Submission No 68

INQUIRY INTO LONG-TERM SUSTAINABILITY OF THE DAIRY INDUSTRY IN NEW SOUTH WALES

Organisation: Animal Liberation

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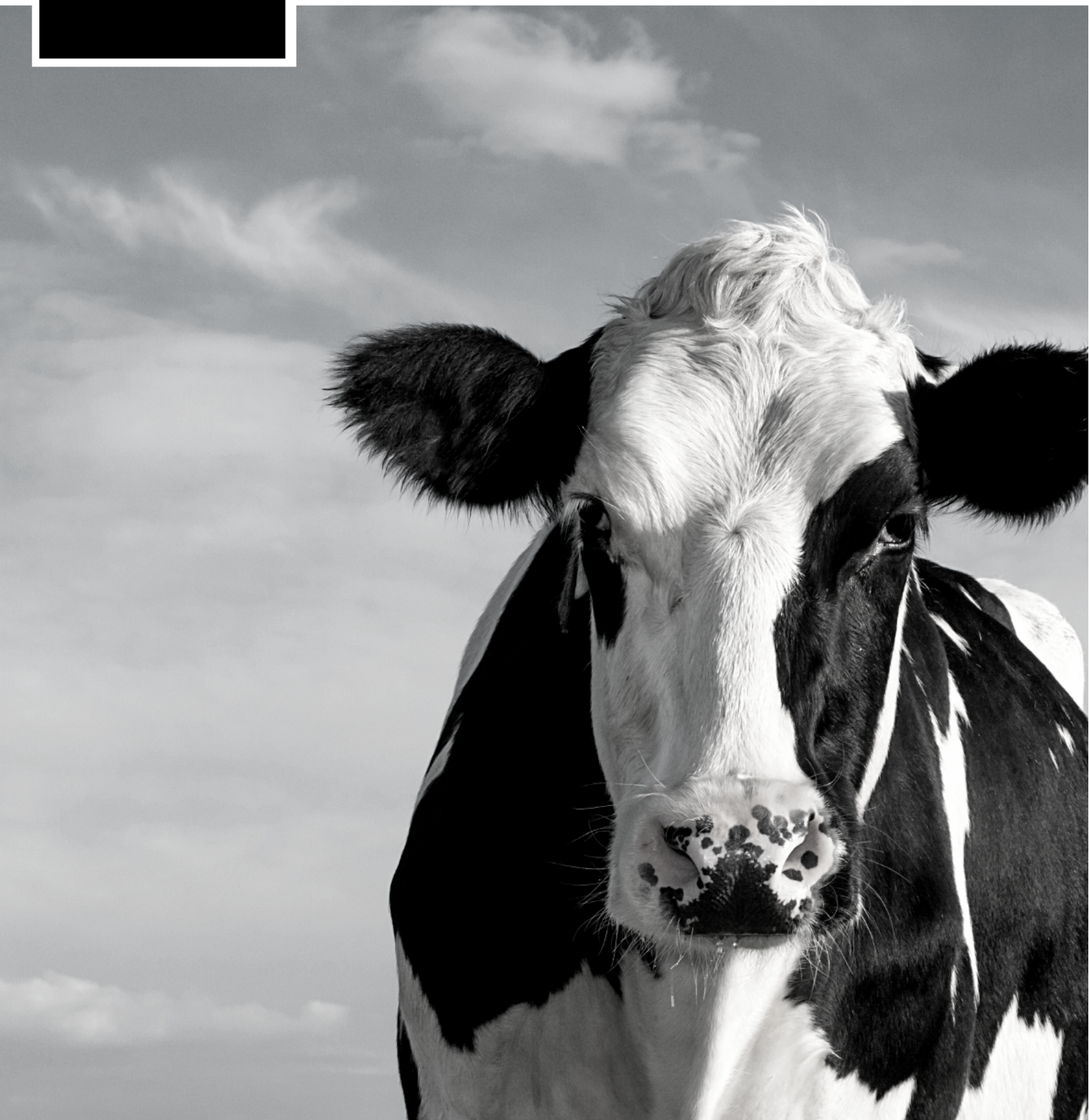
LEGISLATIVE COUNCIL PORTFOLIO COMMITTEE 4

INQUIRY INTO THE LONG-TERM SUSTAINABILITY OF THE DAIRY INDUSTRY

AN ANIMAL LIBERATION SUBMISSION



WE ACKNOWLEDGE THE TRADITIONAL & TRUE OWNERS OF COUNTRY THROUGHOUT AUSTRALIA AND RECOGNISE THEIR CONTINUING CONNECTION TO LAND, WATERS AND CULTURE.

WE ACKNOWLEDGE THAT THIS DOCUMENT WAS WRITTEN ON LAND STOLEN FROM AND NEVER CEDED BY THE GADIGAL PEOPLE.

WE PAY OUR RESPECTS TO THEIR ELDERS PAST PRESENT AND EMERG

DOCUMENT DETAILS

Animal Liberation 2020. *Inquiry into the long-term sustainability of the dairy industry in New South Wales.* A submission by Animal Liberation to the Legislative Council's Portfolio Committee No. 4 - Industry. Document prepared and submitted by Alex Vince.

ABOUT ANIMAL LIBERATION

Animal Liberation has worked to permanently improve the lives of all animals for over four decades. We are proud to be Australia's longest serving animal rights organisation. During this time, we have accumulated considerable experience and knowledge relating to issues of animal welfare and animal protection in this country. We have witnessed the growing popular sentiment towards the welfare of animals, combined with a diminishing level of public confidence in current attempts, legislative or otherwise, to protect animals from egregious, undue, or unnecessary harm. Our mission is to permanently improve the lives of all animals through education, action, and outreach.

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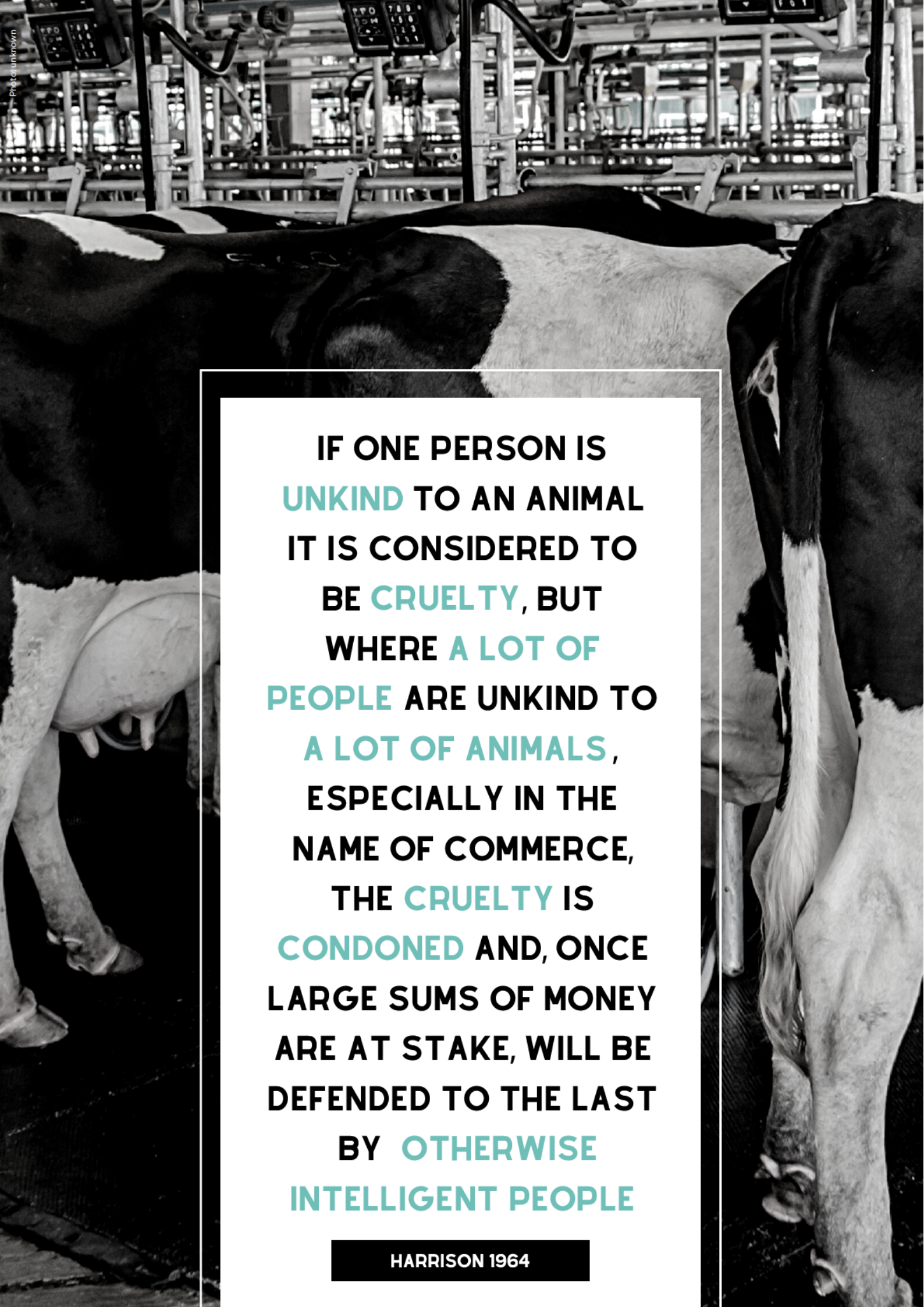

