programs and practices that improve cow and farm handler comfort.[280] While preferable to tail docking, switch trimming also presents its own welfare issues by interfering with the ability of the cow to swat flies.[281]

It is evident, however, that industry-led, voluntary phase-outs in lieu of a legislated ban will continue to be ineffective in delivering permanent animal welfare improvements in this area. Therefore, a complete legislative ban on tail docking, unless performed by and on the advice of a veterinarian, is the only appropriate response.

RECOMMENDATIONS

All forms of tail docking should be prohibited at a national level, as is already the case in Queensland.[282] Good animal husbandry and investment in shed design effectively makes this practice redundant in modern commercial farming.

Accordingly, Voiceless supports the position in the Draft Cattle Standards & Guidelines, which states that a person must tail dock cattle only on veterinary advice and only to treat injury or disease.[283] Tail docking should also only be performed by a veterinarian, with the use of appropriate pain relief.

CONCLUDING REMARKS

Tail docking is an unnecessary and unjustified part of commercial dairying in Australia. It is important to remember that this is the mutilation of a sensitive part of an animal's body, the cutting off of a calf or cow's tail.

The pain associated with tail docking can clearly prevent cows from feeling well, but the procedure can also prevent cows from expressing their natural behaviours. As such, tail docking fails to satisfy two of the key welfare questions raised in this Report.

This mutilation serves only to benefit farm handler comfort at the expense of animal welfare. For this reason, tail docking has been banned for decades in leading dairy markets overseas. Even the Australian dairy industry acknowledges it is lagging behind, with tail docking potentially undermining public confidence in Australia's animal welfare standards.[284] An immediate, legally enforceable ban on tail docking is necessary.

276 Dairy Australia (2012), 'Animal Husbandry Survey 2012' at 2. By comparison, a survey of the Victorian dairy industry revealed that 35% of dairy farms routinely docked cattle in 1999: Barnett et al (1999) at 742.

277 Dairy Australia (2011), 'Myths about tail docking' at 1.

278 Australian Dairy Farmers Limited and Dairy Australia (2013), 'Submission on Draft Australian Animal Welfare Standards and Guidelines for Cattle'.

279 "Trimming the switch is the primary, minimally invasive alternative to tail docking": Sutherland and Tucker (2011) at 189. Switch trimming only has to be conducted about 4-5 times a year: NAWAC (2005), 'Animal Welfare (Painful Husbandry Procedures) Code of Welfare 2005 Report' at 51. Trimming is distinct from switch removal, which constitutes a form of tail docking: Stafford et al (2008).

280 Dairy Australia (2011), 'Myths about tail docking' at 1.

281 See, for example, Stafford et al (2008) at 11.

282 See Appendix 3 of this Report on how tail docking is regulated in each jurisdiction.

283 [S9.3], Draft Cattle Standards & Guidelines.

284 Dairy Australia (2011), 'Myths about tail docking' at 1. "While the Australian dairy industry has a favourable public image because of the pasture-based production system, docking could detract from this positive image": Barnett et al (1999) at 742.

3.3 CALVING INDUCTION

Calving induction is the use of hormone treatment to unnaturally induce labour in pregnant cows. While this practice affects only a small percentage of dairy cows, the welfare implications are significant.

Calving induction is the practice of forcing cows to begin labour prematurely through the injection of hormones which replicate the body's natural signals to prepare for birth.[285]

The procedure can be detrimental to mother and calf alike, increasing the risk of cows suffering infectious disease and death. Induced calves are also at risk of being still born or born prematurely and subsequently killed immediately after birth.[286]

Dairy Australia reported in 2012 that 20% of farms used induction, but only 2.1% of dairy cows in Australia are induced.[287] With 1.63 million productive dairy cows in Australia in 2012, 2.1% indicates that roughly 34,230 cows were induced that year.[288]

Recent estimates from dairy veterinarians in 2013 indicate this figure to be almost double at 4% of the national herd, with around 66,000 cows estimated as being induced.[289]

Calving induction is generally opposed as a standard husbandry tool, but remains legal regardless of whether it is medically unnecessary or could adversely affect cow and calf welfare.[290] Under the Draft Cattle Standards & Guidelines, which are intended to replace the Cattle Code, calving induction is only permitted under veterinary advice.[291] While this is promising, the Draft Cattle Standards & Guidelines do not expressly require calving induction to be performed only for therapeutic reasons, meaning that induction could potentially continue to be used as a herd management tool.

285 The types of hormones used may include corticosteroids, estrogens or prostaglandins, which cause the cervix to dilate: see, Lewing et al (1985), at 318; Victorian Department of Environment and Primary Industries (2008), 'Calving Induction in Dairy Cows'.

286 See, for example, Morton and Butler (1995a), at 5-7; Mansell et al (2006), at 312-16; Victorian Department of Environment and Primary Industries (2008), 'Calving Induction in Dairy Cows'; Morton and Butler (1995b), at 1-4.

287 Dairy Australia (2012), 'Animal Husbandry Survey 2012', at 3.

288 Dairy Australia (2012), 'Australian Dairy Industry in Focus 2012', at ii.

289 Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Induction of Calving Discussion Paper', at 1. This summation is based on the fact that Australia had 1.65 million dairy cows in 2013, 66,000 of which were estimated to have been induced. See, Dairy Australia (2013), 'Australian Dairy Industry in Focus 2013'.

290 See Appendix 3 of this Report on how calving induction is regulated in each jurisdiction.

291 S7.4, Cattle Standards and Guidelines.

WHY INDUCE?

Calving induction can be used by veterinarians to treat overdue cows and hasten calving to address prenatal health concerns.[292] In the dairy industry, however, induction is commonly used as a tool for herd management to force early births.

As most modern dairy farms run on a regimented schedule, if a pregnant cow is due to give birth out of line with the rest of her herd, a farmer may choose to induce the birth of her calf early.[293]

Australian farmers may use this to ensure that the annual period where pasture is most abundant coincides with the time when all the cows in the herd require the most food.[294] This means that all cows are able to produce the maximum amount of milk possible for the longest possible time, rather than some calving later in the season and having shorter periods of lactation before being dried off.

Additional on-farm benefits of induced calving can include higher milk production by inducing late cows early thereby gaining an extra months' production from late cows at the start of the season.[295]

292 Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Induction of Calving Discussion Paper' at 1.

293 Dairy Australia (2014), 'Reducing Calving Induction'; Victorian Department of Environment and Primary Industries (2008), 'Calving Induction in Dairy Cows'; Mansell et al (2006) at 312.

294 Morton and Butler, (1995a) at 5-7; Mansell et al, (2006), at 312.

295 Victorian Department of Environment and Primary Industries (2008), 'Calving Induction in Dairy Cows'; Cattle Standards & Guidelines Writing Group (2013), 'Cattle Standards and Guidelines - Induction of Calving Discussion Paper' at 1.

FACT BOX 7

Downer cows

The term 'downer cow' generally applies to cattle that are recumbent (lying down on chest or side) and unable to rise.[296] Most cows become downers due to difficulties arising during or around calving.[297]

Once a cow is down she is likely to suffer secondary complications – such as nerve or muscle damage, dislocated hips or exposure – which can worsen her health, or result in her death or early slaughter.[298]

For this reason, Dairy Australia recommends lifting and moving downed cows so they can be confined undercover on soft bedding and nursed back to health. If a cow is not able to move at all throughout her recovery, she will need to be rolled or lifted manually to avoid the formation of pressure sores and further muscle damage.[299]

Dairy Australia is supporting research into downer cow management by veterinarian Dr Phil Poulton. While Dairy Australia emphasises that nursing care is critical to the recovery of downer cows, Dr Poulton has found that about half the sick cows he saw last year were being nursed unsatisfactorily by farmers, which would significantly affect their rate of survival.[300]

296 Dairy Australia, 'Managing Downer Cows' (2014).
297 For causes of cows becoming down, see Dairy Australia (2014), 'Downer Cows'.
298 FarmOnline (2013), 'Improve Downer Cow Welfare', *The Australian Dairyfarmer,* 11 July 2013.
299 Dairy Australia (2014), 'Managing Downer Cows'.
300 FarmOnline (2013), 'Nursing Improves Survival ', *Stock & Land*, 21 June 2013.

WELFARE CONCERNS

There are clear welfare concerns associated with the use of calving induction.

Many calves are stillborn or die shortly after birth,[301] while mother cows are susceptible to dangerous health complications as a result of induction.[302]

To minimise the risks associated with induction, the Victorian Department of Environment and Primary Industries sets limitations as to how early cows should be induced, stating that they must be at least six months pregnant and that induction "should be used in a planned manner on late calving cows".[303]

Despite this, concerns associated with calf induction persist. They include:[304]

- **Premature and unnecessary calf death** – calves who have been induced are more likely to be stillborn or born prematurely (and then killed immediately), compared with non-induced calves.[305] A large number of these calves will be killed on-farm by having their skulls bludgeoned with a blunt instrument (blunt force trauma). See *Chapter 2.2: Bobby Calves* for more details.[306]
- **Retained foetal membrane** – the procedure increases the risk that the foetal membrane (or placenta) is not expelled after birth.[307] Cows suffering from retained foetal membranes are at an increased risk of developing diseases (such as metritis, ketosis and mastitis) and possible abortion in later pregnancies.[308]

301 Mansell et al (2006), at 315; Morton and Butler (1995a), at 5-7.
302 RSPCA (2013), 'What Is Calving Induction?'; Morton and Butler (1995b), at 1-4; Victorian Department of Environment and Primary Industries (2008), 'Calving Induction in Dairy Cows'; Mansell et al (2006), at 312-316.
303 Victorian Department of Environment and Primary Industries (2008), 'Calving Induction in Dairy Cows'.
304 Ibid; RSPCA (2013), 'What Is Calving Induction?'.
305 See also Morton and Butler (1995b), at 6. In a study of Australian and New Zealand dairy cows, only 64.6% of induced calves were born alive. By way of contrast, 96% of non-induced calves were born alive: Mansell et al (2006), at 312-13.
306 Refer to Chapter 2.2: Bobby Calves for a discussion on the welfare concerns of the use of blunt force trauma.
307 See also, Mansell et al (2006), at 314. Further, the risk of retained foetal membranes is likely to be understated, as the condition is not externally visible in 30-50% of affected cows: Morton and Butler (1995b), at 4.
308 See also, The Cattle Site (2014), 'Retained Placenta'.

- **Maternal death** – induction weakens a cow's immune system, which means she could die from infection, such as those contracted from a retained foetal membrane.
- **Calving difficulty** – smaller calves may not be positioned correctly at calving, which can create complications during birth and increase risk of infection. A difficult birth can be longer and more painful than an unassisted, natural birth but pain relief is not mandatory.[309]

Due to these welfare concerns, animal welfare and veterinary groups here in Australia have been critical of the practice.[310] Groups such as the Australian Veterinary Association (AVA)[311] and the RSPCA[312] assert that calving induction shouldn't be relied upon as a standard management tool.

Critically, although a veterinarian may prescribe and administer the corticosteroid and/or prostaglandin drugs necessary to induce early calving, veterinarians may not be physically present at the time of calving when the risks associated with induction are at their peak.

It is encouraging to see that the Australian dairy industry[313] and some state governments[314] have reflected this sentiment with an acknowledgement that calving induction shouldn't be used in place of good pregnancy management which encourages healthy, natural pregnancies without the need for intervention. In saying that, serious concerns remain that calving induction continues to be performed as a matter of routine on farms, and that the practice of attempting to induce calves for the sake of timing and milk production is still legal in Australia.

THE REGULATION OF CALVING INDUCTION

The Cattle Code states that: "induction of birth must only take place under veterinary advice and supervision in accordance with relevant State or Territory legislation,"[315] although this is only mandatory in South Australia.[316]

The Cattle Code further states calves from induced births require extra attention, and that bobby calves who are not strong enough should be humanely killed as soon as possible or kept until they are strong enough to meet sale yard or transportation standards.[317] These requirements are only expressed as non-mandatory guidelines.

Under the Draft Cattle Standards & Guidelines, which is intended to replace the Cattle Code, calving induction is only permitted under veterinary advice.[318] It also contains the following non-mandatory guidelines (emphasis added):

- Herd management strategies *should* be adopted to *minimise* or eliminate the need to induce calving.[319]
- Cows subject to an induction program *should* be inspected twice daily. Any cow requiring calving assistance or treatment *should* receive this intervention without delay.[320]
- Calving induction *should* only be done when necessary for the welfare of the individual cow or calf.[321]

While laws which necessitate veterinary oversight are positive, it is not known whether that oversight actually takes place on all dairy farms.

More importantly, neither the Cattle Code nor the Draft Cattle Standards & Guidelines go far enough in expressly prohibiting the routine use of calving induction as a herd management tool to maximise milk production. Calving induction should only be performed by and on the advice of a veterinarian, and only where this procedure is deemed necessary for cow and/or calf welfare.

It should be noted that the New Zealand dairy industry has been working to phase out the routine use of calving induction, with routine induction banned by 1 June 2015.[322]

309 See also, Barrier et al (2012), at 209-17.

310 Such as Animals Australia, Australian Veterinary Association (AVA), Dairy Australia, RSPCA, and WAP (formerly WSPA). See, Animals Australia (2013), at 19; WSPA (2013), at 12; RSPCA (2013), 'What Is Calving Induction?'; AVA (2002), '8.1 Induction of Parturition'.

311 AVA (2002), '8.1 Induction of Parturition'.

312 RSPCA (2013), 'What Is Calving Induction?'.

313 "The dairy industry policy supports the implementation of agreed management strategies to achieve a reduction in the requirement for calving induction": Australian Dairy Farmers Limited and Dairy Australia (2013), 'Submission on Draft Australian Animal Welfare Standards and Guidelines for Cattle' at 2.

314 For example, Victorian Department of Environment and Primary Industries (2008), 'Calving Induction in Dairy Cows'.

315 [5.10.5], Cattle Code.

