

Inquiry into pig welfare in Victoria

Submission

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RSPCA Victoria submission

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About RSPCA Victoria

RSPCA Victoria is a non-government, community-based charity that works to prevent cruelty to animals by actively promoting their care and protection. Since its establishment in 1871, and as member of RSPCA Australia (the federation of eight state and territory organisations in Australia), the RSPCA has collectively become Australia's leading animal welfare charity.

Across the state, RSPCA Victoria's community services include work undertaken by our Inspectorate, Animal Care Centres, Veterinary Clinics, and Community Outreach and Education teams. RSPCA Victoria operates Animal Care Centres across Victoria, providing refuge, care, and new homes where possible to more than 11,000 animals every year. Our team of Inspectors works to protect animals from cruelty, receiving more than 10,000 complaints every year, prosecuting offenders, and rescuing animals from dangerous situations. Our Education team contributes to prevention strategies by influencing over 9,000 young people each year about the value and importance of animals in our lives.

RSPCA Victoria works to educate the community regarding animal welfare and works with government and industry to ensure the standard of animal welfare and care continues to improve.

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RSPCA Victoria recommendations

1. The Victorian Government should consider leading the National S&Gs review process with a view to updating the Victorian Standards and Guidelines for the Welfare of Pigs based on contemporary scientific knowledge.
2. The use of side-loader (single file) carbon dioxide stunning systems must be phased out to minimise pre-slaughter stress in pigs.
3. To demonstrate ongoing animal welfare compliance, all slaughtering establishments must be required to conduct regular compliance reporting and monitoring. All electrical and gas stunning equipment must display and report on stunning parameters.
4. Remote monitoring (e.g. CCTV) equipment must be installed at slaughtering facilities and reviewed for internal plant operation. This equipment must allow a clear view of all areas where live animal handling occurs, including unloading facilities, lairage areas, restraint, stunning, shackling, and sticking processes.
5. Where electrical stunning methods are used, methods must ensure pigs are restrained for the absolute minimal time necessary for an effective stun; correct electrical parameters are used; and irreversible methods such as head-to-body are used over reversible methods.
6. The Victorian Government should explore alternative stunning methods endorsed by leading animal research in humane stunning and consider adopting any practices that improve the welfare outcomes for pigs at slaughter.
7. Legislation must be introduced to ban the use of sow stalls.
8. Pigs must be provided with sufficient space to allow pigs to move freely and perform highly motivated behaviours (e.g. foraging and exploring).
9. The use of conventional farrowing crates must be phased out in Victoria and replaced with systems that allow sows to move freely including standing up, lying down and turning around.
10. Sows must be provided with a suitable and adequate amount of nesting and/or other manipulable material at least 48 hours before farrowing.
11. The use of boar stalls should be phased out.
12. The minimum space requirements for boars housed in pens must be increased to allow for boars to move around freely including standing up, lying down, and turning around.
13. Where castration is considered necessary, immunocastration should be considered preferable to surgical castration. Surgical castration at any age must only be carried out by a veterinary surgeon when effective analgesia and local anaesthetic are provided.
14. Where tail docking is considered necessary, effective analgesia and local anaesthetic must be provided.
15. Tail docking must be phased out once effective alternative management strategies to reduce the risk of tail biting have been identified.
16. Teeth clipping must be phased out.
17. Ongoing training and assessment of technical skills and knowledge as well as attitude and behaviour should be a requirement for all stockpeople.
18. The use of electric prodders must be prohibited.

RSPCA Policy

The RSPCA advocates for the humane treatment of all farm animals. The RSPCA believes it is important to work with the farming community and other stakeholders to effect positive change and improve animal welfare throughout the lives of the animals.

The RSPCA believes that good animal welfare must be an inherent part of farm animal production. Good animal welfare must involve providing animals with good nutrition, a suitable environment, good health, the ability to express innate behaviours, and the opportunity to experience positive affective states and thus have a good quality of life.

The RSPCA is opposed to farming systems and animal husbandry practices which cause pain, injury, suffering or distress to animals, or which restrict their movements or expression of normal behaviour.

The RSPCA believes that animal welfare in all farming systems must be regulated, meet all relevant animal welfare standards and guidelines, and be subject to regular and independent auditing to ensure that the welfare of farm animals is not compromised.

Introduction

RSPCA Victoria welcomes the opportunity to provide comments and contribute to the Economy and Infrastructure Committee's Inquiry into pig welfare in Victoria.

The RSPCA considers that the welfare of an animal includes both its physical and mental states. Providing animals with good welfare goes beyond preventing pain, suffering or distress and minimising negative experiences. Good welfare ensures animals can express their natural behaviour in an enriching environment, feel safe, have healthy positive experiences and a good quality of life. Thus, for animals to have good welfare they must be provided with all the necessary elements to ensure their physical and mental health and a sense of positive individual wellbeing.

For farmed animals, achieving good welfare outcomes has proven to be quite challenging in some industries. Pig farming is one of the most intensive of all the livestock production systems, with many aspects of pig production causing welfare concerns¹. There is a growing concern for pig welfare among consumers and the public.

Over the last three decades, there have been substantial productivity and structural changes in the pig industry. The shift from smallholder farms to large-scale production systems has meant the industry has changed rapidly, and the pig farming sector continues to have a significant role in

¹ Hemsworth, L., Hemsworth, P., Acharya, R., & Skuse, J. (2018). 'Review of the scientific literature and the international pig welfare codes and standards to underpin the future Standards and Guidelines for Pigs: Final Report, APL Project 2017/2217.' Animal Welfare Science Centre, University of Melbourne

providing Australia and the global market with pork meat and related products². According to Australian Pork Limited, there are approximately 2.4 million pigs in Australia at any given time, and in 2022, there were 4,300 pig production sites nationally.

Pig farming remains an important part of the Victorian agricultural sector, accounting for 22 per cent of Australia's total pig meat production. In 2020-21, Victoria processed around 1.2 million pigs, producing 96,000 tonnes of pig meat³.

There has been an overall decline in the number of piggeries in Victoria, with 250 pig farm businesses recorded in 2020-2021, a 26 per cent decline from 2019-2020⁴. Significant changes in the industry have led to a reduction in pig farm numbers, seeing smaller producers close down as large-scale producers move towards more intensive production systems. The introduction of more sustainable and efficient infrastructure technology has had a significant impact on the welfare of pigs. Intensive production systems expose pigs to various stress factors, preventing many from experiencing higher standards of welfare⁵.

The key animal welfare issues with pig farming include:

- Close confinement (use of sow stalls, farrowing crates and boar stalls)
- Barren environments and lack of enrichment for pigs to perform highly motivated behaviours (e.g., exploring and foraging), which can lead to boredom and frustration.
- Painful piglet husbandry procedures.

Historically, pigs were farmed as an additional source of income in the dairy and grain industries, but pig farming has since evolved into its own industry including intensive farming methods. The shift towards intensification, industrialisation, and specialisation has had a large impact on the industry, changing the way society views farming and the relationship we have with farmed animals⁶.

Changes in agricultural practices, alongside factors such as increased consumer awareness and regulatory changes, have brought animal welfare to the forefront of public, policy, and political

² Watson, K., Wiedemann, S., Biggs, L., & McGahan, E. (2018). Trends in environmental impacts from the pork industry. Final Report, APL Project 2017/2212. Integrity Ag and Environment.

³ https://agriculture.vic.gov.au/__data/assets/pdf_file/0011/921179/Pig-industry-fast-facts-Jan-2023.pdf - accessed 14 Nov 2023.

⁴ Ibid

⁵ Racewicz P, Ludwiczak A, Skrzypczak E, Składanowska-Baryza J, Biesiada H, Nowak T, Nowaczewski S, Zaborowicz M, Stanisiz M, Ślósarz P. Welfare Health and Productivity in Commercial Pig Herds. *Animals (Basel)*. 2021 Apr 20;11(4):1176.

⁶ Devitt, Catherine & Hanlon, Alison & More, Simon & Kelly, Patricia & Blake, Martin. (2018). Challenges and Solutions to Supporting Farm Animal Welfare in Ireland; Responding to the Human Element.

concern.⁷ There is clear evidence of the considerable progress that has been made in recent years to improve animal welfare; however, there is still more to do.

An independent research firm commissioned by the Commonwealth government in 2018 found that 95% of Australians view farm animal welfare to be a concern and 91% want at least some reform to address this. There is a clear indication from the survey results that the Australian public's perspective on the treatment of farm animals has progressed to a point where they have a clear expectation for more effective and robust regulation⁸.

Consideration of both the mental and physical state of an animal is a way to evaluate the welfare of an animal or group of animals in a particular situation, with a strong focus on mental wellbeing and positive experiences⁹. Pigs are intelligent, sociable, and inquisitive animals who have complex needs that should be met by their environment on farm. In our submission, we will address the terms of reference and provide recommendations the RSPCA believes will help improve pig welfare in Victoria.

Terms of Reference

(1) The scope, application, compliance with and enforcement of relevant existing regulatory frameworks and their ability to promote pig welfare outcomes

In Victoria, the Department of Energy, Environment and Climate Action (DEECA) is the agency primarily responsible for the compliance and enforcement functions relating to livestock.

