

BEEF



**ANIMAL CRUELTY AND
ENVIRONMENTAL IMPACTS OF
AUSTRALIA'S BEEF INDUSTRY**

Authors



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Cover image: Dalby Regional Saleyards, Dalby, Qld

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Version 2 - 22 June 2021. First published May 2021.

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Printed with vegetable-based inks on ecoStar 100% recycled post-consumer waste paper.

ABOUT ANIMAL LIBERATION QUEENSLAND:

Animal Liberation Queensland (ALQ) is a registered charity and independent animal advocacy organisation founded in 1979. ALQ acts on a broad range of animal protection issues and seeks to represent the interests of all animals. ALQ is well known for the investigation that exposed the cruel and illegal practice of live baiting in the greyhound racing industry, as seen on Four Corners in 2015. More information is available at www.alq.org.au.

Animal Liberation Queensland acknowledges we are living and working on Aboriginal land and we pay our respect to Elders past, present and future.



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Executive Summary

At any time, there are about 25 million cattle in Australia. More than a million of these cattle are confined to factory farms called feedlots. The remainder graze over an area greater than half of Australia's land mass.

Each year, hundreds of thousands of cattle will die from disease, mismanagement, or because they are deemed less profitable. 8.5 million cattle will be slaughtered. Another 1.2 million are packed on live export ships and destined for slaughter overseas, where animal welfare laws are poor or non-existent.

In Australia, cattle are routinely subjected to multiple painful procedures. They are castrated, dehorned, branded with hot irons, and have their ears mutilated. The majority of the industry still perform these procedures without any pain relief. Many will become victims of droughts, floods or bushfires, and many more will die of injury, disease or starvation. Those deemed less profitable are "culled", or left to die slow and painful deaths. Those that can be sold are transported, often long distances without adequate care or hydration to saleyards or feedlots. From there they may be exported or sent to the slaughterhouse.

Each of these bovines is an individual - an intelligent, sentient animal that suffered throughout much of their life and death. Valued by industry and government only for the financial value they can bring, they are born to die.

Despite growing community concern for animal welfare, the government and industry have failed to give meaningful protections to these animals. Laws to protect farmed animals are minimal, and even when abuses are detected, prosecutions are practically non-existent.

The beef industry is also a leading cause of environmental destruction and climate change. Australia is listed as a global deforestation front by global environmental organisation WWF - the only developed nation on the list. Queensland is the leader here, clearing 400,000 hectares per year. Over 90% of land clearing over the last three decades in Queensland has been for grazing.

Because beef dominates more than half the continent, it has the most significant impact of any industry on our ecosystems, and is the single greatest threat to our wildlife and biodiversity. Further, the industry is responsible for extensive

tranches of soil degradation and is a major impact on the health of the Great Barrier Reef.

The industry's promises of regenerative farming and net-zero emissions future is nothing more than marketing spin. The beef industry has failed to produce any evidence of how it can prevent the enormous carbon emissions generated from deforestation or the methane emissions directly emitted by its enormous cattle population.

But the beef industry provides an opportunity for both a short term solution and a long term solution to climate change. Rapidly reducing our cattle herd and slashing methane emissions offers a means of avoiding dangerous climate change in the coming decades. The long term climate fix that re-wilding grazing lands offers is the most effective, lowest cost, large scale, natural mitigation solution. Re-wilding 41% of grazing pastures worldwide will capture all current fossil fuel emissions and sequester legacy emissions, reversing climate change.

The beef industry does not make financial sense. If it were forced to pay for the environmental damage it causes, and if government subsidies and handouts were removed, the industry would quickly become unviable. It is estimated that if the cost of this environmental damage was reflected in the cost of beef, beef prices would need to increase by 500%.

There is an amazing opportunity to shift support away from the destructive beef industry and invest in more ethical and sustainable industries. Australia is well placed to become a leader in the rapidly growing alternative meat market, predicted to be worth US\$290 billion globally by 2035.

Consumers in Australia and throughout the world are increasingly supporting alternatives to meat. 42% of Australians are now eating less meat and 12% of the population are now vegetarian or "almost vegetarian". Plant-based meat sales in supermarkets have increased 46% over the last year.

Government, industry and consumers can all play a role in the shift away from the beef industry toward more ethical and sustainable alternatives. In doing so we can save millions of cattle from suffering and death; we can improve our soils, ecosystems, and the Great Barrier Reef; and we can avoid some of the most damaging impacts of climate change.



Dalby Regional Saleyards, Dalby, Qld

Cows are intelligent animals with complex thoughts and feelings. They can learn to turn on taps or even open gates, as well as teach others how to do this. They are known to have complex social structures and "friendships". They form lifelong bonds with the rest of the herd. They mourn when separated from their young or at the loss of a family member. They can enjoy solving challenges, playing games, as well as cuddles and attention just as much as the dogs that so many of us share our homes with.

ANIMAL WELFARE ISSUES

Each year 8.5 million cattle will be slaughtered. Another 1.2 million are packed on live export ships and destined for slaughter overseas. At any one time more than a million cattle will be confined to intensive feedlots. Hundreds of thousands of cattle will die before they reach export or slaughter - either from disease, mismanagement, or because they are deemed less profitable. Forced to undergo painful procedures without pain relief, transported long distances by road or rail, each of these individuals suffered throughout much of their life and death.



Dehorning, Branding and Castration

There are around 25 million cattle¹ in Australia, and almost all of them routinely undergo a variety of painful procedures, usually while they are still calves. These procedures are undertaken to reduce costs, increase profits and make handling and identification easier. Examples of these procedures include dehorning, branding, ear-marking and castration - often performed without pain relief.

Branding is used to make the identification of cattle easier from a distance and establish ownership. Regulations vary between states, but branding is legal in all states and territories². In some jurisdictions (such as Queensland) branding is compulsory³. The main branding methods are hot-iron (fire) branding and freeze branding. Ear-marking may also be used to aid identification - this involves cutting up to a third of the ear off using ear-marking pliers.

According to the Model Code of Practice⁴, despite it not being a recommended method of identifying cattle due to animal welfare concerns, fire branding is considered the “only practical method of permanently identifying cattle” in some circumstances. Fire branding involves heating the branding iron until it is “blue hot” and then holding the hot iron on the animal’s skin for 2-3 seconds while the animal is held still (often in a crush or “calf cradle”). This allows the iron to burn away any hair and sufficiently burn the skin to leave a lasting scar (brand). This procedure, often performed without pain relief, clearly causes pain and distress to the animal being branded. Research also confirms cattle have pronounced behavioural and cortisol responses consistent with pain and stress when being branded⁵.

Both male and female calves endure another painful procedure called dehorning. This procedure involves the removal of tissue from the base of the horn next to the skull. Like other

procedures, this may also be performed without any pain relief. It is done for several reasons:

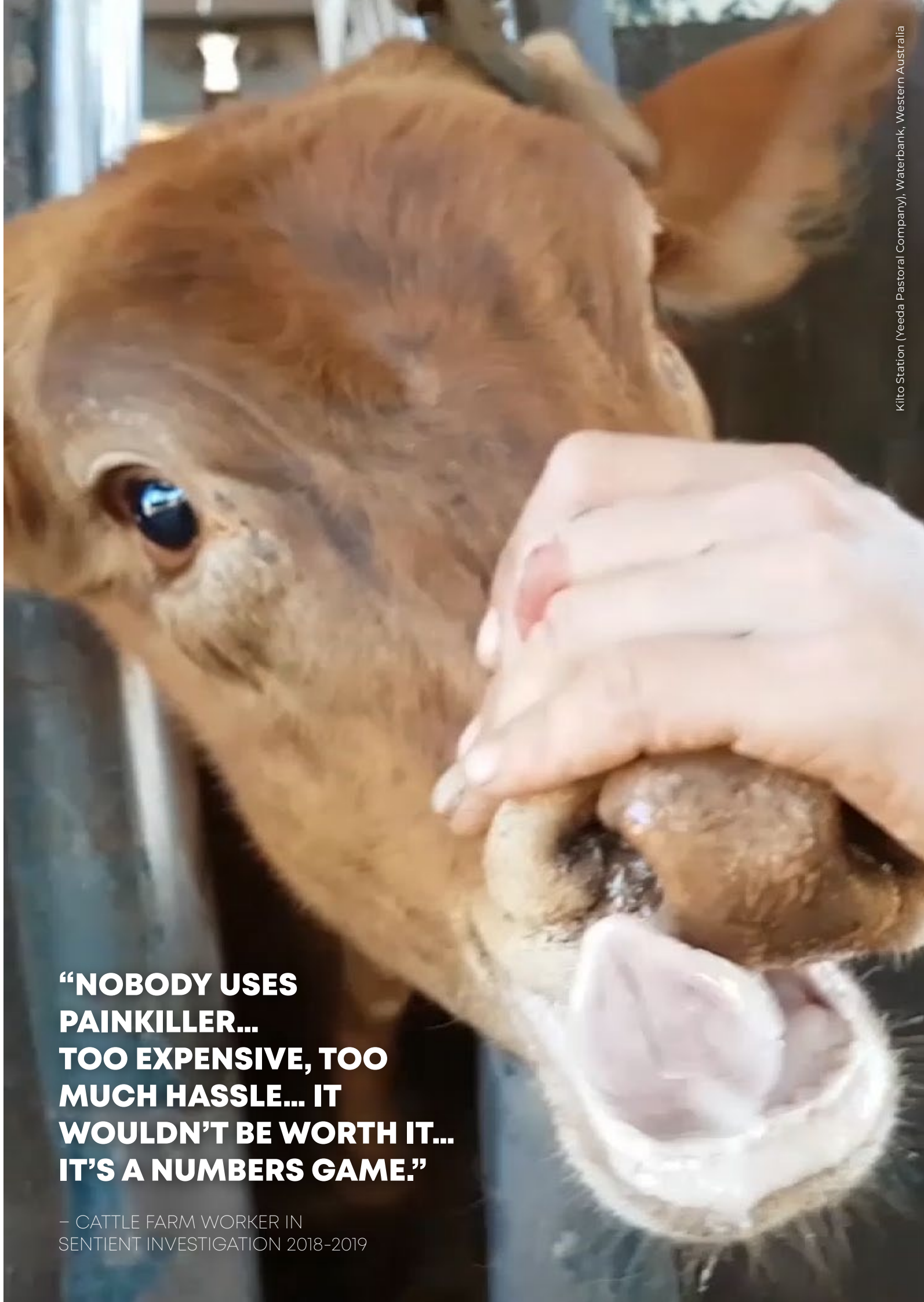
- to reduce injuries that can lead to bruising and reduced financial return
- to reduce costs such as space requirements at the trough or transport, and
- to increase sale price as dehorned or polled cattle (i.e., cattle bred without horns) attract higher prices from feedlots and exporters.

A variety of instruments are used to dehorn cattle including a hot iron (for young calves), dehorning knife, scoop dehorner, cup dehorner, guillotine dehorner, surgical wire, or a horn saw⁶.

Most male calves are castrated to make them more docile and easier to handle. This is performed by a farmhand (rather than a vet) without pain relief. Calves may have their scrotums cut open and testes pulled out and cut off - an extremely painful procedure even as a young calf. There are also several delayed methods of castration, including an Elastrator[®] ring or Burdizzo[®] emasculator. All physical forms of castration cause pain, both acute (exhibited through responses such as struggling, kicking, restlessness and stilted gait) and chronic, for example, caused by persistent wounds⁷.

Females are sometimes spayed to prevent unwanted pregnancies, especially in extensive grazing operations where females and males cannot be separated. This may be done by the “Willis dropped ovary technique”, which involves inserting an instrument through the vagina into the abdomen area and cutting the ovaries away from their attachments so that they drop away. Other methods include cutting out the ovaries or removal of fallopian tubes⁸. All methods are known to cause pain and distress and can lead to death in some cases.

In most states there is no legal requirement to provide pain relief for cattle for these procedures (as the Cattle Standards are either voluntary or not yet implemented under state legislation). According to the latest industry 2021 report, only 30% of the industry are regularly using pain relief⁹.



“NOBODY USES PAINKILLER... TOO EXPENSIVE, TOO MUCH HASSLE... IT WOULDN'T BE WORTH IT... IT'S A NUMBERS GAME.”

– CATTLE FARM WORKER IN SENTIENT INVESTIGATION 2018-2019

Disease, Starvation and Death

Hundreds of thousands of cattle die in Australia each year before reaching the slaughterhouse. Many may starve to death slowly or die from diseases or infections¹⁰. They are exposed to a wide range of temperature, rainfall and extreme conditions, with little to no protection from the elements. There is no requirement for shade or shelter¹¹ and many animals perish from heat stress during heatwaves¹².

The mortality rate (deaths per year) for cattle is difficult to measure and will vary significantly depending on many factors such as type of farming system (ie. intensive feedlot or extensive grazing), location, impacts of drought, breed, age, sex and purpose of cattle. In large extensive grazing operations in northern Australia, the deaths of individuals will often go unnoticed. One industry literature review estimates mortality for breeder cattle is between 2% and 12% and may be over 20% during drought¹³. For cattle confined to feedlots, one report found 2.74 deaths per 1000 "animal months"¹⁴ which translates to an annual mortality rate of over 3.2%.

Bovine Respiratory Disease (BRD) is one of the leading causes of illness and premature death in Australian cattle - particularly in feedlots where it may cause 50% to 90% of illness and death. BRD is caused by a combination of stress and infectious viruses or bacteria. The extremely stressful conditions that cattle endure lowers their immune system and makes them susceptible to disease. Stress factors including handling, saleyards, being tightly confined in pens, weather extremes, as well as feed and water changes¹⁵.

Management of disease and injury is typically looked at by the industry through a financial lens. Suffering and death of individual animals are not considered in terms of animal welfare or that animal's life - it is perceived in terms of the financial impact of "stock losses".

Cattle deemed less profitable - due to health or disease, genetic factors, or breeding productivity - are killed. "Classing and culling" refers to the practice of identifying "non-performers" and killing those individuals in order to maximise profits^{16,17}.

Droughts regularly lead to starvation for cattle. With climate change, we know that droughts are becoming more frequent, more severe, and lasting longer. More than 67% of Queensland is currently drought declared, with many of these declarations in place since 2013¹⁸. Other extreme weather and natural disasters are becoming more prevalent and predicted to continue to increase due to climate change. Many thousands of cattle have drowned in recent floods in NSW and Southeast Queensland or burned to death during the devastating 2019-20 bushfires. Sadly, these devastating occurrences are inevitable and set to increase.



Waterfall Feedlot, Boonara, Qld



Feedlots

When Australian consumers think about beef, many do not realise that most beef in supermarkets comes from feedlots. According to Queensland's Minister for Agriculture, approximately "40 per cent of Australia's total beef supply and 80 per cent of beef sold in major domestic supermarkets is sourced from the cattle feedlot sector"¹⁹.

These cattle factory farms confine tens of thousands of individuals to pens of dirt for the sole purpose of fattening them for slaughter. For example, Mort & Co's 'Grassdale Feedlot' boasts a capacity of 70,000 cattle²⁰ after its recent expansion that was subsidised by funding from the Queensland Government²¹.

With no pasture to graze and unable to fulfil most of their natural urges, cattle experience stress, boredom and frustration. They have little protection from the elements as most feedlots have little (or nil) shade or shelter. Cattle can stay in these environments for up to 450 days before they're sent off to be slaughtered.

Many cattle confined to feedlots die before they are ready to send to the abattoir or live export. Bovine Respiratory Disease is a major killer of cattle (as described in the previous

section), especially in feedlots. Heat stress is also a significant issue and will become more problematic with increased heatwaves due to climate change. Untreated injuries and disease will also kill many others. One report found 2.74 deaths per 1000 "animal months"²² which translates to an annual mortality rate of over 3.2%.

With such a huge number of animals regularly dying in these intensive environments, feedlot operators dispose of dead cattle in huge 'dead pits' or they are composted. It is normal to see bones scattered through the large composting mounds on feedlots. To assist composting, dead bodies are sometimes first thrown into a large cattle grinder machine. When we look at these huge composting piles, it can be easy to forget that these were all once living individuals.