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IF ONE PERSON IS UNKIND TO AN ANIMAL IT IS CONSIDERED TO BE CRUELTY, BUT WHERE A LOT OF PEOPLE ARE UNKIND TO A LOT OF ANIMALS, ESPECIALLY IN THE NAME OF COMMERCE, THE CRUELTY IS CONDONED AND, ONCE LARGE SUMS OF MONEY ARE AT STAKE, WILL BE DEFENDED TO THE LAST BY OTHERWISE INTELLIGENT PEOPLE

HARRISON 1964

LEGISLATIVE COUNCIL PORTFOLIO COMMITTEE NO. 4
portfoliocommittee4@parliament.nsw.gov.au

I present this submission on behalf of Animal Liberation.

Animal Liberation is a non-profit animal rights organisation, operating in the field of animal justice for over four (4) decades. During this time, we have accumulated considerable experience and knowledge relating to issues of animal welfare and protection across the country. We are proud to be Australia's longest serving animal rights organisation. I am proud to work for this organisation and our ethos of interspecies equality.

Our mission is to permanently improve the lives of all animals through education, action and outreach.

I thank you for your consideration of the following submission .

Alex Vince
Campaign director

The problem of knowledge evidently becomes crucial regarding animals who are exploited institutionally in great numbers - most of them on the farm. Our knowledge about these animals is restricted by a sweeping combination of biological gap, anthropocentric and consumerist ideologies, and social and technological reality that entails physical separation from them.

- Ariel Tsovel (2005).

EXECUTIVE SUMMARY

ONE Animal Liberation welcomes and appreciates the opportunity to provide the following submission concerning the inquiry into the long-term sustainability of the dairy industry.

TWO We request that it be noted from the outset that the following document is not intended to provide an exhaustive commentary or assessment of the issues contained within the scope of the inquiry and its corresponding Terms of Reference. Rather, it is intended to provide a general examination of select areas of key concern. As such, the absence of discussion, consideration or analyses of any particular aspect or component must not be read as or considered to be indicative of consent or acceptance.

THREE For the purposes of this submission, focus will be on aspects that we believe warrant critical attention. Particularly, the absence or the inadequacy of provisions for initiating and/or planning sustainability programs and policies; a distinct lack of concerted effort to transparently consider and support viable alternatives to unsustainable practices; and, finally, the lack of institutional resistance to sound science, emerging public opinion and the increasingly dire need to proactively phase out the production of environmentally harmful products. To this end, focus will be upon the inherently unsustainable nature of dairy farming.

FOUR We strongly urge the Committee to recognise the various impediments imposed by the nature of this inquiry's Terms of Reference. We believe that these place narrow counterproductive limitations on the scope of the submissions the Committee will subsequently receive. A modest series of recommendations are provided at the end of this submission.

WHAT HAPPENS TO THEM MATTERS TO THEM

REGAN 1983

Photo: unknown

BACKGROUND

In our mind's eyes the farm is a peaceful, pleasant place where calves nuzzle their mothers in a shady field. The reality of modern animal production, however, is starkly different from these scenes

Jim Mason and Mary Finelli, 'Brave new farm?' (1985)

BACKGROUND

Worldwide, there are close to 2 billion cattle currently in existence (Velten 2007). The great majority of these are used for various human purposes. In Australia, there are over 1.5 million cows kept and used in the dairy industry alone (RSPCA Australia 2020). Yet many, if not most, Western consumers have not and will not ever come face to face with one. This is because most are "hidden away" on properties or in facilities "where only a few lucky people" have the opportunity to "continue to relate with them" (Velten 2007). Many of these "few lucky people", however, do not appear to interpret their interactions as such. Despite being omnipresent throughout human history, cattle are frequently misunderstood and often maligned (Velten 2007; Ajmone-Marsan et al. 2010; Moran and Doyle 2015).

Attitudes to animals

Human attitudes towards other animals are influenced by the perceived degree of their structural similarity to our own species (Batt 2009). For example, many animals, including cattle, are frequently regarded as unintelligent. This is especially so when they compared with other species, such as great apes or species considered closer on the evolutionary ladder to humans. The logical format of this belief is that because no other species can function or perform the activities which we can, humans are therefore the most intelligent species (Erickson 2014). This belief promotes a superiority bias frequently referred to as speciesism (Singer 1975; Frey 1988; Ryder 2000; Dunayer 2004; O'Sullivan 2011). There is ample evidence proving that the alleged uniqueness of the human animal is not rooted in fact, however (Dittmar 1995; Meagher et al. 2020).

Brave new farm?

While cows are often perceived as having a relatively simple social structure and limited personal preference, evidence conclusively proves that this is not the case (Harris et al. 2007; Stuart et al. 2012; Moran and Doyle 2015; Colvin et al. 2017; Marino and Allen 2017). Like many other animals, cows are tactile and social beings who experience a gamut of emotions, have individual preferences, the capacity to endure pain, enjoy pleasure and display a wide range of other affective states (Rollin 1985; Ede et al. 2019; Bekoff 2000; McGrath et al. 2013). For example, cows "enjoy being groomed by a trusted human" (Balcombe 2006). That they do this has been known for some time. They are cognitively complex, yet are one of the most systematically exploited of all animals farmed for their flesh, fibres or bodily fluids (Marino and Allen 2017; April 2019). Though it is relatively understudied, the complex social nature of the cow and the impact of farming procedures and processes has has been known for some time (Dickson et al. 1967; Bouissou 1980).

THE DUTY TO MINIMISE THE INCIDENCE OR REMOVE THE POSSIBILITY OF HARM

As an organisation, Animal Liberation has worked to permanently improve the lives of all animals for over four decades. In this time, we have collectively accumulated a considerable reservoir of knowledge and experience on issues relating to animal welfare and interspecies justice. Over this time, we have faced equally considerably challenges. Despite institutional attempts to silence or gag the provision of materials of public interest to established cultural conditioning, the Australian public is increasingly expecting improved treatment of animals. Yet some serious concerns remain.

About us

Much of our work centres on the following basic quandaries: how is it that many otherwise honourable and compassionate people co-exist in silence with the ubiquitous suffering of other animals? How is it that we are surrounded by sites of abject suffering yet do not - or behave as if we do not - have any awareness of their presence and impact? And, perhaps most importantly, how are we to make sense of and change these uniquely human-induced phenomena? The present inquiry appears to promote the continuance of a status quo attitude to industries with overwhelmingly negligent or negative impacts upon animal welfare, human health and environmental stability. The focus on sustainability is, this submission holds, a deliberately narrow and strategic thread which obscures or removes the facilitation of appropriate and increasingly necessary consideration of an industry whose death throes have been obvious for some time. Indeed, we hold that the perceived need for an inquiry of this kind to be an indication of the latter.

Our work

I HAVE EXPERIENCED TIMES WHEN THE COWS AT OUR FARM CLEARLY INDICATED THAT SOMETHING WAS WRONG BY MOOING LOUDLY AND INSISTENTLY. THERE WAS NO COW INJURED IN THE FOREST BUT IN THE DISTANCE I SPOTTED A COW WHO WAS DOWN, NOT MOVING. I DROVE TO A FARMHOUSE AT THE TOP OF THE HILL TO ALERT THE FARMER. FROM THERE I COULD SEE BOTH THE COW WHO WAS DOWN AND THE REST OF THE HERD; THEY WERE STILL MOOING AND MOOING. THE STORY THE NEIGHBOUR TOLD ME WAS THIS: THE COW WAS NOT INJURED SHE WAS DEAD. SHE HAD DIED A COUPLE OF DAYS PREVIOUSLY IN CHILDBIRTH AND NO, THEY WEREN'T GOING TO BURY 'IT' -'HOPEFULLY THE FOXES MIGHT EAT IT INSTEAD OF MY CHOOKS'. THE OTHER COWS? 'THEY'RE MOOING BECAUSE THEIR CALVES WERE PICKED UP THE OTHER DAY AND TAKEN TO THE SALEYARDS. THEY'LL GET OVER IT, THEY ALWAYS DO.'