RSPCA Victoria Inspectors are authorised by the Minister for Agriculture under the *Prevention of Cruelty to Animals Act 1986* (POCTAA) to investigate reports of cruelty towards animals. RSPCA Victoria and DEECA (formerly DJPR) has a Memorandum of Understanding (MOU) which outlines the division of responsibilities for each party:

3.1 For the purposes of this MoU, the RSPCA Victoria Inspectorate is responsible for responding to animal welfare and cruelty complaints (including the conduct of investigation and any prosecution under the Prevention of Cruelty to Animals Act 1986 and the Domestic Animals Act 1994, as relevant) in all cases involving primary production animals where less

⁷ Devitt, Catherine, Alison Hanlon, Simon John More, Patricia C. Kelly, and Martin Blake. "Challenges and Solutions to Supporting Farm Animal Welfare in Ireland: Responding to the Human Element." Department of Agriculture, Food and the Marine, June 21, 2018. <http://hdl.handle.net/10197/10470>.

⁸ <https://www.sheepcentral.com/wp-content/uploads/2019/05/190129-Commodity-or-Sentient-Being-Australias-Shifting-Mindset-on-Farm-Animal-Welfare-v.-7.0.pdf> - accessed 27 December 2023

⁹ Littlewood KE, Heslop MV, Cobb ML. The agency domain and behavioral interactions: assessing positive animal welfare using the Five Domains Model. *Front Vet Sci.* 2023 Nov 2;10:1284869.

than ten (10), which includes cattle, sheep, pigs, goats, deer and fifty (50) in the case of poultry;

For clarity, the RSPCA Victoria Inspectorate is not responsible for responding to animal welfare and cruelty complaints in connection with abattoirs¹⁰. Therefore, wherever RSPCA Victoria receives a cruelty complaint relating to commercial livestock or abattoirs this matter would sit outside the scope of our MOU and be referred to DEECA.

The MOU between RSPCA Victoria and DEECA (DJPR) is available online at:
https://rspcavic.org/wp-content/uploads/2022/02/MoU_RSPCA_Victoria_and_DJPR_2019-2024.pdf

The *Livestock Management Act 2010* (LMA) provides a framework for the management (welfare, health biosecurity and traceability) of livestock in Victoria. It operates in conjunction with POCTAA which is the principal legislation for the welfare of all animals.

The Victorian Standards and Guidelines for the Welfare of Pigs (the Standards) were developed based on the Australian Model Code of Practice for the Welfare of Animals – Pigs 3rd Edition (MCOP)¹¹. The Standards were enacted under the LMA, making the Standards mandatory for all people involved in pig farming. The Standards have not been updated since they were published in 2012, rendering some information outdated and no longer in line with current animal welfare science and community expectations, including the use of sow stalls.

The development of National Standards and Guidelines (S&Gs) for Pigs has been delayed, and to our knowledge, no jurisdiction has agreed to lead the drafting process as yet. The Victorian Government could support this process by reviewing the current standards in consultation with industry organisations, animal welfare groups, and the general public and leading the drafting process. Continuous delays in this process not only pose significant repercussions for the welfare of pigs but also impede the progress of the industry as a whole.

Recommendation:

1. The Victorian Government should consider leading the National S&Gs review process with a view to updating the Victorian Standards and Guidelines for the Welfare of Pigs based on contemporary scientific knowledge.

¹⁰ https://agriculture.vic.gov.au/__data/assets/pdf_file/0009/529857/MoU_RSPCA_Victoria_and_DJPR_2019-2024.pdf - accessed 11 Nov 2023.

¹¹ https://agriculture.vic.gov.au/__data/assets/pdf_file/0017/530333/Victorian-Pig-Welfare-Standards_Revision-1_March-2012.pdf - accessed 11 Nov 2023.

(2) The ability of the most common methods used to stun pigs before slaughter (including electrical stunning and exposure to high concentrations of carbon dioxide gas) in Victorian slaughterhouses to minimise pain, suffering and distress and prevent injury, and available alternatives

In Australia pigs must be stunned prior to being slaughtered for the production of meat and meat products (AS4696:2023)¹². The purpose of stunning is to ensure an animal is unconscious and unable to experience pain, suffering or distress before and during slaughter. There are animal welfare concerns associated with all types of commercial stunning systems currently used for pigs. The main types of stunning systems used in Australia for pigs include carbon dioxide stunning, electrical head-only stunning, and penetrating captive bolt devices. All export accredited pig abattoirs currently use carbon dioxide stunning systems, which account for approximately 85% of the pigs slaughtered in Australia¹³.

There are several species-specific factors that are important to consider when assessing pig welfare at stunning and slaughter. These factors include:

- Pigs are highly susceptible to stress. Pigs are exposed to a number of stressors prior to slaughter including transport, mixing with unfamiliar pigs, handling, and they may also experience some degree of thermal stress. Pigs in the lairage area of abattoirs will in most cases already have increased stress levels prior to stunning and slaughter.
- Pigs naturally prefer to remain in small groups and be able to walk side by side when being handled and moved.
- Electric prodders are still allowed and commonly used to move pigs through the lairage and stunning areas at abattoirs.

Lairage: *An area at the abattoir where the animals are confined before slaughter.*

Electric prodders: *An electric baton, used to urge animals to move by the administration of an electric shock.*

Carbon dioxide gas stunning

In carbon dioxide gas stunning systems, pigs are moved into a stunning chamber (known as a gondola) and lowered directly or in stages into a high concentration of carbon dioxide gas (>90%). Pigs are not rendered unconscious immediately; instead, as pigs inhale the gas, their blood carbon

¹² Standards Australia. (2023). AS 4696:2023, Hygienic production and transportation of meat and meat products for human consumption. https://infostore.saiglobal.com/en-au/standards/as-4696-2023-121579_saig_as_as_3234005/

¹³ Australian Pork Limited. (2022). Stages of pork production | Australian Pork. <https://www.australianpork.com.au/about-pig-farming/stages-pork-production>

dioxide levels gradually increase and blood oxygen levels decrease, which eventually causes unconsciousness due to loss of brain function¹⁴. Pigs are exposed to the carbon dioxide gas for several minutes until unconsciousness has been achieved and then are removed from the gondola. Time to decrease brain activity following high concentration carbon dioxide (80-95%) exposure ranges from around 30-75 seconds¹⁵. The response of pigs when exposed to carbon dioxide gas can differ depending on pig genetics, age, reactivity, and stress levels prior to stunning¹⁶. Pigs show signs of aversion (strong dislike) at concentrations of carbon dioxide gas as low as 15%¹⁷.

While in most cases the high concentration of carbon dioxide gas irreversibly stuns pigs, there is still a risk pigs could regain consciousness after a period if they are not bled quickly after stunning to ensure death from blood loss. After unconsciousness has been confirmed following stunning, pigs are bled out by having the major blood vessels in their neck severed using a knife.

Animal welfare issues with carbon-dioxide stunning:

- High and prolonged exposure to carbon dioxide concentrations:
 - can result in the sensation of ‘air hunger’ and respiratory distress in pigs¹⁸;
 - is acidic so it can cause mucosal irritation and pain in pigs during exposure¹⁹.
- During carbon dioxide gas stunning, pigs perform behaviours consistent with pain and distress, including:
 - escape attempts;
 - gasping;
 - head and body shaking;

¹⁴ Sindhøj, E., Lindahl, C., & Bark, L. (2021). Review: Potential alternatives to high-concentration carbon dioxide stunning of pigs at slaughter. *Animal*, 15(3), 100164.

¹⁵ Raj, A. B. M., Johnson, S. P., Wotton, S. B., & McInstry, J. L. (1997). Welfare implications of gas stunning pigs: 3. the time to loss of somatosensory evoked potential and spontaneous electrocorticogram of pigs during exposure to gases. *The Veterinary Journal*, 153(3), 329–339.

¹⁶ Lechner, I., Léger, A., Zimmermann, A., Atkinson, S., & Schuppers, M. (2021). Discomfort period of fattening pigs and sows stunned with CO₂: Duration and potential influencing factors in a commercial setting. *Meat Science*, 179, 108535.

¹⁷ Steiner, A. R., Flammer, S. A., Beausoleil, N. J., Berg, C., Bettschart-Wolfensberger, R., Pinillos, R. G., Golledge, H. D. W., Marahrens, M., Meyer, R., Schnitzer, T., Toscano, M. J., Turner, P. V., Weary, D. M., & Gent, T. C. (2019). Humanely Ending the Life of Animals: Research Priorities to Identify Alternatives to Carbon Dioxide. *Animals* 2019, Vol. 9, Page 911, 9(11), 911.

¹⁸ Hognestad, B. W., Digranes, N., Opsund, V. G., Espenes, A., & Haga, H. A. (2023). CO₂ Stunning in Pigs: Physiological Deviations at Onset of Excitatory Behaviour. *Animals* 2023, Vol. 13, Page 2387, 13(14), 2387.

¹⁹ Sindhøj, E., Lindahl, C., & Bark, L. (2021). Review: Potential alternatives to high-concentration carbon dioxide stunning of pigs at slaughter. *Animal*, 15(3), 100164.