In 2019, ALQ exposed Wonga Plains Feedlot, owned by Bryce Camm, President of Australian Lot Feeders Association and Chairman of Beef Australia. When asked about the distressing images from his feedlot operations, Mr Camm dismissed any concerns saying: *"...it is unfortunately reality of life that some animals will die in circumstances in any operation"²³.*



Maydan Feedlot, Bony Mountain, Qld



Maydan Feedlot, Bony Mountain, Qld

WONGA PLAINS FEEDLOT

In 2019, ALQ exposed the alleged suffering and death at Wonga Plains Feedlot after we were approached by a former worker who raised serious concerns. The feedlot is operated by Camm Agricultural Group and located near Bowenville in Queensland. Owner Bryce Camm is also the Chairman of Beef Australia and President of Australian Lot Feeders Association. The industry whistle-blower reported:

- Widespread preventable deaths, particularly with calves.
- No shade or protection from elements.
- Cattle suffered in heatwaves and were so weak, they were unable to reach water, and slowly died.
- Dead cattle left decaying in paddocks.
- Sick cattle left untreated in pens.
- Excessive use of jiggers leading to leg breaks.

View photos & videos at alq.org.au/wonga-plains

Transport & Saleyards

Most cattle will be forced to endure lengthy transport across the country. Cattle may be transported from remote pastoral stations to saleyards, live export ports, or feedlots; then from saleyards to feedlots or slaughter; and from feedlots to live export ports or slaughter. Cattle may also be held at various holding yards between lengthy truck or rail journeys. According to Australian standards, cattle over six months are allowed to be transported without water for up to 48 hours²⁴.

Despite standards prohibiting the loading of “severely emaciated” animals for transport²⁵, it is common to see severely emaciated cattle on trucks and at saleyards. Many of these cattle would be described as “body condition score” of one (the lowest), with hips, shoulders and ribs clearly prominent.

During transport, cattle may suffer injuries, fall over and can be trampled by the other cattle. When cattle do fall down in these trucks, drivers also use painful electric prods, including to the face, to force cattle back onto their feet during transport.

Truck rollovers can also occur, endangering the life of the driver and the cattle being transported. When a truck rolls, many cattle will be severely injured or killed. It may take many hours for cattle to be assessed, rounded up, and either re-loaded or killed onsite.

Queensland is one of the only places in the world where cattle are still transported via rail. This service, which is supported financially by the Queensland Government²⁶, allows producers to send cattle from remote northern and western Queensland locations to slaughterhouses in Brisbane and Rockhampton for a lot less than it costs via road. Some of these distances are over 2000 kilometres.

At the dozens of saleyards across Queensland, cattle are transported from as far away as Western Australia in order to reach premium

prices for producers. Most saleyards are not shaded, and cattle are forced to spend long periods in crowded sales pens in all weather extremes, waiting to be sold at a price per kilogram. It's very common to see emaciated, injured, sick and stressed animals at these saleyards. Many have endured long journeys to reach the sales, and many will have another long journey once they've been sold to either a farm, feedlot, slaughterhouse or live export port.

On Australia's huge, vast cattle stations, there are populations of 'feral' cows and bulls that have evaded being mustered with the rest of the herd. These cattle (especially the bulls) are essentially wild and will run away and/or charge to avoid being captured. To muster these bulls, the beef industry uses modified 4WDs and RTVs to essentially run them down. They are then tied to a tree, often for long periods of time, until they can be moved to holding yards or loaded onto a truck. Many will then be sent to slaughter, saleyards or even live export²⁷.



Roma Saleyards, Qld



Warrego Highway, near Miles, Qld

Live Export

More than a million cattle are loaded onto ships and live exported from Australia each year. In 2019/20, 1,290,667 individuals were loaded onto live export ships²⁸. Many will have suffered from heat stress, disease or injury on their lengthy sea journeys. The build-up of faeces and urine can lead to additional problems, including heat stress as animals covered in excrement are less able to dispel heat. While heavily pregnant animals should not be loaded onto ships, cattle have been known to give birth or abort fetuses on board. Most calves born onboard will be slaughtered - few will survive the journey. Cattle that die may have their bodies chopped into pieces so that they can be carried and thrown overboard²⁹. Animals that do survive the journey often face extreme animal cruelty at the receiving countries, where animal welfare laws are poorer than Australia's or even non-existent.

It is almost ten years since Four Corners broadcast *'A Bloody Business'*, with horrific footage from Animals Australia's tenth live export investigation³⁰. For many Australians, this was the first time they had been confronted with the brutal reality of Australia's live export trade. Following the Four Corners broadcast 'Tommy' became a symbol of what is wrong with the cruel live export trade. Tommy was a steer, exported from Australia, and ended up trembling in an Indonesian slaughterhouse, watching his friends butchered in front of him³¹. No animal should ever have to experience this.

The investigations in Indonesia, and ensuing public and political outcry, forced new regulations on the live export industry which should at least protect animals from some of the worst abuses associated with the trade. However, investigations since then have exposed exporters repeatedly breaking these rules and cattle still being subjected to horrific cruelty³². At a time that the trade has been under unprecedented scrutiny, investigations have revealed cattle from Australia being stabbed in their eyes, having their leg tendons slashed and being hit with sledgehammers, to 'stun' them unconscious prior to slaughter. Even if all the rules are followed, many animals exported from Australia will still suffer through the fear and pain of fully conscious slaughter.

When there are concerns over disease from the receiving country or port, animals are often forced to endure even longer times on the ship, or the ship may be forced to find another receiving port. If a receiving port can not be found the animals may be slaughtered on ship. Thousands of cattle exported from Spain were recently destroyed after spending months at sea after being rejected by multiple countries.

Live export ships have a long history of disasters including breakdowns, fires, and ventilation issues. Ships may even capsize, as happened as recently as September 2020 off the coast of Japan³³, where all 5,867 dairy cattle and 41 crew members drowned. Worldwide, capsizing and other major incidents are far too common in this industry³⁴.

New Zealand has recently announced a ban on live export by sea, with a two-year phase out³⁵. Here in Australia, live animal export has been highly criticised by all animal welfare organisations for decades. The government should have banned live export on animal welfare grounds years ago. In fact, as far back as 1985, a Senate Select Committee concluded that on animal welfare grounds alone, there was enough evidence to stop the trade.



Live export holding yards near Townsville. Kelly's Yards, Woodstock, Qld



An Australian bull killed in Mauritius, in breach of live export regulations. Source: Animals Australia

Slaughter

8.9 million beef cattle were slaughtered in Australia in 2019-2020. In addition to this, more than half a million calves were slaughtered in the same period for veal³⁶. These animals are slaughtered and 'processed' in fast-paced facilities where profit comes before animal welfare and worker safety.

In most slaughterhouses, cattle arrive by truck and are moved into holding yards. From there, cattle will be forced toward the up the single-file race and up the ramp to the "stun box" (or "knocking box"). Workers will then attempt to render the animal unconscious by a bolt gun to the head. A correct shot with a penetrating captive bolt gun will render the animal unconscious and penetrate the brain so they will not revive³⁷. However, inaccurate stunning or inappropriate equipment may lead to the animal not being properly stunned, or require the worker to repeat the process. How many animals suffer prolonged painful death is unknown as neither slaughterhouses nor government publish data related to issues with slaughter.

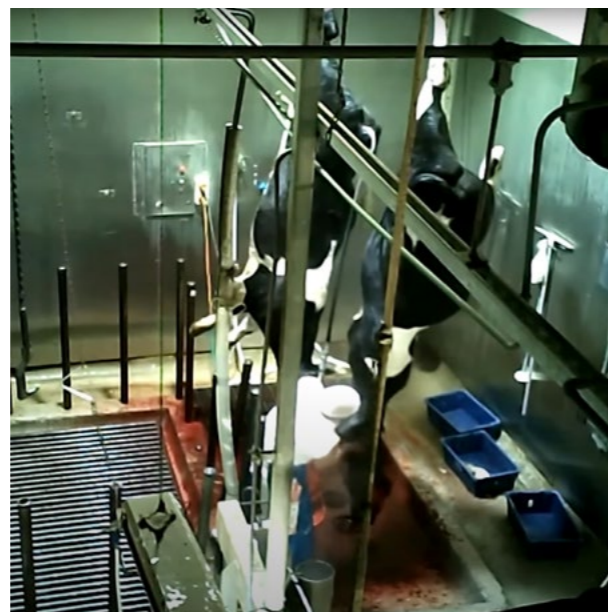
Once stunned, the animal will then drop down to the workers below. The animal will be hoisted up by one leg and the 'sticker' will slice them open from chest to chin to bleed out. In the fast-paced production line, mistakes are common and cattle may not be checked for consciousness before being 'sticked'. Animals can be seen thrashing and spasming after having their throat slit. Hooves and horns are removed next, followed by legs and other body parts, before the 'hide puller' pulls the skin from the body. The carcass then moves on to be dismembered and eviscerated and eventually turned into cuts of meat.

