

**Submission
No 384**

**INQUIRY INTO USE OF BATTERY CAGES FOR HENS IN
THE EGG PRODUCTION INDUSTRY**

Organisation: Voiceless, The Animal Protection Institute

Date Received: 23 July 2019



**SUBMISSION TO THE NSW PARLIAMENT LEGISLATIVE COUNCIL SELECT COMMITTEE
ON THE USE OF BATTERY CAGES FOR HENS IN THE EGG PRODUCTION INDUSTRY**

***INQUIRY INTO THE USE OF BATTERY CAGES FOR HENS IN THE EGG PRODUCTION
INDUSTRY***

22 July 2019

Voiceless Limited

ACN 108 494 631
2 Paddington Street
Paddington NSW 2021

P +61 2 9357 0723

F +61 2 9357 0711

Disclaimer: Voiceless Limited ACN 108 494 631 ('Voiceless') is a company limited by guarantee. Voiceless is not a legal practice and does not give legal advice to individuals or organisations. While Voiceless makes every effort to ensure the accuracy of information presented on its behalf, Voiceless does not guarantee the accuracy or completeness of that information. Information is provided by Voiceless as general information only and any use of or reliance on it should only be undertaken on a strictly voluntary basis after an independent review by a qualified legal practitioner (or other expert). Voiceless is not responsible for, and disclaims all liability for, any loss or damage arising out of the use of or reliance on information it provides. To learn more about Voiceless, please visit <http://www.voiceless.org.au>

About Voiceless

Voiceless, the animal protection institute ('Voiceless') is an independent, non-profit animal protection think-tank based in Sydney. Voiceless's vision is for a world in which animals are treated with respect and compassion. Voiceless was founded by father-daughter team Brian Sherman AM and Ondine Sherman in 2004.

Over the past fifteen years, Voiceless has worked to empower and mainstream the animal protection movement; shine a spotlight on industry practices; advance legal protection for animals; raise public awareness and; increase animal protection in science and technology. Read about our history of work and achievements [here](#).

Today, we are proud to be the home of animal law and animal protection education. We are developing the crucial skills of critical-thinking in youth, our next generation of influencers and decision-makers.

Patrons

- [J.M. COETZEE](#), Nobel Prize for Literature Winner 2003, author of 'Lives of Animals' and 'Elizabeth Costello'.
- [BRIAN SHERMAN AM](#), businessman and philanthropist.
- [DR JANE GOODALL](#), world-renowned primatologist and animal advocate.
- [THE HON MICHAEL KIRBY AC CMG](#), former judge of the High Court of Australia.
- [CHARLIE TEO AM](#), internationally acclaimed neurosurgeon.
- [AI WEIWEI](#), leading contemporary artist and human rights advocate.

For further information visit: www.voiceless.org.au

All correspondence in relation to this submission should be directed to:

Ondine Sherman
Managing Director
Voiceless
2 Paddington Street
Paddington NSW 2021 AUSTRALIA
T: + 612 9357 0713
F: + 612 9357 0711
Email: ondine@voiceless.org.au

© 22 July 2019

Introduction

We are grateful for the opportunity to make a submission to the *Inquiry into the use of battery cages for hens in the egg production industry*.

The significance of this inquiry process cannot be overstated, considering the sheer number of animals affected by the outcome and the high level of public interest in the matter.

Voiceless Report on Hen Welfare in the Australian Egg Industry

In 2017, Voiceless published a report on hen welfare in the Australian egg industry titled [*Unscrambled: The hidden truth of hen welfare in the Australian egg industry*](#) ('our Report').¹

Our Report is based on current animal welfare science, and has been reviewed by six leading animal welfare experts on our [Scientific Expert Advisory Council](#):

- **Professor Marc Bekoff**, Professor Emeritus of Ecology and Evolutionary Biology, University of Colorado, Boulder. Co-founder with Jane Goodall of Ethologists for the Ethical Treatment of Animals.
- **Dr Malcolm Caulfield**, Principal Lawyer at the Animal Law Institute and an Honorary Research Fellow in the School of Humanities and Social Inquiry at the University of Wollongong.
- **Professor Clive Phillips**, Professor of Animal Welfare, Centre for Animal Welfare and Ethics, Faculty of Science, University of Queensland.
- **Professor Lesley J. Rogers**, Emeritus Professor of Neuroscience and Animal Behaviour, University of New England.
- **Professor Bernard E. Rollin**, University Distinguished Professor, University Bioethicist, Professor of Philosophy, Animal Sciences and Biomedical Sciences, Colorado State University.
- **Professor A. J. Webster**, Emeritus Professor of Animal Husbandry, University of Bristol.

The Report has also been endorsed by major animal welfare organisations including Animals Australia, Compassion in World Farming and Mercy for Animals.

The Report has been **attached** to this Submission for your reference.

¹ Voiceless, the animal protection institute, *Unscrambled: The hidden truth of hen welfare in the Australian egg industry* (2017) <www.voiceless.org.au/unscrambled-hidden-truth-hen-welfare>.

Relevance of the Voiceless Report to the Inquiry's Terms of Reference

Various sections of our Report are of relevance to the Terms of Reference for this Inquiry.

For ease of navigation, we have outlined these areas of relevance in the table below.

Terms of Reference	Voiceless Report
1 (a)	Pages 12-15
1 (b)	Page 42
1 (d)	Page 22
1 (e)	Pages 30-31
1 (g)	Pages 24-29
1 (i)	Pages 12-15

We urge the Committee to take the research and recommendations from our Report into account, and strongly recommend using this opportunity to address farming practices that have been socially and scientifically condemned, at both a domestic and international level.

Respectfully submitted by **Voiceless, the animal protection institute.**

May 2017

voiceless
the animal protection institute

Unscrambled:

The hidden truth of hen welfare in the Australian egg industry

A REPORT ON THE AUSTRALIAN EGG INDUSTRY

www.voiceless.org.au

© May 2017

ISBN: 978-0-9944969-2-8 (paperback)

ISBN: 978-0-9944969-3-5 (online)

ABOUT VOICELESS

Established in 2004 by father and daughter team, Brian Sherman AM and Ondine Sherman, Voiceless is an independent, non-profit think tank working to stop animal cruelty in Australia. Our work includes:

Advocacy

Working with law and policy makers to improve legal protections for animals in Australia and to build animal law.

Research

Conducting quality research and publishing in-depth reports and issue briefings on key animal industries.

Awareness

Educating the public about animal cruelty through campaigns, public engagement, high school and tertiary programs, and encouraging individuals to be a voice for animals.

Grants and Prizes

Empowering and growing the animal protection movement with the annual Voiceless Grants Program and Voiceless Media Prizes.

PATRONS

- **Brian Sherman AM**
Businessman and philanthropist
- **Professor J. M. Coetzee**
Nobel Prize for Literature Winner 2003
- **The Hon Michael Kirby AC CMG**
Former Justice of the High Court of Australia
- **Dr Jane Goodall DBE**
Renowned primatologist and animal advocate
- **Professor Charlie Teo AM**
Neurosurgeon

SCIENTIFIC EXPERT ADVISORY COUNCIL (SEAC)

- **Professor Marc Bekoff**
Professor Emeritus of Ecology and Evolutionary Biology, University of Colorado, Boulder. Co-founder with Jane Goodall of Ethologists for the Ethical Treatment of Animals.
- **Dr Malcolm Caulfield**
Principal Lawyer, Animal Law Institute and Honorary Research Fellow, Faculty of Law, Humanities and the Arts, University of Wollongong.
- **Professor Clive Phillips**
Foundation Chair of Animal Welfare, Centre for Animal Welfare and Ethics, University of Queensland.
- **Professor Lesley J. Rogers**
Emeritus Professor of Neuroscience and Animal Behaviour, University of New England.
- **Professor Bernard E. Rollin**
University Distinguished Professor, University Bioethicist, Professor of Philosophy, Animal Sciences and Biomedical Sciences, Colorado State University.
- **Professor A.J. Webster**
Emeritus Professor of Animal Husbandry, University of Bristol. Former Head of the University of Bristol University's Veterinary School.

This Report was reviewed by Voiceless's Scientific Expert Advisory Council and Legal Advisory Council member Dr Sophie Riley. This Report is endorsed by Animals Australia, Mercy for Animals (USA) and Compassion in World Farming (UK).

This report was written and edited by Elise Burgess.

Legal review by Sarah Margo.

Legal and editorial contributions by Emmanuel Giuffre.

Illustrations by Corinna Conforti.

Research contributions from Daniel Cung, Martine Lappan, Lea Yen Chia, Anne Day and Jason Rudaizky.

Design and editing support from the Voiceless team - Elaine Morris, Billie-Rose Harvey, Zoe Blake and Dr Meg Good.

Voiceless

2 Paddington Street
Paddington NSW 2021
T: +612 9357 0723
info@voiceless.org.au

Follow us on social media

-  [Voiceless.Institute](#)
-  [Voiceless.org.au](#)
-  [@VoicelessNews](#)

Disclaimer: Voiceless Limited ACN 108 494 631 ('Voiceless') is a company limited by guarantee. Voiceless is not a legal practice and does not give legal advice to individuals or organisations. While Voiceless has made every effort to ensure the accuracy of information, including images, presented in this publication, Voiceless does not guarantee the accuracy or completeness of that information. Information is provided by Voiceless as general information only and any use of or reliance on it should only be undertaken on a strictly voluntary basis after an independent review by a qualified legal practitioner (or other expert). Voiceless is not responsible for, and disclaims all liability for, any loss or damage arising out of the use of or reliance on this publication. This publication is protected by copyright and no part of it should be reproduced in any form without the consent of Voiceless.

TABLE OF CONTENTS

Foreword	2
Executive Summary	3
1. Introduction	5
1.1 Overview	6
Fact Box 1: One year in egg production in Australia	6
1.2 Infographic: Impact of egg production on a hen	8
2. Battery cages	11
2.1 Key welfare issues of the battery cage system	12
2.2 Failure of current regulations – The Poultry Code	16
Fact Box 2: Industry funded and commissioned animal welfare science	18
2.3 Bad Egg – Australia falling behind its international counterparts	19
2.4 Progress in Australia	20
2.5 How effective is a market-based approach to driving reform?	21
Fact Box 3: Cage-free pledges from companies	22
3. Other housing systems	23
3.1 Key issues in free range and other housing systems	24
Fact Box 4: Hen outdoor roaming increases in free range systems with smaller flocks and more space	28
3.2 Market failure – the ‘free range’ farce	30
4. Inherent cruelties	33
4.1 Inherent cruelties in egg production	34
5. Recommendations	41
6. Conclusion	43
Endnotes	46

Most Australians have never met a chicken.

They have not had the opportunity to watch them dust bathe, prune, and scratch in the earth, fight to be top of the pecking-order or invite their friends to share the food they found with a high-pitched staccato call.

They haven't looked into their small round eyes and wondered what they're thinking, scratched under their large feathers to discover tiny ones beneath, felt the roughness of their comb, or learned their likes and dislikes.

I was one of those people. Despite having spent my life advocating for animals, particularly those subjected to the cruelty of factory farming, I had never truly communed with a feathered friend.

And then, a year ago I nervously adopted my first hen. She was thrown out of a battery farm due to a leg injury, rescued by a local passer-by, taken to a temporary foster home and eventually found me.

Her name is Feather.

In the animal protection movement, we talk a lot about the sentience of farmed animals, their emotions and capacity for joy, pain, fear, in a bid to break-down the disconnect: we have heart-felt empathy for animal suffering and yet, fail to see its relevance to the contents of our shopping basket.

If we are going to elevate our society to one that we can be proud of, I believe there are two crucial steps. Firstly, we must know who we are eating, the animals whose bodies we are using. That's only fair. This means a connection between our mouths and our hearts or minds. And secondly, we must take personal responsibility, make our own informed choices, and ultimately answer the question: how much should an animal pay in suffering for our food choices?

I have learnt a lot about chickens recently. Like how, given the slightest opportunity, they behave in ways identical to their wild ancestors, the Asian jungle fowl. For example, I found Feather sleeping the night on the top branches of a neighbouring pine tree. Locked her entire life in a battery cage, how she knew how to fly (and so high!) and where to roost was amazing to behold. She also communicates to her flock with a large variety of sounds, talking, so to speak. There's even a special vocalisation she uses when she sees me.

With Feather, I also finally understood the laying and hatching process. I wasn't alone in my confusion. When friends visit they ask: don't you need a rooster to make eggs? How do you know which egg will be just an egg or which one a chick?

I share my newfound knowledge: Feather's eggs are unfertilised reproductive cycles, a little like women menstruating, no male required. However, like us, for her eggs to develop into embryos, a male must fertilise her. That's why, I explain, the 'breeders' are a different industry to the 'layers'. And why in the breeding industry, where 50% of hatching eggs are male, millions of chicks are macerated or gassed each year: breeders have no use for them; the egg industry doesn't want them as they don't lay eggs; and the meat industry desires only their 'Frankenstein' chickens who have quadruple the profit on their bones.

Voiceless's key aim is to end factory farming and its horrific cruelty. And yet, we are a mainstream organisation that represents a broad range of people with different diets and outlooks. It would be easy for us to recommend 'eat free range' as the answer to the welfare of Australia's hens, but it's not that simple.

All farms, from free range to battery, buy their hens from breeders and, therefore, purchasing any type of eggs means buying into the breeder's mass slaughter of male chicks.

And so we must ask all Australians to play an active part in this dilemma. Ultimately, it is your responsibility to decide what to buy, what to eat and how to make a difference.

Reading this report is the first step in understanding the welfare of hens in Australian egg industries.

With information and increased knowledge, perhaps you will transition from seeing hens as egg producing machines, to viewing them as complex sentient birds, who'd love nothing more than to roost in a tall tree.

We do hope you will join us in speaking up for the 25 million hens in Australia.

I'm sure Feather would agree - every voice counts.

Ondine Sherman
Managing Director and Co-Founder, Voiceless

Brian Sherman AM Hon Litt D (UTS)
Managing Director and Co-Founder, Voiceless

EXECUTIVE SUMMARY

The Australian egg industry is responsible for over 25 million hens, supplying over 434 million dozen eggs each year. This industry is divided across three primary farming methods – battery cages, barn-laid and free range.

This separation in farming styles has led to eggs becoming one of the more confusing and debated animal products on the market, with animal welfare and consumer interests playing dominant roles. Of primary concern is the continued use of battery cages.

Battery cages have been banned, or are being phased out, in a number of global markets due to the severe welfare issues inherent in their use, including most member states of the European Union, New Zealand and Switzerland.

Unfortunately, the Australian egg industry is still highly supportive of the use of battery cages, despite declining consumer sales.

Within this Report, Voiceless has assessed the key issues with the use of battery cages from an animal welfare and scientific perspective, in addition to all major forms of egg farming in Australia and the animal husbandry practices that are allowed to be used across the entire industry.

Specifically, this Report reviews:

- Welfare concerns of battery cages;
- Failure of current government regulations;
- International standards and progress in Australia;
- Comparison of egg farming: battery cage, barn-laid and free range; and
- Inherent cruelties in egg farming.

CAGED CRUELTY

There are more than 11 million hens confined in battery cage systems across Australia.

These hens are kept in sheds and confined to small wire cages for their entire lives. Each hen usually has between 4 – 7 cage mates and can be allocated space even smaller than that of an A4 sized piece of paper.

Despite having complex social and behavioural needs, battery

caged hens have minimal space for movement and can barely stretch their wings. They are given no nests in which to lay their eggs and no litter for scratching, pecking or dust bathing.

This lack of space prevents them from performing their full range of behaviours and can lead to severe physical and mental stress. Forced to stand on wire flooring, hens often suffer chronic pain from foot lesions and serious bone and muscle weakness.

The lack of space, and subsequent extreme inactivity, in combination with the physical impacts of unnaturally high egg production, can result in hens developing osteoporosis, leading to chronic pain from bone fractures. This is a systemic problem across the cage egg industry, with a 2004 study estimating that 80-89% of commercial egg-laying hens suffer from osteoporosis.

INHERENT CRUELTIES

As with most animal use industries, there are welfare issues that cannot be avoided. These are what Voiceless refers to as 'inherent cruelties', the negative welfare impacts that are an intrinsic part of the egg production process.

This Report discusses the practices which are permitted across all egg production systems – caged, barn and free range, including:

- maceration and gassing of male chicks;
- debeaking (also known as beak trimming) of hens;
- forced moulting;
- selective breeding; and
- depopulation, transport and slaughter.

Of those listed, it is perhaps the slaughter of day-old chicks that is the most disturbing, yet little known, aspect of the egg industry.

As males cannot be used for egg production, and have not been selectively bred for their size or meat quality, male chicks are generally considered unsuitable for production purposes, and accordingly, are slaughtered shortly after hatching.

Maceration is the primary method of slaughter and generally involves the unwanted chicks being carried via conveyor belt before falling into a roller-like metal grinder, where their entire bodies are sliced and ground up, while fully conscious.

The egg industry defends this practice as humane given the speed of the maceration process. As a result, the industry guidelines – *the Model Code of Practice for the Welfare of Animals: Domestic Poultry* ('the Poultry Code') - considers it an acceptable form of slaughter for day-old chicks.

WHY THIS REPORT?

This Report comes at a time when there is real opportunity for significant animal welfare advancements in the egg industry.

For the first time in 15 years, the Poultry Code is under review.

Voiceless has, however, significant concerns that this opportunity for change will instead be used as a means to lock in the continued use of battery cages in Australia.