- MELISSA BOYDE (2018)

SUMMARY

Evidence suggests that our species is prone to "systematic biases in judgment and decision-making" which can result in "disasters on an unprecedented scale" (Johnson and Levin 2009). Though such disasters are often associated with large-scale system collapse, such as the culminating impacts of the ongoing climate crisis, there is reason to associate these with everyday human activity. That is, we ought not miss the forest for the trees. Thus, the following submission will outline why we believe that inaction on activities which are scientifically associated with environmental destruction are symptoms of systematic bias which will ultimately lead to disaster. Efforts to delimit the harm caused by harmful industries which do not attempt to address the root cause of these problems are fundamentally destined to generate additional momentum which may be staved by proactive policy and behavioural change.

Erasing the bias

For example, though experts have found that the human brain is "remarkable", it is not "extraordinary" (Herculano-Houzel 2012). Indeed, there is evidence suggesting that the comparatively larger size of the brain found in our species promotes a misleading belief in intelligence. In fact, this facilitates conjecture and a myopic assumption which obscures the fact that the "higher" functions of the brain depend upon the integrity of its "lower" structure (Parvizi 2009; Barton and Venditti 2013). Simply, other animals perform activities and enjoy capacities which are most beneficial for their specific species. It would not be in the interest of an animal to pen poetry. It is in every animals interest to not endure suffering and experience positive states.

Manipulation, control and instincts

Similarly, ethologists believe that we are only just beginning to discover and understand the repertoire of many animals, including cows (King 2017). Consider intimacy. Cows are known to display physical affection. Though such an activity is not limited to this species, in cows it is known to be vitally important in the formation of the nascent cow-calf bond (Rao et al. 2015). Scientific evidence severely weakens the erroneous yet popular belief in a lack of complex social relationships in other animals, such as cows. Further, maternal behaviour witnessed in domesticated cattle strongly resembles that which is exhibited by non-domesticated or wild ungulates. That is, despite institutionalised efforts to deny them the ability to exercise or perform integral, instinctual and natural behaviours, such needs remain the same as they do in their wild or free-living counterparts. Contemporary breeding practices have not meaningfully altered this. Though such practices have been instrumental in creating the animals kept in contemporary agribusiness operations, these primarily relate to physical alterations associated with biological manipulation designed for maximum productive output (Moran and Doyle 2015). This indicates that though significant efforts to engineer a docile and unnaturally productive animal have been made, somewhat successfully, essential and instinctual elements remain intact and virtually unaltered in their domesticated counterparts (von Keyserlingk and Weary 2007). This is also true of other species frequently used in agribusiness industries (Dawkins 1980; O'Brien 1996; Davis 2010; Anomaly 2015).

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Photo: unknown

NATURE IS REPLETE WITH SIGNS OF PARENTAL LOVE. CAN WE DOUBT THE LOVE A COW FEELS FOR HER CALF WHEN SHE MAY BELLOW DESPONDENTLY FOR DAYS AFTER HER BABY IS TAKEN AWAY (SO THAT ALL - NOT SOME - OF HER MILK CAN BE TAKEN FOR HUMAN CONSUMPTION)?"

BALCOMBE 2006

WHY **REFORMS** WILL NOT **WORK**

THE WORLD ONLY GOES FORWARD
BECAUSE OF THOSE WHO OPPOSE IT

GOETHE

Law is deeply informed and shaped by social values. This is especially true insofar as they construct ideal forms of behaviour and social conduct (Dror 1957). Lawmaking and jurisprudence is thus an inherently human undertaking. Importantly, its application is "capable of being very flexible" should its subjects elect to make it so (Waldau 2013). Laws ostensibly crafted to protect animals are common and current incarnations are indicative of contemporary levels of public support for their welfare. Many, however, appear unwilling to support reform "for the sake of animals alone" (O'Brien 1996). Evidence of this can be inferred from recent inquiries which have refused to extend even basic levels of protection to farmed animals (Legislative Council Portfolio Committee No. 4 2020). Legislators and policymakers, for example, exhibit a tendency to deliberately exclude animals farmed for their flesh, fibres or bodily fluids, such as milk, from state animal welfare law. Should they be included, policies may be differentially interpreted to exclude them from minimal protections (Matheny and Leahy 2007). Some have convincingly argued that this indicates a widespread belief that "animals simply do not deserve protection in the first place" (O'Brien 1996). This is not a strictly contemporary phenomenon. Indeed, the Roman jurist Gaius is attributed with coining the phrase 'all law was established for man's sake' (*hominem causa omne ius constitutum*) (Duckler 2007).

Eating as opportunity to 'make a difference'

All reforms to preexisting legislation are achieved "through the 'interrogation' of the law by morality" (Mayer 1988). This is amply shown by the increasing incidence of public outcry over poor or cruel treatment of farmed animals (Bekoff and Jamieson 1991; Cohen et al. 2009). Following exposure of cruelty inflicted on Australian-born cattle in Indonesia, Australian meat sales plunged by 15 percent (Dole 2017). Public outcry following the release of the footage obtained at several Indonesian abattoirs was "immense" (Craig 2013). Demands for reform, however, are insufficient. Proponents of regulation and welfare reform generally rely on three key assumptions: (1) reform will reduce suffering by making exploitation more "humane", (2) reform will reduce demand by increasing costs and (3) reform will raise consciousness about exploitation and will, gradually, lead to either the abolition or significant reduction of exploitation (Francione and Garner 2010). Thus, the logic of reform suggests that reforms are a "sensible and responsible compromise" (Wrenn 2016). Animal rights, in opposition to welfare, "seeks not to reform how animals are exploited [...] but to abolish their exploitation" (Cohen and Regan 2001).

Historically, Animal Liberation has maintained that the authorities tasked with overseeing and enforcing animal welfare or protection laws in Australia primarily operate on a principle of risk avoidance (Townend 1981). This is demonstrably the case concerning Australia's leading animal welfare organisation, the Royal Society for the Prevention of Cruelty to Animals (RSPCA). Over time, the RSPCA has transitioned from a social justice movement to an interest group. This change necessarily altered its ideology and its tactics. Once publicly considered as "moralising reformers," the RSPCA is now largely regarded as a network of "societies of pet lovers" (Munro 2005). Due to their status as a charity and financial reliance on public support, popular acceptance is a key concern of the RSPCA. They are understandably interested in not being seen "to move beyond their popular remit". This subsequently changes their support base and prioritises pragmatism over proactivity (Chen 2016).

Regulations

Though conditions have been incrementally improved over time, these are largely due to public pressure for the installation of progressive policy and legislative change. Ultimately, however, reforms "still fall short" because they "do not address the inherent cruelties" and fundamentally exploitative nature of farming other animals (Park 2006). Such potential improvements, however, are inherently piecemeal. Each improvement is incorporated into a legal framework which still classifies other animals as property (Francione 1995; White 2005). Such a framework is intrinsically tied to the free market and the system of capital accumulation underpinning it (Webster 2001). Several possible solutions to this problem have been suggested. These range from removing the property system completely to establishing a new category of "living property" (Favre 2010). Some argue that it is possible to "retain the idea of property but also give animals far more protection against injury or neglect of their interests" in a manner similar to the protections afforded children (Sunstein 2004).

Piecemeal improvements and public opinion

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Photo: unknown

CONSUMERS' INTENTION TO DO THE RIGHT THING IS BEING EXPLOITED. THEIR BELIEF IN THE INTEGRITY OF LABELLING IS BEING DESTROYED. AND THEIR FAITH IN THE ABILITY OF CONSUMERS TO EFFECT ETHICAL CHANGE IS BEING SHATTERED

PARKER & DE COSTA 2016

CASE STUDY

THE RISE OF THE ETHICAL CONSUMER

THE WORLD ONLY GOES FORWARD
BECAUSE OF THOSE WHO OPPOSE IT

GOETHE

Overview

Food production and its consumption have long been recognised as an integral part of human existence. Aside from the biological necessity of proper and adequate nutrition, this incorporates factors as diverse as cultural expression, social tradition and the formation of identity (Scholliers 2001; Joy 2010). Since all animals must eat in order to survive, what we eat becomes an important, potent and powerful symbol of who we are (Fischler 1988; Ichijo and Ranta 2016). Animal products have long been known to be a significant factor in this regard (Fiddes 1991). Food consumption is thus both a social and biological practice (Anderson 2005). We become, in many ways, who or what we eat (Shapin 2014). This is amply shown in the culturally specific codification of what constitutes an "edible" and "inedible" item (Rohel 2017). Such a categorisation has been shown to diminish the perceived capacity to suffer and, subsequently, narrows moral concern for their welfare (Bratanova et al. 2011). Consumers, however, are beginning to add ethical equations into the weekly shopping list.