Cattle have a strong sense of smell and are also stressed by unfamiliar noises³⁸. Every step of the process is terrifying and stressful. Many won't be accustomed to human handling which adds to their stress as they are forced toward the kill floor. Cattle will smell the blood and faeces and hear the terrified vocalisations of the cattle in front of them as they are restrained in the stun box and killed.

Slaughterhouses are also dangerous for workers. Workers, usually poorly treated and poorly paid, are subject to immense physical and psychological toll. Workers involved in the slaughter of the animals will be exposed to repeated large-scale violence daily. There's even a name for the type of post-traumatic stress that abattoir workers may suffer - Perpetration-Induced Traumatic Stress (PITS)³⁹.

We also know that when issues such as stunning failures or animal cruelty occur, there are no penalties. Even in rare cases where issues and violations in abattoirs are caught on video and brought to authorities attention, there are rarely any financial or other penalties for the company or workers involved. For example, Carey Bros Abattoir⁴⁰ was exposed in 2019 through undercover footage released online. The footage shows multiple issues during slaughter including excessive time between stunning and 'sticking'. Instead of being punished for animal welfare violations, the business was awarded a Queensland Government grant of up to \$250,000 one year later⁴¹.

Each of these animals was a sentient individual that didn't want to die. Sadly, animals in this industry are valued only for their meat by the kilogram - they are literally born to die.



Strath Meats, SA. Source: Farm Transparency Project



Enforcement Issues

Animal welfare laws offer minimal protection to farmed animals in Australia. Most of the cruelty described so far in this report is legal and considered standard practice in the industry. Those instances of cruelty that fall outside of the legislated standards in each state and territory are rarely detected, and those that are detected are rarely prosecuted.

The system for regulating animal welfare laws is complaint-based, meaning inspectors only attend to a property if a serious complaint is made. Furthermore, there are no mandatory routine inspections to grazing properties, feedlots, or slaughterhouses. With cattle operations covering such vast areas, including remote cattle stations, it is also unfeasible to expect animal welfare laws to be independently and adequately monitored. Only export abattoirs require a Department of Agriculture (Australian Government) vet to be on site, but as we saw in the ABC 7.30 report *The dark side of the horse racing industry*⁴², this does little to prevent animal welfare issues occurring.

Even when violations are detected or reported, enforcement of animal welfare laws in the animal agriculture sector relies on a 'compliance' model of regulation. Rather than being punished, authorities seek to 'educate' offenders and assist them to comply with relevant legislation. Punitive enforcement is extremely rare⁴³. Therefore, there is little incentive for companies to invest in animal welfare improvements. Most states do not currently publish data regarding the number of cruelty complaints received, complaints investigated and enforcement action taken.

One study looking at the number of animal welfare complaints and finalised prosecutions by the Department of Agriculture in Queensland (for farmed animal cruelty) through Right to Information, found that despite over 1000 complaints being received each year, including several hundred rated as 'major' or 'critical', there were less than three prosecutions each year for the entire state of Queensland. For the most recent year of data (2015), there were zero prosecutions, despite 1620 complaints that included 548 'major' and 83 'critical'⁴⁴. More contemporary data is not available as the Department does not release this information.



Emerald Saleyards, Emerald, Qld

Industry Influence

Many large industries make political donations to political parties in what many understand to be attempts to buy access to government and influence government decisions⁴⁵. The beef industry and 'meat processors' are no different. The money also flows the other way too - with the beef industry receiving hundreds of millions of dollars of state and federal government funding in loans, grants, drought assistance, infrastructure and other support.

Political donations are likely to have a significant influence on government policy⁴⁶. One example of alleged influence over government is the recent case with Pardoo Beef in WA. Pardoo Beef was recently identified in media sources as making large political donations as it sought approval for tree clearing permits in the Kimberley. The application to clear 450 hectares of bilby habitat was initially rejected (before political donations)⁴⁷. But following a number of political donations by the company, the application was ultimately approved and a subsequent appeal by environment groups rejected.

The beef industry is a high priority for the government. This is despite the environmental damage done by the industry far outweighing revenue (see 'The true cost of beef' later in this report). One example that highlights this is the Queensland Government putting \$1 million towards the 7 day event 'Beef 2021'⁴⁸ in Rockhampton. This is twice the amount granted to RSPCA Queensland (\$500,000)⁴⁹ for an entire year for all the work they do for animals - including their shelters and the employment of 23 animal welfare inspectors across the state.

Community Concern

Animal cruelty is of increasing concern to Australians. According to a survey report prepared for the Australian Government, 95% of respondents viewed farm animal welfare with concern, and 91% want reform to address animal welfare issues⁵⁰.

The beef industry in Australia operates with very little accountability to the public. Increasingly, consumers are demanding more transparency and accountability from industry⁵¹.

Shouldn't an industry that takes up half of Australia's landmass and responsible for such immense environmental damage, as well as the harm to animals and to our health, be more accountable?

ECOLOGICAL & CLIMATE CHANGE ISSUES

Australia's beef industry is a leading cause of climate change and environmental destruction. Dominating more than half the continent, the industry has a significant impact on ecosystems, wildlife, biodiversity, soil degradation, and the Great Barrier Reef.



Ruminants and Planetary Boundaries

Cattle and sheep grazing has devastated our country, our fauna and flora, more than any other industry. Grazing has been the leading cause of deforestation, wildlife loss, land degradation, Great Barrier Reef pollution, and has had a severe climate impact. These environmental damages have been estimated to be five times more costly to our country than the revenue produced by these industries⁵².

Our consumption has pushed planet Earth far beyond sustainability, largely due to food production. Five planetary boundaries have been propelled into and beyond the danger zones, largely from animal agriculture, as indicated by the black dots within the coloured impact zones below⁵³. This endangers all life on Earth.

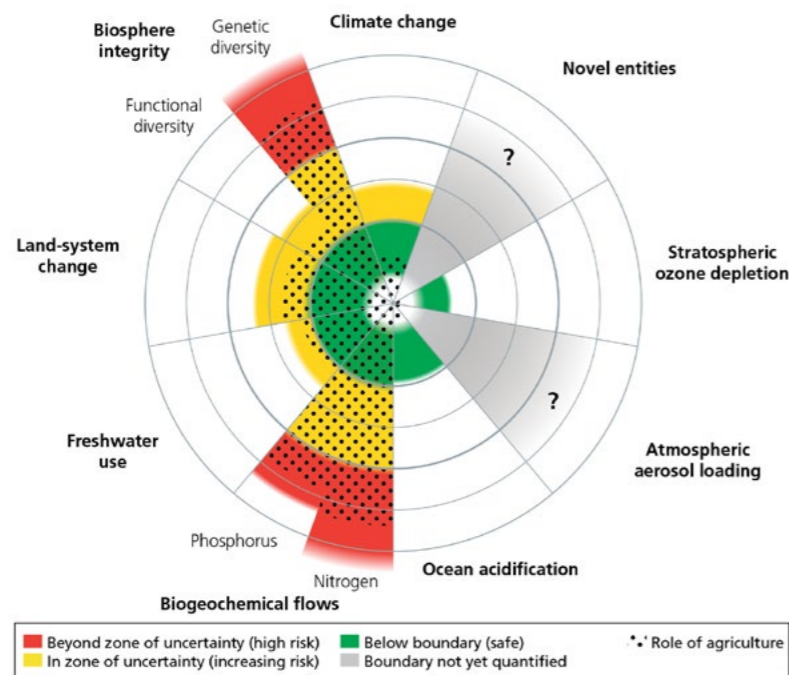
Futurist think-tank RethinkX sees a future where precision fermentation plant proteins will

overtake animal proteins, particularly those from cattle⁵⁴. They predict:

“This is primarily a protein disruption driven by economics. The cost of proteins will be five times cheaper by 2030 and 10 times cheaper by 2035 than existing animal proteins, before ultimately approaching the cost of sugar. They will also be superior in every key attribute – more nutritious, healthier, better tasting, and more convenient, with almost unimaginable variety. This means that, by 2030, modern food products will be higher quality and cost less than half as much to produce as the animal-derived products they replace.

The impact of this disruption on industrial animal farming will be profound. By 2030, the number of cows in the U.S. will have fallen by 50% and the cattle farming industry will be all but bankrupt. All other livestock industries will suffer a similar fate, while the knock-on effects for crop farmers and businesses throughout the value chain will be severe.”

The following topics outline the environmental harms that grazing industries are imposing on Australia.