As evidence of this, in 2015, after a decade of lobbying and escalating complaints about dubious producer labelling, the Federal Government began developing a national egg standard to define 'free range' in the Australian egg industry. This process had the potential to resolve ambiguities in the definition of free range, by creating a unified standard for consumers and producers.

Once the free range egg consultation process came to an end, however, Federal, State and Territory Ministers had agreed to a free range egg information standard that was *considerably worse* for consumers, genuine free range egg producers, and of course, egg-laying hens.

Among a number of concerning changes, the new information standard will allow for outdoor stocking densities of 10,000 birds per hectare, which is significantly higher than the previous Poultry Code requirement of 1,500 birds per hectare.

As demonstrated by this example, the Australian egg industry and the Federal and State Governments missed an ideal opportunity to align Australia with global progress towards better welfare for egg-laying hens and reflect consumer sentiment.

As such, ahead of the Poultry Code review, Voiceless has recognised the importance of assessing current Australian egg industry practices, the need for independent research and establishing key recommendations for reform.

More importantly, in this Report, Voiceless has addressed serious welfare concerns within the Australian egg industry at a time when its practices are under a political spotlight.

There are many considerations with these issues, such as consumer choice and free range certification, but Voiceless's primary concern is for animal welfare.

To address the serious welfare issues raised in this Report, a multi-tiered approach is required encompassing government, industry, business and consumers. All play a part to address both immediate welfare concerns, and long-term treatment of hens in the egg industry.

While immediate changes by industry, business and consumers are necessary to improve the welfare of hens currently in the Australian egg industry, it is important that animal welfare and the protection of hens is the driving force for permanent change.

Unscrambled: The hidden truth of hen welfare in the Australian egg industry.

1. Introduction

1.1 OVERVIEW

Arguably factory farming at its worst, the battery cage is a production system that permanently confines hens in cages within a shed for their entire lives.¹

In a typical battery cage system, a hen will share her cage with up to seven others² and has a space less than the size of an A4 sheet of paper in which to move.³ Cages are often stacked on top of each other in rows in order to maximise production in the available shed space, with one shed able to house tens of thousands of birds.⁴

Battery cages have been widely used in Australia since the 1960s and remain the dominant form of egg production.⁵ In response to concerns for hen welfare, however, there has been an increase in alternative egg markets, namely free range, with Australian survey data indicating that animal welfare is strongly tied to consumer expectations around egg production.

According to a 2014 survey, 68% of free range egg consumers in Australia decide to purchase these products over cage eggs due to animal welfare reasons.⁶

Importantly, consumers were named as the leading influence on the Australian egg industry, and as such, domestic consumer demand is a significant influence on Australian egg producers.⁷ There is, however, a sizeable gap between consumer expectations and the actual animal welfare standards being used by most egg producers.⁸

The purpose of this Report is twofold: first, to address the above concerns, and second, to realign the debate to the core issue of hen welfare.

FACT BOX 1

One year in egg production in Australia⁹



Number of dozen eggs produced in 2015:

434.6 MILLION



Number of layer hens and pullets (young hens):

25.688 MILLION

The states with the highest number of birds are NSW/ACT (31%), QLD (29%), and VIC (24%).



or total number of eggs:

5.2152 BILLION



Number of egg farms in Australia:

252

While cage eggs make up the highest market share in terms of volume of grocery eggs sold to consumers, free range eggs represent the highest value for the egg industry. As at 30 June 2016:

- Cage eggs accounted for 49.5% of grocery eggs sold, but were only valued at 37.3% of the market share.
- Free range eggs made up 40.7% of grocery eggs sold, but were valued at 50.6% of the market.



The debate surrounding the continued use of battery cages in Australia has been somewhat hijacked by the egg industry and government to ignore core welfare issues and instead place responsibility on the consumer. Arguments about 'consumer choice' are being used to stifle legitimate concerns about the ethics of battery cage use, despite the fact that Australia is lagging well behind international standards on this issue.

This Report aims to return the focus to core issues relating to the welfare of egg-laying hens across all production systems, including the legal framework that allows for the use of battery cages and the role of industry and consumers.

HEN SENTIENCE

Hens are arguably afforded little consideration in terms of sentience and acknowledgement of intelligence. This lack of regard translates to chickens as a species being one of the most abused on the planet through the egg and chicken meat industries, where these animals are slaughtered in their billions every year.

Yet continued research into chicken behaviour has demonstrated how much these birds are misunderstood, with studies revealing their use of complex skills, social structures and emotional intelligence. Research has shown:

- Chickens communicate using over 24 different types of vocalisations as well as visual displays, including specific signals which assists recognition of individuals.¹⁰ Socialisation begins in early infancy with hens and chicks vocalising prior to hatching.¹¹
- Mother hens show an emotional response when witnessing their chicks experiencing pain or making mistakes, with one study concluding that adult female birds possess at least one of the essential underpinning attributes of empathy.¹²

- Evidence of long-term memory, eavesdropping and recognising reputation in their social system, with chickens able to infer their own social standing in the flock by observing how other birds interact and comparing themselves.¹³
- Chickens can master complex skills, including numeracy, geometry and spatial ability.¹⁴

'Once we appreciate that these birds do not simply respond to their environment, to each other or to us with a set of simple, fixed or 'unthinking' responses, we may decide that they merit a different position within an ethical framework.'

– Christine Nicol, *The Behavioural Biology of Chickens*¹⁵

WELFARE INDICATORS

Typically, food producers 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 eggs) can be a result of poor welfare, *the healthy functioning of an animal alone does not indicate good welfare.*¹⁶

In the egg industry, perhaps more than any other, the preference of the consumer must also be considered as consumer expectations play a vital role in dictating the 'acceptable' mainstream standards of welfare and pricing.

For consumers, it is not the rate of production that is of concern but instead the 'naturalness' of the animal's environment and how an individual animal actually feels.¹⁷

Under this proviso, the battery cage system fails to meet consumer expectations about hen welfare.

1.2 IMPACT OF EGG PRODUCTION ON A HEN

Most egg production in Australia involves negative welfare impacts for egg-laying hens. These are what Voiceless refers to as 'inherent cruelties', or in other words, husbandry practices or behaviours

which are an intrinsic part of the egg production process. Below is a graphic representation of some of these issues. See Chapter 4: *Inherent cruelties* for more detail on these issues.

EARLY SLAUGHTER

Hens have a natural life expectancy of up to 12 years, however, hens used in the egg industry are typically slaughtered at around 72 weeks of age.

SELECTIVE BREEDING

Australian layer hens have been genetically selected to maximise egg production, which has also resulted in higher instances of tumour growth, prolapses and can weaken immune systems.

OSTEOPOROSIS

Extreme inactivity can result in hens developing 'disuse osteoporosis', leading to chronic pain from bone fractures. The muscles and bones essentially waste away, with the hen's skeletal system becoming weak. High egg production also has a major impact on a hen's bone strength and contributes to layer hens suffering from a higher frequency of osteoporosis and bone fractures. This can be due to the unnaturally high number of eggs produced in a hen's lifetime and the amount of calcium required to produce so many egg shells.

DEBEAKING

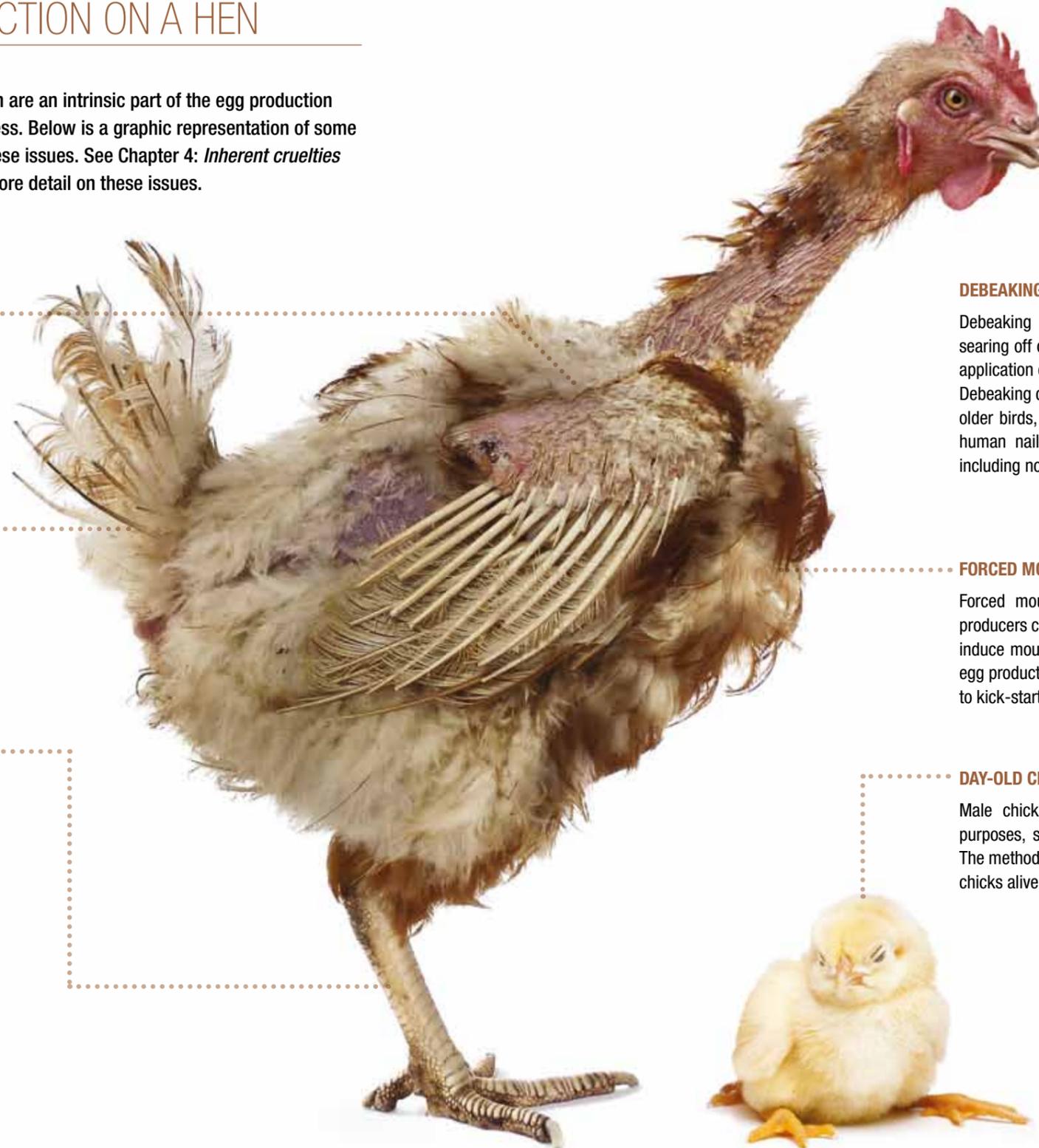
Debeaking most commonly involves the amputation or searing off of part of the upper and lower beak through the application of an electrically heated blade or infrared beam. Debeaking can cause acute and chronic pain, particularly in older birds, due to tissue damage and nerve injury. Unlike human nails, a hen's beak has extensive nerve supply, including nociceptors, which would detect any pain.

FORCED MOULTING

Forced moulting is a controversial practice where egg producers can reduce food and water from an entire flock to induce moulting. Forced moulting is used when the flock's egg production rate begins its natural decline, in an attempt to kick-start high production again.

DAY-OLD CHICK SLAUGHTER

Male chicks are considered 'unsuitable' for production purposes, so they are slaughtered shortly after hatching. The method of slaughter is either gassing or grinding up the chicks alive (maceration).





Unscrambled: The hidden truth of hen welfare in the Australian egg industry.

2. Battery cages

2.1 KEY WELFARE CONCERNS IN BATTERY CAGE SYSTEMS



Today, there are approximately 11-12 million hens confined in battery cage systems across Australia.¹⁸ These hens are kept in sheds and confined to small wire cages for their entire lives.¹⁹

In terms of welfare, the key industry argument for the continued use of battery cages is that cages are more effective at limiting the spread of disease and that environmental factors, such as temperature, can be controlled. These factors, however, cannot counteract the negative welfare impacts of the battery cage system. Further, the environment and the threat of disease can be managed through careful husbandry practices in non-cage systems.

Despite having complex social and behavioural needs, battery caged hens have minimal space for movement and can barely stretch their wings.²⁰ They are given no nests in which to lay their eggs and no litter for scratching, pecking or dust bathing.²¹ This lack of space prevents them from performing their full range of behaviour and can lead to severe physical

and mental stress.²² Forced to stand on wire flooring, hens often suffer chronic pain from foot lesions and serious bone and muscle weakness.²³

Cages, which are generally just 40cm in height,²⁴ are often stacked in multi-levelled rows to maximise production in the available shed space. Most battery hens will spend the entirety of their 'productive' life in these surroundings where they will endure considerable physical and psychological suffering.²⁵

Each hen usually has between 4 – 7 cage mates²⁶ and can be allocated space even smaller than that of an A4 sized piece of paper.ⁱ This extreme deprivation of space leads to a range of serious welfare issues. Some of the following issues are not limited to battery cage systems.

ⁱ The permitted stocking densities differ in each State and Territory, and space allowance will depend on the weight and number of hens in one cage. In NSW, for example, if the average weight of a hen in the cage is less than 2.4 kilograms, she will be permitted a space of around 550cm²: *Prevention of Cruelty to Animals Regulation 2012* (NSW) s 10(5)(a). An A4 sheet of paper, with sides of 21cm x 29.7cm, has an area of 623.7cm².

BEHAVIOURAL IMPACTS

Hens have been shown to possess sophisticated cognitive abilities, with their communication skills being responsive to social and environmental factors. According to one research paper, hens showed self-awareness and awareness of others, along with the ability to engage in reasoning.²⁷

The use of battery cages and related farming practices ignores the research which demonstrates that like humans, hens have preferences, particularly in terms of the environment in which they are kept, and experience physical sensations and emotional responses such as pain, fear, anxiety, pleasure and enjoyment.²⁸

NESTING

Nesting is a behavioural priority for a hen, with the conventional battery cage continually depriving her of the ability to lay her eggs in a discrete, private and enclosed nesting space.²⁹ This frustration is evident in the change to a hen's behaviour. Hens housed in battery cages have been found to display agitated pacing and escape behaviours, such as exaggerated or repetitive movements,³⁰ and even perform the motions of building a nest, despite the fact that she has no nesting materials.³¹

FORAGING AND PERCHING

Foraging is a positive behaviour that is important to good hen welfare, yet this action is denied by battery cage systems, which can lead to frustration for hens.

Perching is also a fundamental behavioural instinct for hens, with most birds preferring to perch at night. The battery cage system clearly frustrates this, with no perching structure available. Hens who are unable to perch show signs of unrest and aggression, which can lead to poor welfare outcomes in the form of injurious feather pecking of cage mates. Hens reared without the opportunity to perch can suffer poor physical welfare, including a decrease in musculoskeletal health, poor motor skills, poor balance, and impaired cognitive spatial skills.³²

DUST BATHING

Another key instinct of hens is the ability to dust bathe in order to clean their feathers. Dust bathing, however, simply cannot be performed in battery cage systems.

The restrictions of the battery cage lead hens to engage in sham dust bathing, where hens repeatedly perform wing movements to mimic dust or water bathing actions without achieving the desired result. Research has found that when dust bathing is not completed, plumage is likely to be dirtier,



less waterproof, and less insulated.³³ Hens who had prior exposure to dust bathing were reported to have increased corticosterone levels when deprived of dust bathing conditions, suggesting stress associated with dust deprivation.³⁴

According to animal welfare expert Professor John Webster, *“the unenriched battery cage simply does not meet the physiological and behavioural requirements of the laying hen, which makes any quibbling about minimum requirements for floor space superfluous”*.³⁵

FEATHER PECKING

Feather pecking involves a hen pecking at the feathers of another hen, to the extent of pulling out feathers and causing injury. Hens engage in feather pecking due to a variety of factors, such as lack of space, high stocking densities, diet and frustration due to a lack of stimulation (such as lack of litter) and a lack of foraging opportunities.³⁶

Feather pecking can be a major issue across all egg production systems and is discussed further in Chapter 3: *Other housing systems*.