316 Refer to Appendix 1 of this Report on the way in which the Cattle Code and the Draft Cattle Standards & Guidelines regulate calving induction. Appendix 2 details the treatment of the Cattle Code in each Australian jurisdiction. Appendix 3 also details how this practice is currently regulated in each Australian jurisdiction.

317 [5.10.5], Cattle Code.

318 S7.4, Draft Cattle Standards & Guidelines.

319 G7.8, Draft Cattle Standards & Guidelines.

320 G7.9, Draft Cattle Standards & Guidelines.

321 G7.10, Draft Cattle Standards & Guidelines.

322 Dairy New Zealand (2014) 'Change to induction rules for 2015 - no routine inductions'.

Other breeding technologies

Over the past 50 years, the reproductive capability of dairy cows has changed dramatically as the dairy industry has become more focused on breeding for high milk yield.[323]

Oftentimes the better a cow is at producing high volumes of milk, the more difficulty she may have in naturally conceiving a calf.[324] For this reason, reproduction has become a highly technical process as farmers increasingly rely on the use of breeding technologies to maximise reproductive efficiency and output.

Selective breeding

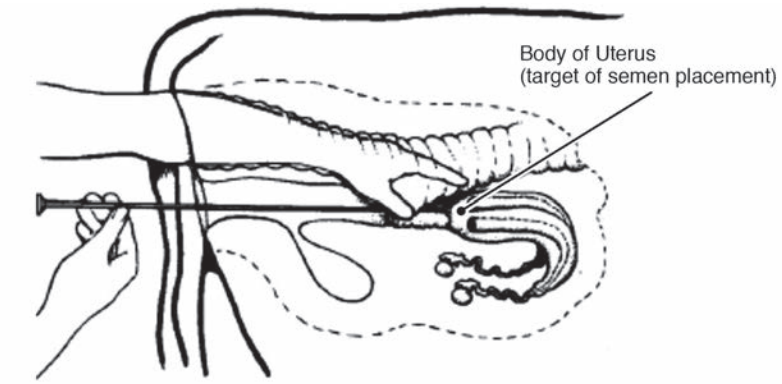
Selective breeding is the process of breeding animals for particular genetic traits to produce offspring who also show those characteristics.

While this method has long been used safely to change the physical and temperament characteristics of an entire herd or breed over time, a number of welfare risks associated with selective breeding persist. The continuous in-breeding of particular genes lowers the genetic diversity of the herd and runs the risk of breeding some genes out of the gene pool altogether. This has the potential of reducing the herd's resilience to environmental factors, such as food shortages or a disease epidemic.[325]

Further, studies have shown that the combination of selective breeding narrowly focused on production traits and the intensification of animal production systems have resulted in poor welfare outcomes for cows, such as increase in genetic disorders, metabolic stress, lameness, mastitis, reduced fertility and longevity. Selective breeding for better animal welfare traits could prove successful in improving this situation.[326]

Artificial insemination

Figure 6.
Artificial insemination of dairy cows[327]



323 Lucy (2001), at 1277.
324 Ibid.
325 Oltenacu and Broom (2010), at 39.
326 Ibid, at 40 and 46.
327 The Beef Site (2012), 'Artificial Insemination for Beef Cattle'.

FACT BOX 8

Other breeding technologies (continued)

Artificial insemination (AI) is a highly invasive procedure which typically involves a farmer manually inserting semen directly into the uterus of a female cow using their hand and an applicator gun (see image). The intensive nature of the dairy industry means that AI is now used widely across Australia.[328]

AI speeds up the process of selective breeding by offering farmers the opportunity to choose semen from bulls with desirable genetic traits.

The practice of selective breeding through AI has been made even more accurate and efficient through the use of genomics, which allows farmers to immediately evaluate the genetic traits of a cow or bull through DNA profiling. Animals who are considered genetically desirable can have their DNA placed on a genomics register from which farmers can purchase semen samples to develop their herds.[329]

Embryo transfer

Embryo transfer is the process of removing embryos from a donor and placing them into the uterus of a surrogate to establish a pregnancy. The surrogate mother then gives birth to a calf who is genetically unrelated to her.[330]

The purpose of embryo transfer is to speed up the process of selective breeding within a herd, as any female cow can act as surrogate for calves with preferred DNA.[331] Some donor cows have passed enough embryos on to enable more than 50 surrogate pregnancies in a year.[332]

The practice of embryo transfer can increase the risk of birthing difficulties for surrogate cows, particularly where embryos are selected which are likely to produce calves of a size or shape which will cause problems at calving (that is, the calf may be too large to pass naturally through the surrogate cow's birth canal). This increases the reliance on caesarean sections for embryo transfer cows, the higher risk of twin births, and the adverse effects of the continued use of superovulatory drugs.[333]

It is important to remember that these breeding technologies have contributed to the massive increase in milk production of the modern dairy cow. As has been detailed throughout this Report, this concentration on milk yield has contributed to a loss of fitness through increased predisposition to infertility, metabolic disorders, mastitis and lameness, all of which cause great distress and suffering to dairy cows on a daily basis.[334]

328 PricewaterhouseCoopers (2011), 'The Australian Dairy Industry - The Basics' at 6.
329 Dairy Australia (2014), 'Genomics'.
330 Larson (2011), 'Embryo Transfer in the Dairy Herd'.
331 Ibid.
332 Selk (2014), Embryo transfer in cattle, Oklahoma State University Service, at 2.
333 Farm Animal Welfare Council (FAWC), 'Report on the Welfare of Dairy Cattle: Embryo Transfer'.
334 Webster, Animal Welfare: Limping Towards Eden (Oxford, UK: Blackwell Publishing Ltd, 2005) at 134.

ALTERNATIVES TO CALVING INDUCTION

Some studies have shown that the cost of the numerous welfare complications incurred by calving induction can outweigh the economic benefits of the procedure.[335] In recognition of this, the Australian dairy industry has stated that it intends to reduce the need for induction by implementing strategies to improve reproductive management systems. These strategies may include improving herd fertility to ensure mating occurs at the desired time of year and moving from annual seasonal calving patterns to split or year round systems.[336]

While this position is promising, any such strategy to improve reproductive management systems would likely involve hormonal control of reproduction by intravaginal hormone releasing coils, in itself potentially stressful to the cows.[337] Accordingly, the dairy industry must support a complete prohibition on the use of calving induction.

RECOMMENDATIONS

Calving induction should only be performed by and on the advice of a veterinarian, and only where this procedure is deemed necessary for cow and/or calf welfare. Further, the routine use of calving induction (for example, as a management tool to achieve a synchronised herd calving pattern or to maximise milk production from pasture) should be expressly prohibited.

CONCLUDING REMARKS

Illness, serious health complications and both maternal and calf deaths are very real welfare concerns of calving induction. This procedure can result in the premature birth of calves who, if they survive the birth, may be deemed too weak to survive and subsequently killed on farm. This is an upsetting reality of dairy farming and one that should be prohibited.

It is important to remember that calving induction is a procedure that should only be used for the benefit of the mother cow and calf's safe birth, not as a farm management tool to align herd births or increase milk yield.

We have seen that there are significant potential welfare issues for both cow and calf with this practice when used inappropriately which render it unjustifiable and unethical.

335 Macmillan (2002), at 69, Hayes et al (1998), at 100.

336 Dairy Australia, 'Reducing Calving Induction' (2014). Such initiatives include the 'InCalf program'.

337 Advice from Professor Clive Phillips BSc, MA, PhD.

4. Injuries and Disease

PHOTO: JO-ANNE MCARTHUR / WE ANIMALS

4.1 LAMENESS

Lameness is a serious issue within the Australian dairy industry, and indeed dairy industries worldwide.[338] This disorder can result in the cow experiencing significant pain and discomfort, as well as increased risk of early slaughter.[339]

Lameness is a structural or functional condition which usually affects a cow's limbs inhibiting her ability to walk, stand up, lie down or move around.[340]

Lameness can be a result of either excessive wear, foot lesions, or infectious disease such as foot rot.[341] The condition can be very painful for a cow, and if chronic, can see her sent to an early slaughter.

Despite the dairy industry seeking to address lameness through R&D initiatives,[342] Australian dairy cows continue to suffer from this condition, particularly in larger herds, requiring urgent improvements both at a farm and industry level.

THE CAUSES OF LAMENESS

In pasture-based systems like Australia, the causes of lameness may include one or more of the following major risk factors:[343]

- Poor maintenance and design of the tracks which cows use to move around the farm;[344]
- Farm handlers moving cows along the track or yard too quickly;[345]
- Cows spending extended periods of time on hard concrete surfaces;[346]
- Exposure to excessive moisture including standing in manure or on wet floors;[347]
- Nutritional effects;[348]
- Stress;
- Presence of, and exposure to, infectious agents like bacteria and fungus;[349] and
- Genetic factors, such as breeding for high yield milk rather than disease resistance.

All of these factors will contribute to the incidence and prevalence of lameness in a herd. In Australia's pasture-based system, the most likely on-farm factors are poor track maintenance[350] and farm handler impatience when moving cows on the track and in yards.

These factors will typically contribute to foot lesions which are the most common cause of lameness. Knott et al note that a major cause of lameness is the reduction in the supportive capacity of the connective tissue of the hoof wall around the time of calving.[351] This results in the pedal bone sinking or rotating, which places significant stress on the sole of the foot.[352]

It is not surprising then that cows are more susceptible to the conditions that cause lameness in the period of calving when the pressure on their bodies is at its peak.[353] Given that dairy cows are repeatedly impregnated throughout their lives, mother cows are constantly under the types of physical stressors which cause lameness.[354]

338 Cook and Nordlund (2009), at 360.

339 Farm Animal Welfare Council (FAWC) (2009), 'Opinion on the Welfare of the Dairy Cow' at 5; Compassion in Food Business (2013), 'Welfare of the Dairy Cow: Information Sheet 3' at 6.

340 European Food Safety Authority (EFSA) (2009), at 137.

341 Von Keyserlingk et al (2009) at 4103.

342 Initiatives include an annual Animal Husbandry Survey, on-farm 'Healthy Hoof Workshops', the 'CowTime' program which outlines design specifications for optimal infrastructure, and an online tool to calculate the costs of lameness.

343 List of factors derived from Malmo (2014), 'Prevention of Lameness in Dairy Herds'.

344 See also FAWC (2009), 'Opinion on the Welfare of the Dairy Cow' at 5.

345 See also Cook and Nordlund (2009), at 366.

346 See also Webster, *Animal Welfare: Limping Towards Eden*, (Oxford, UK: Blackwell Publishing Ltd, 2005) at 142.

347 See also Ward (2009), at 139.

348 Cook and Nordlund (2009), at 361.

349 For example, if there is a break in the integrity of the skin, bacteria or a fungus can enter causing a lesion (such as an ulcer or abscess) that can then cause lameness. Further, bacterial infection can be largely prevented by keeping cows' feet clean and dry. See Webster, *Animal Welfare: Limping Towards Eden* at 141-42.

350 Laneway maintenance was cited as a priority prevention measure in 2012: Dairy Australia (2012), 'Animal Husbandry Survey 2012', at 3.

351 Knott et al (2007), at 278; Phillips, Cattle Behaviour and Welfare (2nd ed; Malden, USA: Blackwell Science, 2002) at 13.

352 Phillips, *Cattle Behaviour and Welfare* at 13.

353 Cook and Nordlund (2009), at 361-362; Knott et al (2007), at 286.

354 One study found the average time to fully recover from lameness was 27 days under 'ideal' pasture conditions: Cook and Nordlund (2009), at 362. In the instance of severe ulcers, cows ideally require at least six weeks to recover: Webster, *Animal Welfare: Limping Towards Eden* at 144.

LAMENESS AND PAIN

Lameness can often develop as a response to pain from injury or disease. Foot lesions which are a common factor in many cases of lameness can be extremely sore and the pain is only exacerbated each time the cow is forced to bear weight on their affected foot. As a response to pain, cows will lie down as much as possible, may go off their food, lose weight and fertility, not socialise and lose status in the herd.

Cows who are unable to lie down because of lameness will stand with arched backs and lowered heads in an attempt to take the weight off their hind limbs.[355] Evidence also suggests that chronically lame cows display an increased sensitivity to pain, or hyperalgesia.[356] Like us, they do not adapt to chronic pain, rather it gets worse over time.[357]

PHOTO: DIANA SIMPSON

"Imagine that you caught all your fingers of both hands in a doorjamb, hard. And then you had to walk on your fingertips… So when you see a cow hesitating to put one foot in front of the other, you can be sure she is feeling excruciating pain."[358]

Critically, herd animals like cows and sheep do not naturally show overt signs of pain because this is an indication of weakness or vulnerability. Farmers will often interpret the lack of observable signs as meaning the animal is not in pain, and will fail to appropriately treat the problem or take preventative steps to manage the causes.[359]

Cows who are found to be chronically lame are often expected to struggle on, in pain, until they are slaughtered if they cannot be nursed back to full recovery.[360]

LAMENESS IN AUSTRALIA

It is difficult to know how common lameness is among dairy cows in Australia because statistics are not routinely collected by industry or government.

In 2008, lameness was estimated to affect 28% of Australian dairy cows,[361] whilst a survey of Victorian farmers conducted in 2002 suggested the incidence of lameness in a 12 month period was about 7.3%.[362] The disparity may be attributed to differences in defining what constitutes lameness. It is important to note that these figures are highly likely to underestimate the problem because there is presently no mandatory reporting or monitoring requirements for lameness in Australia.

The drawbacks of self-reporting are highlighted by studies from the UK, which have found that reports into lameness that rely heavily on farmer self-reporting consistently derive the lowest estimates of lameness.[363] The Report of the European Food Safety Authority on the effects of farming systems on dairy cow welfare and disease also endorsed this idea: "Farmer self-reporting of lameness should probably be considered unreliable for research and benchmarking purposes."[364]

This is not to say that farmers deliberately under-report the condition. A more likely explanation is that they simply do not have the time or resources to implement a lameness control strategy.[365] In addition, lame cows will continue producing an acceptable quantity of milk up until their (often) premature slaughter.[366] If farmers tend to use only functional indicators of welfare such as high milk output, cases of lameness can be missed.