Beef vs Ecosystems

More than half the Australian continent is devoted to grazing⁵⁵, so it's not surprising that production practices impact ecosystems. Deforestation, modification of native vegetation, overgrazing, destruction of waterway corridor vegetation, widespread erosion and soil loss, all for grazing production, along with boom/bust drought cycles all have a heavy impact on native ecosystems.

A 2021 study in *Global Change Biology* by 38 experts identified 19 of 20 Australian ecosystems that are showing evidence of collapse, and will collapse if we don't take urgent action⁵⁶. Overlaying grazing areas reveals grazing production as the single largest land use on two thirds of these ecosystems, and has considerable impact on several more.

To list the more heavily impacted ecosystems, more than 80% of native vegetation has been cleared on brigalow and mallee forests; 70% of open mallee woodlands and half the eucalypt woodlands have been cleared⁵⁷.

Even the 30% of our continent identified as minimal use and protected areas has been altered by grazing pressure and invasive pasture grasses. In the words of the Pew Charitable Trust report:⁵⁸

"Indeed, in some ways, the impacts of pastoralism on biodiversity and other environmental values are almost pervasive across the Outback landscapes..."

So if you were to identify one industry that has the greatest impact on Australia's ecosystems, it would be cattle and sheep grazing.



Near Mission Beach, Qld

Beef vs Forests

Deforestation is rampant in Australia. Our country is now ranked as a global deforestation front by WWF⁵⁹. To make this list, forests must be of global biodiversity significance and to have lost at least 70% of their natural vegetation. Ours is the only developed nation on that list, noting that the most significant driver by far is 'cattle ranching'⁶⁰.

Queensland deserves special mention here. More than 80% of the land is dedicated to livestock production; the state is home to half the national cattle herd and two-thirds of national deforestation⁶¹. Here, detailed state government reports have documented deforestation since the mid-1980's using satellite data and ground measurements⁶². These records show that over 90% of deforestation across those three decades has been for grazing land, and the Wilderness Society has reported that conservatively, three quarters of recent state deforestation is for beef production⁶³.

In Queensland alone, more than a hectare of bushland is cleared every two minutes, for beef and sheep production.

Several Queensland governments have attempted to control clearing, but successive policy changes have eroded these controls. The latest government

SLATS report finds that nearly 400,000 ha (4,000 square kilometres) of woody vegetation was cleared in 2017-18, which is close to the 30 year average from satellite data⁶². This report also identified that most (81%) of the clearing was of non-remnant vegetation, meaning that 81% of had been previously cleared, however this clearing could have taken place up to 30 years before, ample time for the forest and woodland ecosystems to recover, therefore regaining biodiversity value.

Other states are not blameless. Southern states have successfully carried out the majority of their deforestation before records began, but deforestation in New South Wales, Western Australia and now notably the Northern Territory have also recently seen dramatic rises, largely for grazing⁶⁴.

Australian land use is well mapped⁶⁵. If we assume that conservation areas have not been cleared; that cropping and built up areas were originally forested; and that forestry areas are kept as forest, we can identify grazing to be responsible for about 90% of Australian deforestation since colonisation.

Looking to the future, these high rates of deforestation for beef and sheep production may become a liability for these industries. A 2019 report by the Wilderness Society⁶⁶ found that supply chains were coming under greater scrutiny, to ensure that meat products were not linked to deforestation, citing McDonald's, the China Meat Association and the New York Declaration on Forests policies.

In Queensland alone, **more than a hectare of bushland is cleared every two minutes**, for beef and sheep production.

Beef vs Wildlife

Clearance of native vegetation is the single greatest threat to terrestrial biodiversity and a significant threat to aquatic and some inshore marine biodiversity⁶⁷.

Over 44 million animals were killed in 2015-16 due to deforestation in Queensland alone, according to WWF⁶⁸. This includes more than a million mammals (such as koalas, gliders, possums, bandicoots and native rodents), 3.7 million birds and 40 million reptiles (such as goannas, geckos and skinks). Although this report showed an increase in deaths from the previous few years, it was well down on the 100 million native animals killed per year from deforestation in the late 1990's.

Australia has a rich biodiversity, with nearly 8% of all Earth's plant and animal species finding a home on the continent. About 85% of the country's plants, 84% of its mammals and 45% of its birds are found nowhere else.

But now, three quarters of our plants and animals are listed as threatened, with the main threat being habitat destruction. Animals that lose their habitat don't just move home, they die. Biodiversity loss is caused by loss of habitat and fragmentation of habitat. Since grazing industries have been responsible for at least 80% of historic deforestation, these industries are clearly culpable.

In 2019/2020, unprecedented bushfires burned over 17 million hectares, killing three billion animals⁶⁹. This was a tragic event which made international news headlines. Little known, however, is that each year an area three times

this size is burned in the tropical savannas and woodlands of northern Australia, and these fires are intentionally lit, not natural. Their sole purpose is pasture maintenance for beef production⁷⁰. Each year, the dead unpalatable grass is burned to make way for new pick when the monsoon rains come. This also has the effect of killing tree seedlings, 'woody weeds', that compete with grasses.

This yearly burn has a devastating impact on biodiversity, particularly birds⁷¹. Two factors have made this annual burning more destructive. Firstly, the introduction of gamba grass, a highly invasive, high biomass pasture grass introduced to increase grazing productivity that is now out of control. Gamba grass has 4-10 times the fuel load of native grasses, so the yearly burns are far more intense, killing trees and shrubs, changing entire ecosystems⁷². Secondly, the Carbon Farming initiative has now had the perverse effect of encouraging more regular and widespread burning⁷³, originally justified by research indicating that early dry season burns released half the emissions as late burns.

Feral cats have been identified as a major threat to wildlife in Australia, implicated in mammal extinctions⁷⁴. The apex predator that would keep feral cats under control, the dingo, has been largely removed from the landscape due to their impact on livestock. Biodiversity loss due to feral cats is therefore an unintended result of grazing production, as thousands of dingoes are killed as 'wild dogs'.



Beef vs the Great Barrier Reef

It's no secret that the Great Barrier Reef is in a perilous state, having suffered three major die-off events in the past five years that have killed half the reef. Rising water temperatures and ocean acidification are now seen as major threats, but equally as important, is deteriorating water quality.

Each year the Queensland government reports on the water quality and progress towards 2050 targets⁷⁵. These report cards focus mostly on sediment, nitrogen and phosphorus loads sent onto the reefs from coastal rivers, notably the Fitzroy and Burdekin rivers. The most recent report from 2019⁷⁶, documents a disastrous drop in vegetation ground cover of 58%. This loss of ground cover, mostly from overgrazing, will have a disastrous impact in 2021, as the soil inevitably erodes and flood rains empty this sediment onto the reefs.

Another round of this vicious cycle, known as the 'hydro-illogical cycle' is playing out before our eyes. Grazing land management practices in reef catchments are poor. Forests and watercourse vegetation are routinely cleared for beef production, and pastures are overgrazed, particularly in drought, leaving bare ground exposed to erosion when it rains. There are control measures to prevent this, but just 17% of graziers adhere to this voluntary code⁷⁷. The result is that

when it rains, particularly in flood rains after cyclones, the reef endures extreme pollution. 70% of the fine sediment, which stays in solution far from land and impacts the reef, is from grazing lands, mostly from beef production. Grazing lands are also a major source of nitrogen and phosphorus pollution.

Despite criticism⁷⁸, governments have shied away from mandatory controls on reef catchment water pollution, ensuring this vicious cycle continues.

Deforestation in reef catchments has increased dramatically, now causing three to four times more soil deposited onto the reef⁷⁹. A 2013 Queensland Government report estimated that more than 75% of total sediment in the Fitzroy and Burdekin rivers was soil lost from grazing land⁸⁰.

Sediment, particularly the fine sediment, acts to suppress coral growth, and enhances the growth of algae and crown-of-thorns starfish⁸¹. As a concrete demonstration that sediment from grazing lands must be controlled, in 2016 the Queensland government spent \$7 million purchasing a cattle station in the far north, to stem the source of 40% of Normanby River sediment emptying out on the then pristine far north reefs⁸².

So beef production is a major factor killing the Great Barrier Reef.

Deforestation in reef catchments has increased dramatically, now causing **three to four times more** soil deposited onto the reef⁷⁹.

Beef's Climate Impact

Meat and Livestock Australia have countered climate criticism by announcing a plan for 'carbon neutral beef' by 2030⁸³. This plan is to reduce emissions from red meat production and increase carbon sequestration in trees and vegetation to offset remaining emissions.