OTHER PHYSICAL IMPACTS

On a physiological level, hens regulate their temperature by adjusting their posture, holding their wings away from their bodies during heat periods. This behaviour is impossible in restricted space, which means that hens in battery cages are limited in their ability to regulate their own body temperature.³⁷

Further, the extreme confinement prohibits hens from acting on natural instincts and comfort behaviours like wing flapping, grooming, preening, stretching, foraging and dust bathing.³⁸

2. Battery cages

INJURY AND ILLNESS

WIRE FLOORING

Foot and claw damage is common in caged conditions.³⁹ This often results in hens experiencing chronic pain from the development of lesions and other foot problems.⁴⁰

The wire cage flooring can result in a hen's feet becoming sore, cracked and deformed. Without the opportunity to be worn down through scratching, the hen's nails grow long and can even twist around the wire mesh flooring, restricting her movements even further or trapping her to the floor.⁴¹ In some cases, excessive nail growth can lead to the nails breaking off, resulting in open wounds and a higher risk of infection.⁴²

OSTEOPOROSIS

Extreme inactivity also results in hens developing disuse osteoporosis, leading to chronic pain from bone fractures. The impact on a hen's bone structure is exacerbated by the sheer amount of calcium required to produce an unnaturally high number of eggs.⁴³ The muscles and bones essentially waste away, with the hen's skeletal systems becoming weak. This is a systemic problem across the cage egg industry, with a 2004 study estimating that 80-89% of commercial egg-laying hens suffer from osteoporosis.⁴⁴ This condition can often lead to hens having a high susceptibility to bone fractures in the cage and also during handling.⁴⁵

“Some birds’ skeletal systems become so weak that their spinal cords deteriorate and they become paralyzed; the animals then die from dehydration in their cages.”⁴⁶

– Bruce Friedrich, The Huffington Post

A hen can therefore be left to suffer with bone fractures without any pain relief or veterinary intervention for her entire life in a cage. Bone fractures that occur in cage confinement will often not be detected until the hen is considered ‘spent’ and manually taken from her cage for slaughter (referred to as ‘depopulation’), where new injuries can also occur during handling. In fact, it has been estimated that 15 - 30% of the total mortality of hens in cages is a result of osteopenia (a precursor to osteoporosis).⁴⁷ A 2010 UK study found that almost a quarter of battery caged birds suffered bone fractures during depopulation, which was significantly higher than in any other system.⁴⁸

Further, the number of hens with bone fractures increases throughout the transport, unloading, and shackling for slaughter process, with some studies reporting up to 31% of hens with new bone fractures following this process.⁴⁹

Alternative housing systems do remedy this issue to some extent, with the addition of a perch being found to increase tibia, humerus and femur strength.⁵⁰ A similar study also concluded that wing flapping is an important exercise for greater humeral strength.⁵¹

ARTIFICIAL LIGHTING AND VENTILATION

Hens in Australian battery cages may spend their entire lives in artificially lit surroundings⁵² designed to maximise laying activity and maintain continuous high egg production year-round. Low light intensities are often used, in an attempt to reduce feather pecking.⁵³

Though the Poultry Code stipulates that hens should be given lighting over a total period of at least eight hours per day, and that photoperiods longer than 20 hours per day “may be detrimental to the adult laying bird”, it doesn't actually set a



limit on the use of artificial lighting.⁵⁴ Nor does the Poultry Code stipulate the level of lighting, effectively allowing dim lighting conditions even when the lights are on.

There are a number of welfare concerns regarding the use of artificial lighting, including:

- Behavioural impacts – hens reared in continuous light were more fearful than those hens who were kept to a natural diurnal sleep pattern (i.e. inactive at night).⁵⁵ Hens also displayed fewer natural behaviours in dim lighting, such as preening and foraging.⁵⁶
- Physical impacts – the development of a hen's eye can be negatively impacted by dim light, very short or long photoperiods, and continuous illumination, affecting the eye's ability to focus.⁵⁷ Additional studies have also highlighted potential welfare issues where hens may perceive these sources of light as flickering, rather than continuous.⁵⁸ Artificial lighting may also affect the development and functioning of a hen's reproductive system.⁵⁹

In addition to the welfare impacts of artificial lighting, there is also growing evidence that the ambient sound levels of egg production facilities are harmful to hens, as is the air quality, which can contain hydrogen sulphide and ammonia.⁶⁰ The latter is a particular concern, as the design of intensive housing systems (thousands of animals within one closed shed) and poor ventilation can lead to a significant decline in air quality. Ammonia fumes develop in damp litter and droppings, and if ventilation is poor, fumes may accumulate to reach a high enough concentration to inhibit growth and performance, cause viral conjunctivitis (keratoconjunctivitis), and exacerbate respiratory infections.⁶¹

While the Poultry Code stipulates that a ventilation system must provide fresh air at all times, experience in similar intensive farming industries demonstrates that ammonia build-up can still be an issue, affecting the respiratory system of hens and presenting a greater risk of disease.⁶²



SUMMARY

Hens who are locked in battery cages for the duration of their short lives are treated as units in a production line, with their most basic physical, psychological and behavioural needs denied.

It is important to note that this chapter has only assessed the *direct* welfare impact of the battery cage. In reality, the suffering of hens extends beyond the cage to the inherent cruelties of egg production that are set out in Chapter 4: *Inherent cruelties*.

It cannot be assumed that simply banning battery cages will rectify the above issues, as alternative egg production systems can also result in the abovementioned welfare concerns. While this factor should not excuse or delay a ban on battery cages, it does mean that scrutiny should be levelled at all production systems, if we are serious about improving the lives of birds exploited for egg production.

2.2 FAILURE OF CURRENT REGULATIONS – THE POULTRY CODE

The *Model Code of Practice for the Welfare of Animals – Domestic Poultry* ('Poultry Code' or 'Code') sets out minimum welfare standards for the treatment of birds in Australia and the use of battery cages.ⁱⁱ The current Poultry Code, developed in 2002, drew upon the first industry guidelines created in 1983, which reflected husbandry practices commenced in the 1950s. This means that the current Code still allows some of the cruelest practices in commercial egg production, and falls well short of meeting current community expectations, independent animal welfare science, and international best practice. For example, the Code:

- Permits the use of battery cages.
- Permits the routine slaughter of male chicks.
- Permits the painful debeaking of chicks as a matter of routine.
- Permits hens to be fed a reduced amount of food or water for periods of time ('forced moulting').
- Fails to require producers to select their flocks based on genetic traits that promote higher welfare outcomes (including improved bone strength and reduced aggression).

The Poultry Code effectively sanctions cruel industry practices for the sake of commercial efficiency, profitability and to meet extreme consumption demands.

In 2016, the Poultry Code finally came under review for conversion into mandatory standards and voluntary guidelines,ⁱⁱⁱ called the Draft Poultry Standards & Guidelines ('Draft Poultry S&G'). Voiceless is concerned, however, that the Draft Poultry S&G may fail to address the above concerns with the Code.

ii Most jurisdictions have adopted the Code into law in one form or another, or have incorporated their own standards to suit their jurisdiction. Depending on the state or territory, compliance with these standards can be mandatory or voluntary; can be relied upon as a defence to a charge of animal cruelty; and/or can be adduced as evidence in animal cruelty proceedings.

iii The intention is for 'standards' to be adopted by legislation, thus making them compulsory.

THE POULTRY STANDARDS & GUIDELINES DEVELOPMENT PROCESS LACKS INTEGRITY AND INDEPENDENCE

At the time of writing, the Draft Poultry S&G were yet to be released for public consultation. Voiceless reiterates its concern that the Draft Poultry S&G will reinforce cruel industry practices such as the use of battery cages, based on a failure in the standard-setting process to prioritise animal welfare.

It is essential that the Draft Poultry Standards & Guidelines do not reinforce existing and outdated industry practices, by ignoring changing community expectations, independent animal welfare science, and best practices that demand higher welfare standards for birds used in the egg industry.

The reasons for concern become apparent upon examining the development process for the Draft Poultry S&G, and the key players involved in the process:

- The process is led by the NSW Department of Primary Industries ('NSW DPI') and managed by Animal Health Australia ('AHA'). AHA is a public company established by the agriculture and primary industry departments of State and Territory governments and representative bodies of animal use industries. The members of AHA include Australian Egg Corporation Limited ('AECL'), the peak body for the Australian egg industry.⁶³
- The initial version of the Draft Poultry S&G was prepared by a writing group made up of representatives from AHA, State and Territory departments of agriculture, and animal use industries (including AECL). Indeed, these groups are involved in the entire process, from setting priorities, funding, commissioning research, and determining which standards will be put forward to eventually become law.⁶⁴
- Once the initial draft was prepared, a stakeholder advisory group ('SAG') considered the draft and provided feedback. Of the 35 stakeholders in the SAG, only three were from animal protection groups, with the remainder made up mostly of poultry industry representatives (including AECL and State and Territory departments of primary industries).⁶⁵

Clearly, the commercial interests of the egg industry are heavily represented throughout the entire process, whether directly through the industries' own representatives or indirectly through AHA or State and Territory departments of agriculture.⁶⁶

The principle focus of AECL is promoting the commercial interests of egg producers. AHA is influenced, as AECL is a member of the company. In addition, State and Territory agriculture departments have a real or perceived conflict of interest, as they are responsible for promoting the egg industry and protecting the welfare of animals exploited by the industry.⁶⁷

According to Dr Jed Goodfellow, "[t]he control exerted by agricultural institutions over the development of farm animal welfare standards gives rise to serious questions of procedural legitimacy."⁶⁸

Given the predominance of industry and pro-industry influence in the process of setting standards and guidelines, it is unlikely that the Draft Poultry S&G will lift the welfare standards to any meaningful extent.

Industry funded and commissioned animal welfare science

For animal welfare standards to be legitimate, they must be based on independent, peer-reviewed and internationally recognised animal welfare science. Animal protection stakeholders involved in developing the Draft Poultry S&G – namely, RSPCA Australia and Animals Australia – have criticised the process for failing to do just that, pointing to a lack of independence and scientific focus in the drafting process.⁶⁹

RSPCA Australia voiced concerns that the Draft Poultry S&G were “failing to reflect the science that clearly shows the animal welfare issues caused by battery cages.”⁷⁰ RSPCA Australia CEO Heather Neil further stated, “[p]roducers and consumers have a right to expect that even these minimum standards for livestock production will be based on the best available science and knowledge, and currently, that’s not happening.”⁷¹

In evidence of this, as part of the 2016 review, support papers were drafted and circulated to stakeholders summarising the scientific research on which the Draft Poultry S&G were based.

RSPCA Australia scientists heavily criticised the papers, claiming they were not based on independent science.⁷²

The papers were also initially criticised by the very scientists referenced within those papers. Poultry experts Dr Jean-Loup Rault, Professor Paul Hemsworth and Professor Tina Widowski penned a letter claiming that a considerable amount of information circulated “only include[d] the sections and statements that outline the benefits of conventional cages, and omit[ted] sections that outline negative aspects.”⁷³ The authors stated that the “content [was] in general selective, and thus unbalanced, outdated on some points, [and] at times incorrectly referenced.”⁷⁴

The RSPCA’s dissatisfaction with the process culminated in a public statement in February 2017 threatening to leave the SAG because it did not wish to endorse the Draft Poultry S&G without an independent scientific review.⁷⁵

The Director of the Centre for Animal Welfare & Ethics (‘CAWE’), Professor Clive Phillips, stated that research from CAWE demonstrates that the Australian public has very little understanding of chicken farming, and they are reliant on Australian governments to develop standards that take into account scientific research conducted in Australia and internationally.⁷⁶

In Voiceless’s view, due to conflicts inherent in the standard-setting process, there is an overreliance on industry-backed science, or the selection of science that reinforces the status quo. Science is cherry-picked to promote industry profitability, irrespective of the animal welfare outcomes for chickens.

The result is that the Draft Poultry S&G are effectively prepared by industry, for industry, and with the assistance of pro-industry science. As the process arguably lacks independence, integrity and therefore legitimacy, it is unlikely that the Draft Poultry S&G could reasonably be endorsed.

2.3 BAD EGG – AUSTRALIA FALLING BEHIND ITS INTERNATIONAL COUNTERPARTS

While current Australian standards still support the widespread use of battery cages, a number of international jurisdictions have already made moves to ban or phase out the use of battery cages.

These include, but are not limited to:

- 1992 – Switzerland bans battery cages.⁷⁷
- 2002 – Sweden bans battery cages.⁷⁸
- 2008 – California (US) bans battery cages, to be phased out by 2015.⁷⁹
- 2009 – Michigan (US) passes legislation to phase out battery cages by 2019.⁸⁰
- 2009 – Austria bans battery cages.⁸¹
- 2010 – Ohio (US) agrees to a moratorium on permits for new battery cage facilities.⁸²
- 2012 – The European Union bans battery cages after the 1999 Hens Directive comes into effect.⁸³
- 2012 – New Zealand passes legislation to phase out battery cages by 2022.⁸⁴
- 2016 – Massachusetts (US) passes legislation to phase out battery cages by 2022.⁸⁵

In 2016, the industry group Egg Farmers of Canada announced a voluntary phase out of battery cages by 2036.⁸⁶ Since the announcement, the draft *Code of Practice for the Care and Handling of Pullets and Laying Hens* has been released, which if implemented, will also see a legislated phase out by 2036.⁸⁷

Some European countries are abolishing cage systems altogether. Switzerland has already banned enriched cages, with Austria and Belgium reportedly set to do the same by 2020 and 2024, respectively. Germany has also introduced a 'family cage', which does have more space than traditional 'enriched' cages, but has reportedly been rejected by many consumers.⁸⁸

Further, several countries have banned the practice of debeaking (including Norway, Sweden, Switzerland and Finland),⁸⁹ forced moulting (including the European Union),⁹⁰ and, although defeated in Parliament, Germany has taken steps to introduce legislation to end the maceration of male chicks.⁹¹



2.4 PROGRESS IN AUSTRALIA

Australia is clearly falling behind the rest of the developed world in protecting birds exploited by the egg industry.

To date, the Australian Capital Territory (ACT) is the only jurisdiction to have banned the use of battery cages and enriched cages for egg-laying hens, as well as the routine debeaking of chicks.⁹² It should be noted, however, that no battery cage facilities operated within the Territory before the ban was implemented.

The ACT is also the only jurisdiction to pass legislation requiring the labelling of egg cartons according to their production systems (cage, barn or free range), and for retailers to display eggs on supermarket shelves accordingly.⁹³

Although Tasmania also passed legislation to prohibit the construction of battery cages from 2013, this only relates to new facilities and does not affect the operation of existing battery cage facilities in the State.⁹⁴

Despite a meagre increase in cage sizes,⁹⁵ no other jurisdiction has passed similar legislation, meaning that the use of cages, debeaking, forced moulting, the routine slaughter of male chicks, and detrimental selective breeding practices continue to be widely practiced across the country.

Further, due to the operation of the *Mutual Recognition Act 1992* (Cth), even though the ACT has banned the use of cages and the debeaking of chicks, the Territory cannot restrict the import and sale of eggs from jurisdictions that permit those practices.⁹⁶ This undermines attempts by state and territory governments to introduce higher welfare standards, and highlights the need for an effective, truly independent national approach to regulating welfare standards in the Australian egg industry.

2.5 HOW EFFECTIVE IS A MARKET-BASED APPROACH TO DRIVING REFORM?

In 2000, after the EU committed to phase out battery cages, an Australian Government working group was tasked to consider the fate of battery cages.^{iv} The working group encouraged development of alternative systems, but ultimately rejected a ban on battery cages.

In effect, this meant that the responsibility for shaping Australian egg industry production was left to consumer purchasing power, as opposed to government and producer-led industry reform.⁹⁷ It is also important to note that demand for non-battery eggs is strong, as Australian consumers are increasingly purchasing non-battery eggs, with retailers following suit.

This focus on consumer choice has defined, and delayed, the hen welfare debate for the last 15 years, and reflects the Australian Government's approach that consumer choice should 'shape the food system'.⁹⁸ As a result, discussion has shifted away from the cruelty of egg production and the need for a ban on battery cages, to the need for 'truth-in-labelling' and allowing consumers to 'vote with their wallets'.⁹⁹

It also reflects the general preference of decision makers to take a 'soft' regulatory approach to layer hen welfare (such as labelling and voluntary accreditation schemes), as opposed to a 'hard' regulatory approach, like bans or restrictions imposed by statute.¹⁰⁰

Yet there are obvious limitations with using consumers as surrogate regulators. Consumers are influenced by a variety of factors when making purchasing decisions, price being the most significant one. Other factors impacting on a consumer's willingness or ability to pay for higher welfare products include the placement and appearance of a product, advertising and labelling, availability of higher welfare alternatives, or simply habit.

The current approach to regulating animal welfare in the Australian egg industry permits governments to wash their hands of responsibility, leaving it to consumers to drive reform through their purchasing decisions.

^{iv} Standing Committee on Agriculture and Resource Management (SCARM) Working Group.

Cage-free pledges from companies

In a 2011 survey, 83% of respondents said they support laws that ensure farmed animals have access to the outdoors, companions, natural materials and enough space to carry out their instinctive behaviour.¹⁰¹ Survey results have also found that consumers strongly link higher animal welfare claims with superior product quality.¹⁰²

As a result, major Australian supermarket leaders Woolworths and Coles have committed to their own brand of cage-free eggs, while consumer demand has led to major fast food outlets such as McDonald’s, Hungry Jacks and Subway all committing to phase out cage eggs in their stores.

These trends reflect a global move away from certain forms of factory farming, particularly in the USA where major companies are committing to move away from cage eggs. In fact, in recent years, nearly 200 US companies have pledged to use only cage-free eggs by 2025. This list includes major grocery and fast food chains, which are collectively responsible for purchasing half of the 7 billion eggs laid monthly.¹⁰³

These include (but are not limited to):¹⁰⁴

Restaurant chains	<ul style="list-style-type: none"> Burger King: in the US by 2017 Dunkin’ Brands: in the US by 2025 McDonald’s: in the US and Canada by 2025 Starbucks: in North America by 2020 Subway: in the US and Canada by 2025 Taco Bell: in the US by 2017 Wendy’s: in the US and Canada by 2020
Food manufacturers and food service	<ul style="list-style-type: none"> Aramark: in the US by 2020 Barilla: in the US by 2020 Campbell Soup: by 2025 General Mills: in the US by 2025 Kellogg: in the US by 2025 Mondelez International: by 2020 in the US, Europe by 2025 Nestlé: in the US by 2020 Sodexo: in the US by 2021 Sysco (world’s largest food distributor) – by 2026¹⁰⁵ Unilever: globally by 2020
Hospitality and travel	<ul style="list-style-type: none"> Carnival Cruise Lines: by 2025 Hilton Worldwide: most brands in the US by 2018 Hyatt: committed in the US, no timeline Marriott: in the US by 2015 Norwegian Cruise Lines: by 2025 Royal Caribbean: by 2022

The Business Benchmark on Farm Animal Welfare found that consumer surveys consistently rate farmed animal welfare above food health and safety concerns as the *single most important* sustainability related food issue.¹⁰⁶

Unscrambled: The hidden truth of hen welfare in the Australian egg industry.