355 Phillips, *Cattle Behaviour and Welfare* at 13.

356 EFSA (2009), at 144-145.

357 Webster, Animal Welfare: Limping Towards Eden at 143.

358 John Webster as quoted in Masson, *The Pig Who Sang to the Moon. The Emotional World of Farm Animals* (New York: Ballantine Books, 2003) at 151-152. This quote relates specifically to acute laminitis, which is a severe but relatively uncommon cause of lameness in dairy cows.

359 Webster, *Animal Welfare: Limping Towards Eden* at 143.

360 EFSA (2009), at 146.

361 Fisher and Webster (2013), at 926.

362 Watson (2002), 'Evaluation of Lameness Knowledge, Prevention and Control Practices Undertaken in Some Dairy Herds', at 5.

363 Research shows that lameness reported by dairy producers was 2.5 times lower than prevalence recorded by independent observers: see Socha et al (2006); Whay et al (2003) at 201.

364 EFSA (2009), at 146.

365 Webster, *Animal Welfare: Limping Towards Eden* at 144.

366 EFSA (2009), at 136.

It has also been suggested that part of the difficulty in early lameness detection may come from the fact that herd sizes are increasing, giving farmers less time to appropriately monitor each animal.[367] If this is the case, as the average herd size continues to increase in Australia, so too would the incidence and prevalence of lameness.

THE INDUSTRY RESPONSE

The Australian dairy industry recognises that lameness is a significant issue, largely because the condition carries a huge economic cost.[368] Taking account of medical treatment, reduced milk production, reduced fertility and increased risk of early slaughter, lameness can cost dairy farmers between $200-$500 per lame cow each year.[369]

Accordingly, lameness is one of the priority areas in The National Dairy Industry Animal Welfare Strategy.[370] Dairy Australia also states that it is working with farmers to assist them in establishing on-farm lameness strategies and provide on-farm management tips for reducing lameness.[371]

Survey results commissioned by Dairy Australia in 2013 claim "that almost all dairy farmers have implemented a lameness strategy on farm to prevent, identify and treat cases of lameness".[372]

According to Dairy Australia, initiatives to prevent and treat lameness are already having an effect. They state that "[w]hen lameness does occur, dairy farmers follow industry recommendations and inspect the affected hoof in an attempt to identify and address the cause of the problem as soon as it is noticed".[373] Without reliable comparative data on the prevalence and incidence of lameness, however, it is impossible to assess the effectiveness of these strategies.

Here it is useful to draw from UK experiences. The Report of the European Food Safety Authority has observed "that despite the considerable investment of time and money in research, technology and information transfer, there has been no significant reduction in the prevalence of lameness in dairy cows in the last 20 years."[374]

It is suggested that this has been mainly due to a failure of farmers to implement adequate prevention and treatment measures due to the cost and time involved, and the lack of a tangible financial incentive to do so.[375]

THE REGULATION OF LAMENESS

It is an offence in most jurisdictions to fail to adequately seek veterinary treatment for sick or injured animals,[376] and the failure to provide medical treatment where it is reasonable or necessary would likely fall under the general cruelty provisions in state and territory-based cruelty legislation.

The Cattle Code provides guidelines to assist farmers in preventing and managing lameness, stating that, "depending on management requirements, cattle *should* be confined on concrete surfaces as briefly as possible" and that "artificial floors *should* be non-slip, non-abrasive, and easy to clean and dry". It also states that "gravel tracks to and from paddocks, sheds or dairies *should* be maintained *adequately* to avoid excessive hoof wear and consequent lameness" and that "cattle with worn hooves *should* not be forced to walk on rough tracks" (emphasis added).[377]

As previously noted, these guidelines are unenforceable, and couched in subjective language (such as "should") which leaves compliance with their terms at the discretion of farmers. Further, the Cattle Code is only mandatory in South Australia.

The Draft Cattle Standards & Guidelines, which is intended to replace the Cattle Code, also makes it mandatory for a person in charge to "ensure *appropriate* treatment for sick, injured or diseased cattle at the first *reasonable* opportunity" (emphasis added).[378] It also provides the following non-mandatory guidelines for the management of lameness:

- A lameness management strategy *should* be implemented and should include practices for the prevention, early detection and effective treatment.[379]
- Lameness assessment and/or hoof inspections *should* be conducted regularly and hoof trimming carried out when necessary.[380]

367 Von Keyserlingk et al (2009), at 4103.
368 Knott et al (2007), at 277; Ward (2009), at 139; Dairy Australia (2014), 'Reducing Lameness'.
369 Dairy Australia (2012), 'Managing in Wet Conditions'.
370 Australian Dairy Farmers (2009), 'The National Dairy Industry Animal Welfare Strategy' at 1, 4.
371 Dairy Australia (2014), 'Reducing Lameness'.
372 Ibid.
373 Ibid.
374 EFSA (2009), at 150.
375 Ibid.
376 See, for example, s 5(3)(c) Prevention Of Cruelty To Animals Act 1979 (NSW); s 17(3)(a)(iv) Animal Care and Protection Act 2001 (Qld); s 8(2)(g) Animal Welfare Act 1993 (TAS); s 9(1)(i) Prevention of Cruelty to Animals Act 1986 (Vic).
377 Cattle Code, [4.5]. The equivalent Victorian provision is [9.3] Code of Accepted Farming Practice for the Welfare of Cattle.
378 Draft Cattle Standards & Guidelines, [S3.3].
379 Draft Cattle Standards & Guidelines, [G9.3].
380 Draft Cattle Standards & Guidelines, [G9.4].

- The surfaces of yards, pens, tracks and laneways *should* be constructed and maintained to minimise the risk of lameness, slips and falls.[381]
- Cattle *should* be handled quietly and calmly, taking into account their flight zone and natural herding instinct to minimise stress during handling. Allowances *should* be made for cattle with special needs such as young calves, lame cattle and bulls.[382]

RECOMMENDATIONS

At a regulatory level, the non-mandatory guidelines in the Draft Cattle Standards & Guidelines (as set out above) must be made mandatory. In their current form, the guidelines are unenforceable and do not reflect the severity of the welfare concerns associated with lameness.

As previously indicated, a key concern is the lack of accurate and independent industry data on the incidence and prevalence of lameness in Australia. Without this information, it is difficult to analyse the effectiveness of current prevention strategies, or for industry to identify areas for improvement. Mandatory auditing and reporting at a national level is necessary in this area, with this information collated on a centralised database. To ensure accuracy in reporting, an independent body may be responsible for the collection of this data.

Industry must also invest in specific training for farmers and stockpersons to recognise when a cow is suffering from the early stages of lameness, including detecting changes in her gait. This training should be mandatory for all Australian dairies. There is also promise in the development of automated milking technologies, where lame cows could be identified through changes in their weight distribution and how they are positioning themselves during milking.[383]

It is important to remember that lameness is exacerbated by the genetic selection of dairy cows for their high milk yield. Industry should invest in, and promote, the use of breed selection which takes into account positive animal welfare traits, including resistance to lameness, not just productive output.

Implementing a National Dairy Industry Licensing Scheme and national assurance schemes could be beneficial in addressing lameness in Australia. See *Chapter 6.2: The Need for Reform* for a further discussion on these points.

CONCLUDING REMARKS

Lameness is a major issue for the Australia dairy industry, inflicting significant pain and discomfort for cows that, if chronic, can result in early slaughter.

Despite the above recommendations that may help to improve the situation, it is important to remember that lameness is an inherent consequence of high-production commercial dairying.

Given that cows are more susceptible to lameness when calving, repeated pregnancies, combined with large udders and poor animal husbandry, all make lameness and the consequent pain an inevitable part of the Australian dairy industry.

The trend towards greater milk yield and larger herd sizes could mean this painful condition will remain a major cause of suffering for the dairy cow.

381 Draft Cattle Standards & Guidelines, [G4.3].
382 Draft Cattle Standards & Guidelines, [G5.1].
383 Von Keyserlingk et al (2009), at 4103.

4.2 MASTITIS

Mastitis is a common disease which affects the udders of commercial dairy cows.[384] Research shows that even a mild case of mastitis can make daily activities painful and distressing.[385]

Mastitis is an inflammation of the mammary gland caused by the invasion of bacteria into the udder via the teat canal.[386] The disease can be transmitted contagiously between cows or caused by environmental factors, such as poor hygiene, which increases the risk of exposure to the bacteria that cause mastitis.[387] Once entering the body, the bacteria can multiply, causing an infection which may result in a painful, inflamed udder.[388]

The RSPCA estimates that around 10-15% of Australian dairy cows are affected by clinical mastitis.[389] Industry efforts to address this problem, although significant, have focused mainly on the economic implications of the disease rather than its effect on cow welfare.[390]

Increasing milk demands, forced repeated pregnancies and genetic selection to favour production traits over welfare (such as oversized, pendulous udders) have resulted in mastitis becoming a widespread problem in the dairy industry.[391]

THE CAUSES OF MASTITIS

Contagious mastitis is usually caused by the spread of bacteria between cows. This commonly happens at the time of milking when cows can be exposed to infected milk on milkers' hands, cleaning towels or teatcups.[392]

Environmental mastitis can result from exposure to bacteria in soil and manure (which are the primary sources of exposure of dairy cows to environmental pathogens),[393] as well as bacteria in calving pads and bedding materials.[394] Housed cows tend to be more at risk to environmental mastitis than grazing cows.[395]

Cleanliness is a major factor in preventing the spread of contagious and environmental mastitis and good animal husbandry practices, such as thorough inspection and cleaning of the cow's udder, machinery and their environment, can significantly reduce the incidence of mastitis.[396]

Cows who have just given birth and transition cows (namely, cows between lactations) are at particular risk of developing mastitis.[397] This can be due to the stresses associated with parturition (labour and giving birth) and the onset of lactation, which can significantly reduce their immune response to infection of the mammary gland by bacteria. In mid lactation, this may cause a relatively mild localised mastitis. In the first days of lactation, however, it can lead to death from septicaemia (blood poisoning).

Infections from environmental mastitis bacteria are also heightened during calving when udders are wet and more exposed to mud and manure.[398] This may be exacerbated by the changing physicality of the modern dairy cow. Genetic selection for increased milk production has caused radical changes to the shape and size of cows' udders which are now oversized and pendulous. A pendulous udder is more vulnerable to mastitis, as it is more likely to pick up bacteria from dirt and mud,[399] and the teatcups may not function properly.[400]

"Through genetic selection, advances in milking technology and improved nutrition, the bovine mammary gland yields far more milk than is needed to nourish the newborn calf."[401]

384 Medrano-Galarza et al (2012), at 6994.

385 Fitzpatrick et al (1998). at 42.

386 European Food Safety Authority (EFSA) (2009), at 150; Fitzpatrick et al (1998), at 37.

387 EFSA (2009), at 150 and 155; Phillips, *Cattle Behaviour and Welfare* (2nd ed; Malden, USA: Blackwell Science), at 14; Farm Animal Welfare Council (FAWC) (2009), 'Opinion on the Welfare of the Dairy Cow' at 6. An Australian study found that 90-93% of mastitis in intensive farms was caused by environmental pathogens, which suggests that hygiene is of great importance: see, Shum et al (2009), at 473.

388 Dairy Australia (2014), 'Countdown 2020 - Farm Guidelines for Mastitis Control', at 3; EFSA (2009), at 150.

389 RSPCA (2013), 'What Is Mastitis in Dairy Cows?'; EFSA (2009), at 150.

390 See, for example, Dairy Australia (2013), 'What Is Mastitis' (section entitled "Why is mastitis control important").

391 Advice from Professor Clive Phillips BSc MA Phd.

392 Dairy Australia (2013), 'What Is Mastitis'.

393 De Vries et al (2012), at 5730.

394 EFSA (2009), at 150; Contreras and Rodriguez (2011), at 343; Shum et al (2009), at 471.

395 Dairy Australia (2013), 'What Is Mastitis'.

396 Dairy Australia (2014), 'Countdown 2020 - Farm Guidelines for Mastitis Control'.

397 See, Contreras and Rodriguez (2011), at 346, 49; Von Keyserlingk et al (2009), at 4103; Dairy Australia (2013), 'Countdown 2020 - Farm Guidelines for Mastitis Control'; De Vries et al (2012) at 5730-39.

398 Advice from Professor John Webster PhD.

399 EFSA (2009), at 150; Sharif and Muhammad (2009), at 145.

400 Advice from Professor Clive Phillips BSc MA Phd.

401 EFSA (2009), at 150; Dairy Australia (2013), 'What Is Mastitis'.

PAIN AND DISTRESS DURING MASTITIS

Mastitis can vary from severe clinical mastitis where the cow is extremely ill to the point where her udder may become gangrenous, to subclinical mastitis where there are no observable changes in the cow or her udder, though there are changes in milk composition. In some cases, especially if left untreated, severe mastitis may result in the death of the cow.[402]

Research conducted by Fitzpatrick et al strongly suggests that cows with mastitis have increased sensitivity to pain, even when the mastitis is mild or moderately severe. Treating cows with mild mastitis using a single intravenous injection of a non-steroidal anti-inflammatory (NSAID) combined with an antibiotic may provide short-term relief, although this was not effective for moderately severe cases.[403]

"Burning, throbbing and the relevant quarter of the udder would be extremely sensitive to touch, causing her much pain if knocked."[404]

Common symptoms of clinical mastitis include abnormalities in the udder (such as swelling, heat, hardness, redness, or pain) and the milk (such as a watery appearance, flakes of blood, clots, or pus). Other symptoms may include an increase in body temperature, lack of appetite, sunken eyes, diarrhoea and dehydration.[405]

Cows suffering from mastitis may also display reduced mobility as a result of ill-health or the pain of an infected udder.[406] Some cows suffering from mastitis may also spend less time lying down, lie only on one side and appear restless during milking.[407] Heart rate, rectal temperature and respiratory rates have also been shown to increase with the severity of the disease.[408]

As mastitis infections can be very costly to individual farmers there is a temptation to send 'repeat offenders' to the slaughterhouse. In Europe, for example, about 9% of premature culling is attributed to mastitis.[409]

HOW COMMON IS IT?