Changing attitudes

Over the past fifty years, mainstream Western society has grown increasingly concerned about the treatment of other animals, particularly those used for food production (Buller and Morris 2003; Dockès and Kling-Eveillard 2006; Sneddon et al. 2010; Vanhonacker and Verbeke 2013; Westhoek et al. 2014; Coleman et al. 2015; Bray et al. 2017; Buddle et al. 2018). These concerns have recently intensified across Australia (Malek et al,. 2017). Historically, this has been most pronounced as it pertains to the sustainability of its production (Capper et al. 2009). Concerns about farmed animal welfare, however, are steadily increasing (Dillard 2004; Capper et al. 2009; Vanhonacker and Verbeke 2014; Wanapat et al. 2015; Jones et al. 2016; Lin-Schilstra and Fischer 2020). Many of the latter are associated with competing understandings of the term animal welfare itself (Vanhonacker et al. 2008; Hansson and Lagerkvist 2012; Doughty et al. 2017; Coleman 2018). This has been known by the global dairy industry for some time (de Graaf et al. 2016). In general, contemporary consumers are steadily demanding that a range of production practices include ethical or sustainability guarantees guided by best-practice or adherence to the prevailing climate of socially acceptable conduct (Brom 2000). These concerns range from the packaging of products to sustainable tourism (Butler 1999; Bramwell and Lane 2010). As such, modern consumers are increasingly offered a widening range of options promoted and "marketed as opportunities to make a difference" via the exercise of personal, ethical choices (Adams and Raisborough 2010). Ethical consumerism, then, is "the deliberate purchase or avoidance of products for political, ethical or environmental reasons" (Summers 2016).

Modern society's relationship with contemporary animal farming is ambivalent, especially insofar as there are often contradictory understandings or attitudes towards it. That is, rising criticisms of its practices and consequences are tempered with a more traditional appreciation of its importance (Boogaard et al. 2011b). Historically, many Australian consumers have had limited knowledge of the basic aspects or procedures used by animal agriculture industries. Yet many have "approved of farmers' performance of their roles" (Worsley et al. 2015). Some have explained the source of this as the deeply rooted belief in rural mythology and the Australian "fair-go" culture (Waterhouse 2005). Others have tied the general lack of knowledge to the increased scale and intensity of modern farming enterprises, the reduction in agricultural employment and the corresponding decline of direct relationships with people involved in such industries (Boogaard et al. 2011a).

THE **RISE** OF THE **ETHICAL CONSUMER**

Industry response

Industry sources have argued that "negative attitudes expressed by the public toward animal production" are "a consequence of ignorance" relating to "the realities of animal production" (Hötzel et al. 2017). This argument aligns with the development of a "new perception" of animal agribusiness which depicts contemporary animal production as harmful to animal welfare, largely controlled by corporate interests, motivated by profit, implicated in compounding world hunger, producing unhealthy food and harming the environment (Fraser 2001). Regardless of level of knowledge, however, studies have shown that the single concern that predicts consumer behaviour is associated with animal welfare (Taylor and Signal 2009). This general perception is found in consumer attitudes to the dairy industry. For example, it is increasingly believed that many practices inherent to dairy farming have "fallen out of step with public values" and the industry has thus "become a target for public criticism" (Weary and von Keyserlingk 2017).

Commercial response

Thus, as is the case elsewhere in the world, Australian citizens are also becoming increasingly concerned about the general welfare of animals bred, used and ultimately killed for human food production (Harper and Henson 2001; Roex and Miele 2005; Ventura et al. 2013; Heise and Theuvsen 2017; Futureye 2018). As a result, many international companies have initiated animal welfare policies (RSPCA Australia 2019). Such actions can be understood as attempts to secure the cultural conditions to enable both immediate and long-term profitability as well as the social licence necessary for their operations to continue (Coleman 2018). Many of the key concerns harboured by consumers regarding the welfare of farmed animals are focused on specific practices (Busch et al. 2017). Examples include the continued use of battery cages in the production of hen-eggs and sow-stalls in the pig meat production industry (Voiceless 2005; Parker 2013). The majority of these concerns stem from evidence obtained by private animal cruelty investigations (Robbins et al. 2016).

BOX 1: BASIC SCHEMATIC OF ETHICAL PRODUCTION PRACTICES & CONSUMER EXPECTATIONS

RESPECT FOR:	WELLBEING	AUTONOMY	JUSTICE
WORKERS	INCOME & WORKING CONDITIONS	FREEDOM OF ACTION & ASSOCIATION[1]	FAIR TRADE
CONSUMERS	SAFETY, QUALITY & ETHICS	INFORMED CHOICE	AVAILABILITY & AFFORDABILITY
ANIMALS	WELFARE	BEHAVIOURAL FREEDOM [2]	INTRINSIC VALUE & WORTH
ENVIRONMENT	CONSERVATION	BIODIVERSITY PROTECTION	SUSTAINABILITY

1. E.G., UNION SATION
2. E.G., THE ABIL TY TO PERFORM SPECIES SPECIFIC BEHAVIOURAL NEEDS

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UBERPRUTSER, VIA WIKIMEDIA COMMONS

SECTION 1

CHALLENGES

AUSTRALIANS GENUINELY CARE ABOUT ANIMAL WELFARE

THEY CARE BECAUSE THEY KNOW

THEY HAVE SEEN FOR THEMSELVES, IN PICTURES AND IN FILM. THEY KNOW, BECAUSE THEY HAVE SEEN, THAT REFUSING TO LABEL SOMETHING CRUEL DOES NOT MAKE IT OKAY.

RATHER THAN ABUSE BEING A ONE-OFF ABERRATION - OR A CASE OF A SINGLE APPLE POISONING THE OTHERWISE WELL-BEHAVED ORCHARD - ABUSE ITSELF IS A NON-NEGOTIABLE ELEMENT OF USING ANIMALS

THE ONLY WAY CONSUMERS CAN KNOW THIS, IS IF WE ARE PERMITTED, RATHER THAN PREVENTED, FROM SEEING, HEARING AND KNOWING WHAT WE ARE PAYING FOR

ANIMAL LIBERATION'S
CAMPAIGN DIRECTOR
2018 SENATE INQUIRY INTO COVERT
SURVEILLANCE LAWS IN NSW

CHALLENGES TO THE INDUSTRY

THE WORLD ONLY GOES FORWARD
BECAUSE OF THOSE WHO OPPOSE IT

GOETHE

In 2019, the dairy industry published two situation reports assessing the industry. The first, crafted by a network of peak bodies and associated groups, acknowledged the existence of several expanding challenges to the industry. For example, "climate volatility" was cited as a problem "for all parts of the industry". Other environmental factors, such as droughts, were considered challenges to the industry. These were also cited by the Primary Industries Climate Challenges Centre in a 2011 report on adaption options for the dairy industry, by PricewaterhouseCoopers (PWC) in 2011 and by the peak industry body in a 2018 sustainability report (PICCC 2011; PWC 2011; Dairy Australia et al. 2018). Similarly, a 2009 Dairy Australia submission to an inquiry into the role of government in assisting Australian farmers adapt to the impacts of climate change conceded that "the challenges of climate change and associated mitigation policy is already affecting the industry and is much more multifaceted than previous challenges" (Dairy Australia 2009).

Of the most recent situation reports, the first accepted that "overall milk production has declined" to levels not seen since the 1990s. Meanwhile, "input costs have increased faster than milk prices". It noted that these problems have led some "to question our relevance in the global market" (Dairy Australia et al. 2019). Later the same year, Dairy Australia published a second report providing an overview of the industry. The report cited "seven key drivers" of the Australian dairy industry. Of these, the outlook of each were either judged to be "neutral" or "negative". None were ranked "positive" (Dairy Australia 2019b).