3. Other housing systems

3.1 KEY ISSUES IN FREE RANGE AND OTHER HOUSING SYSTEMS

In previous chapters, we outlined the key welfare issues surrounding the use of battery cages for egg production.

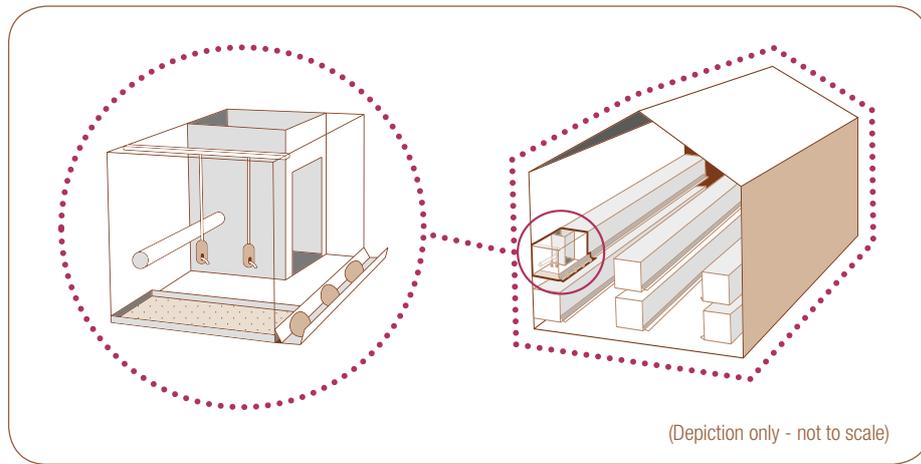
While Australian consumers are increasingly opting for alternatives to cage eggs at the supermarket,¹⁰⁷ the higher welfare potential of these alternative production systems come with their own welfare concerns, and should not be considered as easy substitutes for battery cages.

In this chapter, we address the pros and cons of these alternative systems. There are other welfare concerns, which we outline in Chapter 4: *Inherent cruelties*.



ENRICHED CAGES

Enriched cages (also known as furnished cages) have in-built features such as perches, a nesting area and occasionally, a scratching pad. Currently, enriched cages are not widely used in Australia;¹⁰⁸ however, this could possibly be industry's system of choice in the event of a ban on battery cages. It is therefore important that an accurate review of the pros and cons of the welfare concerns of this system takes place prior to any phase out of battery cages.

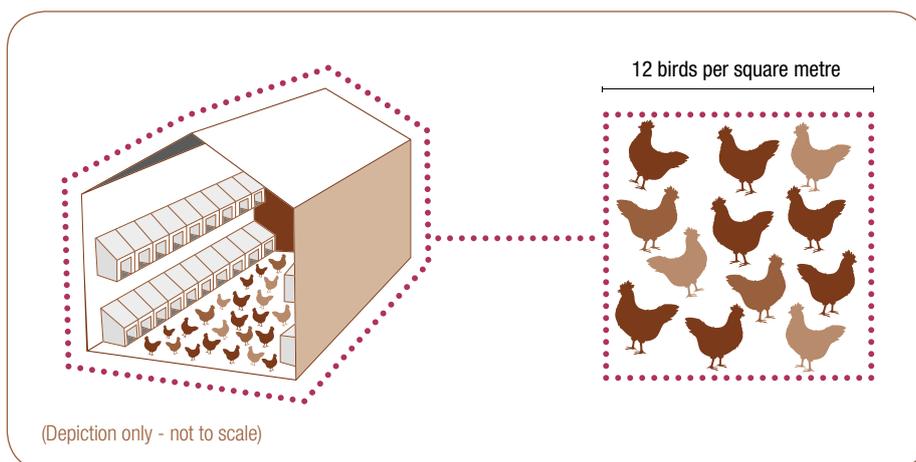


System	Description	Pros	Cons
Enriched cages	A cage with in-built features such as perches, nesting areas and, in some systems, scratch pads.	<ul style="list-style-type: none"> • More effective in preventing spread of disease than free range systems. • Less feather pecking than in barn or free range systems. • Enriched cages give hens the opportunity to perch and nest, albeit in cramped quarters with fellow hens, which can improve behavioural expression and musculoskeletal health.¹⁰⁹ 	<ul style="list-style-type: none"> • Enriched cages are still extremely confining, with each hen potentially given no greater space than that of an A4 sheet of paper. • Extra cage space can simply be filled with more birds, so the stocking density can still be high. • Enriched cages severely inhibit the hen's expression of natural behaviours. For example, a hen still cannot move freely, or dust bathe. She also cannot escape from aggressive behaviour from other hens such as feather pecking. • It is difficult to measure the actual benefit of a perch to an individual hen, as she will potentially share that perch with multiple other hens. Further, perches are too low to serve a hen's ethological need to feel safe by perching up high.

3. Other housing systems

BARN-LAID

Hens in barn systems are not caged but are housed in either a single or multi-tiered shed.¹¹⁰



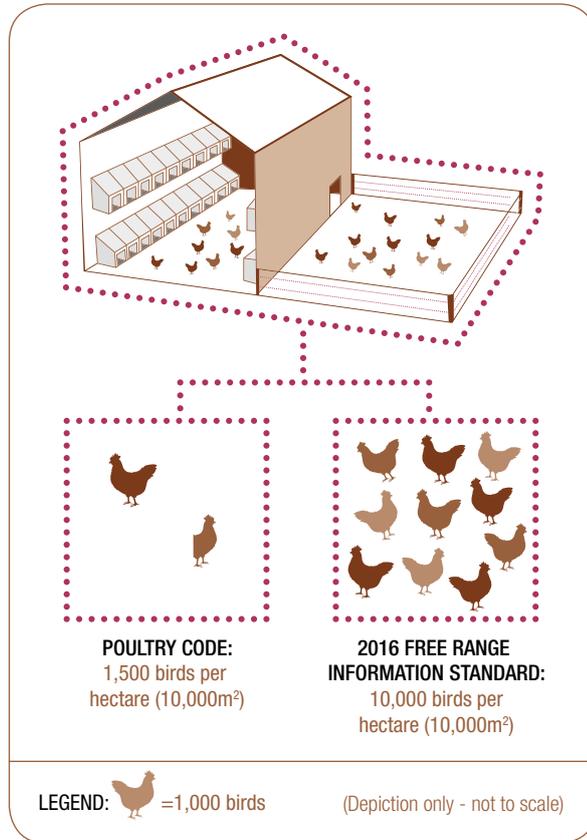
System	Description	Pros	Cons
Barn	Cage-free system. Hens are kept within a shed, but they do not have access to an outdoor range.	<ul style="list-style-type: none"> • Within sheds, hens may have room to move around and exhibit natural behaviours, such as running, wing-flapping and similar body movements. • Although not required by law, barn systems typically provide nest boxes. • Hens can roam throughout the shed but are never let outside. 	<ul style="list-style-type: none"> • Barn systems confine hens indoors for the entirety of their lives, subjecting them to unnatural conditions. • Hens will generally be exposed to unnatural lighting and ventilation, and will be unable to exhibit several of their behaviours naturally. • While some barns may have litter, others can have wire or slat flooring,¹¹¹ which can result in foot welfare issues. • Hens in barns may also be kept in extremely large flock sizes and at stocking densities as high as 12 - 15 birds per square metre.¹¹² • High flock sizes and stocking densities can negatively impact on a hen's freedom of movement, limit exhibition of natural behaviours, leading to antisocial behaviours, such as feather pecking and bullying and can limit a hen's ability to escape bullying.

FREE RANGE

Free range, put simply, refers to hens who have access to the outdoors. In practice, however, this term has a very broad application and can translate to significantly different forms of farming.

There is significant consumer confusion around what this term means, and several egg producers have been found to be in breach of the Australian Consumer Law for making misleading free range claims.

Furthermore, a Free Range Egg Information Standard was recently developed, which permits a free range label to be used for any stocking density up to 10,000 hens per hectare. Considering that the Poultry Code previously capped free range stocking densities at 1,500 hens per hectare, this new standard will significantly undermine genuine free range producers and hen welfare.



System	Description	Pros	Cons
Free range	Hens have outdoor access.	<ul style="list-style-type: none"> Hens in free range systems must be provided access to the outdoors. In these systems, hens can be housed in barns and given outdoor access for a portion of the day. According to the new free range egg information standard, hens in free range systems must have 'meaningful and regular' access to the outdoors. Depending on a variety of factors – including flock size, stocking density, the number and placement of openings, and the quality and condition of the range – these systems may allow birds to access the range to exhibit their natural behaviours. 	<ul style="list-style-type: none"> Under the new free range egg information standard, producers are only required to give hens access to the outdoor range, meaning that hens from these systems may never <i>actually</i> go outside. The new standard also permits producers to maintain high flock sizes and high outdoor stocking densities (up to 10,000 birds per hectare). The new standard does not require that hens have access to quality outdoor cover, such as trees, shelter and shade cloth, which is crucial as hens require security from perceived predation and weather protection. All of these factors impact on the ability of hens to access the outdoors, and therefore, impact negatively on the hen's welfare.

Hen outdoor roaming increases in free range systems with smaller flocks and more space

A 2016 Australian study found that free range hens spent more time outdoors when there were fewer hens per hectare and greater outside space available. The study tracked the movements and behaviours of six small flocks of hens who were given access to one of three different outdoor stocking density areas — 2,000 hens per hectare, 10,000 hens per hectare and 20,000 hens per hectare.

The study found that hens placed in the lowest outdoor stocking density of 2,000 hens per hectare spent more time outdoors, while hens housed at the highest stocking density of 20,000 hens per hectare spent the least amount of time outdoors.¹¹³



COMMON ISSUES IN ALTERNATIVE SYSTEMS

FEATHER PECKING

Building on the welfare issues discussed in Chapter 2.1: *Key welfare concerns in battery cage systems*, feather pecking is a major problem in the egg industry, and can be exacerbated in non-cage systems.

There are many factors that can cause feather pecking behaviour in hens, including but not limited to:

- absence of loose litter;
- dietary changes;
- lack of outdoor areas;
- artificial lighting; and
- high stocking densities.¹¹⁴

Hens in non-cage systems will perform scratching and foraging behaviour between 7-25% of the day.¹¹⁵ As a result, housing systems that do not facilitate this behaviour can lead to hens becoming frustrated, resulting in injurious feather pecking ranging from gentle to severe to cannibalistic.¹¹⁶

Currently, the Australian egg industry debeaks hens to prevent injurious feather pecking. Not only does debeaking (also called 'beak trimming') have its own significant welfare implications (see Chapter 4: *Inherent cruelties*), but research has identified that farm husbandry practices can reduce the incidence of feather pecking, including providing loose litter and allowing birds to dust bathe, which can improve feather and foot conditions.¹¹⁷ Other suggested methods include keeping hens in similar conditions from rearing to lay housing, allowing hens to roam naturally and explore,¹¹⁸ minimising stress during handling and transportation, and better overall housing design. To eliminate beak trimming altogether would require a comprehensive review of the current balance between hen welfare and high egg production.

CROWDING AND SMOTHERING

Smothering is a significant cause of mortality in non-cage systems and occurs when large numbers of hens crowd together, resulting in hens being physically smothered by the flock. It can either happen as a result of a quick panic, with hens rushing and fleeing to one area of the housing system, crushing and smothering the hens below, or, where hens build up numbers on top of one another through nesting areas.¹¹⁹

The risk of smothering and panic in the flock can be managed, however, by lowering stocking densities and acclimatising hens to different lighting and sounds, while research has also shown that as hens mature, the risk of smothering decreases.¹²⁰

INJURIES AND FRACTURES

Despite generally promoting greater bone strength and density, non-cage systems often report higher rates of keel bone fractures due to hens physically crashing into each other or obstacles such as perches in their environment. Bone fractures are extremely painful for hens and difficult to detect (especially with high stocking densities and large flock sizes), meaning that birds can be left to suffer for extended periods without treatment or until they are eventually sent to be slaughtered. It is important to note, however, that bone fractures are a major issue across all production systems as tibia fractures also occur in cage systems when hens are removed by catchers.

Collisions can be managed through the configuration of the housing environment and the use of softer furnishings, with new research into the impact of soft perches and better placement of ramps.¹²¹

MORTALITY RATES

A common criticism of non-cage systems is the reported higher rate of mortality. Mortality, however, can vary significantly between flocks and it is important to note that good farm management can effectively address this issue. For example, overcrowding can lead to higher mortality rates,¹²² and there have been numerous case studies of free range production systems in particular that have been successful in reducing hen mortality rates through higher welfare animal husbandry practices.¹²³

SUMMARY

While the issues outlined above certainly need to be addressed for alternative egg production systems, they should not be used as a reason to continue to use battery cages.

Further, while the abovementioned systems may provide a better outcome for hen health and production, these systems still involve serious welfare concerns that cannot be 'managed away'. All commercial egg production systems pose some risks to the welfare of hens. See Chapter 4: *Inherent cruelties* chapter for more details.

3.2 MARKET FAILURE – THE ‘FREE RANGE’ FARCE

The egg industry is largely self-regulated, with numerous accreditation schemes all offering varying standards of welfare for consumers to select. Egg products are also labelled with a seemingly endless variety of welfare claims, such as ‘free range’, ‘open range’, ‘free to roam’, ‘access to range’, ‘barn-laid’, ‘barn’, ‘organic’ and ‘happy hens’.

Self-regulation by the egg industry has failed to drive higher welfare standards for hens, or to provide consumer certainty around what they are purchasing.

Due to the sheer variety of egg-labelling claims and the absence of adequate labelling legislation, consumers lack clarity around what these claims mean and which production systems align with their expectations. As a result, consumers may have been duped into purchasing more expensive ‘higher-welfare’ products that are, in fact, inconsistent with their expectations.

This is particularly the case with eggs labelled as ‘free range’. Consumers understand free range eggs to have come from systems that have higher standards of welfare compared to cage and barn systems.¹²⁴ Despite this, the survey data indicates that there is a considerable gap between consumer expectations around free range production and the actual standards of most free range producers.

Consumer group CHOICE estimated that of the 696 million grocery eggs sold as free range in 2014, 213 million (over 30%) did not meet consumer expectations of what the label requires.¹²⁵

According to survey data, consumers expect that free range eggs come from hens who:

- Have substantial space to move around freely, both indoors and outdoors.¹²⁶
- Have lived in systems with low outdoor stocking densities, consistent with the Poultry Code (1,500 birds per hectare).¹²⁷
- Have lived in systems with low indoor stocking densities, lower than that of barn systems.¹²⁸
- Can and actually do go outside on most ordinary days.¹²⁹
- Are not routinely debeaked or force moulted.¹³⁰

Unfortunately, a significant proportion of eggs labelled ‘free range’ do not meet these expectations.

- Most brands did not disclose their outdoor stocking densities, or stocked at rates significantly higher than the Code (some as high as 20,000 hens per hectare).¹³¹
- Many brands did not disclose their indoor stocking densities, or stocked at rates that were non-compliant with the Poultry Code.¹³²
- The Poultry Code does not distinguish between barn and free range in relation to indoor stocking densities, meaning free range birds can be stocked at 15 hens per square metre while indoors.¹³³
- According to the Free Range Farmers Association, virtually all hens are debeaked at hatcheries.¹³⁴
- The extent of forced moulting in Australia is unclear.

Clearly, a large percentage of free range egg producers are failing to meet consumer expectations,^v meaning that Australian consumers are being misled by free range labels, and are incurring substantial financial detriment as a result.

Consumers can pay nearly double for eggs labelled free range compared with cage eggs.¹³⁵ It is estimated that consumers are wrongfully paying a premium of between \$21 million and \$43 million per year on eggs that are not genuinely free range or do not meet their expectations.¹³⁶

The consumer watchdog, the Australian Competition and Consumer Commission (‘ACCC’), has brought a number of cases against producers who have either described eggs as free range without meeting free range expectations, or where producers have incorrectly labelled cage eggs as free range. As a result, six egg producers have been prosecuted and most have also been fined for misleading and/or deceiving consumers with dubious ‘free range’ claims. In determining the merits of free range claims, the Federal Court of Australia has considered whether most hens are able to, and actually do, move about freely on the open range on most ordinary days,

v A CHOICE report noted that three of the four largest egg producers, being Pace Farms, Manning Valley and Farm Pride, accounted for 30.7% of all free range eggs sold in Australia in 2014. These producers sell their free range eggs at a stocking density of 10,000 birds per hectare. Other major producers and sellers like Aldi, Coles, Ecoeggs and Woolworths also produce their eggs at a stocking density of 10,000 birds per hectare: CHOICE, Submission to Consumer Affairs Australia and New Zealand: ‘Free Range Eggs: The Consumer Perspective’, *Inquiry into Free Range Egg Labelling* (November 2015) 12.

taking into account factors such as indoor and outdoor stocking densities, and the number and placement of barn openings.¹³⁷

‘FREE RANGE’ PRODUCERS FINED FOR MISLEADING AND DECEPTIVE CONDUCT

May 2016	Snowdale Holdings Pty Ltd (<i>Swan Valley Egg Farm, Free Range Eggs by Ellah, Mega Free Range Eggs</i>). Orders yet to be made. ¹³⁸
April 2016	Derodi Pty Ltd and Holland Farms Pty Ltd (<i>Ecoeggs, Port Stephens Free Range Eggs, Field Fresh Free Range Eggs</i>) fined \$300,000. ¹³⁹
September 2015	RL Adams Pty Ltd (<i>Darling Downs Fresh Eggs, supplying Drakes Home Brand Free Range, Mountain Range</i>) fined \$250,000. ¹⁴⁰
September 2014	Pirovic Enterprises Pty Ltd (<i>Pirovic Free Range Eggs</i>) fined \$300,000. ¹⁴¹
September 2012	Rosie’s Free Range Eggs fined \$50,000 (for selling cage eggs as free range). ¹⁴²
December 2010	C.I. & C.O. Pty Ltd fined \$50,000 (for selling cage eggs as free range). ¹⁴³

FREE RANGE FRAUD TO CONTINUE UNDER NEW INDUSTRY-DRIVEN INFORMATION STANDARD

To resolve these issues, the Federal Government undertook a consultation process in 2015 to develop a national free range egg labelling standard. According to the Government’s website, the standards were intended to enhance consumer confidence and certainty regarding egg labelling, and to better ensure that consumers were not misled by egg labels.¹⁴⁴

Consumer and animal protection groups have been lobbying for decades for genuine truth-in-labelling legislation, particularly for eggs. The consultation process appeared to present a real opportunity to set national labelling and production standards to regulate the egg industry and protect consumers.