- high-pitched vocalisations²⁰.
- Handling has been shown to heighten stress and the reactivity of pigs, resulting in increased signs of aversion from pigs during carbon dioxide gas stunning²¹.
- Side-loader (single file) systems require individual handling and restraint. Risk of excessive force and electric prodders being used to move pigs because the system works against pigs' natural behaviour to walk in groups.

Air hunger: an intense tightening of the chest which results in difficulty breathing

The carbon dioxide gas stunning systems used in Australia are either side-loader (single file loading) or back-loader (group loading) systems. Back-loader systems are where pigs are moved in small groups into the gondola, with an automatic wall used to slowly push the pigs forward. Side loading systems are where pigs are usually loaded in single file into the gondola through the side. The side-loader system is an older design which has been replaced with the improved back-loader system. Individual handling and restraint are inherently stressful for pigs. Back-loader carbon dioxide stunning systems are preferential from a welfare perspective because they work with the natural behaviour of pigs to walk in groups and minimise the need for human interaction and the use of handling aids.

Recommendations:

2. The use of side-loader (single file) carbon dioxide stunning systems must be phased out to minimise pre-slaughter stress in pigs.
3. To demonstrate ongoing animal welfare compliance, all slaughtering establishments must be required to conduct regular compliance reporting and monitoring. All electrical and gas stunning equipment must display and report on stunning parameters.
4. Remote monitoring (e.g. CCTV) equipment must be installed at slaughtering facilities and reviewed for internal plant operation. This equipment must allow a clear view of all areas where live animal handling occurs, including unloading facilities, lairage areas, restraint, stunning, shackling, and sticking processes.

Head-only electrical stunning

In electrical head-only stunning systems, pigs are typically moved and individually restrained. Once pigs are restrained, tongs with electrodes are placed manually or automatically on the head of pigs, which pass an electrical current through the brain causing immediate unconsciousness²². After

²⁰ Atkinson, S., Algers, B., Pallisera, J., Velarde, A., & Llonch, P. (2020). Animal Welfare and Meat Quality Assessment in Gas Stunning during Commercial Slaughter of Pigs Using Hypercapnic-Hypoxia (20% CO₂ 2% O₂) Compared to Acute Hypercapnia (90% CO₂ in Air). *Animals* 2020, Vol. 10, Page 2440, 10(12), 2440.

²¹ Jongman, E. C., Woodhouse, R., Rice, M., & Rault, J. L. (2021). Pre-slaughter factors linked to variation in responses to carbon dioxide gas stunning in pig abattoirs. *Animal*, 15(2), 100134.

²² Sindhøj, E., Lindahl, C., & Bark, L. (2021). Review: Potential alternatives to high-concentration carbon dioxide stunning of pigs at slaughter. *Animal*, 15(3), 100164.

being stunned pigs are released from the restraint and bled immediately. Pigs must be bled immediately because electrical head-only stunning is reversible and only causes unconsciousness for a very short period (less than 30 seconds) before pigs begin to regain consciousness²³. Therefore, pigs must be bled immediately after stunning to minimise the risk of pigs regaining consciousness during the bleed out process.

Animal welfare issues with head-only electrical stunning:

- Individual handling and restraint:
 - Goes against pigs' natural behaviour to move in groups and walk side by side so is inherently stressful for pigs and therefore they will generally become resistant;
 - Increases the risk of excessive force and electric prodders being used to move pigs, increasing the likelihood of pigs experiencing pain and distress before stunning and slaughter²⁴.
- Incorrect placement of electrodes and/or use of inappropriate electrical parameters:
 - Increases the risk that pigs will receive pre-stun shocks and be ineffectively stunned. Electrical stunning systems with automatic tong placement or where pigs are inadequately restrained have an increased risk of incorrect electrode placement and pigs being ineffectively stunned²⁵.
- Induces the shortest period of unconsciousness compared to other stunning systems:
 - Increased risk of pigs regaining consciousness during bleeding, compared to other stunning methods if there are any delays after stunning.

Head-to-body electrical stunning

Head-to-body stunning is where a current is passed through both the brain and heart to induce cardiac arrest, which can be performed simultaneously or as a two-stage process. The head-to-body stunning method is preferable with regard to animal welfare because it results in irreversible unconsciousness and death, whereas head-only electrical stunning only renders pigs unconscious for several seconds.

A study looking at alternative options to head-only electrical stunning in pigs found the head-to-body method eliminated a heartbeat, rhythmic breathing, natural blinking, eye tracking to a moving

²³ Grandin, T. (2001). Solving return-to-sensibility problems after electrical stunning in commercial pork slaughter plants. *Journal of the American Veterinary Medical Association*, 219(5), 608–611.

²⁴ Anil, M. H., & McKinstry, J. L. (1998). Variations in electrical stunning tong placements and relative consequences in slaughter pigs. *Veterinary Journal*, 155(1), 85–90.

²⁵ Gregory, N. G. (2001). Profiles of currents during electrical stunning. *Australian Veterinary Journal*, 79(12), 844–845.

object and the righting reflex, inducing unconsciousness and insensitivity to pain in the pigs²⁶. Compared with head-only stunning, head-to-body reduces the frequency of pigs regaining consciousness. It has been shown to have insignificant differences on meat quality and production factors compared to head-only, while also providing improved welfare outcomes²⁷.

As with head-only electrical stunning, head-to-body electrical stunning also requires pigs to be individually handled and restrained, which is stressful for pigs. There are certain variables inherent to the stunning application which are unavoidable, such as restraining, however others stem from poor implementation, often attributed to unskilled personnel, such as rough handling and wrong use of parameters.

Further research is needed to explore the specific impacts of group stunning on the stress response in pigs²⁸. Head-to-body electrical stunning should be preferential over head-only electrical stunning method to minimise the risk of pigs regaining consciousness during bleeding. Adequate training and assessment of staff handling pigs and using electrical stunning equipment is essential to mitigate negative welfare consequences.

Animal welfare issues with head-to-body electrical stunning:

- Individual handling and restraint:
 - Risk of excessive force and electric prodders being used to move pigs, increasing the likelihood of pigs experiencing pain and distress before slaughter
- Risk of incorrect electrode placement
- Risk of poor electrode contact
- Risk of too short exposure time
- Risk of inappropriate electrical parameters, which can lead to ineffective stunning and pigs experiencing pain and fear.

Penetrating captive bolt devices

This form of stunning is usually only found in smaller domestic abattoirs, for larger pigs (such as breeding boars and sows) and mostly used for euthanasia, emergency slaughter or as a backup in case of a mis-stun. In abattoirs using penetrating captive bolt devices, pigs are typically moved in

²⁶ Vogel KD, Badtram G, Claus JR, Grandin T, Turpin S, Weyker RE, Voogd E. Head-only followed by cardiac arrest electrical stunning is an effective alternative to head-only electrical stunning in pigs. *J Anim Sci*. 2011 May;89(5):1412-8.

²⁷ Katharina May, Lena Hartmann, Martin von Wenzlawowicz, Christian Bühler, Sven König, Key parameters of head-heart electrical stunning need to be adapted to improve stunning effectiveness and meat quality in pigs of different genetic lines, *Meat Science*, Volume 190, 2022, 108829, ISSN 0309-1740.

²⁸ Morgan Schaeperkoetter, Zachary Weller, Danielle Kness, Cora Okkema, Temple Grandin, Lily Edwards-Callaway, Impacts of group stunning on the behavioral and physiological parameters of pigs and sheep in a small abattoir, *Meat Science*, Volume 179, 2021, 108538, ISSN 0309-1740.

single file into a box where they are individually restrained. The penetrating captive bolt is applied to the forehead of pigs while they are restrained and causes immediate unconsciousness. In most cases, when correctly applied the penetrating captive bolt device will cause irreversible unconsciousness due to extensive physical brain damage. However, in some cases pigs can regain consciousness and therefore must be bled after stunning to ensure death.

Animal welfare issues with penetrative captive bolt device stunning:

- Individual handling and restraint:
 - Risk of excessive force and electric prodders being used to move pigs increases the likelihood of pigs experiencing pain and distress before slaughter²⁹.
- Incorrect placement of the penetrating captive bolt:
 - Correct placement can be challenging due to the shape and thickness of the skull (e.g., boars and sows have very thick skulls), so there is an increased risk of the stun being ineffective³⁰.
- Human error:
 - Effective penetrating captive bolt stunning relies on staff competency because there is no automated system currently available³¹.

The identification and commercialisation of alternative stunning methods for pigs should be made a priority to improve pig welfare at slaughter. This will likely require significant investment in research and collaboration between industry, government, and overseas counterparts. Any new stunning methods identified should undergo a scientific peer-reviewed animal welfare assessment before commercialisation efforts.

Recommendations:

5. Where electrical stunning methods are used, methods must ensure pigs are restrained for the absolute minimal time necessary for an effective stun; correct electrical parameters are used; and irreversible methods such as head-to-body are used over reversible methods.
6. The Victorian Government should explore alternative stunning methods endorsed by leading animal research in humane stunning and consider adopting any practices that improve the welfare outcomes for pigs at slaughter.

²⁹ Wallgren, T., Wallenbeck, A., & Berg, C. (2021). Stunning methods for pigs at slaughter - Report 56.