While mastitis control strategies have been implemented by the Australian dairy industry since the 1960s, the disease remains common.[410]

The extent of the problem is difficult to measure because the Australian dairy industry does not provide current data on the incidence and prevalence of mastitis among Australian dairy herds.[411] Significant industry investment into preventative schemes,[412] however, suggests that farmers need support to better deal with mastitis.

The RSPCA estimates clinical mastitis affects around 10-15% of Australian dairy cows,[413] an increase from a rate of 6% recorded in 2004/5 by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES).[414] Rates of subclinical mastitis have been reported as high as 28.9% in New South Wales.[415]

Dairy Australia calculates that more than $150 million is lost to Australian farmers each year through poor udder health, with mastitis being the major cause of this loss.[416]

402 Ibid; Dairy Australia (2014), 'Countdown 2020 - Farm Guidelines for Mastitis Control', at 5; RSPCA (2013), 'What Is Mastitis in Dairy Cows?'.

403 Fitzpatrick et al (1998), at 36-44.

404 Advice from Professor Clive Phillips, BSc MA Phd.

405 Dairy Co (2014), 'Symptoms of Mastitis'; EFSA (2009), at 150.

406 See DairyCo (2014), 'Symptoms of Mastitis'.

407 Medrano-Galarza et al (2012), at 7000-01.

408 EFSA (2009), at 153.

409 FAWC (2009), at 6.

410 Charman et al (2012). In Australia, a long history of mastitis initiatives demonstrates the significance of the disease. The Countdown 2020 program was launched in 1998, but was preceded by various attempts to introduce an effective management plan since the 1960s. Mastitis prevention and management research continues today, as the disease is still acknowledged as a major cost to the Australian dairy industry: see Malmo (2012).

411 Plozza et al (2011), at 41.

412 Such as Countdown 2020: Dairy Australia (2014), 'Managing Milk Quality (Countdown 2020)'.

413 RSPCA (2013), 'What Is Mastitis in Dairy Cows?'.

414 Lubulwa and Shafron (2007), 'Australian Dairy Industry: Technology and Farm Management Practices', at 3.

415 The average herd prevalence of subclinical mastitis in New South Wales between 2006 and 2009 was 28.9%. However, this average relates to an extensive range between 11% and 43%: see, Plozza et al (2011), at 43-44.

416 Dairy Australia (2014), 'Countdown 2020 - Farm Guidelines for Mastitis Control', at 1.

PHOTO: JO-ANNE MCARTHUR / WE ANIMALS

THE INDUSTRY RESPONSE

Dairy Australia has responded proactively to the problem of mastitis, providing guidelines, education, milk quality awards and funding for research projects seeking to reduce the incidence of mastitis in Australia.

The national udder health program, Countdown 2020, provides farmers with tools to monitor mastitis in their herds. Through implementation of this program, the industry hopes to see 70% of Australian dairy farms supplying milk with an annual average bulk milk cell count of less than 250,000 cells/mL by 2017,[417] although this goal is potentially over-ambitious.[418] Cows with an individual somatic cell count of over 250,000 are likely suffering from subclinical mastitis.[419]

Despite the emphasis on saving money rather than animal welfare,[420] this program is a highly practical and interactive tool to assist farmers in reducing mastitis in their herds. While there are many dairy farmers who are committed to this task, there will always be farms where mastitis continues to be a constant problem.

THE REGULATION OF MASTITIS

As with lameness, a failure to adequately seek veterinary treatment for sick or injured animals where it is reasonable or necessary to do so would likely fall under the general cruelty provisions in State-based cruelty legislation.[421]

The Cattle Code provides general guidelines in relation to the management and treatment of "diseases". Of specific relevance to mastitis, the Cattle Code states that "milking technique must minimise the risks of discomfort or injury to the cow and the development and/or transmission of disease".[422] Again, the Cattle Code generally operates as a guideline for farmers, and with the exception of South Australia, is non-mandatory.[423]

417 Dairy Australia (2014), 'Countdown 2020 - Farm Guidelines for Mastitis Control', at 2.

418 Advice from Professor Clive Phillips BSc, MA, Phd, who states that the Countdown 2020 objective is extremely unlikely if not impossible, given that in the UK, despite major advances in treatment methods, the rate has not declined even after 50 years of determined research effort.

419 "The individual cow cell count (ICCC) indicates the likelihood of subclinical mastitis. Uninfected cows generally have ICCC levels of below 150,000 cells/mL. If a cow has had any ICCC above 250,000 during a lactation (a peak of 250,000 or more) she is likely to still be infected at drying-off and require Dry Cow Treatment": see, Dairy Australia (2013), 'What Is Mastitis'.

420 Dairy Australia (2014), 'Countdown 2020 - Farm Guidelines for Mastitis Control' at 5 - see the section entitled: "Why is mastitis important?".

421 See, for example, s 5(3)(c) Prevention of Cruelty to Animals Act 1979 (NSW); s 17(3)(a)(iv) Animal Care and Protection Act 2001 (Qld); s 8(2)(g) Animal Welfare Act 1993 (TAS); s 9(1)(i) Prevention of Cruelty to Animals Act 1986 (Vic).

422 Cattle Code, [5.3.2].

423 See Appendix 2 of this Report for how the Cattle Code operates in each Australian jurisdiction.

The Draft Cattle Standards & Guidelines, which is intended to replace the Cattle Code, also makes it mandatory for a person in charge to "ensure *appropriate* treatment for sick, injured or diseased cattle at the first *reasonable* opportunity" (emphasis added).[424] It also provides the following non-mandatory guidelines for the management of mastitis (emphasis added):

- Milking machinery and equipment *should* be regularly tested and maintained.[425]
- The milking technique *should* minimise the risk of discomfort, injury and disease.[426]
- A mastitis management strategy should be implemented and *should* include practices for prevention, early detection and effective treatment.[427]

There is no legal limit on the somatic cell count (SCC) for milk available for sale in Australia. As noted above, the SCC can be used as an indicator of the likelihood of subclinical mastitis in dairy cows. In the European Union, Regulation (EC) No 853/2004 provides that for raw milk to be fit for human consumption, it must have an average SCC of less than 400,000 cells per mL.[428]

RECOMMENDATIONS

As with lameness, the non-mandatory guidelines in the Draft Cattle Standards & Guidelines (as set out above) must be made mandatory. In their current form, the guidelines are unenforceable and do not reflect the severity of the welfare concerns associated with mastitis.

The incidence and prevalence of mastitis must be audited and reported at a national level, with this information collated on a centralised database. To ensure accuracy in reporting, an independent body may be responsible for the collection of this data.

Greater emphasis must be placed on prevention, in addition to cure. Specific training must be mandatory for farmers and farmhands in preventing and managing mastitis amongst herds, in recognising when a cow is suffering from mastitis and to treat her accordingly.

The Australian dairy industry must also focus on improving breeding technologies and encouraging farmers to select breeding traits that improve cow welfare. The Australian Breeding Values (ABVs) include mastitis resistance as a management trait,[429] and genetic selection can also influence such undesirable traits as udder shape, teat length and canal width.[430] Dairy Australia and other industry participants should actively encourage farmers through targeted education campaigns to prioritise these traits when developing their herds.

Implementing a National Dairy Industry Licensing Scheme and national assurance schemes, in conjunction with regular and independent on-farm monitoring and enforcement, could be beneficial in addressing mastitis in Australia. See *Chapter 6.2: The Need for Reform* for further discussion on these points.

CONCLUDING REMARKS

Mastitis is a problem endemic in the dairy industry,[431] both in Australia and worldwide. A diseased udder is incompatible with the 'feel good' publicity and marketing images of happy cows that are often used by the dairy industry.

Due to the extraordinary burden of milk production which is placed on the modern dairy cow, including continual calving, infections of the mammary gland are common. The frequency should not, however, be used to downplay the pain, impairment and early mortality of the afflicted cow.

High milk yield, oversized udders and repeated pregnancies are all causes of mastitis and of her discomfort and pain. It is time that we view mastitis in terms of the suffering it causes her, not merely in terms of milk quality and price.

424 Draft Cattle Standards & Guidelines, [S3.3].
425 Draft Cattle Standards & Guidelines, [G9.1].
426 Draft Cattle Standards & Guidelines, [G9.2].
427 Draft Cattle Standards & Guidelines, [G9.5].
428 As determined by a rolling geometric average over a period of three months, with at least one sample per month.
429 Australian Dairy Herd Improvement Scheme (2011), 'Breeding Cows in Australia', at 1.
430 Phillips, *Cattle Behaviour and Welfare*, at 75.
431 EFSA (2009), at 154.

5. Live Exports

Australia is one of the few countries to live export dairy heifers and cows overseas as breeder stock. To feed the world's growing appetite for dairy products,[432] these animals are shipped long distances in stressful conditions to countries with little or no animal welfare protections.

In 2013, Australia live exported around 850,923 cattle overseas, the majority of whom were shipped and slaughtered for their meat. Around 10% were dairy heifers and cows exported from Australia as breeding stock.[433] These animals will not be initially slaughtered for their meat but instead are used for their milk and to grow dairy herds overseas.

Live export poses serious welfare concerns both in regards to the extreme conditions endured during the journey and the welfare standards animals meet once they reach their destination. Despite this, **breeder animals have fewer formal legal protections than meat animals who are exported live**. The offspring of Australian dairy cattle exported overseas have even less protection and face an uncertain life.

THE AUSTRALIAN LIVE EXPORT INDUSTRY

In 2013, Australia exported 79,723 dairy heifers and cows live to foreign markets, a 4% increase on the previous year. The majority of these were Victorian and were predominantly exported to China (61,906), Indonesia (11,069), Thailand (3,595) and Pakistan (1,514).[434]

Australian dairy heifers and cows are especially sought after because of their high value milk production, with the export industry now valued at approximately $172 million.[435] In response to increasing demand, the local dairy industry in Victoria has adjusted its farming operations in recent years to produce animals specifically for live export.[436]

SHIPPING IMPACT

The journey from farm gate to final destination is long and arduous. Dairy heifers and cows are typically required to spend time on road and/or rail transport to port, mandatory time waiting before loading onto transport and on the voyage itself – either on a plane or ship.

At sea, these animals are deprived of food and water for long periods and commonly lose weight during the journey.[437] The stress of transportation can suppress their immune system and potentially increase their likelihood of disease.[438] Moreover, heat stroke, trauma and respiratory disease are common causes of mortality for animals throughout the live export journey on long haul voyages, although mortalities en route are relatively low.[439]

OVERSEAS FARMING CONDITIONS

The suffering of breeder animals continues once they reach their destination.

Heifers and cows can be exported pregnant (see *Fact Box 9: Pregnant en route*) or as heifers to be impregnated with their first calf upon arrival in the importing country.

The survival rates of those calves born overseas is one of the only useful measures available to gauge the welfare standards of calf-rearing systems in importing countries. Surveys in Southeast Asia reveal that pre-weaning calf mortality rates of 15-25% are reported as 'typical' on many tropical dairy farms, with reports of calf deaths as high as 50%. These figures are a strong indicator of very poor calf management,[440] and in stark contrast with the Australian pre-weaning mortality rate of 3%.[441]

These high mortality rates, particularly on small holder calf-rearing systems, are attributed to a variety of factors, including humidity and temperature, poor housing and hygiene, poorly balanced diet due to quality of available feed, insufficient rumen (cud chewing), poor access to veterinary support and a lack of farm handler skill and knowledge.[442]

432 Beldman and Daatselaar (2013), 'Global Dairy Outlook 2012', at 4-5.
433 Meat & Livestock Australia (2014), 'Australian Livestock Export Industry Statistical Review 2013', at 2.
434 Ibid, at 3.
435 Ibid, at 2.
436 Martin et al (2007), 'Live Cattle Export Trade: Importance of Northern and Southern Australian Beef Industries', at 2.
437 Moran (2012a), at 17.
438 Ibid.
439 Caulfield (2008), 'Live Export of Animals', in White and Sankoff (ed), *Animal Law in Australasia: A New Dialogue* (Sydney, Australia: The Federation Press, 2009) at 156.
440 Moran (2012b), at 57. Note that Australia exports dairy cattle to a number of Southeast Asian countries, including Indonesia, Malaysia, Thailand and the Philippines.
441 Moran (2012a), at 57.
442 Ibid, at 58.

Pregnant en route

Breeder heifers and cows are regularly transported overseas whilst pregnant. Exporting these animals whilst pregnant is inherently risky. Firstly, they may give birth during the voyage. *The Australian Standards for the Export of Livestock (Version 2.3)* (ASEL) requires that cows cannot be more than 190 days pregnant on boarding the ship (the gestation period of a cow is about 280 days).[443] The actuality, as evidenced from many reports on live export voyages published by the Department of Agriculture, is that heifers and cows in late stages of pregnancy are regularly loaded onto live export ships and they have given birth on live export ships.[444]

These animals are at risk of abortions, dystocia (difficulty giving birth) and becoming moribund due to metabolic problems associated with pregnancy. There is also the physical risk that a pregnant animal has a greater likelihood of falling and being unable to get back up, giving rise to a risk of trauma from the fall or from being trampled by other animals.[445]

In the rare case that calves are born during transport, they will in all likelihood be housed in a tightly-packed pen with other heifers and cows, so there is a real risk they will be trampled. Moreover, it is unlikely that live export ships will have the capability to provide proper support and management of newborn calves.[446]

Alarmingly, both state veterinary authorities and the Australian Veterinary Association reported concerns about the inadequacy of exporters' efforts to identify pregnancy in these animals and, consequently, that many have their pregnancy status incorrectly recorded.[447]

443 S1.10, ASEL.
444 Advice from Dr Heather Cambridge and Malcolm Caulfield, PhD.
445 Ibid.
446 Ibid.
447 Ibid.

Welfare concerns vary between countries and can be dependent on climate and the skill and training of farmers. For example, many dairy farmers in tropical Asian countries run small holder dairy farms with less than 10 milking cows, and may not have the skills to achieve efficiency in milk production.[448]

Once dairy cows are 'spent' in destination countries, there are also serious welfare concerns around the way in which they are slaughtered. Many importing countries disclose very little information about slaughter methods or guidelines used. This lack of information is highly concerning.