Other challenges facing the dairy industry include location, such as proximity to urban areas and the lack of opportunity for expansion and land competition this incurs. In northern Australia, environmental issues, particularly low rainfall and water supplies, are also ongoing and key concerns (Walker et al. 2006).

SECTION ONE A

ENVIRONMENT

While projections of the world's population and its associated nutritional needs vacillate, it is clear that many contemporary food production practices are unsustainable and increasingly incapable of meeting the growing demand that will be further exasperated in the future (Ehrlich et al. 1993; Godfray et al. 2010; Ryerson 2010; Britt et al. 2018; Calicioglu et al. 2019; Fróna et al. 2019). Thus, concerns associated with producing and delivering both appropriate and adequate food supplies is widely considered to present humanity with one of its "most important challenges" (Lampridi et al. 2019). This will be further complicated by extraordinary urban growth, with assessments suggesting that up to 70% of an estimated population of 35 million Australians will dwell in metropolitan areas by 2050 (Millar and Roots 2012; Sarker et al. 2019). While other practices are also problematic, particularly dependency on fossil energy and the environmental impacts and social conflicts this continues to incur, avoiding the consumption of animal products has been recognised as the most direct and impactful ways our species can reduce detrimental impacts on the Earth and its finite resources (Pimental and Pimental 2003; Carrington 2018; Sanchezdr-Sabate et al. 2019). Such diets are also significantly linked with detrimental human health outcomes (Tilman and Clark 2014). This will be briefly outlined in its corresponding subsection below.

Outline

SUSTAINABILITY: AN APPROACH OR A PROPERTY?

During the 1960s and 1970s, industrialisation and economic growth caused a range of impacts that seriously weakened the balance between ecology and economic and planetary stability (Rasouli and Kumarasuriyar 2016). Since at least the 1980s, sustainability has been understood as a practical effort comprising often competing priorities, including environmental protection, economic growth and social equity (Peterson 2016). The latter was incorporated into sustainable development theory later than environmental protection and economic interests (Eizenberg and Jabareen 2017). Though sustainable development has historically included clear social principles, though this dimension has often been neglected in practice (Vallance et al. 2011).

Outline

The development and evolution of modern agricultural technology has enabled intensification of a kind previously unknown. Though such developments have led to increased production capacity, it is widely accepted that such intensification has "significantly increased the environmental footprint of agriculture" (Clune 2019; Lampridi et al. 2019; Sambell et al. 2019). Thus, the notion of "sustainable agriculture" has entered common parlance. Some have convincingly argued that it has become "a popular code word for an environmentally sound, productive, economically viable and socially desirable" system of agriculture (Schaller 1993).

Outline

Given the uncertain and increasingly volatile nature of agricultural operations, particularly as it applies to a slew of environmental impacts, sustainability has become an important consideration for a range of reasons. There are, however, multiple and competing understandings of agricultural sustainability (Bennett et al. 2002). A report to a Commonwealth inquiry, for example, explained that though some jurisdictions refer to "ecologically sustainable development" there are "diverging views" on what this means and "how it should be operationalised" (Productivity Commission 2016). Thus, "strong" and "weak" versions of the concept exist (Stoneham et al. 2003). Two broad interpretations have emerged. Both have different underlying goals and principles. First, sustainability may be construed as an approach to agriculture. In this conception of sustainability, the concept is developed in response to concerns associated with the impacts it produces and a "motivating adherence" is made to initiating sustainable "ideologies and practices". Second, sustainability may be understood as a property of agriculture. Here, the concept is developed in response to concerns about threats to agriculture and its future. The goal of the latter is to use sustainability as a criterion for guiding agriculture as it adapts to change. The goal of the former is tied to the underlying motivation to adhere to ideologies and practices which delimit its impacts (Hansen 1996).

Outline

Eating the land

A range of approaches to initiating and incorporating sustainability principles and practices into the Australian agriculture sector have been developed. These include subsidised or incentivised voluntary schemes and offset schemes (Productivity Commission 2016). Moreover, individual landholders hold varying capacities to implement sustainable management practices (Cary et al. 2002). Evidence suggests, however, that implementing sustainable management practices contribute to increasing property values as "a well-managed and maintained farm will command a higher price than one that has been overexploited" (Productivity Commission 2016).

Many of these approaches are underpinned by a belief that "less than perfect ecological outcomes may be better than no outcomes at all" (Fifield 2016).

INDUSTRY RESISTANCE: "RIGHT TO FARM" LAWS

Historically, attempts to combat food shortage issues such as those outlined above has been to appropriate additional land for agriculture and to exploit new or comparatively untapped resources (Godfray et al. 2010). This, however, is problematised by competition with other land use regimes and is increasingly causing conflict with expanding urbanisation, especially in peri-urban regions (Houston 2005; Wu et al. 2011; Butt 2013). As Australia is considered one of the

most urbanised nations in the world, this is expected to become an increasingly complicated and conflictual issue (Sarker et al. 2019). Indeed, urbanisation is recognised as a key challenge and risk to the Australian dairy industry (Kempton 2015).

This is amply shown by recent political pushes for so-called "right-to-farm" legislation to be encoded in local law. In NSW, for instance, the 2015 State election saw the onset of an "unprecedented" memorandum of understanding entered by the Coalition Government and NSW Farmers, the state lobby group which represents agricultural interests and the industry (Griffith 2015; Makim 2015). This followed the passing of a motion by NSW Farmers which called for the creation of "right-to-farm" legislation the preceding year.

Outline

According to NSW Farmers' executive councillor Graham Brown, the motion was based on two key arguments. First, immunity should be granted to farmers from any litigation concerning nuisance complaints associated with "'the smelly, sometimes noisy' realities of farming and 'expanding urban centres'". Second, protection from "regulatory imposition" should be afforded to agricultural enterprises which industry consider "hindrances" to their continued operation (Brown 2014). Other lobby groups have issued similar statements, often citing regulations as obstacles to initiating sustainability measures into production processes. For instance, the National Farmers Federation (NFF) has argued in a submission to a 2016 Commonwealth productivity inquiry that "each day farm businesses battle through a myriad of burdensome, complex and duplicative regulations which make it difficult for farmers to ensure Australia has an ongoing, reliable and sustainable source of domestically produced food and fibre" (Productivity Commission 2016). In a submission to the same inquiry, the Victorian Farmers' Federation (VFF) argued that "farmers are frustrated by increasing regulation that impact on their ability to farm sustainably and profitably", concluding that the concept of a "right-to-farm" was "born out of this frustration" (ibid).

Outline

We believe that sustainability should consider economic, environmental and social dimensions and holistically strive to delimit or remove adverse impacts (Gunnarsson et al. 2020). Thus, we believe that the concept of "sustainable agriculture" is primarily a response to the unexpected and harmful side-effects of conventional agricultural operations (Schaller 1993). Indeed, Australian studies note that "despite any degradation of the natural resource base, the agricultural sector is more productive now than in the past" (Stoneham et al. 2003). Similarly, it is evident that the Australian primary production sector has historically contributed to the growth of the Australian economy (Sriskandarajah and Dignam 1992). This does not, however, provide adequate justification for supporting or continuing a "business-as-usual" operation model of agriculture. The dairy industry, in particular, is often considered to be "under constant scrutiny with regard to its environmental impact" and is thus "replete with government interventions" (Productivity Commission 1991; Miller et al. 2006). The following section will outline the reasons why this is so and why it must remain so.

Summary

WHY ANIMAL AGRICULTURE IS INHERENTLY UNSUSTAINABLE

Studies have consistently shown that removing all animal products is "the most optimal diet for the environment" and are significantly more sustainable because they appropriate and exploit "many fewer natural resources" (Reynolds et al. 2014; Sabaté and Soret 2014; Aleksandrowicz et al. 2016; González-Garciá et al. 2018; Chai et al. 2019). Environmentally, choosing to continue to consume animal products produces approximately two times the greenhouse gases (GHG) as a veg*n or plant-based diet (Scarborough et al. 2014). Such diets "limit or exclude high-GHG-emission-intensive foods" and have been described as "very likely critical for avoiding catastrophic environmental damage", including the ongoing climate crisis (Cleveland and Gee 2017; Ridoutt et al. 2017). Studies have concluded that dairy production, including cows milk and cheese, is significantly implicated in increasing "the environmental burden" posed by animal production (Reijnders and Soret 2003).