³⁰ Anderson, K., Ries, E., Backes, J., Bishop, K., Boll, M., Brantner, E., Hinrichs, B., Kirk, A., Olsen, H., Risius, B., Bildstein, C., & Vogel, K. D. (2019). Relationship of captive bolt stunning location with basic tissue measurements and exposed cross-sectional brain area in cadaver heads from market pigs. *Translational Animal Science*, 3(4), 1405–1409.

³¹ Wallgren, T., Wallenbeck, A., & Berg, C. (2021). Stunning methods for pigs at slaughter - Report 56.

(3) The outcomes of the 2017 industry-led phase out on the use of sow stalls

The RSPCA is opposed to the use of sow stalls because of the restrictions and adverse effects that they have on the movement, social interactions, and behaviour of sows.

A sow stall, also known as a gestation stall, is a metal-barred crate that houses a single female breeding pig for part of her 16-week gestation (pregnancy). A standard sow stall is only 2m long and 60cm wide. While in the sow stall, the sow can stand up and take a step forward or backwards, but she is unable to turn around. The floor of the stall is usually concrete, with a slat-covered trench to catch urine and faeces at the back.

The RSPCA was very supportive of the Australian pig industry voluntarily phasing out the use of sow stalls by 2017. Australian Pork Limited reported in 2017 that approximately 80% of sows were in 'sow stall free' production systems. The use of sow stalls has been prohibited in several overseas jurisdictions, including the European Union, the UK, Canada, New Zealand, and some USA states. Australian Pork Limited has been advocating for the Australian government to legislate the ban of sow stalls through the National Animal Welfare Standards and Guidelines process.

Although the majority of sow stall use has been phased out in Australia, gestating sows are still legally allowed to be confined to sow stalls for up to six weeks, as well as routinely being confined in farrowing crates for up to six weeks and mating stalls for up to five days (see section (4) for more details). Sows typically have two gestation periods a year which means they can be confined for up to ~24 weeks a year in intensive indoor production systems.

Sows can be successfully housed in groups, provided they are properly managed and have sufficient space and environmental enrichment. Group housing of gestating pigs allows them to engage in exploratory and foraging behaviour, and to interact socially with other pigs. The Victorian pig industry should aim to phase out all remaining sow stalls in favour of group housing systems for gestating sows. A ban on sow stalls would be an expectation in the development of any new standards and guidelines for pigs (see section (1) The scope, application, compliance with and enforcement of relevant existing regulatory frameworks and their ability to promote pig welfare outcomes).



Figure 1. Standard sow stalls legally accepted for use in pig farming

Recommendation:

7. Legislation must be introduced to ban the use of sow stalls.

(4) Current industry breeding and housing practices particularly the use of different forms of confinement

In Australia approximately 90% of commercial pigs are housed in intensive indoor systems and the other 10% of pigs are housed in outdoor bred and free-range systems.

General space allowance

The amount of space as well as the quality of the space are both important for pig welfare. The minimum space requirements for pigs will be impacted by factors such as the type of flooring, presence of bedding, temperature and humidity, group size, and enrichment provision³². The allometric equation provides a useful starting point for minimum space requirements for pigs; however, other important factors that impact space requirements must also be considered. For pigs to have improved welfare outcomes in commercial production, the minimum space requirements should be increased for all classes of pigs.

An allometric approach represents the static space that pigs require according to various lying positions. It takes into consideration different bodyweights which can be used to calculate floor

³² Chidgey, K. L. (2023). Review: Space allowance for growing pigs: animal welfare, performance, and on-farm practicality. *Animal*, 100890.

space requirements for pigs³³. Space is a key aspect of the environment for livestock that are farmed in intensive systems and inadequate space allowance can lead to negative welfare outcomes for pigs. Space determines which behaviours animals will be able to perform and for how long they perform them³⁴.

A (space allowance in m²) = k (constant) × body weight^{0.66}. The k-value represents the static space requirement for pigs to perform various types of behaviours. A k-value less than 0.034 has been shown to negatively affect activity levels and biological functioning of pigs, including performance parameters (e.g., average daily gain and reduced feed intake)³⁵. A k-value of 0.047 has been reported as the minimum to provide pigs adequate space to lie down separately in a lateral position³⁶.

Overseas jurisdictions, such as the European Union, Canada, and New Zealand, use the allometric equation to set the legal minimum space requirements for pigs. Using the allometric equation these jurisdictions provide pigs values ranging from 0.030 to 0.035³⁷. The New Zealand Code of Welfare for Pigs is currently under review and has proposed two options for increasing the minimum space requirements for growing pigs to a k-value of 0.047 or 0.072 (NAWAC, 2018³⁸). The Victorian Standards use a k-value of 0.030 for minimum space requirements for growing pigs. To put these figures into perspective, for a 110kg pig, a k-value of 0.030 represents an area of 0.67 m², a k-value of 0.036 represents 0.84m² and a k-value of 0.47 represents 1.10m².

³³ Petherick, J. C., & Phillips, C. J. C. (2009). Space allowances for confined livestock and their determination from allometric principles. *Applied Animal Behaviour Science*, 117(1–2), 1–12. 8

³⁴ J. Carol Petherick, Clive J.C. Phillips, Space allowances for confined livestock and their determination from allometric principles, *Applied Animal Behaviour Science*, Volume 117, Issues 1–2, 2009, Pages 1-12, ISSN 0168-1591.

³⁵ Chidgey, K. L. (2023). Review: Space allowance for growing pigs: animal welfare, performance, and on-farm practicality. *Animal*, 100890.

³⁶ Petherick, J. C., & Phillips, C. J. C. (2009). Space allowances for confined livestock and their determination from allometric principles. *Applied Animal Behaviour Science*, 117(1–2), 1–12.

³⁷ Chidgey, K. L. (2023). Review: Space allowance for growing pigs: animal welfare, performance, and on-farm practicality. *Animal*, 100890.

³⁸ National Animal Welfare Advisory Committee (2021), Evaluation of the Code of Welfare: Pigs <https://www.mpi.govt.nz/dmsdocument/50926/direct>

Table. 1 – Summary of the reported relationships between k-values, pig posture and behaviour, and related environmental conditions³⁹

k-value	Behaviour that can be expressed
0.019	<ul style="list-style-type: none"> Space required for lying on the stomach and chest area.
0.025	<ul style="list-style-type: none"> This space allocation is just below the critical point where spatial preference of a group of pigs is exceeded and not all pigs can occupy their preferred area of a pen simultaneously. This has also been described as lying 'semi-recumbent': lying on one side with the legs tucked close to the body.
0.033	<ul style="list-style-type: none"> Space required for 'half recumbency' lying at thermoneutral conditions, where space sharing percentages were 20–40%. Also described as space needed for 'social lying behaviour.'
0.034	<ul style="list-style-type: none"> Space required for lying and activity at thermoneutral conditions. The assumption is that 80% of pigs are lying and 20% are active, at any given time.
0.036	<ul style="list-style-type: none"> Space required for lying and activity at thermoneutral conditions, plus additional space for the maintenance of separate dunging and lying areas. This was the recommended minimum space allowance for pigs up to 110 kg where ambient temperature will not exceed 25 degrees Celsius.
0.039	<ul style="list-style-type: none"> Derived from a meta-analysis. Below this space allowance, pigs kept on fully slatted floors will start to reduce their lying time in response to reduced space, according to a prediction model.
0.047	<ul style="list-style-type: none"> Space required for pigs to lie separately (without touching one another) in a fully lateral position. The European Food Safety Authority (EFSA) recommended that this should be the minimum space allowance for pigs up to 110 kg where ambient temperature is likely to exceed 25 degrees Celsius.
0.072	<ul style="list-style-type: none"> Derived from a meta-analysis. Below this k value, pigs on a solid floor will start to reduce their lying time, according to a prediction model.

The minimum space requirements for growing pigs should provide more freedom to move and the ability to perform highly motivated behaviours (including, for all pigs, foraging and exploring as well as nesting behaviours for pregnant sows). Factors that can impact the minimum space requirements that pigs need should be considered, such as type of flooring, presence of bedding, temperature, humidity, and group size, as well as the overall quality of the space.

³⁹ K.L. Chidgey, Review: Space allowance for growing pigs: animal welfare, performance and on-farm practicality, *animal*, 2023, 100890, ISSN 1751-7311, <https://doi.org/10.1016/j.animal.2023.100890>.

In order to achieve positive welfare, the quantity and quality of space must be addressed through pen design, inclusive of providing enrichment opportunities to promote the expression of normal positive behaviours and reduce negative behaviours.

Recommendation:

8. Pigs must be provided with sufficient space to allow pigs to move freely and perform highly motivated behaviours (e.g. foraging and exploring).

Farrowing crates

The RSPCA is opposed to the use of farrowing crates because of the restrictions and adverse effects that these housing systems have on the movement, social interactions, and behaviour of sows.

A farrowing crate is a metal-barred crate that is similar in size to a sow stall but slightly narrower. Farrowing crates are used to house female breeding pigs from around one week before farrowing (giving birth) until piglets are weaned, which can be up to six weeks. The gestation period of a sow is around 16 weeks and sows typically have two litters of piglets per year, meaning they may be confined for up to 12 weeks each year in farrowing crates.