Those international welfare standards that do exist are generally lower than those that apply to animals in Australia. For instance, we know that the pre-slaughter stunning of cows is not a requirement under the World Organisation for Animal Health (OIE) standards.[449]

Investigations have exposed cruelty to Australian cows exported overseas. These investigations have routinely shown cruel methods of slaughter, including the use of roping techniques, full inversion boxes and makeshift abattoirs. There are numerous allegations of cruelty towards Australian beef cattle in overseas abattoirs where dairy cows are currently exported:

- Indonesia: In February 2012, Animals Australia provided footage of painful handling techniques (such as physical force), the use of restraint devices that contravene OIE standards, and one animal with a broken leg being tortured for 26 minutes before being killed. The footage also revealed that fully conscious cattle were slaughtered by an average of 11 cuts to the throat, with a maximum of 33 cuts.[450] Animals Australia provided further evidence in October 2012, this time of Australian cattle slaughtered out of approved Indonesian abattoirs and using 'traditional' methods of slaughter that contravene OIE standards.[451]
- Malaysia: In May 2013, Animals Australia provided footage of cattle being handled and slaughtered in approved slaughterhouses in contravention of OIE standards. While the Department of Agriculture acknowledged these non-compliances, due to the quality of the footage provided, the investigation was unable to confirm the tag numbers of the cattle or determine the responsible exporter.[452] Further photographs were provided in August 2013, with cattle being inadequately fed, injured during handling and inhumanely slaughtered.[453]
- Egypt: In May 2013, Animals Australia provided footage of cattle having their throats cut without stunning; being stabbed in the eyes; having their leg tendons slashed and being butchered while still alive. The Government's investigations found that the framework for cattle exports to Egypt had not consistently delivered animal welfare outcomes that conform to OIE standards, and accordingly, suspended the trade until it reopened again in July 2014.[454]

448 Moran (2013), at 90.

449 World Organisation for Animal Health (OIE), Terrestrial Animal Health Code (2014) (Volume 1), Article 7.5.7 and 7.5.8.

450 See the investigation report from the Department of Agriculture (2012), 'Investigation into a Complaint from Animals Australia Alleging Non-Compliance in January 2012'.

451 See the investigation report from the Department of Agriculture (2013), 'Allegations of Breach of Exporter Supply Chain Assurance System, Indonesia - October 2012'.

452 See the investigation report from the Department of Agriculture (2014), 'Compliance Investigation Report 11(a): Cattle Exported to Malaysia in May 2013'.

453 See the investigation report from the Department of Agriculture (2014), 'Compliance Investigation Report 19 - Cattle Exported to Malaysia'.

454 See the investigation report from the Department of Agriculture (2014), 'Compliance Investigation Report 10: Performance of the Closed Loop System for Cattle Exports to Egypt'.

The China Story

The demand for Australian breeder dairy animals is on the rise, particularly in Asia where dairy farming is a burgeoning industry.[455]

China is by far the biggest importer of Australian dairy animals as the nation moves to create its own independent and profitable dairy industry. In 2013, China imported 78% of the dairy heifers and cows Australia sent overseas (around 59,235 animals), at a total value of around $125 million.[456]

China is using Australian, New Zealand and Uruguayan heifers and cows along with US bull semen to build its national herd.[457]

While the animals exported from Australia to China are raised on pasture-based farming systems, Chinese milk producers are beginning to adopt the US-style of intensive farming systems.[458] Intensive dairy farms present a range of serious welfare concerns.

According to a Wall Street Journal report on intensive dairying, "cows live in football-field-size covered sheds, rarely venture outdoors and are milked three times a day on German-made, bovine merry-go-rounds, with automated pumps that measure each cow's milk flow by the second and send that data to central computers."[459]

China Modern Dairy, the country's largest milk producer, houses up to 20,000 cows within these football-field-size covered sheds.[460] As of 31 December 2013, the Group had 22 farms operating and four under construction, with approximately 186,838 dairy cows in total.[461] The organisation plans to reach 300,000 dairy cows by 2015.[462] That equates to a massive 7,950 cows per shed.

Cows who are kept in intensive systems like this are milked three times a day and kept on an intensive feeding regime to maximise their milk yield.

The enormous pressure placed on their immune systems often results in their becoming 'spent' – or economically unviable – at a very early age. Due to the stress of high production and environmental conditions, they are also at a greater risk of lameness, disease, overcrowding and social disputes.[463]

455 Frangos (2013), 'China Grows Its Dairy Farms with a Global Cattle Drive', *The Wall Street Journal,* 2013.
456 Meat & Livestock Australia, 'Australian Livestock Export Industry Statistical Review 2012-2013', at 2.
457 Frangos (2013), 'China Grows Its Dairy Farms with a Global Cattle Drive'.
458 Ibid.
459 Ibid.
460 Ibid.
461 China Modern Dairy (2013), 'About Modern Dairy'.
462 Frangos (2013), 'China Grows Its Dairy Farms with a Global Cattle Drive'.
463 World Society for the Protection of Animals (WSPA) (2010), 'Not on Our Cornflakes', at 6-7.

THE FAILURE OF REGULATION

The suffering of animals involved in the live export trade is immense. The Australian Government has introduced legislation that has sought to prevent, or perhaps more accurately, reduce that suffering for animals exported live for slaughter.

Despite this intention, however, animal suffering is and will continue to be an inevitable part of any trade that forces animals to endure lengthy journeys in emotionally and physically distressing conditions, only to be worked and slaughtered abroad in countries with substandard animal welfare protections.

A complex legislative framework governs the trade, made up of Commonwealth Acts, codes, memoranda of understanding, orders and private industry codes of conduct of uncertain legal status. The framework is inconsistent and has been described by Malcolm Caulfield, lawyer and expert in live animal export as:

"… a muddled mess of second-rate law, poor and amateurish enforcement and a cynical failure of governments and public servants to grasp the nettle of large-scale animal cruelty in agri-business".[464]

UNPROTECTED DURING TRANSPORT

Much of the cruelty and welfare concerns inherent in the live animal export trade cannot be legislated away, such as the forced change in diet and environment, heat stress, lengthy loading times and travel times, and the inability of our government to protect animals beyond Australia's coastline.

The Australian Standards for the Export of Livestock (ASEL) specify a number of requirements relating to animal welfare both before and during transport. While ASEL offers some limited protection and is more detailed than the Cattle Code, it is still highly ineffective in protecting dairy heifers and cows during live export.

Shortcomings of the ASEL include:

- The focus of the obligations are on the exporter even though they are not in direct control of the animals until they reach their final destination. While in transit, animals are in the direct control of the ship's captain or airline.[465]
- While the requirements of ASEL are incorporated into the exporter's licence, the standards are not 'legally secure', as they are orders, not legislation. These can be made or repealed at the discretion of the Secretary of the Department of Agriculture.[466] Penalising exporters for breaching these license conditions is also left to the discretion of the Department of Agriculture, which is arguably operating in a position of conflict, given its interest in promoting live animal exports.
- The exporter is required to arrange for the livestock to be inspected for health, welfare and fitness to travel at various stages of transport.[467]
- There is no requirement for a veterinarian to be on-board an export vessel or aircraft during the journey. Exporters are only required to appoint an accredited veterinarian at the discretion of the Department of Agriculture.[468]

464 Caulfield (2008), *Handbook of Australian Animal Cruelty Law* (Australia: Animals Australia), at iii.

465 Caulfield (2009), 'Live Export of Animals', at 160.

466 Bruce (2012), *Animal Law in Australia: An Integrated Approach* (LexisNexis) at 299.

467 See, for example, S2.11, S3.16, S4.8, S5.6, S6.4, ASEL; s 2.54(3)(g), *Export Control (Animals) Order 2004* (Cth).

468 S 2.48, *Export Control (Animals) Order 2004* (Cth).

- There is a lack of independent third party veterinarians overseeing the live export trade. For example, reports to the Department of Agriculture on the health and welfare of animals on each live export consignment is prepared by a stockman or a 'third party' veterinarian (where the veterinarian is required to be on-board the vessel at the discretion of the Department of Agriculture), both of whom are employed by the exporter.[469]
- Despite the level of animal suffering associated with live exports, one of the only few reportable measures of animal welfare under ASEL is based on animal mortality rates during transport – with an "acceptable rate" of cattle mortality being anything less than 1% (for voyages equal to or greater than 10 days) or 0.5% (for voyages less than 10 days).[470] This mortality rate is very high. There is simply no justification for using a fixed mortality rate as a measure of acceptable welfare. Indeed, this is inconsistent with state-based laws, which aims to protect animals on an individual basis, not as a percentage.

UNPROTECTED ABROAD

Breeder animals such as dairy heifers and cows are protected under the ASEL while on board, however there are no protections once they disembark in the importing country.

"[I]t is morally inconsistent to seek to regulate the treatment of animals within Australia, such as transport and slaughter, but then ignore the treatment meted out to Australian animals on arrival in an importing country".[471]

Most Australian animals who are exported live are subject to the Exporter Supply Chain Assurance System (ESCAS), a series of regulations introduced in the wake of the 2011 Indonesia live export cruelty exposé.

In theory, ESCAS requires an exporter to declare to the Australian Government that their exported animals will be traceable throughout the export process and slaughtered under OIE recommendations.

Breeder animals are exempt from ESCAS, so exported dairy cows are not afforded even the most basic protections once they have disembarked in destination countries.

There is no obligation on exporters to ensure that:

- Breeder animals are handled and treated humanely, in accordance with internally approved OIE standards;
- Appropriate animal husbandry systems are in place to ensure the welfare of breeder animals is maintained throughout their lives;
- Internationally approved standards for animal welfare are adhered to (OIE standards);
- Breeder animals are not subjected to cruel and barbaric means of slaughter in unapproved foreign slaughterhouses; and
- Reporting and independent auditing requirements are adhered to.

In April 2013, the Industry Government Implementation Group (IGIG) commissioned a report on whether additional protections were needed for breeder animals exported live.[472]

The IGIG review identified a number of potential animal welfare risks for breeder livestock, including slaughter through non ESCAS pathways soon after arrival in the importing country or at the end of productive life and poor animal husbandry practices during productive life. This included exporters deliberately seeking to circumvent the ESCAS requirements for feeder/slaughter livestock exports by labelling them breeder livestock.[473]

The review concluded these risks were "relatively low" in large livestock establishments, but noted the risks were potentially higher in smaller establishments.[474]

Despite this, the IGIG did not consider that these risks warranted measures to overcome the practical difficulties of maintaining a 'line of sight' for an animal that could change hands multiple times and have a productive life of 10 years or more. The review considered the administrative burden would likely outweigh the value of the trade, and considered it "unreasonable for exporters to be generally responsible for breeder livestock through to the point of death or to be responsible for the offspring of livestock exported from Australia".[475]

469 S5.12 and S5.13, ASEL.
470 S5.11, ASEL.
471 Caulfield (2008), *Handbook of Australian Animal Cruelty Law*, at 75.
472 Industry Government Implementation Group (IGIG) (2013), 'Report to Australian Government Minister for Agriculture, Fisheries and Forestry: Breeder Livestock Exports', (2013) at 3-5.
473 Ibid, at 3-5.
474 Ibid, at 4.
475 Ibid, at 4.

CASE STUDY 4

Qatar

In 2012, ABC's *7.30* detailed the export of a dairy herd from South Gippsland in Victoria to Qatar. Despite being assured of the high quality conditions at the destination, when vet technician Deb Clarke visited the Qatar property from Australia, she found it to be lacking necessary infrastructure to house the animals who did not have sufficient access to water.

After a 10 day break from the Qatar farm, on Clarke's return she found the animals had not been fed since her departure and it was over 50°C in the calf unit with the animals dying or already dead.

"They were frying, literally cooking, and in those kind of temperatures of 50 plus degrees they were frying from the inside out. It was absolutely shocking," said Clarke.

After Clarke recommended one cow who was suffering from extreme heat exhaustion and malnutrition be euthanised, a worker at the farm sawed the cow's throat open with a pocket knife. In total, Clarke witnessed 64 cows die in one week.[476]

Following the *7.30* report, the RSPCA, the Australian dairy farmer and the vet involved filed complaints to the Department of Agriculture.[477]

The investigation only addressed the condition of the animals before their export, rather than their treatment once they arrived at their destination because, as breeder stock, they were not covered by ESCAS. The investigation found that no regulatory action could be taken against the Australian livestock exporters because, under the Australian regulations, they had done nothing wrong.[478]

476 Australian Broadcasting Corporation (ABC) (2012), 'Cruelty Accusations Focus Attention on Breeding Exports,' ABC, 18 September 2012.

477 Department of Agriculture (2013), 'Allegations of Breaches of Australian Standards for the Export of Livestock Involving Breeding Animals Exported to a Farm in Qatar - 7 March 2013'.

478 Ibid.

RECOMMENDATIONS

The Commonwealth's attempts to regulate live animal exports serves only to legalise and legitimise systemic animal cruelty. Only a ban on live animal exports will put an end to the cruelty of this trade, a position that is shared by the vast majority of the Australian public[479] including a number of Australian politicians.

The protections which are afforded to animals exported live should not be determined by their intended use or by the ease with which regulations can be adhered to or enforced. They should be determined by that animal's ability to suffer.

Given that the Australian live export industry and associated stakeholders are profiting greatly from the sale of these animals, it is not unreasonable to expect that they should also secure the animals' welfare in destination markets.

CONCLUDING REMARKS

It has been shown that Australian breeder heifers and cows have been subjected to abuse and mistreatment overseas and it is morally reprehensible that these acts remain legal under Australian law. If exporters or the Government are not capable of ensuring that these animals can be treated humanely, it should not be legal to export them overseas.