Outline

The cultural reliance on animals as food sources or producers is multifaceted and relates to philosophy, religion, ethics and economics (Szücs et al. 2009). It is widely recognised as a key driver in environmental degradation, harm to human health and poor animal welfare outcomes worldwide (Turner 1999; Goldberg 2016). Structural changes animal agriculture (agribusiness) operations, particularly the industrialisation and intensification of its systems, have placed exponential pressures on the environment (Mateo-Sagasta et al. 2017). The land required to produce animal products covers over 80% of the world's available farmland, contributes close to 60% of food-based emissions yet provides "only 37% of our protein and 18% of our calories" (Poore and Nemecek 2018). Studies have found that close to 100% of land projected as required to feed the world on current diets "would be the result of increased dairy consumption" (Rizvi et al. 2018).

Outline

The consumption of dairy produce is considered a major driver in the ongoing climate crisis (Bailey et al. 2014). Concerns associated with the environmental impact and sustainability of various industries has become an increasingly important priority, especially relating to agriculture (Capper et al. 2009). Environmental changes, such as climate change, increase the vulnerability of agricultural sectors and operations (Hanslow et al. 2013). Some of these have been outlined in the section on ethical consumption above.

Outline

SECTION ONE B

HUMAN HEALTH

The dairy industry has historically presented itself as a trustworthy and necessary provider of an important and natural commodity (Wicks 2018). The previous section on the lives of dairy cows reveals the ways in which this is not so. How dairy products became so widely considered as "essential" is a topic of considerable historical interest, particularly because this has occurred despite their high fat and saturated fat content. Though it is true that dairy foods contain calcium, they also contain lactose, a sugar found only in mammalian which cannot reliably be digested by humans over the age of five (Atkinson et al. 1957; Nestle 2002). The National Health and Medical Research Council (NHMRC), for example, has historically included dairy products in their nutritional advice on the basis that "they are major contributors to calcium" even though "they can also contribute substantially to the saturated fat content" of diets (Byron 2011). Studies have indicated that the calcium claim is the most salient feature of the perceived importance of dairy intake, with respondents stating that "it's drummed into you" (Nolan-Clark et al. 2011). Recent dietary guidelines published by the NHMRC, however, attributes only "probable associations" between the consumption of dairy products and positive health outcomes (National Health and Medical Research Council 2013). Indeed, approximately 4000 million people cannot digest lactose properly (Campbell et al. 2005). Despite this, many governments have consistently included dairy as a staple food (Wiley 2004). Nutritionists have actively colluded in this inclusion, particularly through collaboration with dairy lobbies whose interest is promoting the nutritional value of their produce (Nestle 2002). Many claims are crafted "to push potentially unhealthy and dangerous products onto unsuspecting and trusting consumers" (Wrenn 2017).

Outline

DIET AND HUMAN HEALTH

Diet has long been recognised as an important component in public health. Evidence supports connections between specific foods and nutrients in the maintenance of good health as well as the prevention of disease development (Scrafford et al. 2020). Western diets are commonly characterised by high intakes or "overnourishment" of meat, dairy and egg products (Lawrence et al. 2013; Westhoek et al. 2014). Their consumption is frequently recommended even though they only provide approximately 18% of total calories and 37% of total protein intake (Deckers 2016; Poore and Nemecek 2018).

Outline

The links between disease and the consumption of some animal products can been controversial. An example is the ongoing controversy concerning the impact dairy products have on prostate cancer incidence and cardiovascular disease development (Mandair et al. 2014; Visioli and Strata 2014; Markey et al. 2015; Preble et al. 2019). Other possible health ramifications of cow's milk consumption include increased risk of Parkinson's disease, increased risk of type 1 diabetes development, increased mortality rates and a strong correlation between cow milk

consumption and the incidence of multiple sclerosis (Kolb and Pozzilli 1999; Chen et al. 2007; Michaëlsson et al. 2014). Despite claims often produced and promoted by the dairy industry, evidence of the health or nutritional benefits of cow milk consumption is not absolute (Huth and Park 2012; Davoodi et al. 2013). Thus, the potential risks associated with consumption of dairy products is not reliably known (Knopfler 2016).

Though cow's milk consumption varies greatly across geographic regions it has been a component of the human diet for at least 8000 years (Malosse et al. 1992; Prentice 2014; Knopfler 2016). Despite being considered a valuable human food source, the nutrient composition of many dairy products makes its consumption potentially pathogenic (Galbraith et al. 1982). Indeed, since the early 20th century it has been considered "common knowledge" that dairy products are "a frequent vehicle for the conveyance of the contagium of human disease" (Savage 1911). Various cases of contamination of cow milk have led to the deaths of scores of consumers. Contamination of drinking water by manure from dairy cows in Milwaukee killed over 100 people and poisoned over 400,000 others in 1993 (Matsuoka and Sorenson 2013).

Outline

LEARNING FROM OTHER COUNTRIES

Other nations have recognised these issues and have changed their nutritional guidelines accordingly. Finland, for example, realised in the early 1970s that men had the worlds highest rates of heart disease and the life expectancy of both genders was very low due to non-communicable diseases. The Finnish government recognised that food consumption was a significant contributing factor and collaborated with the World Health Organisation (WHO) to promote a healthier diet, particularly the consumption of less dairy products (Herman 2010). A host of organisations, governmental agencies and authorities led a public education program aimed at improving overall health (Pekka et al. 2002).

ZOONOSES

Between 60% and >70% of all human infectious diseases are caused by pathogens shared with wild or domestic animals (Greger 2011; Karesh et al. 2012). Such diseases have a history stretching back thousands of years (Marano and Pappaioanou 2004). Yet, the true extent of zoonotic illness in agricultural operations is unknown (Thomas et al. 1994). Livestock production has been cited as a leading cause of their development and transmission (Liu et al. 2014). Experts have long warned that "given animal agriculture's track record of prioritising productivity", often "at the expense of animal health", and the practice of breeding "nearly exclusively for productivity" have led to "demonstrable public health consequences" (Greger 2011).

ZOONOSES

Between 1997 and 2003, three major zoonotic disease epidemics (swine fever, foot and mouth disease and avian influenza) spread throughout Europe (Cohen et al. 2009). The most recent example of such devastating cross-species disease is COVID-19, a worldwide pandemic caused by the SARS-CoV-2 virus traced to the sale of wild animals for human consumption in Chinese wet markets (Karesh et al. 2012; Humane Society International 2020). Many of the first patients were stall owners, employees or regular patrons of a wholesale market in Wuhan City, China. The World Health Organisation (WHO) stated in an April situation report that "all available evidence to date suggests that the virus has a natural animal origin" (WHO 2020).

Outline

COVID-19 was designated as a pandemic by the World Health Organisation (WHO) in mid-March 2020 (Tiwari et al. 2020). It has triggered a range of negative animal welfare outcomes worldwide, ranging from the abandonment or the unnecessary killing of companion animals, culling of potentially infected animal populations and limited veterinary oversight in industrial agricultural operations (Animal Welfare Committee 2020; Edwards and Santini 2020; USDA 2020). As it relates to the Australian dairy industry, a range of COVID-19 related ramifications have been acknowledged by its peak industry. Expected outcomes include, but are not limited to, "poor welfare outcomes for animals and associated community trust issues". The latter is particularly related to veterinary services, such as the euthanasia of cows and animals left untreated for illness (Dairy Australia 2020a). Such outcomes are thus perceived by the industry as potential threats to its social licence. The industry has called for State and Federal governments, plus local councils, to "acknowledge the collection and processing of dairy products as an essential service" (Dairy Australia 2020b). Though there is no clear definition of what an "essential service" is in the current context, they are "described rather than defined" (Australian Medical Association 2020). According to the Commonwealth Government, "feeding out nation is an essential service" (Department of Agriculture, Water and the Environment 2020). It remains unclear whether dairy production is considered "an essential service".