The minimum space requirement in the Standards for a farrowing crate is 0.5 m x 2 m; the total farrowing crate and creep area is 3.2 m²; and an individual stall is 0.6 m x 2.2 m (see figure 2). In farrowing crates and individual mating stalls, sows are only able to stand up and down and lie down, however they are unable to move freely or turn around.

The key animal welfare concerns for sows associated with the use of farrowing crates include⁴⁰:

- severe movement restriction leading to insufficient rest, muscle weakness, and injuries
- increased levels of stress and increased pain during farrowing
- inability to fulfil behavioural needs, such as foraging, nest seeking, and nest building before farrowing
- inability to perform maternal behaviours and initiate social interaction with their piglets.
- lack of agency and ability to choose to move away from the nest and piglets when they need
- increased levels of stress and displays of aggressive behaviours in piglets during weaning.

Several European countries already prohibit the use of conventional farrowing crates, and the European Union has committed to phasing out their use by 2027. The New Zealand Government has also committed to phase out the use of conventional farrowing crates by 2025. There are

⁴⁰ Lange, A., Gentz, M., Hahne, M., Lambertz, C., Gauly, M., Burfeind, O., & Traulsen, I. (2020). Effects of Different Farrowing and Rearing Systems on Post-Weaning Stress in Piglets. *Agriculture 2020*, Vol. 10, Page 230, 10(6), 230.

several alternative housing systems available for farrowing, where sows may be confined for a shorter period or not confined at all. These include:

Temporary farrowing crate systems

Temporary farrowing crates usually confine sows immediately before and during farrowing, and for the first three to four days after farrowing. Sows are confined during these specific periods because they are the highest risk periods for piglet mortality due to the sow accidentally crushing piglets while moving around or lying down. After the high-risk period, the temporary farrowing crate can be opened to provide sows more freedom to move and interact with piglets for the remainder of the lactation period until the piglets are weaned. Although temporary farrowing crates are an improvement from conventional farrowing crates, sows are still confined during the critical periods where they are most motivated to perform nesting and maternal behaviours. Modifying the ability to express nesting behaviour may also impact subsequent maternal behaviour and piglet survival⁴¹.

Free-farrowing pens

Sows may be confined to a pen indoors but are not physically restricted at any point before and during farrowing and the lactation period. In free-farrowing pens, sows can turn around and move more freely, as well as interact with piglets.

Outdoor production systems

These systems typically use farrowing huts located in outdoor paddock areas. Farrowing huts are enclosed structures typically with straw bedding that provide sows enough room to turn and walk around easily. In some cases, farrowing huts have guards around the front of the hut that sows can step over to get outside but keep the piglets restricted to the hut for the first few days or weeks of life.

A long-held argument against the use of free-farrowing systems is that they increase the risk of piglet crushing and thus increase pig mortality. Recent scientific evidence shows that while temporary farrowing crates and free-farrowing pens can slightly increase the risk of piglet mortality (14% higher in farrowing pens than farrowing crates⁴²), alternative farrowing systems have been shown to benefit both sow and piglet welfare.

Some of the welfare benefits include:

- shorter and easier farrowing for sows;

⁴¹ Goumon S, Illmann G, Moustsen VA, Baxter EM, Edwards SA. Review of Temporary Crating of Farrowing and Lactating Sows. *Front Vet Sci.* 2022 Mar 17;9:811810.

⁴² Glencorse, D., Plush, K., Hazel, S., D'souza, D., & Hebart, M. (2019). Impact of Non-Confinement Accommodation on Farrowing Performance: A Systematic Review and Meta-Analysis of Farrowing Crates Versus Pens. *Animals : An Open Access Journal from MDPI*, 9(11).

- lower stress levels in sows;
- reduced teat and skin lesions on sows;
- increased expression of maternal behaviours from sows;
- lower stress levels and aggressive behaviours in piglets during weaning⁴³.

The negative welfare consequences for sows associated with the severe restriction of movement in conventional farrowing crates are inherent. Alternative farrowing systems that provide sows more freedom to move, where managed appropriately, can provide balanced welfare outcomes to both sows and piglets.

In addition to being confined, sows in indoor systems are typically not provided any nesting material to perform innate and highly motivated nest building behaviours prior to farrowing. Providing sows with nesting material allows them to fulfil their behavioural needs of nest building before farrowing and can be beneficial for both sow and piglet welfare and performance⁴⁴. Straw is the most common form of nesting material used for sows. It has been argued that using straw for nesting material is not feasible in intensive indoor systems with slatted floors due to waste drainage concerns. However, alternative nesting materials, such as hessian sacks, have been demonstrated to provide similar benefits to straw for sows and address waste drainage concerns in intensive indoor systems⁴⁵.

⁴³ Lange, A., Gentz, M., Hahne, M., Lambertz, C., Gauly, M., Burfeind, O., & Traulsen, I. (2020). Effects of Different Farrowing and Rearing Systems on Post-Weaning Stress in Piglets. *Agriculture 2020*, Vol. 10, Page 230, 10(6), 230.

⁴⁴ Monteiro, M. S., Muro, B. B. D., Carnevale, R. F., Poor, A. P., Araújo, K. M., Viana, C. H. C., Almond, G. W., Moreno, A. M., Garbossa, C. A. P., & Leal, D. F. (2023). The beneficial effects of providing prepartum sows with nesting materials on farrowing traits, piglet performance and maternal behavior: A systematic review and meta-analysis. *Applied Animal Behaviour Science*, 259, 105795.

⁴⁵ Plush, K. J., McKenny, L. A., Nowland, T. L., & van Wettere, W. H. E. J. (2021). The effect of hessian and straw as nesting materials on sow behaviour and piglet survival and growth to weaning. *Animal*, 15(7), 100273.



Figure 2. A conventional farrowing crate with a sow and her piglets

Recommendations:

9. The use of conventional farrowing crates must be phased out in Victoria and replaced with systems that allow sows to move freely including standing up, lying down and turning around.
10. Sows must be provided with a suitable and adequate amount of nesting and/or other manipulable material at least 48 hours before farrowing.

Boar stalls

The RSPCA is opposed to the use of boar stalls because of the restrictions and adverse effects that these housing systems have on the movement, social interactions, and behaviour of boars.

The minimum space requirement for a boar stall in the Standards is 0.7 m x 2.4 m. Boars are still legally allowed to be held in stalls for their entire adult life where they are unable to move around freely or turn around. The Standards only require boars to be let out of their stalls twice a week for exercise (not including any mating sessions), which typically involves a short walk up and down the shed. Where boar stalls are not used in indoor production systems, boars are housed in individual pens where they are able to move and walk around freely. The minimum space requirement for an individual boar pen in the Standards is 6 m² of living space. In outdoor production systems boars are usually housed in small paddocks as individuals or in pairs.

There is limited scientific evidence available on boars in commercial production systems. Confining a boar in a stall for its entire life is very likely to have similar negative welfare consequences as sows confined to sow stalls, due to the severe movement and behavioural restriction. Research

that has been conducted shows boars confined in stalls have lower bone mineral density and associated increases in lameness compared to boars housed in individual pens⁴⁶. Boars confined in stalls have also been shown to have reduced fertility, measured by testicular health indicators and sperm characteristics, compared to boars housed in individual pens with and without enrichment⁴⁷.

Recommendations:

11. The use of boar stalls must be phased out.
12. The minimum space requirements for boars housed in pens must be increased to allow for boars to move around freely including standing up, lying down, and turning around.

(5) International comparisons to determine industry adherence to best practice standards

National leadership is crucial for continuous improvement, coordination and consistency across states and territories in animal welfare. A federal independent statutory agency for animal welfare is vital to enable consistency, expertise, and impartiality improve the welfare of production animals in Australia.

The Australian federal government must deliver on their election commitment to update and enhance a national approach to animal welfare by renewing the Australia Animal Welfare Strategy (AAWS). The strategy must include the development of National Standards and Guidelines for Pigs reflecting contemporary animal welfare science.

The Victorian government should lead this process and begin the development of new standards and guidelines in consultation with the livestock industry, animal welfare groups, and the general public. The Victorian Government's Animal Welfare Advisory Committee (AWAC) should be utilised to comment on and participate in this development.

The Standards are based on the knowledge and technology available at the time of publication and updated as knowledge and technology evolve. Unfortunately, the Standards have not undergone a review or update since they were enacted under the LMA. As the Standards are now over a decade old, this has resulted in Victorian welfare practices being ranked comparatively low when compared to those of other jurisdictions. For example, they still allow for:

- the use of confinement systems such as sow/ boar stalls and farrowing crates

⁴⁶ Lu, J., Hu, L., Guo, L., Peng, J., & Wu, Y. (2023). The Effects of Claw Health and Bone Mineral Density on Lameness in Duroc Boars. *Animals*, 13(9).

⁴⁷ Bernardino, T., Carvalho, C. P. T., Batissaco, L., Celeghini, E. C. C., & Zanella, A. J. (2022). Poor welfare compromises testicle physiology in breeding boars. *PLoS ONE*, 17(5 5).