As part of the Federal Government's campaign to expand Australia's live export trade, in July 2014 the Minister for Agriculture Barnaby Joyce announced that breeder animals will now be exported to Egypt along with feeder and slaughter animals.[480]

The live export trade to Egypt was temporarily suspended back in 2006 after video evidence showed cows having their tendons slashed and being stabbed in their eyes before slaughter.[481] Industry suspended the trade to Egypt again in 2013 after Animals Australia released shocking footage of animal abuse in two Egyptian slaughterhouses.[482]

Critically, the latest industry self-imposed suspension was only lifted after Australia and Egypt agreed to implement ESCAS.[483] As ESCAS doesn't apply to breeder animals, there is nothing to prevent Australian breeder animals from being exposed to the same historically cruel handling and slaughter standards that has already seen the Egyptian trade suspended twice.

There is simply no reasonable justification to carve out breeder animals from regulatory protections because it is too difficult to implement – particularly where overseas jurisdictions, like Egypt, have a bloody history of failing to meet basic standards of animal welfare.

If it is not practicable for the welfare of breeder animals to be legally protected overseas, or for exporters to provide minimum guarantees as to their welfare, then the position is clear: they simply should not be exported in the first place.

479 A survey conducted by the World Animal Protection (WAP) showed that 67% of Australians would vote for a politician who promised to end the live export trade, see, WAP (2013), 'Research Shows Voters Overwhelmingly in Favour of Live Export Phase Out'.

480 Joyce (2014), 'A Breeding Ground for Australian Export Success'.

481 *Sydney Morning Herald*, 'Cattle Exports to Egypt Set to Resume', SMH, 3 October 2006.

482 Ockenden (2014), 'Industry Suspends Live Trade to Egypt'.

483 Department of Agriculture (2014), '2014-02 Resumption of Trade in Livestock to Egypt'.

6. Changing Industry and Attitudes

6.1 THE ROLE OF CONSUMERS

Growing consumer demand for cheap dairy products, especially within Australia, has exacerbated pressures on both dairy farmers and dairy cows.

Colloquially referred to as the '$1 Milk Wars', the average retail selling price for branded fresh white milk was $1.92 per litre and private label (supermarket) fresh white milk was $1.01 per litre, at the time of publication.[484] This price is reflective of a 2011 major marketing strategy by Australia's two largest supermarket chains, Coles and Woolworths, to cut the cost of milk to A$1 per litre for consumers.

Over the years, the impact of increasing consumer demand for cheap milk has forced dairy farmers to maximise their productive output while reducing their overall operative costs.

The implications of high production dairying on the modern dairy cow are immense and it is a critical factor in most of the welfare concerns outlined in this Report.

The true cost of cheap milk, therefore, is ultimately paid by the dairy cow.

WHAT CAN CONSUMERS DO?

Australian consumers have the right to make informed and ethical food choices. In practical terms, ethical consumers can take the following steps to address their concerns with the farming of dairy cows.

- Ask dairy producers questions
  If consumers are concerned about the treatment of the cows who produce their dairy products and their calves, they should contact the producer directly. Engaging producers to improve on-farm welfare standards along their supply chains is essential to achieving real change across the industry, as outlined in *Case Study 5: Nestlé introduces global farm animal welfare standards* (see next page).
- Encourage retailers and supermarkets to offer animal-friendly choices
  Australian supermarkets have shown themselves to be receptive to consumer sentiment about animal welfare,[485] so any concerns about dairy farming should also be brought to the attention of supermarkets. Consumers can also share their concerns with their local food suppliers and retailers, such as cafes and restaurants, and ask them to stock more humane items or dairy alternatives.
- Make informed choices or consider dairy alternatives
  In 2013, the Federal Government's National Health and Medical Research Council (NHMRC) included alternatives to dairy in their *Australian Dietary Guidelines*.[486] Consumers can safely and easily reduce their reliance on dairy by switching to dairy free alternatives like calcium enriched soy, rice or oat milk.

  Alternatively, individuals can cut down on the amount of dairy they consume while also finding a dairy producer who aligns with their ethical beliefs. A number of consumer advocacy and animal protection groups have prepared buyer guides that contain useful information on the husbandry practices used by dairy producers. The introduction of national dairy industry assurance schemes would also assist consumers in this regard.
- Building awareness
  Many Australians are unaware of the conditions in which dairy animals live. This situation is rapidly changing, but more needs to be done to bring the realities of dairy farming to the mainstream.

  An integral step is learning more about how food is produced and for individuals to familiarise themselves with the standard industry practices used in animal husbandry.

  If individuals are concerned about the issues addressed in this Report, they can write letters to the editors of newspapers or make calls to talk back radio about the need for greater improvements in the animal protection laws affecting dairy cows. Discussions with family and friends and colleagues about these issues are also effective in spreading awareness.

484 Dairy Australia (2014), 'Dairy Situation and Outlook: May 2014 Update', at 9.

485 See, for example, Coles and Woolworths' response to consumer concerns about free range eggs and sow stalls: Coles (2014), 'Better Animal Welfare at Coles'; Woolworths Limited (2014), 'Animal Welfare'.

486 National Health and Medical Research Council (NHMRC) (2013), 'Eat for Health: Australian Dietary Guidelines', at 56.

CASE STUDY 5

Nestlé introduces global farm animal welfare standards

In August 2014, the world's biggest food and beverage company, Nestlé, announced plans to implement stronger farm animal welfare standards for its thousands of suppliers globally.

This significant action followed an undercover investigation in the US, which revealed dairy cows being kicked, beaten and even stabbed by workers on a farm which supplies dairy to Nestlé. The resulting consumer outcry and demand for action prompted Nestlé to introduce new welfare guidelines and alternatives to painful husbandry practices, like dehorning. The guidelines will also establish spacing requirements for the rearing pens of cows to ensure they are not cramped and can engage in natural animal behaviour.

The agreement extended to hundreds of thousands of farms globally that supply Nestlé with its dairy, meat, poultry and eggs. These farms have to comply with tighter animal welfare standards and independent audits to ensure the new standards are met. World Animal Protection provides training to these independent auditors, and shadows some farm assessments to validate the assessment process.

When a violation is identified, Nestlé will work with the supplier to improve husbandry practices. If the company is unable or unwilling to show improvement, it will no longer be eligible to supply Nestlé with produce.[487]

487 Nestlé (2014), 'Nestlé Announces Farm Animal Welfare Commitment'.

- Contact your local MP
  Community input is vital for Members of Parliament (MPs) to understand their electorate. With enough community pressure, MPs can play an influential part in improving the legal protections of dairy cows and their calves.

  For instance, consumers can contact their local MP to support the proposed legal reforms outlined throughout this Report, the introduction of a National Dairy Industry Licensing Scheme or the establishment of an Independent Office of Animal Welfare. See *Chapter 6.2: The Need for Reform* for more information.

  Consumers can contact their local MP by: organising a meeting, writing a letter, an email or making a phone call. Information on local, state and federal politicians can be found via http://www.gov.au/.
- Support efforts to improve welfare
  Support an animal protection group financially or by volunteering your time, services or skills.

6.2 THE NEED FOR REFORM

Given the significant welfare concerns highlighted in this Report, it is clear that law reform is needed to better protect the dairy cow and her calf. At the time of writing, the Draft Cattle Standards & Guidelines, which is intended to replace the existing Cattle Code, is in its final stage of review. Unfortunately, the latest draft fails to adequately address the majority of our welfare concerns.

In addition to strengthening existing criminal law protections and industry standards, we recognise that a multi-faceted approach may be needed to achieve positive welfare outcomes for dairy cows and calves. This may include the development of a licensing scheme to regulate the dairy industry, as well as independent assurance schemes to encourage an ethical consumer market for dairy products.

KEY LEGAL RECOMMENDATIONS

A summary of our key legal recommendations for reform is provided at Table 1. Voiceless recommends that these reforms must be addressed in existing state and territory-based animal cruelty legislation.

TABLE 1: Summary of key legal recommendations

- ✔ All dairy cows must be given access to outdoors to graze on pasture.
- ✔ The Transport Standards & Guidelines must be immediately reviewed to assess the number of hours that a bobby calf between 5 and 30 days old can go without feed.[488]
- ✔ The use of blunt force trauma as a means of slaughtering bobby calves must be prohibited.[489]
- ✔ All forms of dehorning and disbudding must be prohibited (both caustic and non-chemical), unless performed by and on the advice of a veterinarian for therapeutic reasons. Where the procedure is deemed necessary, a combination of sedation, local anaesthetic and non-steroidal anti-inflammatory drugs (NSAIDs) must be used.[490]
- ✔ All forms of tail docking must be prohibited, unless performed by and on the advice of a veterinarian for therapeutic reasons.[491]
- ✔ Calving induction must be prohibited, unless performed by and on the advice of a veterinarian for therapeutic reasons. The routine use of calving induction as a herd management tool or to maximise milk production must be expressly prohibited.
- ✔ The non-mandatory "guidelines" in the Draft Cattle Standards & Guidelines in relation to the management and treatment of lameness and mastitis must be made mandatory.[492]
- ✔ The incidence and prevalence of mastitis and lameness must be audited and reported at a national level, with this information collated on a centralised database. To ensure accuracy in reporting, an independent body may be responsible for the collection of this data.
- ✔ In developing their herds, producers must take into consideration genetic traits that produce positive welfare outcomes for cows (such as lameness and mastitis resistance, poll breeds and reduced chance of birthing difficulties), not simply high-production traits.
- ✔ Farmers and stockpersons must undergo formal training in the prevention and management of lameness and mastitis.
- ✔ All live animal exports must be prohibited.

488 See Chapter 2.2: Bobby Calves for more details.
489 Ibid.
490 See Chapter 3.1: Dehorning and Disbudding for more details.
491 See Chapter 3.2: Tail Docking for more details.
492 See Chapter 4.1: Lameness and Chapter 4.2: Mastitis for more details.

REGULATING BY LICENCE

One option for regulating dairy cow welfare is to implement a licensing scheme, which could operate in conjunction with the existing criminal law framework and replace (or incorporate by way of licence conditions) the industry codes and standards. Offences under the criminal law would still be necessary in protecting against cruelty and prohibiting such practices as the use of blunt force trauma, dehorning and disbudding, calving induction and tail docking.

Regulation by licence has been suggested as a means of strengthening welfare protections and increasing on-farm compliance.[493] The rationale for this is that non-compliance under the current framework is a 'criminal' offence, resulting in industry representatives arguing for lower welfare standards at the time of drafting to minimise their risk of prosecution. Remedies for breach in criminal law are also seen as 'backward looking', in that they penalise the offender without necessarily focusing on improving future welfare outcomes.[494]

A licensing scheme, on the other hand, would involve dairy farmers expressly committing or 'opting in' to a regulatory scheme in order to participate in the dairy industry. By making compliance with licence conditions a requirement for engaging in the dairy industry, regulators are able to create a privilege that can be revoked in the case of non-compliance.[495]

Licence conditions should be developed in consultation with independent veterinary experts, with breaches of these conditions resulting in remedial action which could include the issuing of warnings, consultation and education for minor non-compliances, through to civil penalties and the suspension or cancellation of licences for serious or repeat offenders.

The dairy industry already has a licensing scheme in place to regulate milk quality and food safety. It is possible that animal welfare could be incorporated as part of industry quality assurance (QA) programs and independent auditing processes that apply to this scheme.[496]

Licence schemes are not without their flaws, as demonstrated by the repeated failings of Australia's live export regulatory system (although, it could be argued that the situation would be worse if the current live export licensing scheme was not in place). Monitoring and enforcement is essential in ensuring the effectiveness of any regulatory framework. For the dairy industry, this could be achieved through industry QA programs and auditing, in conjunction with regular announced and unannounced inspections by an independent animal welfare body. The establishment of an Independent Office of Animal Welfare is discussed below.

ASSURANCE SCHEMES

Consumers generally care about animal welfare, with many willing to spend more on products that promote higher welfare standards.[497] This is clearly evident in the rise of free-range products across the pork and poultry industry, as well as commitments made by retailers Coles and Woolworths to phase out sow stall pork and battery cage eggs across their range of products.[498]

The Australian dairy industry is well positioned to take advantage of this consumer sentiment. As with the use of battery cages and sow stalls, consumers are gradually becoming more aware of the welfare concerns associated with dairy. It is only a matter of time before consumer and, in turn, retailer demand for higher welfare poultry and pork extends to the dairy industry.

"A failure to recognise the importance of animal welfare to consumers may result in the loss of market access or market share. It is important that all livestock producers investigate and implement animal welfare strategies on their farms to ensure market access and the sustainability of livestock production in Australia."[499]

'Assurance schemes' enable producers to develop their products in accordance with a set of established welfare standards, and to market their product to consumers accordingly. Table 2 provides a summary of standards that could be used in a national dairy industry assurance scheme. See *Table 2* on page 72.

493 Regulation through a licensing scheme is a common method of regulation, and is used in areas such as private hospitals, car registration and the building industry. It's also used to regulate the commercial fishing industry, the animal research industry and the operations of zoos and circuses. See Bloom (2008), at 36-37.

494 Ibid, at 33.

495 Ibid, at 36.

496 Dairy Australia (2014), 'Dairy Food Safety'.

497 See, for example, Voiceless, the animal protection institute (2014), 'Truth in Labelling'; Compassion in World Farming (CIWF) and Onekind (2012), 'Executive Summary: Farm Assurance Schemes & Animal Welfare', at 2; CIWF and RSPCA (2013), 'Progress Report 2013 - the Modern Solution to the Exports of Calves: Working in Black and White', at 51; Passillé and Rushen (2005), at 759.

498 See, for example, Coles (2014), 'Coles Brand Improves the Lives of Hens and Pigs'; Whyte (2013), 'Woolworths to Phase out All Battery Hen Eggs', *Sydney Morning Herald,* 4 October 2013; Lauber (2014), 'Animal Welfare for Livestock Producers'.