Unfortunately, the entire process was hijacked by the egg industry.¹⁴⁵ Despite claims that the process was about protecting consumers and ensuring consumer expectations are met,¹⁴⁶ in Voiceless’s opinion, the standards proposed¹⁴⁷ will fail to improve the situation for consumers, and instead,

will operate to shield large-scale, intensive free range egg producers from liability under the Australian Consumer Law.

For example, the proposed standard:

- Dispenses with the free range test that *most hens are able to, and actually do, move about freely on the open range on most ordinary days*, despite consumers expecting this to be met.¹⁴⁸
- Proposes a new *regular and meaningful access to the outdoors* test, which is highly subjective and will be virtually impossible for the ACCC to enforce.
- Permits an outdoor stocking density of 10,000 hens per hectare,¹⁴⁹ over six-times higher than what consumers expect of free range egg systems as outlined by the Poultry Code standard of 1,500 hens per hectare.
- Creates a ‘safe harbour’ defence to protect free range producers from potential liability under the Australian Consumer Law for misleading and deceptive conduct.

The new standard does not address concerns around indoor stocking densities, nor place any restrictions on the debeaking and forced moulting of hens in free range systems. Critically, the standard only requires producers to provide hens with access to the range, as opposed to requiring that birds actually go outside.

It would seem that the government has bowed to industry pressure – ignoring animal welfare concerns and consumer expectations, and redefining ‘free range’ to make it consistent with large-scale, intensive systems that should more appropriately label their eggs as indoor or barn raised.

Far from providing consumers with certainty, the new standards will operate to shield large-scale, intensive producers from existing protections under common law and the Australian Consumer Law. Now, consumers will have no guarantee that their free range eggs came from hens that ever went outside, let alone from systems that do not mutilate their hens as a matter of routine.

3. Other housing systems

WHAT WOULD A GENUINE TRUTH-IN-LABELLING SYSTEM LOOK LIKE FOR THE EGG INDUSTRY?

- All egg producers would be required to label their eggs either as 'free range', 'access to range', 'barn' or 'cage' eggs.
- A graphic illustration of the production system used would be required on all packages and on supermarket shelves to assist time-poor consumers to make an informed choice.
- 'Free range' would be the premium egg label, and to meet consumer expectations, the following conditions would be met:
 - The eggs must have come from systems where *most hens are able to, and actually do, move about freely on an open range on most ordinary days.*¹⁵⁰
 - The outdoor stocking density must be no greater than 1,500 birds **per hectare** of outdoor area (or 2,500 birds **per hectare** where rotational range management strategies are in place).
 - The practices of debeaking and forced moulting are prohibited.
- Producers that fail to meet the above 'free range' standards would be required to label their products appropriately, as either access to range, barn or cage eggs.
- Producers would be audited, and the scheme enforced, by an independent third party.
- Stocking densities would be clearly disclosed on all egg packages, along with a graphical representation to assist time-poor consumers in making an informed decision.
- Egg packaging would clearly disclose whether or not such husbandry practices as debeaking and forced moulting are employed by the producer.
- Retailers would be required to clearly label and separately shelf eggs in accordance with their production systems (free range, access to range, barn or cage).^{vi}
- To ensure the standards remain consistent with changing consumer expectations and advances in animal welfare science, the standards would be reviewed every two years.

vi For an example of such labelling requirements already in effect, see *Eggs (Labelling and Sale) Act 2001* (ACT) ss 7, 7A and 7B.

Unscrambled: The hidden truth of hen welfare in the Australian egg industry.

4. Inherent cruelties

4.1 INHERENT CRUELTIES IN EGG PRODUCTION

While this Report highlights the specific welfare concerns of cage and non-cage egg production systems, it is important to note that, as with most animal use industries, there are welfare issues that cannot be avoided. These are what Voiceless refers to as ‘inherent cruelties’, the negative welfare impacts that are an intrinsic part of the egg production process. Some of the practices discussed in this chapter are permitted across all egg production systems – caged, barn and free range.

SLAUGHTER OF MALE CHICKS

One of the most horrific aspects of egg farming, regardless of production system, is the mass slaughter of male chicks. As males are not able to lay eggs and have not been selectively bred for their size or meat quality, male chicks are generally considered unsuitable for production purposes, and accordingly, slaughtered shortly after hatching.

The process begins at layer-hen hatcheries, where newborn chicks are transferred from their drawer-like incubators onto conveyor belts for sorting based on their gender. All male chicks, and those females who are considered unhealthy, are separated from the healthy ‘replacement’ female chicks.¹⁵¹

The method of slaughter for these “surplus hatchlings”, as recommended by the Poultry Code, is either carbon dioxide gassing or grounding up the chicks alive (maceration).¹⁵²



As many as 12 million male chicks are killed in Australia each year using these methods.¹⁵³ Globally, the figure is reportedly between three and six billion.¹⁵⁴

MACERATION

Maceration generally involves the unwanted chicks being carried via conveyor belt before falling into a roller-like metal grinder where their *entire bodies are sliced and ground up, all while fully conscious*.

The egg industry defends this practice as humane given the speed of the maceration process. As a result, the Poultry Code considers it an acceptable form of slaughter for day-old chicks.¹⁵⁵

In July 2016, Animal Liberation NSW released undercover footage from Australia's largest hatchery of this maceration process, resulting in vocal consumer backlash.¹⁵⁶ Reportedly, it was the first time Australian footage was captured of the process, renewing calls to phase it out.

GASSING

The other approved method of slaughter for day-old chicks is asphyxiation by carbon dioxide gassing (or potentially a mixture of gases). Carbon dioxide gassing causes asphyxiation, panic, and the formation of carbonic acid, which burns mucus membranes.¹⁵⁷

The RSPCA states that gassing with high concentrations of carbon dioxide results in "gasping and head shaking" and can take up to two minutes before the chick dies.¹⁵⁸ A 1995 review by veterinarians found that the period of time for the onset of unconsciousness for chicks exposed to carbon dioxide gassing could range from 2-7 minutes, depending on the mixture of gases used.¹⁵⁹

CHICK INTELLIGENCE AND BEHAVIOUR

Studies have shown that chickens are highly social animals with complex cognitive abilities.¹⁶⁰

In terms of hatchlings, Bristol University's Professor Christine Nicol stated in her review paper, *The Intelligent Hen*, that newly born chicks are able to track numbers up to five and in one experiment, displayed behaviour which showed that very young chicks understood that an object that moves out of sight still exists, a skill not displayed by human babies until about 12 months of age.¹⁶¹

Given this level of intelligence and sentience, it raises both welfare and ethical questions about the treatment of chicks – from their hatching in incubators in crowded trays, to the

impacts of the sorting process and the subsequent slaughter (and indeed, the farming) of these animals.

CONSUMER EXPECTATIONS

The slaughter of day-old chicks is an inherent part of egg production systems, a fact which is generally shocking for consumers, especially those who purchase free range or 'higher welfare' egg products.

The egg industry has identified the slaughter of chicks as a potential issue for consumers in recent years. For example, in June 2016 the United Egg Producers, who represent more than 95% of egg production in the United States, stated that they were aiming to end the slaughter of day-old male chicks "by 2020 or as soon as it is commercially available and economically feasible."¹⁶²

In Germany and The Netherlands, scientists have developed technology which can identify the gender of an unhatched chick on the ninth day of gestation. With a reported accuracy rate of 95%, this technology is known as "in-ovo sexing" and involves the use of chemical biomarkers to determine the sex of a chick.¹⁶³

Similarly, in Australia, a CSIRO-developed gene technology was announced in 2016, which claims to be able to identify an embryo's sex through a micro-injection of a green fluorescent protein gene on the male chromosome.¹⁶⁴ Male offspring will be identifiable through a fluoro marking at the embryo stage, and subsequently removed from incubation so they never develop and hatch.¹⁶⁵

While there are some clear ethical questions about the use of such techniques, the in-ovo slaughter of chicks at this early embryonic stage reportedly could occur prior to the development of pain receptors.¹⁶⁶ The use of gender identification of embryos would also have the additional benefit of removing the current 'sorting' process that day-old chicks endure, which involves rough handling and has its own poor welfare factors.¹⁶⁷

In Australia, the industry says it is open to such developments but has not opted for a phase out plan to date.¹⁶⁸

4. Inherent cruelties

DEBEAKING (BEAK TRIMMING)

Due to the restricted expression of many of their natural instincts and social interactions, hens raised in battery cages can become frustrated, fearful and aggressive. The extreme confinement of the battery cage can further trigger behaviours such as hen pecking, bullying and cannibalism.¹⁶⁹

Further, evidence suggests that battery hens have insufficient room to maintain a normal 'personal space' or to escape from bullying by companions, leading to high physiological stress levels.¹⁷⁰ This may also be the case in other production systems that have high stocking densities and flock sizes.

As a result, debeaking or beak-trimming has become a standard husbandry practice in an effort to prevent injuries from this behaviour.¹⁷¹ Debeaking most commonly involves removing or damaging a portion of the upper and lower beak through the application of an electrically heated blade or infrared beam.¹⁷² With the use of an infrared beam, the process involves forcing a day-old chick's face into a revolving carousel where a high intensity infrared beam is focused on the tip of the beak, damaging the hard outer horn and the underlying dermis and sub-dermal tissues.¹⁷³ Re-trimming may also be carried out if a hen's beak grows back.¹⁷⁴

Debeaking occurs at hatcheries following the sorting process. This means that the *vast majority of Australia's egg-laying hens will be debeaked regardless of the production system they will be sent to.*

Debeaking can cause acute and chronic pain, particularly in older birds, due to tissue damage and nerve injury. The actual process itself may result in trauma for the chick due to the forcible restraint of their head and the cutting of this sensitive organ, which contains a high density of nociceptors (or pain receptors).¹⁷⁵ Evidence has shown chicks having an increased heart rate at the time of debeaking, which may be related to the instance of short term pain.¹⁷⁶

In addition to the pain caused during and immediately following trimming, scientists believe the process can cause the beak to develop painful neuromas,¹⁷⁷ which may deter hens from using their beaks to forage or exhibit other natural behaviours. Studies have observed certain behaviours that indicate a heightened sensitivity to pain for up to six weeks following debeaking.¹⁷⁸

It is important to note the industry's response here, that in the face of a poor welfare outcome (bullying/pecking behaviour) the decision was taken to introduce a mutilation practice, rather than to change the underlying *causes* of the behaviour, such as extreme confinement. This is a common response across all animal use industries, to mutilate and change the physiology of the animal, rather than change the farming practices or conditions that cause the issue.

DEMAND FOR CHANGE / CONSUMER EXPECTATIONS

Currently, the Australian Capital Territory is the only jurisdiction to have outlawed the practice,¹⁷⁹ with all other Australian jurisdictions allowing debeaking as a matter of routine without pain relief.¹⁸⁰ Critically, Australia has fallen behind its international counterparts, with several countries banning the practice altogether, including Norway, Sweden, Switzerland and Finland.¹⁸¹

Australia maintains its position, despite the fact that the overwhelming majority of consumers consider debeaking to be inconsistent with their understanding of 'free range', and many consider that beak treatment (whether hens still have their beaks or their beaks have been trimmed) should be disclosed on free range egg boxes.¹⁸²

POTENTIAL SOLUTIONS

The negative welfare consequences of the debeaking process, including pain and behavioural impacts, along with the lack of consumer support for the practice, means that serious consideration must be given to alternative management methods.

As injurious pecking is a hen's response to external stimuli and frustrations, the obvious remedy would be for the adoption of farming practices and conditions to address these frustrations. For example, the introduction of enriched environmental conditions, such as litter and suitable range areas, can encourage interaction and mental stimulation for hens.¹⁸³ Better nutrition, lighting and parasite management may also help reduce injurious pecking.¹⁸⁴

Genetic selection has also been suggested as a means to reduce aggressive behaviours, through the introduction of genotypes with reduced feather-pecking tendencies.¹⁸⁵

REARING

Following the hatching and debeaking process, female chicks are transported to rearing facilities where they will either live in cages or large sheds. The environment inside these rearing facilities is tightly controlled, with lighting, activity levels and sleep artificially monitored.¹⁸⁶ The hens, or pullets at this age, will stay in rearing facilities for around 17 weeks before being sent to a laying facility.

There are a number of welfare concerns with these facilities and their impact on the early life experiences of hens. For example, hens reared without access to perches, door openings or elevated flooring can experience difficulty with accessing feed, water and nests when they are transferred to different production systems. Further, lack of perches or foraging opportunities (and therefore, movement) can hinder skeletal development and reduce bone strength. There are also behavioural impacts of rearing in such conditions, such as an increase in fearfulness, which can lead to severe feather pecking later in life.¹⁸⁷

FORCED MOULTING

Forced moulting is a controversial practice where egg producers can artificially induce an entire flock of hens to moult their feathers, usually by subjecting the flock to environmental stress,¹⁸⁸ such as reducing food and water sources.

Hens naturally moult around every 12 months as a means to maintain healthy feathers and rebuild bone strength.¹⁸⁹ This process, however, decreases (or stops) their egg-laying rate. Further, a hen's egg production rate will naturally decline over time, which is considered unprofitable for the high production rates of modern egg farming.

As a result, in the commercial egg industry, forced moulting is used to coordinate an entire flock to moult at the same time. It should be noted, however, that in Australia most hens are slaughtered after their first egg-laying season, and as such, moulting for a second season is uncommon.

When forced moulting is applied, hens will stop producing eggs altogether for around 14 days, following which their egg production will return again at a high rate. Essentially, forced moulting works to increase egg production overall, and the profitability of an entire flock, by prolonging each hen's state of high egg production.

In Australia, the Poultry Code stipulates that moult inducement (specifically controlled feeding) should only be carried out on healthy birds, and that it cannot involve electric pulse wires

(designed to restrict hen perching over feed containers) or feed that isn't edible for hens. The Poultry Code does, however, allow for up to 24 hours without any food or water.¹⁹⁰

From a welfare perspective, there are obvious and serious concerns with respect to the implementation of such restricted management strategies across large farms with tens of thousands of birds.

Globally, major egg market purchasers have also expressed concern for the welfare implications of such practices, specifically the starvation method. For example, McDonald's, Burger King and Wendy's International do not purchase egg products from US producers who use forced moulting practices,¹⁹¹ and in India, the Animal Welfare Board issued an order to ban the practice.¹⁹²

CONSUMER EXPECTATIONS

While there is a lack of survey data for Australian consumers' knowledge of this practice, a nation-wide survey of US consumer attitudes towards the welfare of laying hens found that over 95% of respondents were willing to pay a premium for eggs from hens who were not forced into moulting.¹⁹³ Further, the ACCC has noted that forced moulting may not be considered by consumers to be consistent with the concept of free range egg production.¹⁹⁴

4. *Inherent cruelties*





Essentially, forced moulting works to increase egg production overall, and the profitability of an entire flock, by prolonging each hen's state of high egg production.

SELECTIVE BREEDING

The purpose of intensive farming is to produce the highest yield of meat, eggs and dairy at the lowest possible cost. As a result, producers will selectively breed animals to increase production output, despite the fact that there are numerous health and welfare problems associated with this practice.

There are three major genetic lines of commercial egg layers in Australia and only three major distributors of layer genetic material.¹⁹⁵ Australian hen genetics are focused on breeding to maximise output both in the number of eggs produced and the size of the eggs.