- painful husbandry procedures such as castration, teeth clipping, and tail docking as preventative measures to limit aggression towards other pigs
- Nose ringing also may be performed 'to prevent adverse effects to the environment', and there is no requirement to use pain relief before carrying out any elective husbandry procedure⁴⁸.

A scientific literature review was conducted by the Canadian Pork Industry in 2017, which will inform the development of the Australian Animal Welfare Standards and Guidelines for Pigs. However, there have been several delays and no progress to date in developing revised S&Gs. Regrettably, this means that the existing standards and guidelines no longer meet scientific understanding of best practice nor meet community expectations for pig welfare.

In 2018, a review of the current Australian Model Code of Practice for the Welfare of Animals – Pigs was reviewed, and comparisons made between the current Codes or Standards in Canada (Code of Practice for the Care and Handling of Pigs, 2014)⁴⁹, the United Kingdom (UK, Codes of Recommendations for the Welfare of Livestock: Pigs, 2002), the European Union (EU, Council Directive 2008/120/EC)⁵⁰ and New Zealand (Pigs – Animal Welfare Code of Welfare, 2018)⁵¹. The choice of jurisdictions in the review were selected because of their high standards of pig welfare which have been widely recognised⁵². The review notes some of the major differences in the Codes of Practice and Standards between Australia and other countries.

Findings from this review have been used to develop a comparison between the Victorian Standards and Guidelines for the Welfare of Pigs and the Codes or Standards in Canada, the United Kingdom, the European Union, and New Zealand. Sweden has also been included in this comparison (Table. 2) as they have gone beyond EU requirements, providing higher welfare opportunities for animals in the pig industry, closely followed by Switzerland and Norway.

The comparison in Table 2 has been updated to reflect current UK welfare standards from the Code of Practice for the welfare of pigs (2020)⁵³, which replaced the Code of Recommendations for the Welfare of Livestock: Pigs (2003).

⁴⁸ https://agriculture.vic.gov.au/__data/assets/pdf_file/0017/530333/Victorian-Pig-Welfare-Standards_Revision-1_March-2012.pdf - accessed 11 Nov 2023.

⁴⁹ Canadian Pork Council and the National Farm Animal Care Council (2014). <https://www.nfacc.ca/codes-of-practice/pig-code> - accessed 2 Nov 2023

⁵⁰ Council Directive 2008/120/EC of 18 December 2008 laying down minimum standards for the protection of pigs. <http://data.europa.eu/eli/dir/2008/120/oj> - accessed 2 Nov 2023

⁵¹ <https://www.mpi.govt.nz/dmsdocument/46048-Code-of-Welfare-Pigs> - accessed 2 Nov 2023

⁵² <https://www.australianpork.com.au/sites/default/files/2021-07/2017-2217.pdf> - accessed 2 Nov 2023

⁵³ <https://assets.publishing.service.gov.uk/media/5f3139708fa8f57acc8d82a6/code-practice-welfare-pigs.pdf> - accessed 3 Nov 2023

Table. 2 – Comparison of current international Codes or Standards with the Victorian Standards and Guidelines for the Welfare of Pigs.

Welfare concern	Victorian Standards and Guidelines for the Welfare of Pigs <i>(based on the Model Code of Practice for the Welfare of Animals – Pigs)</i>	International comparison
Housing in stalls	<ul style="list-style-type: none"> • A sow must not be confined in a stall for more than six weeks of any gestation period. • Sows must not be confined in farrowing crates for more than six weeks in any one reproductive cycle. 	<p>Sweden: Sow stalls and farrowing crates are prohibited. Free farrowing by law and 75% of the laying area must be “non-draining” flooring.</p> <p>EU: Ensure that sows and gilts are kept in groups during a period starting from four weeks after the service to one week before the expected time of farrowing. Sow stalls are not prohibited in the EU – they can be used the first four weeks of pregnancy and the week before giving birth.</p> <p>New Zealand: Sows or gilts can only be housed in stalls for the purpose of mating, for no longer than seven days per reproductive cycle. The pigs should be released from stalls as soon as practicable after mating. Outside Europe, NZ is the only country committed to phasing out farrowing crates by 2025.</p> <p>UK: Sows and gilts cannot be housed in gestation stalls but can be housed in farrowing crates during the period between 7 days before predicted farrowing time and the day of weaning piglets.</p> <p>Canada: Sows or gilts can only be housed in stalls for up to 5 weeks after mating. Sows must not be kept in farrowing crates for more than 6 weeks in any one reproductive cycle.</p>
Space allowance	<ul style="list-style-type: none"> • Sow stalls size = 0.6m x 2.2m 	<p>Sweden: 6.0m² (including a creep for piglets) with a minimum laying area for the sow of 4.0m²</p>

	<ul style="list-style-type: none"> • Sow group housing = 1.4 m² per sow • Farrowing crate size = 0.5m x 2m • Farrowing crate/creep area total = 3.2 m² per sow • Farrowing pens = 5.6 m² per sow (no crate confinement of sow) • Boar stalls size = 0.7m x 2.4m • Boar individual pens = 6 m² 	<p>EU: Sows - > 2.25 m², Gilts - > 1.64 m² (grouped)</p> <p>Boar individual pens = 6 m²</p> <hr/> <p>New Zealand: A specific space allowance is not specified for sows, gilts and boars. Rather, there is a requirement that all group-housed pigs must be able to stand, move about and lie down without undue interference with each other in a space that provides for separation of dunging, lying, and eating areas. For growing-finishing pigs there is a formula for calculating space allowance requirements: Area (m²) per pig = 0.03 x liveweight^{0.67} (kg).</p> <hr/> <p>UK: Gilts and/or sows kept in groups must be at least 1.64 m² and 2.25 m² respectively.</p> <p>Boar individual pens = 6 m²</p> <hr/> <p>Canada: Sows - 1.8 to 2.2 m², Gilts - 1.4 to 1.7 m² (grouped)</p> <p>Boar individual pens = 5.6 m² - 7.4 m²</p> <p>Boar stall = 0.70m x 2.13m - 0.91m x 2.44m</p>
<p>Castration</p>	<ul style="list-style-type: none"> • Castration performed after 21 days of age should be done under analgesic to control procedural pain. However, the use of pain relief is not mandatory. 	<p>Sweden: Castration of piglets without anaesthesia was banned in 2016.</p> <hr/> <p>EU: If castration is performed after 7 days of age it should be done by a veterinarian using anaesthetics. Tail docking performed after 7 days of age should only be done under anaesthetics and additional prolonged analgesia by a veterinarian. The method of castration must not involve tearing of tissues.</p>

		<p>New Zealand: Castration of piglets is not performed under commercial conditions in New Zealand but can be performed in pigs on smallholdings. If castration is performed at any age, then it must be carried out by a veterinarian and the pig must be given pain relief at the time of the procedure. Tail docking after 7 days of age can only be performed by a veterinarian and pigs must be given pain relief at the time of the procedure.</p> <p>UK: If castration is performed after 7 days of age it should be done by a veterinarian using anaesthetics. Tail docking performed after 7 days of age should only be done under anaesthetics and additional prolonged analgesia by a veterinarian. The method of castration must not involve tearing of tissues.</p> <p>Canada: Castration performed after 10 days of age must be done with anaesthetic and analgesic to help control pain. Castration performed at any age must be done with analgesics to help control post-procedure pain⁵⁴.</p>
<p>Teeth clipping</p>	<ul style="list-style-type: none"> Teeth clipping allowed if necessary. No pain relief is required. 	<p>Sweden: Teeth clipping has been banned since 2008⁵⁵.</p> <p>EU: The procedure may only be carried out on an animal that is aged not more than 7 days.</p> <p>New Zealand: Pigs' teeth must not be cut unless the person cutting the teeth is a veterinarian or a veterinary student under the direct supervision of a veterinarian throughout the procedure; or the tooth is a needle tooth of a pig that is 4 days of age or under.</p>

⁵⁴ <https://www.nfacc.ca/codes-of-practice/pig-code> - accessed 26 Oct 2023

⁵⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3366879/> - accessed 26 Oct 2023

		<p>UK: The procedure may only be carried out on an animal that is aged not more than 7 days.</p>
		<p>Canada: The need to clip piglets' teeth must be evaluated, and the procedure performed only when deemed necessary.</p>
<p>Tail docking</p>	<ul style="list-style-type: none"> Where tail docking is practiced as a preventative measure, it should be carried out before the piglets are seven days of age. No pain relief is required. 	<p>Sweden: Tail docking is banned.</p> <p>EU: If castration or docking of tails is practised where the animal is aged 7 days or over, it shall only be performed under anaesthetic and additional prolonged analgesia by a veterinarian.</p> <p>New Zealand: Tail docking of pigs that are seven days of age or over must be carried out by a veterinarian or a veterinary student under the direct supervision of a veterinarian throughout the procedure. The pig must be given pain relief at the time of the procedure.</p> <p>UK: An anaesthetic and additional prolonged analgesia must be administered where the animal is aged 7 days or over.</p> <p>Canada: Tail-docking performed at any age must be done with analgesics to help control post-procedure pain.</p>
<p>Ear notching</p>	<ul style="list-style-type: none"> Where ear notching is performed, it should be carried out before the piglets are seven days of age. No anaesthesia 	<p>Sweden: Permitted. No anaesthesia or pain relief is required.</p> <p>EU: Permitted. No anaesthesia or pain relief is required.</p>