But reading the fine print⁸⁴, their task is to offset emissions *relative to a 2005 baseline*, and there is no plan on how current deforestation (the main industry emission source) will be stopped. How the 2005 baseline will be factored in is unclear, but if it is intended to be implemented in the same way as the Kyoto Agreement, it will set baseline emissions from deforestation. If this is so, deforestation emissions reductions will be relative to 2005 emissions, making the 'carbon neutral' claim a farce, continuing to allow rampant deforestation that would wipe out other emissions reductions. So it looks like the Carbon Neutral Beef campaign is marketing, nothing more.

Seaweed extracts have been acclaimed as a means of reducing enteric fermentation emissions, capable of reducing methane from cattle by 80%. On the surface this looks highly promising, however it disappoints in practice. Feeding cattle this (unpalatable) supplement can only be achieved in a feedlot situation, which is the source of just 4% of enteric methane⁸⁵. An 80% reduction of 4% is a total reduction of enteric methane of just 3.2%.

'Regenerative grazing' is also claimed to be an industry saviour, but unfortunately it lacks peer-reviewed evidence. While some smaller producers whose pastures are not drought-prone may benefit, most of Australia's beef is produced on rangelands, which are particularly vulnerable to degradation. Climate change, particularly changes to the intensity and frequency of droughts, accelerates the degradation process. Most Australian pastures have a significant capacity for increased carbon, because they have been severely depleted of carbon due to grazing practices. However, soil carbon can be increased to saturation within a few years, negating ongoing benefits.

While grazing practices can improve soil, this comes at the expense of productivity. Only with substantial external inputs can both production and soil health/carbon be increased. Without external inputs, either soil is improved, or production, but not both. The Food Climate Research Network has published a report on this topic, *Grazed and Confused*, which shows that soil can gain carbon in the short term, but this offsets a small fraction of ruminant emissions⁸⁶.

The cost of red meat production on climate and biodiversity loss is heavy. Scientists now believe that the only way to meet climate targets and protect biodiversity is to reduce red meat demand and production⁸⁷. The Beyond Zero Emissions Land Use report found that when deforestation is included, ruminants were responsible for 36% or 50% of national emissions, using 100 year or 20 year greenhouse gas accounting. This makes beef and sheep production Australia's biggest climate polluter by far.

The big picture gives us cause for great optimism. If red meat and dairy (ruminant) production were to cease globally, this would free up 40% of the ice-free land for carbon sequestration. Re-wilding these grazing lands could draw down all current fossil fuel emissions and more⁸⁸. The benefit of this approach cannot be overstated. This re-wilding offers the only proven, safe, natural, large scale solution to drawing down legacy carbon dioxide, and it costs just one fifth of the alternatives⁸⁹.

Grazing dominates our use of planet Earth, thereby offering a solution of the scale needed to stop this existential climate crisis we face. This solution comes at the cost of foregoing a few percent of our food – meat and dairy⁹⁰. Surely having a planet that can sustainably support our kids and grandkids is worth a small change in diet.

Methane's Unique Impact

Methane is a unique greenhouse gas that causes both extreme concern and great hope.

Extreme concern because existing and projected methane emissions will warm the atmosphere a further 1.4°-2°C, driving us into dangerous climate change by mid-century, *whether or not carbon dioxide emissions are reduced*⁹¹.

Conversely, methane is the only means we have to slow global warming in coming critical decades⁹², buying us time to 'de-carbonise' our economies.

But what everyone seems to miss is that quickly reducing fossil fuel emissions will have a perverse effect, leading to more warming for several decades. This is due to the co-emitted sulphur dioxide, which actually causes cooling for several decades, masking about a third of the warming from carbon dioxide⁹³. Of course, the carbon dioxide continues to warm past that time, but the next few decades are critical to life on Earth.

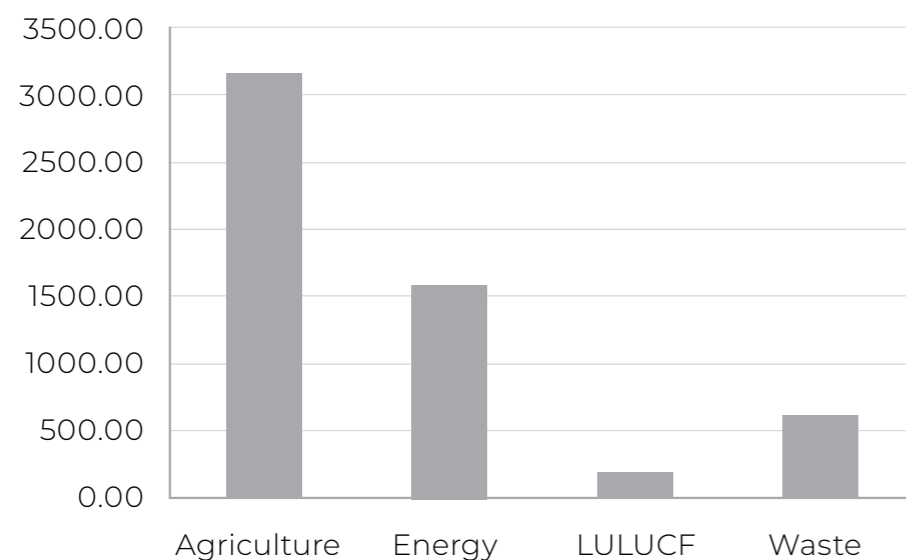
So methane then offers a unique transformative means to tackle global warming.

And as we know, the greatest source of methane is livestock, particularly ruminants (cattle, sheep and goats)⁹⁴.

The Beyond Zero Emissions Land Use discussion paper gives a very useful explanation of the power of methane⁹⁵. It re-calculates Australian emissions using the conventional 100 year greenhouse gas accounting, as well as 20 year accounting, showing that over this shorter timeframe, ruminant emissions make up half of national emissions. This demonstrates the high climate impact of methane and argues strongly for methane reductions for a habitable planet.

So removing ruminants, particularly cattle, offers a transformational climate solution: the long term solution with regrowth on re-wilded grazing lands, as well as methane's unique short term fix. We need both these benefits if we want a liveable planet for our future generations.

Australian Methane Emissions 2006-2010⁹⁴



Beef vs Soils

Healthy soils are at the heart of a sustainable future, one in which we live within a 'safe operating space' of our finite resources. But soil degradation is fast approaching these limits, threatening food security: the capacity to provide us with sufficient food⁹⁶. Indeed, experts are now declaring that humanity's future success as a species is interwoven with how we directly and indirectly manage our planet's soil⁹⁷.

Clearing bushland accelerates soil loss, particularly soil carbon loss, from our ancient, weathered soils⁹⁸. We now lose 50 to 150 million tonnes of soil each year as dust⁹⁹ and similar amounts as sediment in water flows. The drought/flood cycle accelerates this soil loss dramatically. Australian soils are being lost five times faster than their natural regeneration¹⁰⁰.

Organic matter in the soil (containing most of the carbon) is lighter, and therefore easily lost to erosion. More than 80% of Australia's soil carbon loss has been on grazing lands. Gully erosion, the source of most sediment and water quality issues, is caused mainly by overgrazing and animal trampling removing ground cover, notably where grazing animals are allowed access to water courses.

'Regenerative grazing' has been proposed as a means of addressing soil loss, and it does increase soil health and soil carbon. But most of our beef is produced on the rangelands and drylands, where regenerative grazing can only be practiced where there is sufficient regular rainfall. Drought, particularly multi-year drought, now occurs more frequently on our rangelands. This renders higher stocking rates unfeasible, no matter what grazing system is used.

Meat and Livestock Australia confirmed this with their Wombiana Trials. They found that production could only increase at the expense of vegetation cover and soil condition, and that grazing systems made little difference to this conclusion. By grazing animals we are effectively 'mining' the land, and even in high rainfall grazing areas increased productivity can be achieved, but only with substantial external inputs such as fertilizer and more productive pasture species.

Soil loss and degradation is a prime example of an unpaid external environmental cost. Farmers do not pay for the damage, the cost is not passed on to consumers, and rarely do governments get involved in remediating land¹⁰¹. This 'environmental deficit' is why our environmental footprint is so heavy, and why we are driving these systems beyond their boundaries¹⁰².