Outline

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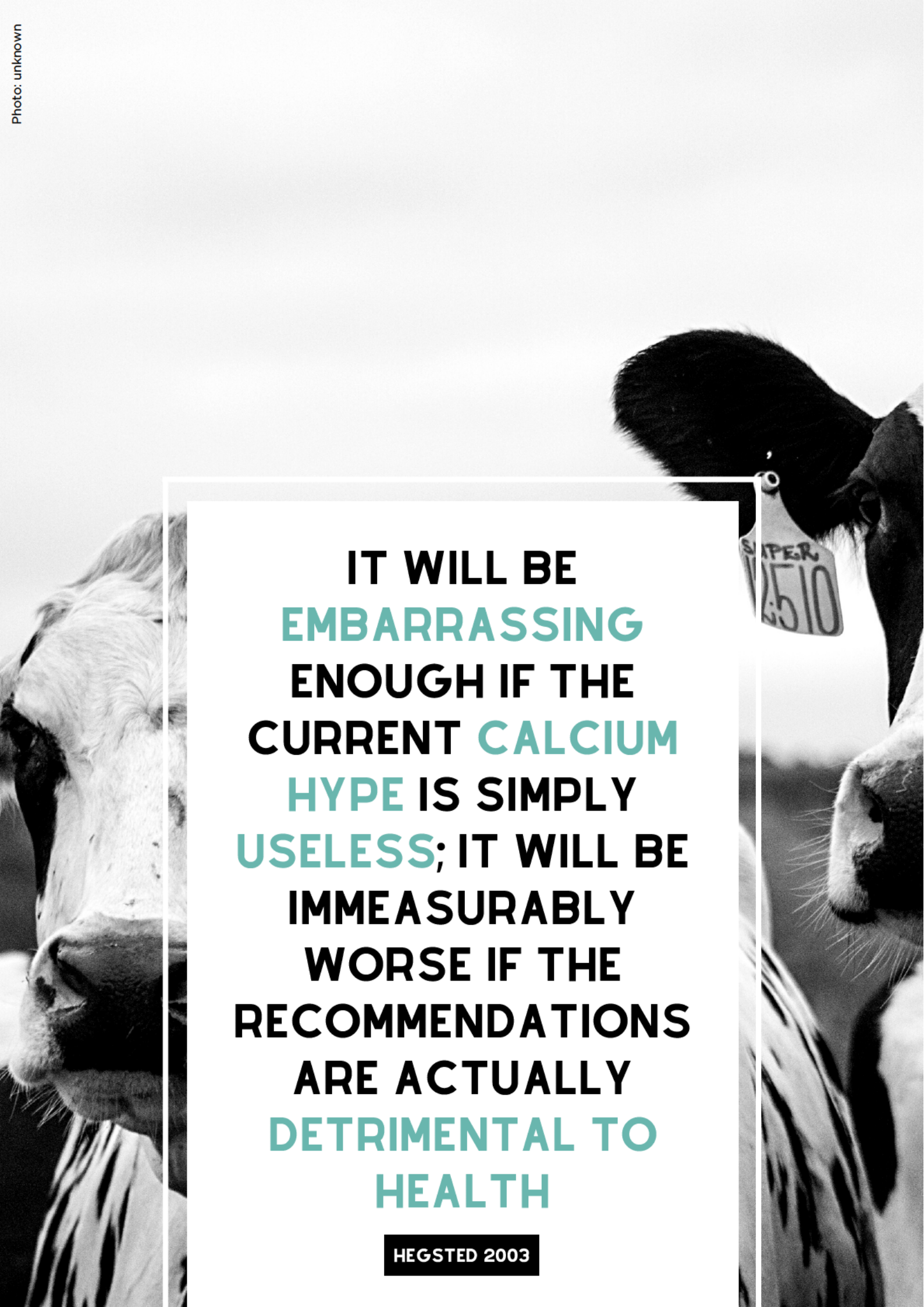

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IT WILL BE EMBARRASSING ENOUGH IF THE CURRENT CALCIUM HYPE IS SIMPLY USELESS; IT WILL BE IMMEASURABLY WORSE IF THE RECOMMENDATIONS ARE ACTUALLY DETRIMENTAL TO HEALTH

HEGSTED 2003

CONCLUSION & RECOMMENDATIONS

ONE This submission has endeavoured to furnish the Committee with a range of interrelated concerns associated with the Terms of Reference provided. We believe that this submission will supply the members of the Committee with substantial cause fo concern. However, we hold that the structure of the Terms provided are unacceptably narrow.

TWO We do not believe that the Terms of Reference provided have been crafted in a manner in which it is possible for the Committee to obtain a sufficient amount of information that embraces or elicits advice regarding some of the most significant and structural concerns increasingly apparent in this area of agriculture. For example, the Terms invite correspondence concerning the external impacts imposed on the industry yet do not address those actively produced by the industry itself (see Term B). Discussion of the unsustainability of these practices is thereby severely limited. That is, it does not invite or welcome commentary on the appropriateness of an industry whose practices are known to detrimentally impact upon the very property the inquiry ostensibly intends to investigate. In so doing, we believe that the Terms unacceptably limit the information the Committee will be furnished with.

THREE Given the above, we recommend that the Committee consider removing support for an industry whose standard practices inherently cause and contribute to the problem this inquiry seeks to address. We hold that such a policy is in line with emerging community expectations and is pragmatic, scientific and evidence-based.

In our mind's eye the farm is a peaceful, pleasant place where calves nuzzle their mothers in a shady field, pigs loaf in the muddle and chickens scratch and scramble about the barnyard.

We comfort ourselves with these bucolic images - images that implanted by calendars, colouring books and the countrified labelling and advertising of animal products.

The reality of modern animal production, however, is starkly different from these scenes.

Now, virtually all of our poultry products and about half of our milk and red meat comes from animals mass-produced in huge factory-like systems. In some of the more intensively managed 'confinement' operations, animals are crowded in pens and cages stacked up like so many shipping crates.

On these factory farms there are no pastures, no streams, no seasons, not even day and night

Jim Mason, 'Brave new farm?' (1985)

APPENDICES

APPENDIX 1

GLOSSARY

Terms stylised in **bold** indicate inclusion elsewhere in the Glossary

Animal cruelty Animal cruelty has traditionally been adopted by **animal welfare** legislation and defined as the wilful infliction of *unnecessary harm*. Such a term is used to limit the circumstances in which a person can legally cause harm to animals (RSPCA Australia 2012). According to RSPCA Australia, this prohibition has been "interpreted too narrowly by the courts in a manner which diverges from the intended statutory objective of protecting **animal welfare**" and the inclusion of other terms, such as *unjustifiable* or *unreasonable* are "largely superfluous" in such laws (RSPCA Australia 2012; RSPCA Australia 2019). In some States, the definition includes a series of specific behaviours, such as wounding, mutilating, tormenting or terrifying an animal (Cooke 2011).

Animal rights At its core, animal rights is the belief that all animals are equal regardless of species. As such, it supports the complete abolition of exploitative or harmful activities or behaviours towards all other animals (Glasgow 2008). Speciesism is a key tenet of the animal rights theory (Singer 1975; Ryder 1989). Some have since argued that traditional animal rights theory is insufficient, particularly as it relates to **species discrimination** (Abbate and Fischer 2019). For instance, traditional animal rights theory does not contain provisions concerning cases where species membership is a relevant variable, outside those most often harmed in agricultural practices or medical experimentation (vivisection). This is particularly so in wildlife **control** or **management** contexts in which an individuals membership of a species may explain their alleged threat to others.

Animal suffering As early as the seventeenth century, the idea that engaging in the wilful harming animals, thereby causing them *unnecessary suffering*, was connected with a negative impact on the person or persons inflicting it (Arluke 2006). Historically, *animal suffering* has been primarily associated with the consumption of their body parts and the **cruelty** that such industries are dependent upon (Gruen and Jones 2015). While it is true that it is largely impossible to exist without causing others to suffer in some manner or to some degree (i.e., the harvesting of grains consumed by an ethical vegan may have caused the death of small rodents), causing the least possible harm is an achievable goal.

Animal welfare Animal welfare is generally defined as the health, happiness and the physical and psychological wellbeing of an individual or a group of individuals (Phillips 2009). It has historically been defined as the degree to which an animal is coping in an environment (Broom 1986). Though it is predominately applied to farmed animals, it is being increasingly recognised as a necessary concept in all human-animal interaction or conflict (Harrop 1997; Jones 2003). The scientific understanding of welfare originated in the early to mid-1990s in behavioural, nutritional, physiological and veterinary departments (Mellor et al. 2009). Since, it has attracted increasing worldwide interest (Phillips 2009). It may refer to a procedure or conscious, concentrated effort to promote positive outcomes, which can in turn be assessed along a continuum ranging from "good" to "poor" (Carenzi and Verga 2009). It may also refer to a regulatory policy ostensibly crafted to promote and provide for the fundamental physical, physiological and psychological wellbeing of an animal or a group of animals. It is simultaneously theoretical and practical.

Artificial insemination

Most dairy operations practice artificial insemination (Dairy Australia 2019a). The practice is included in the Australian Animal Welfare Standards and Guidelines for Cattle (Australian Dairy Farmers et al. 2014). Though it is used in other agribusiness industries, it is primarily practiced by the dairy industry (Evans 19991; Knudsen 2013).