	<p>or pain relief is required.</p>	<p>New Zealand: Where performed, ear notching should be done within 72 hours of birth.</p> <p>UK: Permitted. No anaesthesia or pain relief is required.</p> <p>Canada: Ear notching must only be performed on piglets when deemed necessary and when piglets are less than 14 days of age.</p>
<p>Enrichment (including nesting materials)</p>	<ul style="list-style-type: none"> • There is no requirement to provide environmental enrichment. • There is no requirement to provide nesting material for farrowing sows. 	<p>Sweden: Must have daily access to straw and extra material for nest building.</p> <p>EU: The EU Council Directive 2008/120/EC states that all class of pig must have permanent access to a sufficient quantity of enrichment materials that does not compromise their health and enables them to carry out proper investigation and manipulation activities and fulfil their behavioural needs. Additionally, in the week before the expected farrowing time, sows and gilts must be given suitable nesting material in sufficient quantity unless it is not technically feasible for the slurry system used. Furthermore, countries within the EU may have more specific standards regarding the provision of enrichment for pigs at different stages of production.</p> <p>New Zealand: 'Pigs – Animal Welfare Code of Welfare 2018' states that all classes of pigs must be managed in a manner that provides them with sufficient opportunities to express and satisfy their normal behaviours. However, it does not explicitly state environmental enrichment.</p>

		<p>UK: The UK Codes of Recommendations for the Welfare of Livestock: Pigs states that to enable proper investigation and manipulation activities, all classes of pig must have permanent access to a sufficient quantity of material such as straw, hay, wood, sawdust, mushroom compost, peat, or mixture of such which does not adversely affect the health of the animals. Additionally, in the week before the expected farrowing time, sows and gilts must be given suitable nesting material in sufficient quantity unless it is not technically feasible for the slurry system used.</p> <p>Canada: The Canadian Code of Practice for Care and Handling of Pigs stipulates that all classes of pigs must be provided with multiple forms of enrichment that aims to improve the welfare of the animals through the enhancement of their physical and social environments.</p>
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The Animal Protection Index, produced by World Animal Protection, which rates 50 countries around the world according to their animal welfare policy and legislation, scored Australia with a 'D', positioning us behind New Zealand (C), Mexico (C), Malaysia (C), UK (B), Sweden (B), and Switzerland (B)⁵⁶. No country scored an A. Each country is assessed according to 10 indicators including the protection of animals used in farming (for all livestock species) where Australia scored an 'E'.

In 2020, we also received a 'D,' reflecting a need for enhanced government accountability in shaping and implementing nationally agreed standards and guidelines. Australia faces significant challenges, as there is insufficient guidance and oversight on animal welfare at a national level.

Recommendation:

Refer to recommendation one.

⁵⁶ <https://api.worldanimalprotection.org/> - accessed 2 Dec 2023

(6) Any other relevant matter

Painful husbandry procedures

There are several invasive and painful husbandry procedures that are performed routinely on piglets in the Australian pig industry, which include castration, tail docking, and teeth clipping. Following these painful procedures piglets show signs consistent with pain and distress⁵⁷. Signs of pain in piglets include increased and prolonged vocalisation, trembling and huddling, stiffness, and reluctance to move, tail flicking, reduced nursing and/or feed intake, and withdrawing from other piglets⁵⁸. In Australia, piglets do not have to be provided any form of analgesia or local anaesthetic for routine painful husbandry procedures.

Castration

Surgical castration of piglets involves physically removing the testes by making an incision into the scrotum and cutting each spermatic cord to remove the testes. Male piglets are typically castrated before they reach sexual maturity to avoid boar taint in meat. In Australia male pigs may be immunocastrated, which involves two injections to chemically castrate the male pigs⁵⁹. However, some male piglets are still surgically castrated within the first few weeks of life without analgesia or local anaesthetic. When surgical castration is performed without effective analgesia, piglets show clear signs of pain and distress, including escape attempts, vocalisations, trembling, and reluctance to move⁶⁰. Research shows conflicting results regarding the use of different analgesics and local anaesthetics and their effectiveness at mitigating pain during surgical castration, however Meloxicam and Bupivacaine have been effective in some studies⁶¹.

Recommendation:

13. Where castration is considered necessary, immunocastration should be considered preferable to surgical castration. Surgical castration at any age must only be carried out by a veterinary surgeon when effective analgesia and local anaesthetic are provided.

⁵⁷ Schmid, S. M., & Steinhoff-Wagner, J. (2022). Impact of Routine Management Procedures on the Welfare of Suckling Piglets. *Veterinary Sciences*, 9(1), 32.

⁵⁸ Ison, S. H., Eddie Clutton, R., Di Giminiani, P., & Rutherford, K. M. D. (2016). A review of pain assessment in pigs. *Frontiers in Veterinary Science*, 3(NOV), 230893. <https://doi.org/10.3389/FVETS.2016.00108/BIBTEX>

⁵⁹ Batorek, N., Čandek-Potokar, M., Bonneau, M., & Van Milgen, J. (2012). Meta-analysis of the effect of immunocastration on production performance, reproductive organs and boar taint compounds in pigs. *Animal*, 6(8), 1330–1338.

⁶⁰ Coutant, M., Malmkvist, J., Foldager, L., & Herskin, M. S. (2023). Relationship among indicators of pain and stress in response to piglet surgical castration: an exploratory analysis. *Journal of Veterinary Behavior*, 67, 20–32.

⁶¹ Scollo, A., Contiero, B., De Benedictis, G. M., Galli, M. C., Benatti, D., & Gottardo, F. (2021). Analgesia and/or anaesthesia during piglet castration – part I: efficacy of farm protocols in pain management. *Italian Journal of Animal Science*, 20(1), 143–152.

Tail docking and teeth clipping

Tail biting outbreaks in the Australian pig industry have led to the widespread adoption of tail docking as a routine husbandry procedure performed on piglets within their first few days of life. Tail biting is an abnormal behaviour where pigs will bite and chew on other pigs' tails, which can lead to pain, injuries, infections, and significant production losses⁶². The causes of tail biting are complex and multifactorial but it has been linked to increased stress and barren environments where pigs are unable to satisfy their behavioural needs⁶³.

Tail docking of piglets involves cutting the end section of the tail with sharp scissors or a scalpel. Pigs having shorter tails can help prevent tail biting from occurring in some groups of pigs. Tail docking is routinely done in Australia without analgesia. After tail docking, piglets show clear signs of pain and distress, including attempting to escape and struggle, squeal, tail wag and clamp their tails between their hind legs⁶⁴. After tail docking piglets are also more susceptible to infections and may have increased sensitivity to pain in the end of their tail⁶⁵. Research on the use of analgesics for tail docking shows mixed results, but similar to surgical castration, Meloxicam and Bupivacaine have been effective in some studies⁶⁶.

Teeth clipping of piglets involves removing the tip of the canine teeth with clippers or a grinder to prevent piglets injuring the sow's teats, other piglets, as well as mitigate tail biting injuries. Teeth clipping is performed in Australia without the use of analgesia. Piglets show clear signs of distress and pain during and after the teeth clipping procedure, such as squealing and 'chomping'^{67, 68}. During teeth clipping there is a high risk of teeth fracturing, as well as gum and tongue injuries, which can lead to infections and teeth abscesses⁶⁹.

The Australian pig industry has recognised the negative animal welfare consequences associated with tail docking and other painful husbandry procedures. In recent years the industry has taken proactive steps towards addressing routine tail docking of piglets. The Australasian Pork Research Institute (APRIL) included eliminating the need for tail docking in the pork production systems as a

⁶² Nannoni, E., Valsami, T., Sardi, L., & Martelli, G. (2014). Tail Docking in Pigs: A Review on its Short- And Long-Term Consequences and Effectiveness in Preventing Tail Biting. *Italian Journal of Animal Science*, 13(1), 98–106.

⁶³ Henry, M., Jansen, H., Amezcua, M. del R., O'sullivan, T. L., Niel, L., Shoveller, A. K., & Friendship, R. M. (2021). Tail-biting in pigs: A scoping review. *Animals*, 11(7), 2002.

⁶⁴ Morrison, R., & Hemsworth, P. (2020). Tail Docking of Piglets 1: Stress Response of Piglets to Tail Docking. *Animals* 2020, Vol. 10, Page 1701, 10(9), 1701.

⁶⁵ Sutherland, M. A. (2015). Welfare implications of invasive piglet husbandry procedures, methods of alleviation and alternatives: a review. *New Zealand Veterinary Journal*, 63(1), 52–57.

⁶⁶ Morrison, R., & Hemsworth, P. (2020). Tail Docking of Piglets 1: Stress Response of Piglets to Tail Docking. *Animals* 2020, Vol. 10, Page 1701, 10(9), 1701.