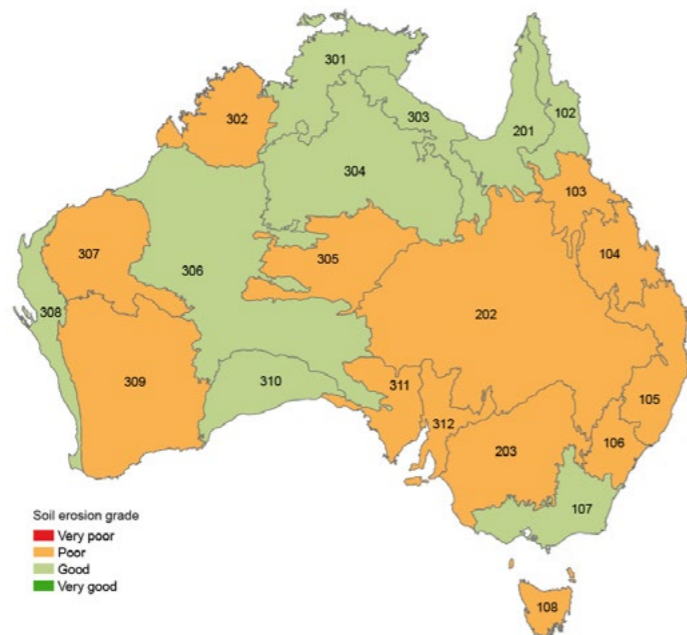


Figure: State of the Environment assessment of soil erosion¹⁰³.

The True Cost of Beef

A 2013 report by The Economics of Ecosystems and Biodiversity (TEEB) found that the external (and therefore unpaid) natural capital costs of beef production from 'cattle ranching and farming' globally was 710% of revenue¹⁰⁴. In the case of Australia and New Zealand (analysed together), they found that the unpaid external cost of cattle ranching and farming was US\$17.3 billion, compared to a revenue of US\$3.4 billion per year.

This means that if the true cost to the natural environment was included, beef prices would rise by 500%. Most Australian beef is produced in the north of the country, often *bos indicus* (Brahman cross) cattle grazed on low productivity rangelands, and is destined for export markets as lower value 'industrial' beef (ie. hamburger beef). Therefore, a price signal of this order would almost guarantee the end of the industry.

These external environmental costs are impacts on forests, soils, water use, greenhouse gases, land and water pollution and waste. Producers pay none of these costs, but they have taken a heavy toll on our environment, and in time we all must pay for this.

If we look at just two aspects, we see how these costs take a heavy toll. If, for example, we removed all grazing animals from the land, we would effectively free up more than half the continent. Returning that much land to nature would be the most effective step we can take to turn around the sixth great extinction that is overtaking us now¹⁰⁵.

Not only that, re-wilding that much land would draw down all fossil fuel emissions and more, effectively halting climate change¹⁰⁶. And removing ruminants with their methane emissions is the most effective means we have of reversing global warming in coming critical decades¹⁰⁷.



Dalby Regional Saleyards, Dalby, Qld

Should we even be farming the rangelands and drylands?

An industry that takes up half the land mass of Australia must be accountable to the Australian public for environmental damage. Erosion of public confidence may cause the industry to lose its social licence.

Barely two years ago, mass media frequently portrayed hardship in the bush due to extreme drought. *Rural Aid, Drought Angels, Aussie Helpers, Hay Mate* became household names and sympathy for farmers was high. Images of starving animals were common. As seasons changed and more extreme weather beset the nation, these images turned to fire-ravaged animals, then news of thousands of animals dying in floodwaters. Still, convoys of hay were being sent to the people on the land and billions of taxpayer dollars were funnelled to farmers¹⁰⁸.

But for many, these lamentable events were inevitable; every picture of a starving animal was an indictment on farmers for bad management. Every convoy of hay was rewarding poor animal husbandry.

In 2021, as this is being published, the price of beef is at an all-time high. Graziers are desperately stocking up and accelerating breeding programs because widespread flood rain has laid the basis for good pastures, for at least another season.

Right in front of our eyes, we are mindlessly repeating this very cycle that inevitably ends in animal deaths.

We know that in our changing climate, droughts in Australia are more frequent, more severe and

more prolonged¹⁰⁹. We know that vegetation is coming under increased stress, with declining rainfall, extreme floods and increasing evapo-transpiration¹¹⁰.

Must we see more dying animals, more dead fish, more emergency feed relief to make us understand this is the new normal, no longer the exception? Do we accept that graziers have the right to profit from the 'good years' and be propped up by taxpayers in the drought years, at the expense of degrading the land?

The Wentworth Group of Concerned Scientists believe that our reactive planning drives long term degradation to this fragile land, noting that native tree clearing and other practices have resulted in 1,600 species of plants and animals now threatened with extinction¹¹¹. Many scientists now believe we should accept the new climate normal in Australia¹¹², and we should be making a planned retreat from those areas no longer dependable¹¹³.

It won't take much more for the public to react negatively to the media portrayal of animal suffering, and for grazing industries to quickly lose their social licence.

A rational, national discussion of future farming is long overdue, we must engage, not stand by as passive observers while our fauna, flora and land suffer, while thousands of livestock die and the graziers responsible for them suffer.

Our short-term thinking and political responses are breath-takingly inadequate. Let's start thinking like this is our country to care for, for future generations.



Near Kurumbul, Qld

Right in front of our eyes, we are mindlessly repeating this very cycle that inevitably ends in animal deaths.

Opportunities

CLIMATE CHANGE

What we do now and over the next two decades will be critical to our children's future and indeed all life on Earth. Animal agriculture - and in particular beef - is one of the largest contributors to climate change, due to methane emissions and deforestation. Beef and sheep production offers one of our greatest opportunities to reduce global warming. Unlike road transport and aviation, for example, which may take decades to decarbonise¹⁴, reducing our cattle herd does not require new technology or millions of new electric cars or charging stations.

Grazing industries give us a unique and powerful means of fighting global warming. Unique because methane has the highest impact on short term heating: projected methane emissions alone will drive us past the Paris agreement limits¹⁵, driving us into an alarming 'hot house Earth' future¹⁶. Powerful, because no other industry offers anything like the drawdown available on grazing lands. Globally, returning 41% of current grazing land to native vegetation would draw down three decades of current emissions¹⁷. It's alarming that as we face an increasingly hostile climate, current deforestation for grazing alone makes up a fifth our national emissions¹⁸.

It's as simple as that: beef and sheep production stands in the way of a climate that can support future generations in the way we have enjoyed.

Reducing cattle numbers and dramatically cutting methane emissions is no longer a nice to have 'green' policy, but an imperative if we are to prevent the worst impacts of dangerous climate change.

The plant-based meat sector in Australia has the potential to be worth almost **\$3 billion** in domestic sales by 2030¹²⁰.

PLANT-BASED PROTEINS

A new report by Blue Horizon and Boston Consulting Group has projected the 'alternative protein' market to be worth US\$290 billion by 2035¹¹⁹. The report also predicts that by that time, 11% of all meat, eggs, dairy and seafood will be sourced from alternative proteins, but that with the right support from the government this could accelerate to 22%.

Local studies here in Australia found similar opportunities. According to recent modelling by Deloitte Access Economics for Food Frontier, the plant-based meat sector in Australia has the potential to be worth almost \$3 billion in domestic sales by 2030¹²⁰.

Australia is exceptionally well-placed to take advantage of these opportunities and become a global leader in the market for new and alternative proteins. We have ripe local growing demand, world-class science and technology capability and a reputation for safe and high quality food¹²¹. But just how quickly this sector grows and what part local production plays in the global marketplace will depend largely on government response, and the level of support and incentives that can be provided.

HOUSE MADE SEITAN PLANT-BASED STEAK

— YAVANNA, BRISBANE



Recommendations

Imagine a world where billions of innocent animals don't needlessly suffer, just to be slaughtered for their meat; where 'livestock' farmers and meat workers have transitioned to more sustainable jobs and are not a victim of boom and bust cycles and poor working conditions; where we avoid the most dangerous impacts of climate change; where we free up much of the continent for trees and wildlife. We don't need to kill animals, destroy the environment and risk disastrous climate change for food.

By redirecting our resources away from beef and towards more sustainable industries such as plant-based proteins, we can not only save millions of individuals every year from a life of suffering and slaughter, but we can help to meet Australia's climate commitments as well as reducing land clearing and improving our biodiversity, soils and water.