The welfare concerns of selective breeding on layer hens include:

- Hens being predisposed to an inflammation of the reproductive tract caused by bacterial *E. coli* infection. This infection can cause the body cavity to fill with caseous exudate (a form of pus), which can eventually result in death.¹⁹⁶
- High egg production leading to the growth of tumours of the oviduct, with research showing that adenomas (benign glandular tumours) and adenocarcinomas (malignant glandular tumours) are common in commercial laying hens.¹⁹⁷
- Small birds suffering from cloacal prolapse (exposed reproductive tract) from the physical pressure of producing large eggs.¹⁹⁸
- A potential weakening of the immune system, leaving the hen vulnerable to infectious disease.¹⁹⁹

Perhaps one of the key welfare issues of selective breeding in egg-laying hens is the impact high egg production has on a hen's bone structure. That is, due to the unnaturally high number of eggs produced in a hen's short lifetime, and the amount of calcium required to produce egg shells, layer hens suffer from a high frequency of osteoporosis and bone fractures.²⁰⁰

According to one report, the amount of calcium that a hen deposits in her egg shells in one year can be up to 20 times the amount retained in her body.²⁰¹

Osteoporosis can lead to severely weakened bones and painful bone fractures. In severe cases of osteoporosis, a hen's spine can collapse, resulting in paralysis.²⁰² Adding to this issue is the fact that many hens with osteoporosis or bone fractures will not be detected, and therefore left untreated in large-scale systems, meaning they will inevitably be overlooked and left to suffer and die due to their injuries.

4. Inherent cruelties

Osteoporosis is further exacerbated by lack of movement, such as that found in the extreme confinement of cage systems, or in other systems with high flock sizes and stocking densities.

TRANSPORT AND SLAUGHTER OF SPENT HENS

Despite a natural life span of up to 12 years, layer hens are generally considered 'spent' at only 72 weeks of age as it is around this age that their egg production rates begin to decline.²⁰³

Layer hens can be killed on-farm and composted, or packed into crates and transported, often long distances, to a slaughterhouse.

The packing and transport process is stressful for layer hens, and due to their weakened bones, they are particularly susceptible to fractures and similar injuries as part of the handling and transport process.

The stocking density of the transport crates results in severe overstocking. In the case of layer hens, who weigh approximately 1.5-2 kilograms, they can be transported with 36 hens per square metre and with a minimum of 25 centimetre crate height requirement.²⁰⁴ In the case of day-old chicks, they can be transported at stocking densities of up to 455 chicks per square metre.²⁰⁵

Hens are then transported to slaughterhouses and killed in accordance with industry guidelines, which recommend decapitation, cervical dislocation or stunning followed by bleeding out.²⁰⁶ One of the more common methods of stunning – using an electrical water bath – has been found to be extremely ineffective, meaning that a number of hens may experience the electrocution process and have their throats cut while still conscious.²⁰⁷

As layer hens are not considered 'ideal' as a meat product for human consumption, their bodies and/or meat may be exported, used in pet food or used as processed meat for human consumption, such as in chicken stock.²⁰⁸



Unscrambled: The hidden truth of hen welfare in the Australian egg industry.

5. Recommendations

5. RECOMMENDATIONS

To address the serious welfare issues raised in this Report, a multi-tiered approach is required. This approach must address the suffering of the millions of hens who are *currently living within Australia's* egg production industry, but also that of future generations of hens and their offspring.

While immediate changes by industry, business and consumers are necessary to improve the welfare of hens currently in the Australian egg industry, it is important that animal welfare and the protection of hens is the driving force for permanent change.

<p>Government and Industry</p>	<p>The Australian egg industry and State and Territory governments are currently responsible for the welfare of over 25 million hens, and millions of male chicks. Immediate welfare improvements are needed to bring Australian production standards in line with global leaders. These include:</p> <ul style="list-style-type: none"> • Prohibit the use of battery and enriched cages. • Prohibit the routine slaughter of surplus male chicks. • Mandate a reduction of reliance on debeaking as a management tool, with an aim to prohibit the practice altogether. • Prohibit the use of 'forced moulting' techniques or any deprivation of food or water. • Select flocks based on genetic traits that promote higher welfare outcomes (including improved bone strength and reduced aggression). • Legislate mandatory labelling of eggs in accordance with their production methods ('cage', 'barn', 'access to range' and 'free range'), stocking densities, and use of certain husbandry practices. • Mandate a reduction of stocking densities. • Require the mandatory provision of shade, shelter and vegetation for outdoor ranges.
<p>Businesses</p>	<p>Businesses have an important role to improve the health and welfare of animals in supply chains – and to meet the rising expectations of Australian consumers, investors and stakeholders – by implementing better animal welfare standards:</p> <ul style="list-style-type: none"> • Remove caged eggs from supply chains and influence suppliers to follow suit. This is already underway in Australia with McDonald's, Subway and Hungry Jack's having announced such policies. • Develop progressive animal welfare policies that reflect core principles for the ethical treatment of animals. • Consider using egg-free alternatives and egg replacers for your products. This has already occurred in the US with egg replacers being used by major food producers.²⁰⁹
<p>Consumers</p>	<p>To aid the progress of animal protection and the protection of egg-laying hens, it is important for Australian consumers to:</p> <ul style="list-style-type: none"> • Consider going egg-free and explore the wide variety of products that do not contain egg products. • Make informed choices when it comes to purchasing decisions. • If eggs are purchased, consider using consumer information tools, such as phone apps and websites to find out about the farming practices used by egg brands and labels, or accreditation schemes. • Ask food manufacturers to use egg alternatives in their products, and local businesses to commit to using cage-free eggs.

Unscrambled: The hidden truth of hen welfare in the Australian egg industry.

6. Conclusion

6. Conclusion



6. CONCLUSION

“[I]magine spending your entire life in a wire cage the size of your bathtub with four other people. You wouldn't be able to move, so your muscles and bones would deteriorate. Your feet would become lacerated. You would go insane. That's precisely what happens to laying hens.”²¹⁰

– Bruce Friedrich, The Huffington Post

This Report explores key animal welfare issues affecting millions of hens and their chicks within the entire Australian egg industry, with a focus on the need to ban battery cages.

In this Report, Voiceless has highlighted:

- Poor hen welfare in cage egg systems;
- The inherent cruelties across most egg production – cage, barn and free range;
- The mistreatment of hens and their chicks;
- Consumer confusion and poor labelling standards in the egg industry;
- Lack of industry and government leadership; and
- Australia's lagging position on the global stage.

These issues should be of serious and immediate concern to consumers, businesses, industry and governments alike. The systemic and legalised cruelty that is inflicted upon hens and their chicks has become a core global animal protection issue over the past two decades, resulting in significant progress in other countries.

The time for similar action in Australia is well overdue.

Encouragingly, through their purchasing decisions, Australians have been sending a strong message to industry, politicians and businesses to fall into line with community expectations, and bring an end to the widespread abuses associated with battery cage production.

For Voiceless, the heart of this issue is the hen and her suffering.

While there are many issues of concern with the treatment of animals within animal use industries, the permanent confinement of a sentient being must surely be one of the cruellest methods still in use.

The fundamental reason to end the use of battery cages in Australia is because of hens, and their basic right to exist without suffering.

ENDNOTES

- 1 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [2.1.1.1].
- 2 See, for example, Shop Ethical, *Egg Choices* (31 March 2016) <<http://www.ethical.org.au/3.4.2/get-informed/issues/egg-choices/>>.
- 3 The permitted stocking densities differ in each State and Territory, and space allowance will depend on the weight and number of hens in one cage. In NSW, for example, if the average weight of a hen in the cage is less than 2.4 kilograms, she will be permitted a space of around 550cm²: *Prevention of Cruelty to Animals Regulation 2012* (NSW) s 10(5)(a). An A4 sheet of paper, with sides of 21cm x 29.7cm, has an area of 623.7cm².
- 4 It was reported that the largest layer facility in Australia in 2015 had 12 sheds each confining 60,000 birds. See NSW Department of Primary Industries, 'NSW poultry egg industry overview 2015' (NSW DPI Industries, 2015) 11.
- 5 PoultryHub, *Chicken Egg (Layer) Industry* <www.poultryhub.org/production/industry-structure-and-organisations/egg-industry/>.
- 6 Rachel Clemons and Katinka Day, *Do You Shell Out for Free-Range Eggs?* (7 August 2014) CHOICE <<https://www.choice.com.au/food-and-drink/meat-fish-and-eggs/eggs/articles/free-range-eggs>>.
- 7 Victorian Department of Economic Development, Jobs, Transport and Resources, 'Eggs Industry Profile' (December 2014) <http://agriculture.vic.gov.au/__data/assets/pdf_file/0011/292178/4-Eggs-Industry-Profile-December-2014-Update_MASTER.pdf>.
- 8 For more information, see Voiceless, Submission to The Australian Treasury, *Inquiry into Free Range Egg Labelling*, 27 November 2015, [3.7]-[3.10].
- 9 Australian Egg Corporation Limited, 'Annual Report 2016' (AECL, 2016) 2 <www.aecl.org/assets/About-us/Annual-Report-2016.pdf>; Australian Egg Corporation Limited, 'Australian egg industry overview – December 2015' (2016) <https://webcache.googleusercontent.com/search?q=cache:6_c0GL1EUecJ:https://www.aecl.org/dmsdocument/523+&cd=1&hl=en&ct=clnk&gl=au>.
- 10 Smith C and Johnson J, 'Chicken Challenge: What Contemporary Studies of Fowl Mean for Science and Ethics' (2012) 15(1) *Between the Species* 77.
- 11 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 73.
- 12 Edgar J L, Lowe C J, Paul E S, Nicol C J, 'Avian maternal response to chick distress' (2011) 278 *Proceedings of the Royal Society: Biological Sciences* 3129-3314.
- 13 Smith C and Johnson J, 'Chicken Challenge: What Contemporary Studies of Fowl Mean for Science and Ethics' (2012) 15(1) *Between the Species* 81.
- 14 Rugani R, Fontanari L, Simoni E, Regolin L, Vallortigara G, 'Arithmetic in newborn chicks' (2009) 276 *Proceedings of the Royal Society: Biological Sciences* 2458.
- 15 Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 184.
- 16 See, for example, Fraser D, Weary D M, Pajor E A and Milligan B N, 'A Scientific Conception of Animal Welfare that Reflects Ethical Concerns' (1997) 6 *Animal Welfare* 191, 196-199.
- 17 Ford J, 'Advance Australian animal welfare' (World Animal Protection, 2016) 17.
- 18 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 5.
- 19 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [2.1.1.1].
- 20 Broom D M and Fraser A F, *Domestic Animal Behaviour and Welfare* (CABI Publishing, 4th ed., 2007) 291.
- 21 Ibid; Heather Pickett, 'Industrial Animal Agriculture' (Compassion in World Farming Trust, 2003) <http://www.ciwf.org.uk/includes/documents/cm_docs/2008/i/industrial_animal_farming_booklet.pdf> Prof John Webster, *Animal Welfare: Limping towards Eden* (Blackwell Publishing, 2005) 121.
- 22 RSPCA, *Layer Hen FAQ* (2017) RSPCA Website <<https://www.rspca.org.au/layer-hen-faq>>; Shields S, Duncan I, 'An HSUS Report: A Comparison of the Welfare of Hens in Battery Cages and Alternative Systems' (HSUS, 2006) 2, 4-5.
- 23 RSPCA, *Layer Hen FAQ* (2017) RSPCA Website <<https://www.rspca.org.au/layer-hen-faq>>; Prof John Webster, *Animal Welfare: Limping towards Eden* (Blackwell Publishing, 2005) 121; Appleby M, 'Do Hens Suffer in Battery Cages?' (Compassion in World Farming, 1991) 4 <www.ciwf.org.uk/includes/documents/cm_docs/2008/d/do_hens_suffer_in_battery_cages_1991.pdf>.
- 24 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [2.3.1.5].
- 25 RSPCA, *Layer Hen FAQ* (2017) RSPCA Website <<https://www.rspca.org.au/layer-hen-faq>>.
- 26 Dr David Witcombe, 'Layer hen welfare: a challenging and complex issue' (Speech delivered at Animal Welfare Science Centre, Department of Primary Industries, Atwood, Victoria, 8 June 2007) <<http://www.animalwelfare.net.au/article/scientific-seminars>>; Widowski T, Hemsworth P, Coleman G, Guerin M, Dysart L and Barnett J, 'Welfare Issues and Housing for Laying Hens: International Developments and Perspectives' (unpublished report, c2009) <www.aph.gov.au/~media/Estimates/Live/rat_ctte/estimates/bud_1213/daff/5_aecl_c.ashx>.
- 27 Smith C and Johnson J, 'Chicken Challenge: What Contemporary Studies of Fowl Mean for Science and Ethics' (2012) 15(1) *Between the Species* 82, 89.
- 28 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 130-142.
- 29 LayWel Project, 'Welfare implications of changes in production systems for laying hens' (2004, University of Bristol) <www.laywel.eu/web/pdf/deliverable%2071%20welfare%20assessment.pdf>; Duncan I, 'The pros and cons of cages' (2001) 57(4) *World's Poultry Science Journal* 385.
- 30 Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 84.
- 31 Shields S, Duncan I, 'An HSUS Report: A Comparison of the Welfare of Hens in Battery Cages and Alternative Systems' (HSUS, 2006) 2.
- 32 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 19-20.
- 33 Lay D, Fulton R, Hester P, Karcher D, Kjaer J, Mench J, Mullens B, Newberry R, Nicol C, O'Sullivan N, Porter R, 'Hen welfare in different housing systems' (2011) 90(1) *Poultry Science* 284.
- 34 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 65.
- 35 Professor John Webster, *Animal Welfare: Limping towards Eden* (Blackwell Publishing, 2005) 120.
- 36 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 83-84; Lambton S L, Nicol C J, Friel M, Main D C J, McKinstry J L, Sherwin C M, Walton J and Weeks C A, 'A bespoke management package can reduce levels of injurious pecking in loose-housed laying hen flocks' (2013) *Veterinary Record* 2.
- 37 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 61.
- 38 Heather Pickett, 'Industrial Animal Agriculture' (Compassion in World Farming Trust, 2003) <http://www.ciwf.org.uk/includes/documents/cm_docs/2008/i/industrial_animal_farming_booklet.pdf>; Prof John Webster, *Animal Welfare: Limping towards Eden* (Blackwell Publishing, 2005) 121; Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 46.
- 39 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 139.
- 40 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 26; Appleby M, 'Do Hens Suffer in Battery Cages?' (Compassion in World Farming, 1991) 4 <www.ciwf.org.uk/includes/documents/cm_docs/2008/d/do_hens_suffer_in_battery_cages_1991.pdf>; Ian Duncan, 'The pros and cons of cages' (2001) 57(4) *World's Poultry Science Journal* 387.