499 Lauber (2014), 'Animal Welfare for Livestock Producers'.

Soil Association Assurance Scheme, UK

In 2012, Compassion in World Farming conducted a survey of four UK based dairy assurance schemes. The survey looked at the animal welfare requirements of each of the schemes, and gave a rating out of 100.[500]

Overall, the Soil Association assurance scheme achieved the highest score with 76 points. Compassion in World Farming stated that, when compared with standard industry practice in the UK, the scheme offered many positive animal welfare advantages, including:

- Access to pasture throughout the grazing season.
- Later weaning of calves, although calves are still removed from their mothers within days of birth
- A restriction on transport duration to eight hours.
- A prohibition on the live export of calves under one month and of cows for slaughter.
- Specifications and monitoring to ensure effective pre-slaughter stunning and unconsciousness until death.
- A requirement for producers to implement a plan to phase out the killing of bobby calves.
- A requirement to use breeds with a reduced incidence of health problems with intensive production or problems at birth.[501]

500 CIWF and OneKind (2012), 'Executive Summary: Farm Assurance Schemes & Animal Welfare'.
501 CIWF and OneKind (2012), 'Farm Assurance Schemes & Animal Welfare', (UK, 2012b) at 22.

These animal welfare standards are generally developed, monitored and enforced by an independent certifier, based on independent science. Independent assurance schemes have been developed for free-range egg producers, including Australian Certified Organic, Free Range Egg and Poultry Association of Australia and the RSPCA.

The UK has developed a number of dairy assurance schemes, including the Assured Dairy Farms (now called Red Tractor Assurance),[502] RSPCA Freedom Food,[503] Scottish Organic Producers Association[504] and Soil Association.[505] See *Case Study 6*, above. The animal welfare standards set by these schemes vary greatly, providing consumers with a genuine choice based on their ethical position and willingness to pay.

The development of animal welfare assurance schemes operating in the UK have certainly been a positive influence, particularly where they have been taken up by retailers.[506]

Research conducted by Compassion in World Farming has noted that these schemes have been beneficial in creating an incentive for good business practice at a farm level, as well as generating increased consumer awareness of efforts by industry to improve animal welfare. This has led to a greater willingness by consumers to pay for higher welfare produce.[507]

Increasing consumer knowledge and developing brand awareness around the assurance schemes is pivotal to ensuring their effectiveness. This is something that will need to be developed by both industry, the independent certifier and the participants of the scheme.

502 See, Red Tractor Assurance (2014), 'Red Tractor Assurance Schemes'.
503 See, RSPCA Freedom Food (2014), 'Freedom Food RSPCA Monitored: About Us'.
504 See, Scottish Organic Producers Association (2014), 'The Certification Process'.
505 See, Soil Association (2013), 'Soil Association Certification: Why Choose Us?'.

506 CIWF and RSPCA (2013), 'Progress Report 2013 - the Modern Solution to the Exports of Calves: Working in Black and White', at 51.
507 Ibid.

TABLE 2: Possible baseline standards for a dairy industry assurance scheme

- ✔ Killing of bobby calves is prohibited, or producers have implemented a plan to phase out the killing of bobby calves.
- ✔ Bobby calves are not separated from their mothers before three months after birth, or have a system in place to reduce separation distress of both mother and calf.
- ✔ Use of blunt force trauma is prohibited, and all forms of slaughter are performed with prior-stunning.
- ✔ All forms of dehorning and disbudding is prohibited (both caustic and non-chemical), unless performed by and on the advice of a veterinarian for therapeutic reasons. Where the procedure is deemed necessary, a combination of sedation, local anaesthetic and non-steroidal anti-inflammatory drugs (NSAIDs) is used.
- ✔ All forms of tail docking is prohibited, unless performed by and on the advice of a veterinarian for therapeutic reasons.
- ✔ Calving induction is prohibited, unless performed by and on the advice of a veterinarian for therapeutic reasons. The routine use of calving induction as a herd management tool or to maximise milk production is expressly prohibited.
- ✔ A lameness control strategy is in place, and the prevalence of lameness is less than five cows in every 100 cows in milk.
- ✔ A mastitis control strategy is in place, and the prevalence of clinical mastitis is less than five cows in every 100 cows in milk.
- ✔ Producers select herds based on genetic traits that produce positive welfare outcomes for cows (such as lameness and mastitis resistance, poll breeds and reduced chance of birthing difficulties).
- ✔ The live export of dairy cows is prohibited, and the land transport of dairy cows is limited to eight hours (including loading and unloading time).
- ✔ Accurate and up-to-date on-farm records of disease and welfare are kept. Health and welfare plans are developed in conjunction with a veterinarian, and performance is regularly measured and assessed against these plans.
- ✔ All stockpeople are trained, competent and experienced in the handling of dairy cows.
- ✔ Producers frequently (no less than twice daily) inspect dairy cows for signs of illness, injury or distress and contact a veterinarian if required.
- ✔ Frequent inspections from the relevant certifying body are undertaken, including unannounced / unplanned inspections for compliance with standards.
- ✔ Abattoirs have CCTV installed and employees are adequately trained, competent and experienced in the handling and slaughter of dairy cows.
- ✔ Measures are in place to penalise or disincentivise producers that fail to comply with the prescribed standards.

Retailers have a key role to play in improving the welfare of dairy cows. Assurance schemes will no doubt prove most effective when they are taken up by the major retailers, and incorporated as a condition of their supply contracts for dairy products. See *Table 2* on next page for a summary.

INDEPENDENT OFFICE OF ANIMAL WELFARE

Monitoring and enforcement of the regulatory framework is an essential part of ensuring on farm compliance. Within the dairy industry, enforcement efforts are heavily dependent on industry self-auditing and reporting, which focus on food safety and milk quality, as opposed to animal welfare.

In 2011, the Labor Party proposed the introduction of an Independent Office of Animal Welfare. In 2013, a significantly watered down version was introduced – namely, the position of Inspector General of Animal Welfare and Live Animal Exports. In 2013, before the position was even established, Coallition Minister Barnaby Joyce announced the abolition of the position of the Inspector General.

In our view, the current dependence on industry self-reporting is clearly problematic, with industry effectively monitoring and regulating itself. A lack of regular, independent monitoring of on-farm practices undermines the integrity of the regulatory framework, and makes it impossible to ensure that dairy farmers are complying with welfare standards.[508] Animal welfare can never be assured – whether in the existing regulatory framework, an assurance scheme or a licencing scheme – without regular independent monitoring and enforcement.

Accordingly, Voiceless strongly supports the introduction of an Independent Office of Animal Welfare. The responsibilities of this statutory body would include providing advice on animal welfare matters to federal, state and territory governments; proposing avenues for legal reform; conduct regular inspections of dairy farms, and enforcing animal cruelty laws.

508 Under the proposed Standards & Guidelines, it is anticipated that peak industry bodies will work with jurisdictional governments in a "co-regulatory" environment to establish a primary role for industry QA audit processes to monitor and enforce compliance with standards, with governments maintaining overview (audit) of industry QA systems and intervening directly in response to specific incidents of non-compliance with standards. For a general discussion on co-regulation of the animal protection framework, see for example Goodfellow, 'Animal Welfare Law Enforcement: To Punish or Persuade?', in White, Black and Sankoff (ed), *Animal Law in Australasia* (2nd ed: Federation Press, 2013), 183-207

6.3 CONCLUSION

In this Report, we have provided a comprehensive overview of the Australian dairy industry, as well as posing three important questions in relation to the daily life of the modern dairy cow: is she feeling well, is she behaving naturally and is she functioning well?

In shining a light on the daily life of the Australian dairy cow, through a systematic examination of the key welfare issues, it is clear that too frequently, the answer to these questions is 'no'. The modern dairy cow commonly suffers from mastitis, lameness, metabolic disorders, mutilation procedures and the inevitability of repeatedly losing her calf. It is also clear that much of her suffering and poor welfare is made worse by the demands placed on her by high-production dairying and the growing consumer expectation for cheap milk.

Reform is needed to address this situation, particularly if the current growth in milk output and the pressures toward intensification of dairying continue.

This reform must take place across different jurisdictions and at different levels of government and society.

- For the most egregious welfare issues – such as mutilation practices, calving induction and the slaughter of bobby calves by blunt force trauma – the answer is clear: they must be prohibited under the existing criminal law, unless deemed necessary by a veterinarian for therapeutic reasons.
- Live animal exports must also be brought to an immediate end, not just for dairy cows, but for all Australian animals. It is a cruel, grossly unpopular trade and can no longer be justified on commercial or economic grounds.
- For those welfare concerns that cannot be 'regulated away', a combination of the existing criminal law and alternative approaches should be considered. This is particularly the case for preventing and managing the onset of lameness and mastitis, addressing the welfare concerns surrounding mother-calf separation, and the early slaughter of hundreds of thousands of unwanted bobby calves each year.

To this end, we recommend developing a National Dairy Industry Licencing Scheme to promote best practice in commercial dairying. To encourage an ethical consumer base, we also recommend the development of independent dairy industry assurance schemes.

Above all else is the need for greater monitoring and enforcement of on-farm compliance with welfare standards. In our view, the current dependence on industry self-reporting is inadequate and provides little guarantee to the Australian public that animal welfare standards are being met. A national and truly Independent Office of Animal Welfare, tasked with regularly monitoring and enforcing on-farm compliance, must be established.

As has been the case in other animal industries, consumer action provides the greatest opportunity for improving the lives of dairy cows and their calves. Through the ethical choices of informed consumers, retailers and producers have begun making changes that have dramatically improved the lives of millions of hens and mother pigs that would have otherwise spent their lives in cages or sow stalls. Of course, millions more continue to suffer in factory farms, but consumers have given them a voice and have brought their suffering to mainstream awareness.

In this Report we have aimed for accuracy and truthfulness. We have not sought to exaggerate the issues but nor have we been willing to deny the very real welfare reality for the dairy cow and her calf, neither of whom can speak for themselves.

Our aim in writing this Report, has been to lift the marketing and publicity veil, to look beyond the endless photos of cows chewing away, seemingly without a care, in lush, green fields. While this is a true picture for some cows, for some of the time, taken alone it provides a distorted and inaccurate picture of the life realities for the majority of high production dairy cows. Our Report has shown, that for most dairy cows, life is hard, sometimes painful and invariably short.

In addition to providing information, our aim and our hope is that this Report will spark discussion and debate among farmers, industry bodies, policy makers and consumers. We have shown in the Report that there are kinder ways to produce dairy products and also that there are now many viable alternatives available. The consumer has enormous power and armed with information, is in a position to make ethical and compassionate choices. We hope that in giving voice to the dairy cow, and her calf, the informed consumer will be in a better position to make those choices.

AAWS	Australian Animal Welfare Strategy
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
ABVs	Australian Breeding Values
AHA	Animal Health Australia
AI	Artificial insemination
ASEL	*Australian Standards for the Export of Livestock* (Version 2.3) 2011
AVA	Australian Veterinary Association
AVMA	American Veterinary Medical Association
AWTG	Animal Welfare Task Group
Cattle Code	*Model Code of Practice for the Welfare of Animals – Cattle* (2nd ed) 2004
CIWF	Compassion in World Farming
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAA	Dieticians Association of Australia
DAFF	Department of Agriculture, Fisheries and Forestry (now the Department of Agriculture)
Draft Cattle Standards & Guidelines	*Draft Australian Animal Welfare Standards and Guidelines for Cattle* (Version 1) 2014
EFSA	European Food Safety Authority
EOP	End of Processing
ESCAS	Exporter Supply Chain Assurance System
FAWC	Farm Animal Welfare Council
ICCC	Individual cow cell count
IGIG	Industry Government Implementation Group
NAWAC	National Animal Welfare Advisory Committee
NHMRC	National Health and Medical Research Council
OIE	World Organisation for Animal Health
PIMC	Primary Industries Ministerial Council
QA	Quality Assurance
RAGFAR	Reference Advisory Group on Fermentative Acidosis of Ruminants
RIS	*Proposed Australian Animal Welfare Standards and Guidelines - Cattle: Decision Regulation Impact Statement* (1st ed) 2014
RSPCA	Royal Society for the Prevention of Cruelty to Animals
SCC	Somatic cell count
TMR	Total mixed ration
Transport Standards & Guidelines	*Australian Animal Welfare Standards and Guidelines - Land Transport of Livestock* (Version 1.1) 2012
VDEPI	Victorian Department of Environment and Farming Industries
Victorian Cattle Code	*Code of Accepted Farming Practice for the Welfare of Cattle* 2001
WAP	World Animal Protection (formerly World Society for the Protection of Animals)
WSPA	World Society for the Protection of Animals (now World Animal Protection)

Appendix 1: Key welfare concerns in the Cattle Code and Draft Cattle Standards & Guidelines

	Permits non-chemical dehorning / disbudding of cows?	Permits the caustic disbudding of cows?	Permits a layperson to dock the tails of calves?	Permits calving induction as a herd management tool?	Permits calves to be slaughtered by use of blunt force trauma?	Permits cows to be permanently confined?
Current position under the Cattle Code	Yes – Permits dehorning / disbudding, and recommends the procedure should only be conducted without local analgesics on cattle under 6 months of age. Dehorning of cattle over 12 months is not recommended.[1]	No – States that cattle must not be dehorned with corrosive chemicals.[2]	Yes – States should be performed only where necessary for udder health or prescribed by a veterinarian. Also recommends it should be undertaken only on young female cattle under 6 months of age.[3] States animals docked surgically must receive analgesia or anaesthesia. [4]	Yes – Calving induction must only take place under veterinary advice and supervision. [5] Inducing calving as a herd management tool is not expressly prohibited.	Yes – Does not expressly prohibit calves being slaughtered by blunt force trauma.	Yes - States that calves should be kept in a group environment to allow for adequate exercise. However, there is no express prohibition on the permanent indoor confinement of dairy cattle. [6]
Proposed position under the Draft Cattle Standards & Guidelines	Yes – Permits dehorning / disbudding without pain relief if the cattle is less than 6 months old. [7]	Yes – Permits caustic disbudding if the calf is less than 14 days old, can be segregated from his or her mother for 4 hours after treatment, can be kept dry for 12 hours after treatment, and is not wet. [8]	Yes – Laypersons are able to tail dock cattle, but only on veterinary advice and only to treat injury or disease.[9]	Yes – Calving induction is only permitted under veterinary advice.[10] Inducing calving as a herd management tool is not expressly prohibited.[11]	Yes – Permits a person to kill a calf by a blow to the forehead if the calf is less than 24 hours old and only where no other humane killing methods are reasonably available.[12]	Yes – States that cattle *should* have the opportunity for *appropriate* exercise each day, however, this is a non-mandatory Guideline.[13]

1 [5.8.2], Cattle Code.
2 [5.8.4], Cattle Code.
3 [5.6.1], Cattle Code.
4 [5.6.2], Cattle Code.
5 [5.10.5], Cattle Code.
6 [3.2], Cattle Code. [2.1] of the Cattle Code has general provisions prohibiting the routine practice of tethering animals, and that tethered animals should be given adequate exercise each day.
7 S6.4, Draft Cattle Standards & Guidelines.
8 S6.5, Draft Cattle Standards & Guidelines.
9 S9.3, Draft Cattle Standards & Guidelines.
10 S7.4, Draft Cattle Standards & Guidelines.
11 G7.8 of the Draft Cattle Standards & Guidelines states: “Herd management strategies should be adopted to minimise or eliminate the need to induce calving”.
12 S11.5, Draft Cattle Standard & Guidelines. Further, G7.10 states: “Calving induction should only be done when necessary for the welfare of the individual cow or calf”.
13 G4.9 of the Draft Cattle Standards & Guidelines states “cattle *should* have the opportunity for *appropriate* exercise each day” (emphasis added), however, this is a non-mandatory Guideline.