GOVERNMENT

Federal and state governments must adopt policies that support reducing the national cattle herd. Importantly, governments must stop subsidising the beef industry - and the animal agriculture industries more broadly. There are currently numerous subsidies, grants and support payments totalling hundreds of millions of dollars given to these industries at state and federal levels.

Rather than subsidising an industry that is destroying the environment, a leading contributor to climate change, and killing millions of animals, the government should be redirecting these funds to assist farmers to transition away from animal agriculture to more sustainable alternatives. With the right support, the government could also rapidly accelerate our stake in the rapidly growing plant-based meat market.

Furthermore, with Australia's reputation for safe food and our access to high-value markets overseas, we have a great opportunity to export plant-based protein to the rest of the world.

The shift to plant-based meats has already started, and Australia has a terrific opportunity here. The

role that Australia plays in the global market for plant-based meat as well as associated plant crops, and also whether local demand is fulfilled through domestic production or imports, will be heavily influenced by government policy.

INDUSTRY

The beef industry is not sustainable. With the increasing impacts of climate change, a large portion of our land will gradually become less and less suitable for livestock grazing. Industry should be looking for opportunities to transition to more sustainable income generation such as carbon capture, restoring the land, renewable energy, or crops (for example the crops that are increasing in demand with plant-based meat alternatives).

As we discussed in the *True Cost of Beef* section above, the cost to the environment is **five times greater** than income from grazing industries in Australia. This reflects the grazing industry's true impact on soils, water use, greenhouse gases, land and water pollution and waste. Producers pay none of these costs, but grazing has taken a heavy toll on our environment, and in time we all must pay for this.

It's ironic that an 'iconic' industry is 'killing our country'.

Futurists *RethinkX*, as mentioned in the section above on planetary boundaries, believe that the environmental costs and economic factors alone will compound, bankrupting grazing industries by the 2030's.

Meat and Livestock Australia could be playing a key role in boosting grazier's incomes by lobbying for an adequate price on carbon. No other industry has the same ability to sequester carbon, and an appropriate price would see programs such as the Carbon Farming Initiative expand dramatically. Graziers are well placed to manage carbon sequestration.

We all have a responsibility for our shared future. So if Meat and Livestock Australia had its members' best interests at heart, it would be rapidly looking for exit strategies, such as appropriate carbon prices for carbon farming, as mentioned above, and transition plans that will enhance biodiversity and a better climate.

CONSUMERS

There is now a growing abundance of plant-based meats available in supermarkets as well as restaurants and fast-food outlets. In fact, according to Food Frontier, the number of plant-based meats in supermarkets has doubled over the last 12 months to 30 June 2020, and grocery sales have increased 46%¹²².

Vegetarianism and veganism are also on the rise, as are those actively reducing meat. Recent data shows that 42% of Australians are now eating less meat or none at all¹²³. Roy Morgan data also shows that the percentage of Australian adults that are vegetarian or "almost vegetarian" is on the rise, at currently more than 12% of the adult population, and rising by 1% every 3 years^{124, 125}. Industry sources also confirm that per capita red meat consumption in Australia has been on a steady decline over the last two decades¹²⁶. Consumers have the power to accelerate the shift towards more ethical and sustainable alternatives. In fact, there's never been an easier time to shift to a plant-based diet.



Plant-based burger. Photo by Braidy Hughes.



VEGAN4LIFE

Our Vegan4Life website contains dozens of recipes, blog articles, and information on making the transition to a vegan diet. We urge anyone concerned about animal welfare or the enormous environmental costs outlined in this report to make the switch.

Go to www.Vegan4Life.org.au and sign up to the Vegan4Life 30 Day Challenge.

End Notes

[1] At 30 June 2019, Australia's cattle herd was estimated to be 24.7 million. 91% of these cattle are 'beef cattle', while the other 9% are 'dairy cattle'. Source: Meat & Livestock Australia. State of the Industry Report 2020. (2020). <https://www.mla.com.au/news-and-events/industry-news/state-of-the-industry-report-2020-released/>

[2] RSPCA Australia. RSPCA Knowledgebase. <https://kb.rspca.org.au/knowledge-base/is-hot-iron-branding-of-cattle-legal-in-australia/>

[3] Queensland Government. Branding and earmarking livestock. <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/livestock/animal-welfare/branding-livestock>

Due to COVID-19 risks, a temporary exemption on the branding requirement in Queensland was gazetted on 10 July 2020 and lasts until the end of the COVID-19 emergency (under the Public Health Act).

[4] Commonwealth of Australia. Model Code of Practice for the Welfare of Animals – Cattle. (2004). https://www.agric.wa.gov.au/sites/gateway/files/Model%20Code%20of%20Practice%20for%20the%20Welfare%20of%20Animals%20Cattle%20%282nd%20Edition%29_0.pdf

[5] American Veterinary Medical Association. Welfare Implications of Hot-Iron Branding and Its Alternatives. (2011). <https://www.avma.org/resources-tools/literature-reviews/welfare-implications-hot-iron-branding-and-its-alternatives>

[6] Meat & Livestock Australia. A guide to best practice husbandry in beef cattle (p21). (2007). <https://futurebeef.com.au/wp-content/uploads/A-guide-to-best-practice-husbandry-in-beef-cattle-Branding-castrating-and-dehorning.pdf>

[7] American Veterinary Medical Association. Welfare Implications of Castration of Cattle. (2014). <https://www.avma.org/resources-tools/literature-reviews/welfare-implications-castration-cattle>

[8] RSPCA Australia. RSPCA Knowledgebase. <https://kb.rspca.org.au/knowledge-base/why-are-cattle-spayed/>

[9] Australian Cattle Standards - <http://www.animalwelfarestandards.net.au/cattle/> (current as at Nov 2020; accessed June 2021). Figures for industry pain relief from Australian Beef Sustainability 2021 Annual Update - https://www.sustainableaustralianbeef.com.au/globalassets/beef-sustainability/documents/bh02_annual-update_v18.pdf

[10] Meat & Livestock Australia. Assessing the Economic Cost of Endemic Disease on the Profitability of Australian Beef Cattle and Sheep Producers (2006).

[11] The Australian Animal Welfare Standards and Guidelines for Cattle, endorsed 2016. Shelter from the elements is recommended 'if practical'. Note that even these weak recommendations are not mandated. In most states they have not been implemented into legislation and, even where they are, they are guidelines only, and not mandatory. Source: <http://www.animalwelfarestandards.net.au/cattle/>.

[12] Industry estimates from 2006 already suggested 30% of feedlot cattle would be suffering from heat stress every summer (see Meat & Livestock Australia. Assessing the Economic Cost of Endemic Disease on the Profitability of Australian Beef Cattle and Sheep Producers (2006)) and new record-breaking temperatures have been set since then, with every year since 2013 making it into the top 10 in the record. books(<https://newatlas.com/environment/2019-australia-hottest-driest-year-record/>)

[13] Meat & Livestock Australia. Determining property-level rates of breeder mortality in northern Australia: literature review. (2013). <https://www.mla.com.au/download/finalreports?itemid=405>

[14] Meat & Livestock Australia. Animal health survey of the Australian feedlot industry. p108 (2010). <https://www.mla.com.au/Research-and-development/Search-RD-reports/RD-report-details/Animal-Health-and-Biosecurity/Animal-health-survey-of-Australian-feedlot-sector-2010/2661#>

[15] Meat & Livestock Australia. Controlling Bovine Respiratory Disease in feedlot cattle. (n.d.) <https://www.beefcentral.com/wp-content/uploads/2018/06/11-10541-1.pdf>

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SA4.1 Livestock must be assessed as fit for the intended journey at every loading by a person in charge. An animal is not fit for a journey if it is: ... (ii) severely emaciated;

[26] The Queensland Beef Processing Strategy document states: "TMR also has a contract with Queensland Rail that funds rail infrastructure maintenance and upgrades. Recent investments in Rockhampton and Oakey exceed \$6 million and will improve supply chain efficiency."

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[27] Various online articles, and videos demonstrate the practice of mustering wild cattle in northern Australia. The ABC series 'Outback Ringers' also documents this practice but does not present some of the worst animal cruelty pictured in other videos online. <https://www.abc.net.au/radio/programs/conversations/ringer-lach-mcclymont-wild-bulls-outback-work-top-end/12800280> . <https://view.abc.net.au/show/outback-ringer>

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Under the Model Code for slaughterhouses, S2.6.2.6 "Head-only stunning is acceptable for sheep and goats but stun-to-stick intervals must be monitored and not allowed to exceed 15 seconds."

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