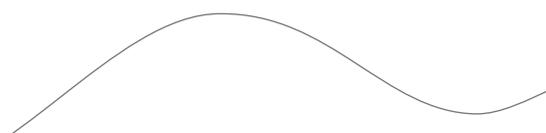
- 41 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 26; Karen Davis, *Keep chickens out of wire-floored cages* (2005) Rochester Democrat and Chronicle, accessible via <www.upc-online.org/Fall05/wirecages.html>.
- 42 Lay D, Fulton R, Hester P, Karcher D, Kjaer J, Mench J, Mullens B, Newberry R, Nicol C, O'Sullivan N, Porter R, 'Hen welfare in different housing systems' (2011) 90(1) *Poultry Science* 281.
- 43 Farm Animal Welfare Council, 'Opinion on Osteoporosis and Bone Fractures in Laying Hens' (FAWC, 2010) 2, 9 <www.gov.uk/government/uploads/system/uploads/attachment_data/file/325043/FAWC_opinion_on_osteoporosis_and_bone_fractures_in_laying_hens.pdf>; Prof John Webster, *Animal Welfare: Limping towards Eden* (Blackwell Publishing, 2005) 121; LayWel Project, 'Welfare implications of changes in production systems for laying hens' (2004, University of Bristol) 26 <www.laywel.eu/web/pdf/deliverable%2071%20welfare%20assessment.pdf>.
- 44 Webster A B, 'Welfare implications of avian osteoporosis' (2004) 83(2) *Poultry Science* 184-92.
- 45 Ibid 188.
- 46 Bruce Friedrich, 'The Cruellest of All Factory Farm Products: Eggs From Caged Hens' (16 March 2013) *The Huffington Post* <www.huffingtonpost.com/bruce-friedrich/eggs-from-caged-hens_b_2458525.html>; see also, Farm Animal Welfare Council, 'Opinion on Osteoporosis and Bone Fractures in Laying Hens' (FAWC, 2010) 9 <www.gov.uk/government/uploads/system/uploads/attachment_data/file/325043/FAWC_opinion_on_osteoporosis_and_bone_fractures_in_laying_hens.pdf>.
- 47 Roland D A Sr and Rao S K, 'Nutritional and management factors related to osteopenia in laying hens' in CC Whitehead (ed), *Bone Biology and Skeletal Disorders in Poultry* (Carfax Publishing Company, 1992) 281.
- 48 Sherwin C M, Richards G J and Nicol C J, 'Comparison of the welfare of layer hens in 4 different housing systems in the UK' (2010) 51 *British Poultry Science* 488, cited in Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 164.
- 49 The Humane Society of the United States, 'An HSUS Report: Welfare Issues with Selective Breeding of Egg-Laying Hens for Productivity' (HSUS, 2008) 2.
- 50 Barnett J L, Tauson R, Downing J A, Janardhana V, Lowenthal J W, Butler K L, Cronin G M, 'The effects of a perch, dust bath, and nest box, either alone or in combination as used in furnished cages, on the welfare of laying hens' (2009) 88(3) *Poultry Science* 456.
- 51 Whitehead C C and Fleming R H, 'Osteoporosis in Cage Layers' (2000) 79 *Poultry Science* 1033; Norgaard-Nielsen G, 'Bone strength of laying hens kept in an alternative system, compared with hens in cages and on deep-litter' (1990) 31 *British Poultry Science* 81; Leyendecker M, Hamann H, Hartung J, Kamphues J, Neumann U, Surie C, and Distl O, 'Keeping laying hens in furnished cages and an aviary housing system enhances their bone stability' (2005) 46 *British Poultry Science* 536.
- 52 Widowski T, Hemsworth P, Coleman G, Guerin M, Dysart L and Barnett J, 'Welfare Issues and Housing for Laying Hens: International Developments and Perspectives' (unpublished report, c2009) <www.aph.gov.au/~media/Estimates/Live/rrat_ctte/estimates/bud_1213/daff/5_aec1_c.ashx>; Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) s 5.
- 53 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 29.
- 54 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [5.5].
- 55 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 67.
- 56 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 29-30.
- 57 Ibid; Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 19.
- 58 Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 18.
- 59 Gerry Bolla, 'PrimeFact 604: Lighting of Poultry' (NSW DPI, 2007) <http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0007/212974/Lighting-of-poultry.pdf>.
- 60 Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 24, 26.
- 61 David B, Mejdell C, Michel V, Lund V, Moe R O, 'Air Quality in Alternative Housing Systems May Have an Impact on Laying Hen Welfare. Part II – Ammonia' (2015) 5 *Animals* 886.
- 62 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 29.
- 63 Animal Health Australia, *Members* (updated 1 February 2017) Animal Health Australia Website <www.animalhealthaustralia.com.au/who-we-are/information-for-members/members/>.
- 64 Dr Jed Goodfellow, *Animal Welfare Regulation in the Australian Agriculture Sector: A Legitimacy Maximising Analysis* (PhD Thesis, Macquarie University, 2015) 221.
- 65 RSPCA Australia, Animals Australia and the Australian Veterinary Association (AVA) are involved. While other animal groups – such as Voiceless – requested to be involved in the stakeholder meetings, their request was denied without providing reasons.
- 66 Dr Jed Goodfellow, *Animal Welfare Regulation in the Australian Agriculture Sector: A Legitimacy Maximising Analysis* (PhD Thesis, Macquarie University, 2015) 221.
- 67 See, for example, Elizabeth Ellis, 'Bearing the Burden: Shifting Responsibility for the Welfare of the Beast' (2013) 11 *Macquarie Law Journal* 41.
- 68 Dr Jed Goodfellow, *Animal Welfare Regulation in the Australian Agriculture Sector: A Legitimacy Maximising Analysis* (PhD Thesis, Macquarie University, 2015) 237.
- 69 See, for example, Esther Han, 'RSPCA threatens to quit poultry standards advisory group, as integrity of process is questioned' (15 February 2017) *The Sydney Morning Herald* <<http://www.smh.com.au/business/consumer-affairs/rspca-threatens-to-quit-poultry-standards-advisory-group-as-integrity-of-process-is-questioned-20170213-gubgx0.html>>.
- 70 RSPCA Australia, 'The science is in: battery cages must go' (Media Release, 19 August 2016) <www.rspca.org.au/media-centre/news/2016/science-battery-cages-must-go>.
- 71 Ibid. Executive Director of Animals Australia Glenys Oogjes also criticised the flawed and biased nature of the process, stating that the drafts did not reflect significant scientific input and issues raised by animal protection stakeholders. See Animals Australia, Submission No 53 to Productivity Commission, '*Regulation of Australian Agriculture*' Draft Report, 31 August 2016, 5- 6.
- 72 Dr Jed Goodfellow, Submission to Productivity Commission, *Inquiry into Regulation of Australian Agriculture*, Transcript of Proceedings, 22 August 2016, 366.
- 73 Esther Han, 'RSPCA threatens to quit poultry standards advisory group, as integrity of process is questioned' (15 February 2017) *The Sydney Morning Herald* <<http://www.smh.com.au/business/consumer-affairs/rspca-threatens-to-quit-poultry-standards-advisory-group-as-integrity-of-process-is-questioned-20170213-gubgx0.html>>.
- 74 Ibid.
- 75 Ibid.
- 76 Personal correspondence from Professor Clive Phillips, dated 28 September 2016.
- 77 *Animal Protection Ordinance (Switzerland)* 1981, article 25 <www.animallaw.info/statute/switzerland-cruelty-swiss-animal-protection-ordinance>; Appleby M, 'The European Union Ban on Conventional Cages for Laying Hens: History and Prospect' (2003) 6(2) *Journal of Applied Animal Sciences* 110.
- 78 The original deadline for phasing out battery cages by 1999 was extended. See Michael Appleby, *The European Union Ban on Conventional Cages for Laying Hens: History and Prospect* (2003) *Journal of Applied Animal Sciences*, 109; RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 36.

- 79 *California Health and Safety Code* div 20 ch 13.8 HSC §§ 25990-1, 25993 (2008); Watnick V J, 'The Business and Ethics of Laying Hens: California's Groundbreaking Law Goes into Effect on Animal Confinement' (2016) 43(1) *Boston College Environmental Affairs Law Review* 46.
- 80 *Michigan Enrolled House Bill 5127* (2009) ss 2 and 7.
- 81 *Bundesgesetz über den Schutz der Tiere (Tierschutzgesetz – TSchG)* [Federal Act on the Protection of Animals (Animal Protection Act - TSchG)] (Austria) BGBl I, 118/2004, 18(3).
- 82 The Humane Society of the United States, *Landmark Ohio Animal Welfare Agreement Reached Among HSUS, Ohioans for Humane Farms, Gov. Strickland, and Leading Livestock Organizations* (30 June 2010) <www.humanesociety.org/news/press_releases/2010/06/landmark_ohio_agreement_063010.html>.
- 83 Council Directive 1999/74/EC of 19 July 1999 Concerning Laying Down Minimum Standards for the Protection of Laying Hens [1999] *Official Journal of the European Communities* L 203/53, Chapter 2 <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:1999:203:0053:0057:EN:PDF>>.
- 84 *Animal Welfare (Layer Hens) Code of Welfare 2012* (NZ) minimum standard no. 12.
- 85 Massachusetts, Question 3, Minimum Size Requirements for Farm Animal Containment (2016) <www.animallaw.info/sites/default/files/Massachusetts%20Question%203%202016.pdf>.
- 86 CBC News, 'Canadian Egg Farmers to Abandon Battery Cages by 2036' (5 February 2016) CBC News <www.cbc.ca/news/business/cage-free-eggs-1.3435333>.
- 87 National Farm Animal Care Council, *Draft Code of Practice for the Care and Handling of Pullets and Laying Hens: Canada* (June 2016) [2.3.6].
- 88 Justin Kerswell, 'Battery egg hens still face hell as 'enriched' cages phased in' (8 September 2011) *The Ecologist* <www.theecologist.org/blogs_and_comments/commentators/other_comments/1046687/battery_egg_hens_still_face_hell_as_enriched_cages_phased_in.html>.
- 89 See, for example, Heather Pickett, 'Controlling Feather Pecking & Cannibalism in Laying Hens without Beak Trimming' (Compassion in World Farming, 2008) <www.ciwf.org.uk/includes/documents/cm_docs/2008/c/controlling_feather_pecking_and_cannibalism_in_laying_hens.pdf>.
- 90 Council Directive 98/58/EC of 20 July 1998 Concerning the Protection of Animals Kept for Farming Purposes [1998] *Official Journal of the European Communities* L 122/1, annex (14) <<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31998L0058>>: "Animals must be fed a wholesome diet which is appropriate to their age and species and which is fed to them in sufficient quantity to maintain them in good health and satisfy their nutritional needs". Depriving hens of feed for several days to induce moulting could breach this requirement.
- 91 See Nic Fleming, 'Chicken embryo tests can prevent practice of gassing billions of cockerels' (27 May 2016) *The Guardian* <www.theguardian.com/environment/2016/may/27/chicken-embryo-tests-can-prevent-practice-of-gassing-billions-of-cockerels>; Associated Press, 'Germany Working to End Mass Killing of Male Chicks by 2017' (30 March 2015) *Today Online* <www.todayonline.com/world/europe/germany-working-end-mass-killing-male-chicks-2017>.
- 92 *Animal Welfare Act 1992* (ACT) ss 9A and 9C.
- 93 *Eggs (Labelling and Sale) Act 2001* (ACT) ss 6-7B.
- 94 *Animal Welfare (Domestic Poultry) Regulations 2013* (Tas) s 5.
- 95 In 2000, the Standing Committee on Agriculture and Resource Management ('SCARM') Working Group recommended cages be increased from 450 to 550 cm² per hen in 2001. This was adopted into the Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) A1.1, with some variation depending on the size of the hen and how many in the cage.
- 96 *Mutual Recognition Act 1992* (Cth) ss 9 and 10(a).
- 97 Under this proposal, SCARM recommended the voluntary or mandatory labelling of eggs according to their production systems, as well as the creation of an industry-led accreditation scheme, to enable consumers to purchase eggs according to their ethical preferences. Parker C and De Costa J, 'Misleading the Ethical Consumer: The Regulation of Free Range Egg Labelling' (2016) 39(3) *Melbourne University Law Review* 901-902.
- 98 Department of Agriculture, Fisheries and Forestry, *National Food Plan: Our Food Future* (DAFF, 2013) 63, 38 <www.agriculture.gov.au/style%20library/images/daff/_data/assets/pdffile/0011/2293328/national-food-plan-white-paper.pdf>.
- 99 See Parker C, Carey R, De Costa J and Scriniv G, 'The Hidden Hand of the Market: Who Regulates Animal Welfare under a Labelling for Consumer Choice Approach?' (2015) *Regulation and Governance* 1.
- 100 Parker C and De Costa J, 'Misleading the Ethical Consumer: The Regulation of Free Range Egg Labelling' (2016) 39(3) *Melbourne University Law Review* 898-890.
- 101 This consumer survey of 1000 randomly selected Australians was commissioned by Voiceless and conducted by PureProfile in September 2011.
- 102 Bray H, Buddle E and Ankeny R, 'Consumers link 'better' farm animal welfare with better quality products' (Paper presented at Australian Society of Animal Production Conference, Adelaide, 2016).
- 103 Karin Brulliard, 'How eggs became a victory for the animal welfare movement' (6 August 2016) *The Washington Post* <www.washingtonpost.com/news/animalia/wp/2016/08/06/how-eggs-became-a-victory-for-the-animal-welfare-movement-if-not-necessarily-for-hens/?hpid=hp_hp-top-table-main_cagefree732pm%3Ahomepage%2Fstory&utm_term=.c5f266de9921>.
- 104 Beth Kowitz, 'Target Joins Growing List of Food Companies Committing To Cage-Free Eggs' (20 January 2016) *Fortune* (online) <<http://fortune.com/2016/01/20/target-cage-free-eggs/>>.
- 105 Compassion in World Farming, *World's largest food distributor commits to source 100% cage-free eggs* (2016) CIWF Food Business <www.compassioninworldbusiness.com/industry-news/2016/06/worlds-largest-food-distributor-commits-to-source-100-cage-free-eggs>.
- 106 Rory Sullivan and Nicky Amos, 'Why business benefits from farm animal welfare' (27 May 2013) *Ethical Corporation* <www.ethicalcorp.com/supply-chains/why-business-benefits-farm-animal-welfare>.
- 107 See, for example, Esther Han, 'Caged eggs sales continue to slide: Australian Egg Corporation annual report' (4 January 2017) *The Sydney Morning Herald* <www.smh.com.au/business/consumer-affairs/caged-eggs-sales-continue-to-slide-australian-egg-corporation-annual-report-20170103-gt161y.html>.
- 108 RSPCA, *Hen Lifecycle* (2012) Hens Deserve Better <www.hensdeservebetter.org.au/the-details/lifecycle.html>.
- 109 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 11.
- 110 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [2.1.1.2].
- 111 RSPCA, *What are barn-laid eggs?* (4 October 2016) RSPCA Website <http://kb.rspca.org.au/What-are-barn-laid-eggs_438.html>.
- 112 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) Appendix 2 (based on 30kg per square metre stocking density, birds weighing an average of 2 to 2.5kg each).
- 113 Campbell D L M, Hinch G N, Dyll T R and Warin L, 'Outdoor stocking density in free-range laying hens: radio-frequency identification of impacts on range use' (2017) 11(1) *Animal* 121.
- 114 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 83-84.
- 115 *Ibid* 48.
- 116 Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 174.

- 117 Michael Appleby, Joy Mench and Barry Hughes, *Poultry Behaviour and Welfare* (CABI Publishing, 2004) 51.
- 118 Department for Environmental Food and Regional Affairs, 'A guide to the practical management of feather pecking and cannibalism in free range laying hens' (DEFRA, 2005) 4 <www.gov.uk/government/uploads/system/uploads/attachment_data/file/69374/pb10596-feather-pecking-050309.pdf>.
- 119 Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 169.
- 120 Ibid.
- 121 Ibid.
- 122 Bell DD and Weaver WD, *Commercial Chicken Meat and Egg Production* (Kluwer Academic Publishers, 2010) 1047, as cited in Humane Society of the United States, 'Understanding mortality rates of laying hens in cage-free egg production systems' (HSUS, 2010) 4 <www.humanesociety.org/assets/pdfs/farm/mortality_cage_free.pdf>.
- 123 The Humane Society of the United States, 'Understanding mortality rates of laying hens in cage-free egg production systems' (HSUS, 2010) 3 <www.humanesociety.org/assets/pdfs/farm/mortality_cage_free.pdf>.
- 124 See CHOICE, 'Free Range Eggs: Making the Claim Meaningful' (CHOICE, 2015) 4 <www.choice.com.au/~media/619b60e5a1f04b2191d09fd9dab4c72e.ashx>; ACCC, *Initial Assessment of Certification Trade Mark Application CTM1390450 filed by the Australian Egg Corporation Limited* (2 November 2012) 15 <www.accc.gov.au/system/files/Initial%20assessment%20of%20Certification%20Trade%20Mark%20Application%20-%20Australian%20Egg%20Corporation%20Limited.pdf>; Justice North of the Federal Court of Australia stated that "...the free range representation is a representation as to quality. The representation suggests that the eggs are produced by a more humane environment for laying hens...": *Australian Competition and Consumer Commission v C I & Co Pty Ltd* [2010] FCA 1511 [16].
- 125 See CHOICE, 'Free Range Eggs: Making the Claim Meaningful' (CHOICE, 2015) 6 <www.choice.com.au/~media/619b60e5a1f04b2191d09fd9dab4c72e.ashx>.
- 126 Ibid 4.
- 127 In a 2015 survey by Humane Society International Australia, 98% of consumers conveyed that eggs from farms stocking 10,000 or more hens per hectare fail to meet their expectations of 'free range': Humane Society International, Submission to the Australian Treasury, *Inquiry into Free Range Egg Labelling*, 29 October 2015, 6. This is consistent with the 2015 CHOICE survey in which only 2% of respondents considered a stocking density of 10,000 hens per hectare to be appropriate for free range egg production: Rachel Clemons and Katinka Day, *Do You Shell Out for Free-Range Eggs?* (7 August 2014) CHOICE <<https://www.choice.com.au/food-and-drink/meat-fish-and-eggs/eggs/articles/free-range-eggs>>. Note, the CHOICE 2015 report found that 41% of consumers didn't know or were unsure of an appropriate free range stocking density; 47% stated 1,500 hens per hectare or less is appropriate; 9% stated 2,500 hens per hectare is appropriate and 2% were 'other': CHOICE, Submission to Consumer Affairs Australia and New Zealand: 'Free Range Eggs: The Consumer Perspective', *Inquiry into Free Range Egg Labelling* (November 2015) 18.
- 128 ACCC, *Initial Assessment of Certification Trade Mark Application CTM1390450 filed by the Australian Egg Corporation Limited* (2 November 2012) 9 <www.accc.gov.au/system/files/Initial%20assessment%20of%20Certification%20Trade%20Mark%20Application%20-%20Australian%20Egg%20Corporation%20Limited.pdf>. Note that barn systems are permitted under the Poultry Code to have indoor densities of approximately 15 birds per square metre.
- 129 A 2015 CHOICE report found that 87% of consumers believe an important or essential element of a free range standard is that birds actually go outside regularly: CHOICE, Submission to Consumer Affairs Australia and New Zealand: 'Free Range Eggs: The Consumer Perspective', *Inquiry into Free Range Egg Labelling* (November 2015) 4.
- 130 ACCC, *Initial Assessment of Certification Trade Mark Application CTM1390450 filed by the Australian Egg Corporation Limited* (2 November 2012) 6 <www.accc.gov.au/system/files/Initial%20assessment%20of%20Certification%20Trade%20Mark%20Application%20-%20Australian%20Egg%20Corporation%20Limited.pdf>.
- 131 AECL claims that, according to an anonymous survey, "29% of free range egg production in Australia stocks at densities higher than 2 hens per square metre (20,000 birds per hectare) on the range area": Parker C, Brunswick C and Kotey J, 'The Happy Hen on Your Supermarket Shelf: What Choice Does Industrial Strength Free-Range Represent for Consumers?' (2013) 10(2) *Journal of Bioethical Inquiry* 165, 173. The 2015 CHOICE report notes further that of the 55 free range egg brands, stocking densities could only be found for 35 brands. Of these, 21 egg products were not compliant with the Poultry Code and had a stocking density over 1,500 and up to 10,000 birds per hectare: See CHOICE, 'Free Range Eggs: Making the Claim Meaningful' (CHOICE, 2015) 5 <www.choice.com.au/~media/619b60e5a1f04b2191d09fd9dab4c72e.ashx>.
- 132 CHOICE, 'Free Range Eggs: Making the Claim Meaningful' (CHOICE, 2015) 5 <www.choice.com.au/~media/619b60e5a1f04b2191d09fd9dab4c72e.ashx>.
- 133 ACCC, *Initial Assessment of Certification Trade Mark Application CTM1390450 filed by the Australian Egg Corporation Limited* (2 November 2012) 12 <www.accc.gov.au/system/files/Initial%20assessment%20of%20Certification%20Trade%20Mark%20Application%20-%20Australian%20Egg%20Corporation%20Limited.pdf>.
- 134 Free Range Farmers Association Inc., *Hen Welfare* <<http://www.freerangefarmers.com.au/hen-welfare.html>>.
- 135 CHOICE, Submission to Consumer Affairs Australia and New Zealand: 'Free Range Eggs: The Consumer Perspective', *Inquiry into Free Range Egg Labelling* (November 2015) 11.
- 136 Relevantly, per 100g, consumers are paying on average \$0.99 for eggs labelled free range, as opposed to \$0.71 for eggs labelled barn-laid and \$0.55 for eggs labelled caged: ibid 11, 29.
- 137 ACCC, 'Federal Court orders \$300,000 penalty after finding 'free range' egg claims to be misleading' (Media Release, 23 September 2014) <<https://www.accc.gov.au/media-release/federal-court-orders-300000-penalty-after-finding-free-range-egg-claims-to-be-misleading>>; *Australian Competition and Consumer Commission v Pirovic Enterprises Pty Ltd (No 2)* [2014] FCA 1028.
- 138 *Australian Competition and Consumer Commission v Snowdale Holdings Pty Ltd* [2016] FCA 541.
- 139 *Australian Competition and Consumer Commission v Derodi Pty Ltd* [2016] FCA 365.
- 140 *Australian Competition and Consumer Commission v RL Adams Pty Ltd* [2015] FCA 1016.
- 141 *Australian Competition and Consumer Commission v Pirovic Enterprises Pty Ltd (No 2)* [2014] FCA 1028.
- 142 *Australian Competition and Consumer Commission v Bruhn* [2012] FCA 959.
- 143 *Australian Competition and Consumer Commission v C.I. & Co Pty Ltd* [2010] FCA 1511.
- 144 *Australian Government, Free Range Egg Labelling* (31 March 2016) <<http://treasury.gov.au/ConsultationsandReviews/Consultations/2015/Free-range-egg-labelling>>.
- 145 Esther Han, 'Hijacked': Fears grow Big Egg's free range definition could be made official' (28 March 2016) *The Sydney Morning Herald* <www.smh.com.au/business/consumer-affairs/hijacked-fears-grow-big-eggs-free-range-definition-could-be-made-official-20160328-gns4wi.html>.
- 146 Australian Government, *Free Range Egg Labelling* (31 March 2016) <<http://treasury.gov.au/ConsultationsandReviews/Consultations/2015/Free-range-egg-labelling>>.
- 147 *Australian Consumer Law (Free Range Egg Labelling) Information Standard 2017* (Cth).
- 148 Commonwealth of Australia, *Meeting of Ministers for Consumer Affairs* (Canberra, 31 March 2016) 2 <<http://consumerlaw.gov.au/communiques/meeting-8-2/>>.
- 149 Ibid.