Bobby calves

Bobby calves are defined by the industry as less than 30 days old, weighing less than 80kg **live weight** , are usually a dairy breed and are often sold for meat or otherwise reared for beef (Dairy Australia 2016). Despite being "essential for dairy farming", bobby calves are "surplus to dairy industry requirements as they are not required for the milking herd" (Dairy Australia 2008; RSPCA Australia 2020). Per year, approximately 500,000 bobby calves are slaughtered. Prior to slaughter, they are fed colostrum, milk or a milk replacer (RSPCA Australia 2020). Due to their "low value", they often "do not get the same standard of housing, cleanliness, care or attention as valuable replacement **heifers**" or calves otherwise reared for their flesh (RSPCA Australia 2020). Transport requirements stipulate that calves must be at least 5 days old before they may be sent to a saleyard or a slaughterhouse (Dairy Australia 2016). Bobby calves that are unfit, unwell or are otherwise considered unprofitable may be killed according to the industry guide to "humane killing and disposal" which stipulates that blunt force trauma must only be used if the calf is less than 24 hours old or other methods are not "reasonably available" (Dairy Australia 2016a).

Bull calves

Bull calves are males. Born in the dairy industry, they cannot produce milk and are thus often considered expendable or "surplus" (Moran and Doyle 2015). They are primarily killed at approximately five days old (RSPCA Australia 2018). Some are kept for veal production (Tian et al. 1999).

Consolidation

There has been "ongoing consolidation" within both dairy farming and processing (Dairy Australia 2018). Consolidation has seen a dramatic decline in farm numbers, from close to 22,000 in 1980 to less than 6,000 in 2018 (Australian Dairy Industry Council et al. 2019). Researchers believe that consolidation will continue (PwC 2011). Though consolidation, combined with developments in technique and technology has increased productivity, industry sources claim that "only the top 25 per cent of farmers doing particularly well" (Australian Dairy Industry Council et al. 2019). Similar processes have been noted elsewhere in the world (PwC 2019; MacDonald et al. 2020).

Cow-calf bond

The cow-calf bond is the phrase used to refer to the complex boding process which includes hormonal-induced and learned behaviour (Moran and Doyle 2015; Thomas 2015). In a natural environment, the survival of calves is dependent upon the establishment of a strong and lasting bond with the mother (Johnsen et al. 2015). Dairy calves, however, are often **separated** from their mothers soon after birth. The removal of the calf from the mother denies all social and physical contact and forces the calf to adopt behavioural changes, including a premature shift from a liquid to a solid diet (Orihuela and Galina 2019). Researchers consider the severance of this bond to be particularly concerning to consumers as it is "an emotive human concern as humans have such vulnerable and helpless babies relative to ruminants" (Steele 2019). See **separation distress** for more.

Culling

"Culling" is a term used to refer the killing of sick or otherwise unprofitable animals. In the dairy industry, it involves the identification and removal of a cow from a herd, killing them and replacing them with another animal (often a first-lactation **heifer**) (Hadley et al. 2006). Cows are culled for a range of reasons, including failure to conceive, poor health or low or declining production rates (Bascom and Young 1998; House 2011; Moran and Doyle 2015). Some estimates place the number of cows culled per year as high as 35% of total herds (Lehenbauer and Oltjen 1998).

Dehorning

"Dehorning" is the. It is a practice also used in the cow-meat (beef) production, goat-meat production and water buffalo industries (Williams and Page 2014; Lemcke 2015; Animal Health Australia 2016). Though **disbudding** is considered preferable to dehorning, early dehorning (between 2 and 3 weeks of age) is considered less traumatic to the calf (House 2011; Williams and Page 2014).

Disbudding

Leaving horns to grow is considered dangerous to other animals in the herd and dairy operators so "disbudding" calves is usually undertaken under the age of 8 weeks (Dairy Australia 2019). The industry maintains that it "goes beyond the requirements" of **animal welfare** standards insofar as it has published a policy which states that "all disbudding should be done with the provision of pain relief" (Dairy Australia 2020). Disbudding is considered less harmful than **dehorning**, especially if the practice uses cautery (heat) or caustic agents, though the latter is widely rejected (Williams and Page 2014).

Ethology

The comparative study of animal behaviour (Eibl-Eibesfeldt and Kramer 1958; Curtis and Houpt 1983; Hailman 1985).

Farmgate

The farmgate milk price is the price operators receive from processors for the raw milk cows in their control produce (ACCC 2018; Dairy Australia 2019c).

Heifer calves

Heifer calves are females at an age before they are considered cows. The industry maintains that heifers are "a significant investment" and "to receive a return" they must "get in calf quickly, calve without difficulty, produce well and get back in calf easily" (Dairy Australia 2013).

Humane / inhumane

The principle of humane treatment is well established. It has become increasingly influential. It's primary principle is the minimisation of pain and **animal suffering**, particularly pain inflicted for human purposes (Giroux and Saucier-Bouffard 2018). It is a subjective term (Dagg 2008). The notion that "a fully human being is a humane being, feeling compassion for the suffering of others" is key (Cafaro 2013).

Induction

Induction is the practice of inducing birth via the application of a drug prior to full-term pregnancy (Australian Dairy Farmers et al. 2019).

Lactation persistence

"Lactation persistence' refers to the drop in daily production per cow per month after the cow has passed peak production (Dairy Australia 2017).

Liveweight

The weight of an animal before slaughter and preparation for human consumption.

Mastitis

Mastitis refers to the inflammation of the bovine mammary gland caused by *staphylococci* or *streptococci* (Claxton and Ryan n.d.). Studies have found that individual cows often endure multiple cases of mastitis (Abureema et al. 2014). Historical Australian dairy farm surveys have found that "mastitis is far more widespread and severe than is realised by most dairy farmers" (Western Australian Department of Agriculture 1968).Mastitis is considered to be "one of the most important infectious diseases of dairy cattle" (Abureema et al. 2014). Despite being a significant animal welfare issue, the core concern of the dairy industry relating to mastitis is the potential economic loss it causes (Plozza et al. 2011).

Other animals

"Other animals" is a value-free description used to refer to species other than human beings. It does not have the connotations associated with "non-human animals" and is intended to establish equal consideration in the language used to discuss them.

Plant-based

Plant-based is an increasing common term used to describe a diet which includes all forms of veg*nism (Fehér et al. 2020). It may be defined as a diet dominated by "fresh or minimally processed plant foods" and "decreased consumption of meat, eggs and dairy products" (Lea et al. 2006). There is significant evidence indicating that such a diet has "a protective effect" against many dietary induced health problems, including some cancers (Nguyen et al. 2006; Lopes et al. 2020).

Rationalisation

Rationalisation refers to the . With ongoing consolidation, the industry has seen the closure of smaller facilities as part of the rationalisation process (Dairy Australia 2018).

Separation distress

Separating the newborn calf from the cow is a routine practice on dairy farms across the world (Busch et al. 2017; Meagher et al. 2019). In Australia, the majority are separated within 12-24 hours after birth (RSPCA Australia 2018). Mothers of many species attempt "every possible way" to "get back to them" (Boyde 2018). The maternal trauma associated with separating young from their mothers has been known for some time (Despret 2016). "Separation distress" is a term used to describe the emotionally stressful and psychologically traumatic event which can lead to poor calf and cow health (Houwing et al. 1990). For example, heart rate is known to rapidly increase post-separation (Stehulová et al. 2007). For this reason it has long been considered to be a "contentious practice" (Henderson and Reaves 1954; Ventura et al. 2013).

Liveweight

The weight of an animal before slaughter and preparation for human consumption.

Mastitis

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Social license

"Social license" refers to the trust the public places in an industry to continue to perform its activities (Heffernan 2019).

Speciesism

Speciesism is a term initially coined by Richard Ryder in 1970 and has since been adopted by the **animal rights** movement. It refers to discrimination on the basis of species alone and describes the belief that humans are entitled to treat other animals in a manner that would be unacceptable to our own species (Ryder 1989; Singer 1996). Though Singer critiqued the term, believing that attempts to improve conditions for animals are "based on quite conventional ways of thinking about the status of animals," Singer has been the most prominent academic associated with the **animal rights** movement and speciesism (Grant 2006; Franklin 2005).

Veganism

Veganism is the practice of refraining from the use of all animal-derived products and exploitative practices.

Veg*nism

Veg*ism is a portmanteau used to describe vegetarianism and veganism (MacDonald and Montford 2014). The use of veg*nism should not be understood as equating each, however. **Veganism** is the practice of refraining from the use of all animal-derived products and exploitative practices. Vegetarianism is the practice of removing particular products from a diet.

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