Appendix 2: How Australian jurisdictions have adopted the Cattle Code

Jurisdiction[1]	Relevant Legislation	Relevant Regulations	Does the jurisdiction adopt the Cattle Code?	What is the legal status of the Cattle Code (or relevant industry code)?
New South Wales	*Prevention of Cruelty to Animals Act 1979* (NSW)	*Prevention of Cruelty to Animals Regulation 2012* (NSW)	Yes[2]	Compliance is not mandatory; the Cattle Code is advisory in nature. Compliance or non-compliance can be adduced as evidence in relation to an offence under the Act.[3]
Queensland	*Animal Care and Protection Act 2001* (QLD)	*Animal Care and Protection Regulation 2012* (QLD)	Yes[4]	Compliance is not mandatory; the Cattle Code is advisory in nature.[5] Compliance with the Cattle Code is an exemption to an offence under the Act.[6] Compliance or non-compliance can be adduced as evidence in relation to an offence under the Act.[7]
South Australia	*Animal Welfare Act 1985* (SA)	*Animal Welfare Regulation 2012* (SA)	Yes[8]	Compliance with the Cattle Code is mandatory.[9] Compliance with the Cattle Code is a defence to an offence under the Act. [10]
Tasmania	*Animal Welfare Act 1993* (TAS)	*Animal Welfare (General) Regulations 2013* (TAS)	Yes[11]	Compliance is not mandatory; the Cattle Code is advisory in nature.[12]
Victoria	*Prevention of Cruelty to Animals Act 1986* (VIC)	*Prevention of Cruelty to Animals Regulation 2008* (VIC)	No – the Code of Accepted Farming Practice for the Welfare of Cattle applies.[13]	Compliance is not mandatory; the Cattle Code is advisory in nature.[14] Compliance with the Cattle Code is an exemption to an offence under the Act.[15]
Western Australia	*Animal Welfare Act 2002* (WA)	*Animal (General) Welfare Regulation 2003* (WA)	Yes[16]	Compliance is not mandatory; the Cattle Code is advisory in nature.[17] Compliance with the Cattle Code can be used as a defence to a charge of cruelty.[18]

1 Note – There are no dairy cattle in the ACT or the Northern Territory.

2 S 34A, Prevention of Cruelty to Animals Act 1979 (NSW); Reg 33, Prevention of Cruelty to Animals Regulation 2012 (NSW).

3 S 34A(3), Prevention of Cruelty to Animals Act 1979 (NSW).

4 S 13, Animal Care and Protection Act 2001 (QLD); Reg 3, Animal Care and Protection Regulation 2012 (QLD); Schedule 4, Part 2, Animal Care and Protection Regulation 2012 (QLD).

5 Reg 3, Animal Care and Protection Regulation 2012 (QLD); Schedule 4, Part 2, Animal Care and Protection Regulation 2012.

6 S 40, Animal Care and Protection Act 2001 (QLD).

7 S 16, Animal Care and Protection Act 2001 (QLD).

8 Ss 43 and 44(3), Animal Welfare Act 1985 (SA); Reg 5, Animal Welfare Regulation 2012 (SA); Schedule 2, Animal Welfare Regulation 2012 (SA).

9 Reg 5(1), Animal Welfare Regulation 2012 (SA); Schedule 2, Animal Welfare Regulation 2012 (SA).

10 S 43, Animal Welfare Act 1985 (SA).

11 Tasmanian Department of Primary Industries and Water, 'Animal Welfare Guidelines' <http://dpipwe.tas.gov.au/biosecurity/animal-biosecurity/animal-welfare/legislation-standards-guidelines/animal-welfare-standards-guidelines/animal-welfare-guidelines/animal-welfare-guidelines-full-list>.

12 Ibid.

13 Victorian Department of Environment and Primary Industries, 'Victorian Codes of Practice for Animal Welfare' <http://www.depi.vic.gov.au/agriculture-and-food/animal-health-and-welfare/animal-welfare/animal-welfare-legislation/victorian-codes-of-practice-for-animal-welfare>.

14 Ibid.

15 S 6(1)(b), Prevention Of Cruelty To Animals Act 1986 (VIC).

16 S 94(2)(d), Animal Welfare Act 2002 (WA); Reg 6, Animal (General) Welfare Regulation 2003 (WA); Schedule 1, Animal (General) Welfare Regulation 2003 (WA).

17 Department of Agriculture and Food - Western Australia, 'Codes of Practice: Return to Animal Welfare' <http://archive.agric.wa.gov.au/PC_94969.html>.

18 S 25 of the Animal Welfare Act 2002 (WA); However, the fact that a person has not complied with a Code must be taken into account by a court, but is not sufficient, on its own, to prove that the person committed an offence under the Act (s 84 of the Animal Welfare Act 2003 (WA)).

Appendix 3: Regulation of key welfare concerns in dairy producing Australian jurisdictions

Jurisdiction[1]	Permits non-chemical dehorning / disbudding of cows?	Permits the caustic disbudding of cows?	Permits a layperson to tail dock cows?
New South Wales	Yes – Dehorning / disbudding is permitted; it is illegal to dehorn cattle over the age of 12 months in a manner that inflicts unnecessary pain upon the animal.[2]	Yes – Caustic dehorning / disbudding is permitted; it is illegal to dehorn cattle over the age of 12 months in a manner that inflicts unnecessary pain upon the animal.[3] The Cattle Code is not mandatory in NSW.	Yes – Legal for a layperson to tail dock, provided that the calf is less than 6 months of age and, on the advice of a veterinarian, it is necessary to treat an injury or disease.[4]
Queensland	Yes – Not expressly prohibited under QLD law or under the Cattle Code.	Yes – Not expressly prohibited under QLD law. The Cattle Code is not mandatory in QLD.	No – It is unlawful for a layperson to dock the tail of cattle.[7]
South Australia	Yes – Not expressly prohibited under SA law or under the Cattle Code.	No – Unlawful by operation of the Cattle Code.	Yes – Legal for layperson to tail dock, provided that a veterinarian has certified it is necessary for the control of disease.[9]
Tasmania	Yes – Not expressly prohibited under Tasmanian law or under the Cattle Code. The Tasmanian Guide to Dairy Cattle Welfare prohibits the dehorning of cattle over 6 months unless performed by a veterinarian with pain relief, although compliance is not mandatory.[13]	Yes – Not expressly prohibited under Tasmanian law or under the Cattle Code. The Tasmanian Guide to Dairy Cattle Welfare prohibits the dehorning of cattle over 6 months unless performed by a veterinarian with pain relief, although compliance is not mandatory.[14]	Yes – Not expressly prohibited under Tasmanian law or under the Cattle Code. The Tasmanian Guide to Dairy Cattle Welfare provides that tail docking should only be done under veterinary advice to treat injury or disease, although compliance is not mandatory.[15]
Victoria	Yes – Dehorning / disbudding is permitted under the Code of Accepted Farming Practice for the Welfare of Cattle. It is recommended that dehorning / disbudding without local anaesthetic should be limited to cows under 6 months, although compliance is not mandatory. [19]	Yes – The Code of Accepted Farming Practice for the Welfare of Cattle states that chemical disbudding "is not acceptable", although compliance is not mandatory. [20]	Yes – The Code of Accepted Farming Practice for the Welfare of Cattle states that tail docking may only be performed where necessary for udder or herd health. It also states it should only be performed on young female calves under 6 months of age, and with anaesthesia.[21] Compliance is not mandatory.
Western Australia	Yes – Not expressly prohibited under WA law or under the Cattle Code.	Yes – Not expressly prohibited under WA law. The Cattle Code is not mandatory.	Yes – Not expressly prohibited under WA law or under the Cattle Code.

1 Note – There are no dairy cattle in the ACT or the Northern Territory.
2 S 24(1)(a)(iii), Prevention of Cruelty to Animals Act 1979 (NSW).
3 S 24(1)(a)(iii) Prevention of Cruelty to Animals Act 1979 (NSW).
4 S 12(2)(a), Prevention of Cruelty to Animals Act 1979 (NSW); s20(1), Prevention of Cruelty to Animals Regulation 2012 (NSW).
5 S 9(1A), Prevention of Cruelty to Animals Act 1979 (NSW).
6 S 9(3), Prevention of Cruelty to Animals Act 1979 (NSW).
7 S 27(2), Animal Care and Protection Act 2001 (QLD).
8 S 18(2)(f), Animal Care and Protection Act 2001 (QLD).
9 Reg 6(1), Animal Welfare Regulation 2012 (SA).
10 [5.10.5], Cattle Code.
11 S 13(3)(h), Animal Welfare Act 1985 (SA).
12 S 3(b)(i), Animal Welfare Act 1985 (SA).
13 A Guide to Tasmanian Dairy Cattle Welfare (2012), at 22 <http://dpipwe.tas.gov.au/Documents/dairytas_cattle_welfare_book.pdf>.
14 Ibid.

Permits calving induction as a herd management tool?	Permits calves to be slaughtered by use of blunt force trauma?	Permits cows to be permanently confined?
Yes – Not expressly prohibited under NSW law or under the Cattle Code.	Yes – Not expressly prohibited under NSW law or under the Cattle Code.	Yes – Not expressly prohibited under NSW law or under the Cattle Code. Cows are exempt from the requirement to provide animals with adequate exercise[5] and from the prohibition against insufficiently sized confinements.[6]
Yes – Not expressly prohibited under QLD law or under the Cattle Code.	Yes – Not expressly prohibited under QLD law or under the Cattle Code.	Yes – Not expressly prohibited under QLD law or under the Cattle Code. Confinement is only considered an act of cruelty if the confinement is not appropriately prepared for (food, water, shelter, etc), it is detrimental to the animal's welfare or the animal is unfit for confinement.[8]
Yes – Not expressly prohibited under SA law or the Cattle Code. Must be conducted under the advice and supervision of a veterinarian under the Cattle Code.[10]	Yes – Not expressly prohibited under SA law or under the Cattle Code. It is only considered an act of cruelty if an animal is conscious and not killed by a method that causes death to occur as rapidly as possible.[11]	Yes – Not expressly prohibited under SA law or under the Cattle Code. It is an act of cruelty if an animal is not provided with appropriate and adequate exercises.[12]
Yes – Not expressly prohibited under Tasmanian law or under the Cattle Code. Permitted under the Tasmanian Guide to Dairy Cattle Welfare, which states it should always be conducted under the supervision of a veterinarian.[16]	Yes – Not expressly prohibited under Tasmanian law or under the Cattle Code. Permitted under the Tasmanian Guide to Dairy Cattle Welfare for calves less than 24 hours old, however, it is considered 'undesirable'.[17]	Yes – Not expressly prohibited under Tasmanian law or under the Cattle Code. Confinement is only considered an act of cruelty where likely to result in unreasonable or unjustifiable suffering, the animal is unable to provide for itself and he or she is not provided with approporiate food, shelter, drink or exercise.[18]
Yes – Permitted under the Code of Accepted Farming Practice for Welfare of Cattle if performed under veterinary supervision, although compliance is not mandatory. [22]	Yes – Prohibited under the Code of Accepted Farming Practice for Welfare of Cattle, except in "extreme conditions in which common sense and genuine concern for animal and human welfare should prevail."[23] Compliance is not mandatory.	Yes - Not expressly prohibited under Victorian law or under the Cattle Code. Confinement is only considered an act of cruelty where likely to result in unreasonable or unjustifiable suffering or fails to provide proper food, drink or shelter.[24] The practice of confining cattle, however, is referred to throughout the Code of Accepted Farming Practice for Welfare of Cattle.
Yes – Not expressly prohibited under WA law or under the Cattle Code.	Yes – Not expressly prohibited under WA law or under the Cattle Code.	Yes – Not expressly prohibited under WA law or under the Cattle Code. Confinement is only an act of cruelty if the manner that causes, or is likely to cause, unnecessary harm.[25]

15 Ibid.

16 Ibid.

17 Ibid, at 31.

18 S 8(2)(e), Animal Welfare Act 1993 (TAS).

19 S 10.6, Code of Accepted Farming Practice for the Welfare of Cattle (2001).

20 S 10.6 of the Code of Accepted Farming Practice for the Welfare of Cattle (2001).

21 S 10.5, Code of Accepted Farming Practice for the Welfare of Cattle (2001).

22 S 10.8, Code of Accepted Farming Practice for the Welfare of Cattle (2001).

23 S 12.3, Code of Accepted Farming Practice for the Welfare of Cattle (2001).

24 Ss 9(1)(b) and 9(1)(f), Prevention of Cruelty to Animals Act 1986 (VIC).

25 S 19(3)(b), Animal Welfare Act 2002 (WA).

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