- 150 *Australian Competition and Consumer Commission v Pirovic Enterprises Pty Ltd (No 2)* [2014] FCA 1028.
- 151 RSPCA, *What happens with male chicks in the egg industry?* (4 October 2016) RSPCA Website <<http://kb.rspca.org.au/entry/100/>>.
- 152 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [14.1].
- 153 There is limited data available on the number of male chicks slaughtered each year as part of Australian egg production. The 12 million figure is based on the number of battery hens kept in Australian cage systems each year.
- 154 See Anthony Pancia, 'Male-chicken-detecting technology could be used in Australia by 2018 – if there's enough interest' (20 June 106) *ABC Rural* <www.abc.net.au/news/2016-07-20/male-chick-detecting-technology-could-be-used-by-2018/7644762>; Esther Han, 'Egg industry wants to stop grinding and gassing millions of male chicks to death' (11 June 2016) *The Sydney Morning Herald* <www.smh.com.au/business/consumer-affairs/egg-industry-wants-to-stop-grinding-and-gassing-millions-of-male-chicks-to-death-20160611-gpgy5s.html>.
- 155 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [14.1].
- 156 Emily Brooks, 'This Shocking Footage of Male Chicks Being Killed is Totally Above Board' (20 July 2016) *The Huffington Post* <www.huffingtonpost.com.au/2016/07/20/this-shocking-footage-of-male-chicks-being-killed-is-totally-abo/>.
- 157 Personal correspondence from Professor Bernard E Rollin, dated 18 December 2016.
- 158 RSPCA, *What happens with male chicks in the egg industry?* (4 October 2016) RSPCA Website <<http://kb.rspca.org.au/entry/100/>>.
- 159 Raj A B and Whittington P E, 'Euthanasia of day-old chicks with carbon dioxide and argon' (1995) 136 *Veterinary Record* 292.
- 160 Marino L, 'Thinking chickens: a review of cognition, emotion, and behaviour in the domestic chicken' (2017) 20 *Animal Cognition* 127-147.
- 161 'Study suggests chickens are smarter than toddlers' (20 June 2013) *Poultry World* <www.worldpoultry.net/Meat/Articles/2013/6/Study-suggest-chickens-are-smarter-than-toddlers-1289715W>.
- 162 United Egg Producers, 'Statement on Eliminating Male Chick Culling' (10 June 2016) <<http://uepcertified.com/united-egg-producers-statement-eliminating-male-chick-culling/>>.
- 163 Anthony Pancia, 'Male-chicken-detecting technology could be used in Australia by 2018 – if there's enough interest' (20 June 106) *ABC Rural* <www.abc.net.au/news/2016-07-20/male-chick-detecting-technology-could-be-used-by-2018/7644762>; Esther Han, 'Egg industry wants to stop grinding and gassing millions of male chicks to death' (11 June 2016) *The Sydney Morning Herald* <www.smh.com.au/business/consumer-affairs/egg-industry-wants-to-stop-grinding-and-gassing-millions-of-male-chicks-to-death-20160611-gpgy5s.html>.
- 164 ABC, 'Male Chicks: Unnatural Selection', *Landline*, 18 March 2016 (Caitlyn Gribbin) <www.abc.net.au/landline/content/2016/s4427149.htm>.
- 165 Ibid.
- 166 Weissmann A, Reitemeier S, Hahn A, Gottschalk J and Einspanier A, 'Sexing domestic chicken before hatch: A new method for in ovo gender identification' (2013) 80(3) *Theriogenology* 199-200.
- 167 Bruijnjs M R N, Blok V, Stassen E N and Gremmen H G J, 'Moral "Lock-In" in Responsible Innovation: The Ethical and Social Aspects of Killing Day-Old Chicks and Its Alternatives' (2015) 28 *Journal of Agricultural and Environmental Ethics* 939, 944.
- 168 Esther Han, 'Egg industry wants to stop grinding and gassing millions of male chicks to death' (11 June 2016) *The Sydney Morning Herald* <www.smh.com.au/business/consumer-affairs/egg-industry-wants-to-stop-grinding-and-gassing-millions-of-male-chicks-to-death-20160611-gpgy5s.html>.
- 169 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 27.
- 170 LayWel Project, 'Welfare implications of changes in production systems for laying hens' (2004, University of Bristol) 27 <www.laywel.eu/web/pdf/deliverable%2071%20welfare%20assessment.pdf>; Duncan I, 'The pros and cons of cages' (2001) 57(4) *World's Poultry Science Journal* 385.
- 171 Poultry CRC, *Beak trimming* (2017) Poultry Hub <www.poultryhub.org/health/health-management/beak-trimming/>.
- 172 Ibid. Continuing welfare concerns regarding the use of a hot blade for beak trimming has prompted research into the development of alternative methods including laser trimming. See: Philip Glatz, 'Laser Beak-Trimming, A report for Australian Egg Corporation Pty Ltd' (AECL, July 2004) <<http://www.aecl.org/assets/RD-files/Outputs-2/SAR-45AA-Final-Report.pdf>>.
- 173 Farm Animal Welfare Council, 'Opinion on Beak Trimming of Laying Hens' (FAWC, 2007) 5-6 <<http://webarchive.nationalarchives.gov.uk/20121007104210/http://www.fawc.org.uk/pdf/beak-trimming.pdf>>.
- 174 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 24.
- 175 Farm Animal Welfare Council, 'Opinion on Beak Trimming of Laying Hens' (FAWC, 2007) 8 <<http://webarchive.nationalarchives.gov.uk/20121007104210/http://www.fawc.org.uk/pdf/beak-trimming.pdf>>.
- 176 Gentle M, 'Pain Issues in Poultry' (2011) 135(3) *Applied Animal Behaviour Science* 252, 253.
- 177 Ibid.
- 178 Ibid, 254.
- 179 *Animal Welfare Act 1992* (ACT) s 9C.
- 180 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [13.2]; compliance with the Poultry Code is a defence under the *Animal Welfare Act* (NT) s 79, *Animal Welfare Act 2002* (WA) s 25, *Animal Welfare Act 1985* (SA) s 43, *Prevention of Cruelty to Animals Act 1986* (VIC) s 11(2); compliance with the Poultry Code can be admitted as evidence of compliance with the Act under the *Prevention of Cruelty to Animals Act 1979* (NSW) s 34A(3); in Tasmania, the Poultry Code is advisory in nature and the *Animal Welfare Act 1993* (TAS) silent on the issue of debeaking.
- 181 Heather Pickett, 'Controlling Feather Pecking & Cannibalism in Laying Hens without Beak Trimming' (Compassion in World Farming, 2008) <www.ciwf.org.uk/includes/documents/cm_docs/2008/c/controlling_feather_pecking_and_cannibalism_in_laying_hens.pdf>.
- 182 A survey conducted by Humane Society International Australia, found that 91% of respondents stated that beak treatment should be displayed on free range egg boxes: Humane Society International, Submission to the Australian Treasury, *Inquiry into Free Range Egg Labelling*, 29 October 2015, 6.
- 183 RSPCA, *What is beak trimming?* (27 September 2016) RSPCA Website <http://kb.rspca.org.au/What-is-beak-trimming_629.html>.
- 184 Petek M and McKinstry J L, 'Reducing the Prevalence and Severity of Injurious Pecking in Laying Hens Without Beak Trimming' (2010) 29(1) *Uludag University Journal: Faculty of Veterinary Medicine* 61.
- 185 LayWel Project, 'Welfare implications of changes in production systems for laying hens' (2004, University of Bristol) 30 <www.laywel.eu/web/pdf/deliverable%2071%20welfare%20assessment.pdf>.
- 186 For an indication, see Lohmann Tierzucht, 'Management-Recommendations for the Rearing of Pullets in Deep Litter, Perchery and Free-Range Systems' (Lohmann Tierzucht, 2013) 6-24 <www.hylinena.com/UserDocs/products/Lohmann_Alternative_System.pdf>.
- 187 RSPCA, 'The Welfare of Layer Hens in Cage and Cage-Free Housing Systems' (RSPCA, 2016) 25.

- 188 Ellis M R, *Moulting - a natural process* (26 September 2004) The Poultry Site <www.thepoultrysite.com/articles/217/moulting-a-natural-process>.
- 189 Ibid; RSPCA, *Hen Lifecycle* (2012) Hens Deserve Better <www.hensdeservebetter.org.au/the-details/lifecycle.html>.
- 190 Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [9.5.3].
- 191 United Poultry Concerns, *The Animal Welfare and Food Safety Issues Associated with the Forced Molting of Laying Birds* (2003) <www.upc-online.org/molting/52703.htm>.
- 192 Humane Society International, 'An HSI Report: The Welfare of Animals in the Egg Industry' (HSI, 2008) 7 <www.hsi.org/assets/pdfs/welfare_of_animals_in_the_egg.pdf>.
- 193 Heng Y, Peterson H H, Li X, 'Consumer Attitudes toward Farm-Animal Welfare: The Case of Laying Hens' (2013) 38(3) *Journal of Agricultural and Resource Economics* 418, 430.
- 194 ACCC, *Initial Assessment of Certification Trade Mark Application CTM1390450 filed by the Australian Egg Corporation Limited* (2 November 2012) 15 <www.accc.gov.au/system/files/initial%20assessment%20of%20Certification%20Trade%20Mark%20Application%20-%20Australian%20Egg%20Corporation%20Limited.pdf>.
- 195 Scolexia Animal and Avian Health Consultancy, 'Structure and dynamics of Australia's commercial poultry and ratite industries' (DAFF, updated December 2009) 51, 55.
- 196 Barnes H J, Vaillancourt J-P and Gross W B, *Colibacillosis* in Saif Y M (ed.), *Diseases of Poultry*, 11th ed. (Iowa State Press, 2003) as cited in The Humane Society of the United States, 'An HSUS Report: Welfare Issues with Selective Breeding of Egg-Laying Hens for Productivity' (HSUS, 2008) 2.
- 197 Anjum A D, Payne L N and Appleby E C, 'Oviduct magnum tumours in the domestic fowl and their association with laying' (1989) 125(2) *The Veterinary Record* 42-3 as cited in The Humane Society of the United States, 'An HSUS Report: Welfare Issues with Selective Breeding of Egg-Laying Hens for Productivity' (HSUS, 2008) 2.
- 198 Alberta Agriculture and Rural Development, *Common laying hen disorders: prolapse in laying hens* (2002) as cited in The Humane Society of the United States, 'An HSUS Report: Welfare Issues with Selective Breeding of Egg-Laying Hens for Productivity' (HSUS, 2008) 2.
- 199 Christine Nicol, *The Behavioural Biology of Chickens* (CABI Publishing, 2015) 8-9.
- 200 Farm Animal Welfare Council, 'Opinion on Osteoporosis and Bone Fractures in Laying Hens' (FAWC, 2010) 9 <www.gov.uk/government/uploads/system/uploads/attachment_data/file/325043/FAWC_opinion_on_osteoporosis_and_bone_fractures_in_laying_hens.pdf>.
- 201 Whitehead C C, Fleming R H, Julian R J and Sørensen P, 'Skeletal problems associated with selection for increased production' in Muir W M and Aggrey S E (eds.), *Poultry Genetics, Breeding and Biotechnology* (CABI Publishing, 2003), as cited in The Humane Society of the United States, 'An HSUS Report: Welfare Issues with Selective Breeding of Egg-Laying Hens for Productivity' (HSUS, 2008) 1.
- 202 Farm Animal Welfare Council, 'Opinion on Osteoporosis and Bone Fractures in Laying Hens' (FAWC, 2010) 1 <www.gov.uk/government/uploads/system/uploads/attachment_data/file/325043/FAWC_opinion_on_osteoporosis_and_bone_fractures_in_laying_hens.pdf>.
- 203 RSPCA, *Layer Hen FAQ* (2017) RSPCA Website <<https://www.rspca.org.au/layer-hen-faq>>.
- 204 Department of Agriculture, Fisheries and Forestry, *Australian Animal Welfare Standards and Guidelines for the Land Transport of Livestock*, 1st ed. (2012) [GB10.12] and [GB10.24].
- 205 Ibid [GB10.12].
- 206 Ibid [GB10.34]-[GB10.35]; Primary Industries Standing Committee, *Model Code of Practice for the Welfare of Animals – Domestic Poultry*, 4th ed. (2002) [14.1].
- 207 Some studies even claim that only one third of birds are effectively stunned: Woolley S, Borthwick F and Gentle M, 'Tissue resistivities and current pathways and their importance in pre-slaughter stunning of chickens' (1986) 27(2) *British Poultry Science* 301; Boyd F, 'Humane slaughter of poultry: The case against the use of electrical stunning devices' (1994) 7(2) *Journal of Agricultural and Environmental Ethics* 226; Girasole M, Chirollo C, Ceruso M, Vollano L, Chianese A and Cortesi M, 'Optimization of stunning electrical parameters to improve animal welfare in a poultry slaughterhouse' (2015) 4(3) *Italian Journal of Food Safety* 178.
- 208 RSPCA, *FAQs* (2012) Hens Deserve Better <www.hensdeservebetter.org.au/the-details/faq.html>.
- 209 See, for example, Dan Charles, 'Eggs Go AWOL, and Bakers Scramble for High-Tech Substitutes' (23 July 2015) The Salt (NPR) <www.npr.org/sections/thesalt/2015/07/22/425318990/eggs-go-awol-and-bakers-scramble-for-high-tech-substitutes>.
- 210 Bruce Friedrich, 'The Cruellest of All Factory Farm Products: Eggs From Caged Hens' (16 March 2013) *The Huffington Post* <www.huffingtonpost.com/bruce-friedrich/eggs-from-caged-hens_b_2458525.html>.



This report is endorsed by the following organisations:



Printed on 100% recycled and Australian made FSC stock,
through the generosity of Nova Press.



Other publications by Voiceless:

- *The Animal Law Toolkit – Second Edition* (September 2015)
- *The Life of the Dairy Cow: A Report on the Australian Dairy Industry* (January 2015)
- *Science and Sense: The Case for Abolishing Sow Stalls* (January 2013)
- *The Animal Law Toolkit* (December 2009)
- *From Nest to Nugget: An Exposé of Australia's Chicken Factories* (November 2008)
- *From Label to Liable: Scams, Scandals and Secrecy. Lifting the Veil on Animal-Derived Food Product Labelling in Australia* (May 2007)
- *From Paddocks to Prisons: Pigs in New South Wales, Australia. Current Practices, Future Directions* (December 2005)

All publications are available at www.voiceless.org.au