⁶⁷ Fu, L. ling, Zhou, B., Li, H. zhi, Liang, T. ting, Chu, Q. po, Schinckel, A. P., Li, Y., & Xu, F. long. (2019). Effects of tail docking and/or teeth clipping on behavior, lesions, and physiological indicators of sows and their piglets. *Animal Science Journal*, 90(9), 1320–1332.

⁶⁸ Sutherland, M. A. (2015). Welfare implications of invasive piglet husbandry procedures, methods of alleviation and alternatives: a review. *New Zealand Veterinary Journal*, 63(1), 52–57.

⁶⁹ Gallois, M., Le Cozler, Y., & Prunier, A. (2005). Influence of tooth resection in piglets on welfare and performance. *Preventive Veterinary Medicine*, 69(1–2), 13–23.

key Transformational Project objective in its recent Strategic Plan. In 2021, APRIL with SunPork Pty Ltd. as the lead applicant received a Cooperative Research Centres Projects (CRC-P) grant from the Australian Government. The CRC-P grant is for a three-year project aimed at eliminating tail docking within the Australian pig industry.

Recommendations:

14. Where tail docking is considered necessary, effective analgesia and local anaesthetic must be provided.
15. Tail docking must be phased out once effective alternative management strategies to reduce the risk of tail biting have been identified.
16. Teeth clipping must be phased out.

Human-animal relationships

Negative human-animal relationships are often created when pigs are forcefully handled. When pigs are handled inappropriately, they will typically show three behaviours that are deemed undesirable: they will stop, turn back and vocalise⁷⁰. Pigs can quickly become fearful of humans, particularly in situations where aversive instruments are used, such as the electric prodder, where vocalising of pigs increases, indicating stress⁷¹.

Animal handling studies suggest that the level of human-induced fear in farm animals is significantly influenced by the actions of stockpeople⁷². When humans engage in negative tactile behaviours, even if applied briefly but consistently, it leads animals to become highly fearful in the presence of people. A study examining the effects of human contact during gestation on the behaviour, physiology, and reproductive performance of sows found handling methods such as slaps, hits or shocks using an electric prodder, imposed daily for as little as 15-30 seconds, resulted in heightened fear, which was demonstrated by increased avoidance of humans⁷³. Links have also been made between negative human animal relationships and a reduced number of piglets per sow per year⁷⁴.

Positive human animal relationships are vital for both welfare and productivity, and can result in improved growth and lower levels of still births. Sows who are seen to be less fearful of humans

⁷⁰ Roberts, L.J. & Coleman, G.L. (2015), The key indicators of stockpersonship and their relationship with independent behavioural observations and supervisor assessments of stockpeople. *Animal Production Science* 55(12) 1499-1499

⁷¹ Ibid

⁷² Hayes, M. E., Hemsworth, L. M., Morrison, R. S., Butler, K. L., Rice, M., Rault, J. L., & Hemsworth, P. H. (2021). Effects of positive human contact during gestation on the behaviour, physiology and reproductive performance of sows. *Animals*, 11(1), 214

⁷³ Ibid

⁷⁴ Baxter EM, Moustsen VA, Goumon S, Illmann G, Edwards SA. Transitioning from crates to free farrowing: A roadmap to navigate key decisions. *Front Vet Sci*. 2022 Nov 14;9:998192.

also have a better reproductive performance (total born and weaned piglets)⁷⁵. Another study saw reduced fear responses of pigs in group housing towards stockpeople during pregnancy testing and vaccinations when provided with just two minutes of patting and scratching each day⁷⁶. Positive human contact has been shown to reduce the fear response in sows and alter the behavioural responses of piglets to subsequent stressful events⁷⁷.

In addition, the motivation and attitude of stockpeople in the effective care and management of livestock is integral to the standard of welfare experienced by the animal⁷⁸. Therefore, incorporating training that addresses the attitudes and behaviours of stockpeople towards pigs alongside their technical skills and knowledge is expected to not only reduce the stress associated with handling and husbandry procedures involving humans, but also enhance the motivation of stockpeople to acquire new technical skills and knowledge⁷⁹. Ongoing improvements to human animal relationships on farm through training programmes will improve pig welfare considerably.

Recommendations:

17. Ongoing training and assessment of technical skills and knowledge as well as attitude and behaviour should be a requirement for all stockpeople.
18. The use of electric prodders must be prohibited.

International imports – pork and pork products

Australia relies heavily on pork and pork product imports. The top five import sources from 2019 included the USA, Denmark, Canada, Netherlands, and Ireland. Australian Pork Limited estimated that nearly half of all the pork products consumed in Australia are derived from imported meat, with figures increasing to around 80% in the smallgoods category, including ham and bacon. The USA was responsible for more than half of all pork imports to Australia in 2019⁸⁰.

Animal welfare standards in the USA have been ranked considerably lower compared to other developed countries. Unfortunately, farm animals in the USA are subject to limited federal legislation, as the US *Animal Welfare Act 1966* specifically exempts farm animals used for food production.

⁷⁵ Ibid.

⁷⁶ Hayes, M. E., Hemsworth, L. M., Morrison, R. S., Butler, K. L., Rice, M., Rault, J. L., & Hemsworth, P. H. (2021). Effects of positive human contact during gestation on the behaviour, physiology and reproductive performance of sows. *Animals*, 11(1), 214.

⁷⁷ Muns, R., Rault, J. L., & Hemsworth, P. (2015). Positive human contact on the first day of life alters the piglet's behavioural response to humans and husbandry practices. *Physiology & behavior*, 151, 162-167.

⁷⁸ Coleman, G.J. and Hemsworth, P.H. (2014), 'Training to improve stockperson beliefs and behaviour towards livestock enhances) welfare and productivity'. *Scientific and Technical Review of the Office International des Epizooties (Paris)* 33 (1), 131-137

⁷⁹ Ibid.

⁸⁰ Inquiry into Diversifying Australia's Trade & Investment Profile, Australia Pork Limited, submission July 2020

Where Australia chooses to import pork and pork products, the priority should be to source from suppliers which adhere to high standards of animal welfare. It is important that not only Australian pig farmers, but international producers meet or exceed the minimum standards set for farmed animals in Australia. Where international welfare requirements are lower than Australian standards, limitations or restrictions should be placed on those suppliers, and support should be provided for Australian producers which go beyond minimum requirements to ensure best practice and acceptable standards of animal welfare. This restriction could help to support local producers and provide them with a greater market share while ensuring that consumers have access primarily to pork products that have farmed pigs to minimum welfare standards. The Victorian Government should advocate for restrictions to importation of pork and pork products unless they meet or exceed Australian animal welfare standards.

Community concern for pig welfare

RSPCA Victoria engaged market research firm, Kantar, to assess Victorian’s opinions towards pig welfare (n=621). Since data collection began in July 2023, the greatest levels of concern were expressed towards confinement, including the use of farrowing crates and sow stalls (52% and 51% respectively, figure 3). Slightly less concern was expressed for how pigs are stunned before processing. Nearly six in ten Victorians support further research into humane ways to stun pigs before processing (57%, figure 4).

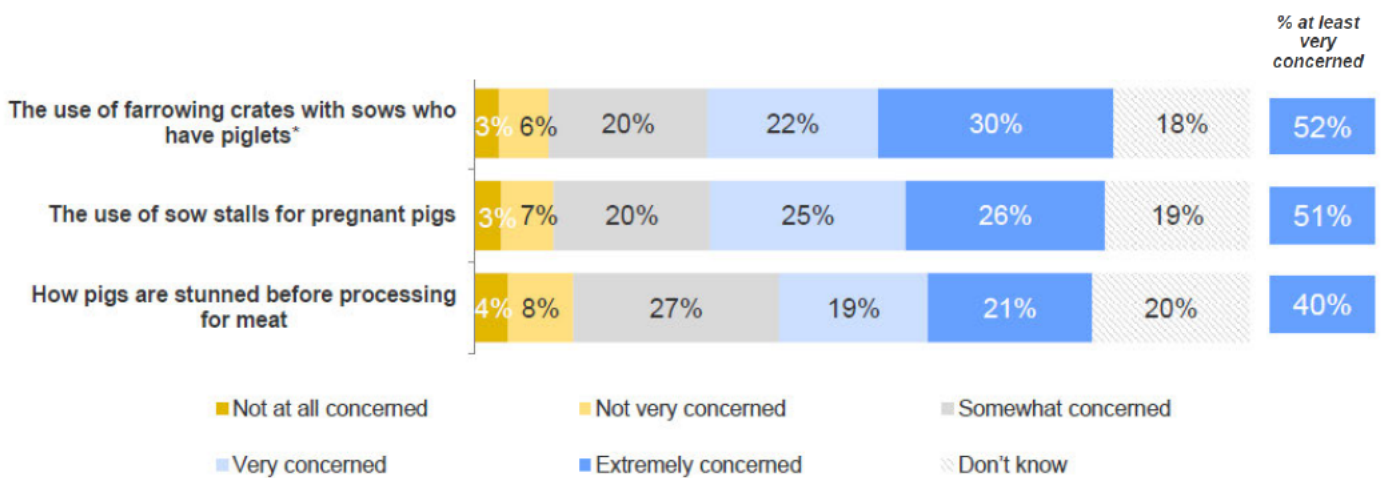


Figure 3. Victorian’s concerns about pig welfare.

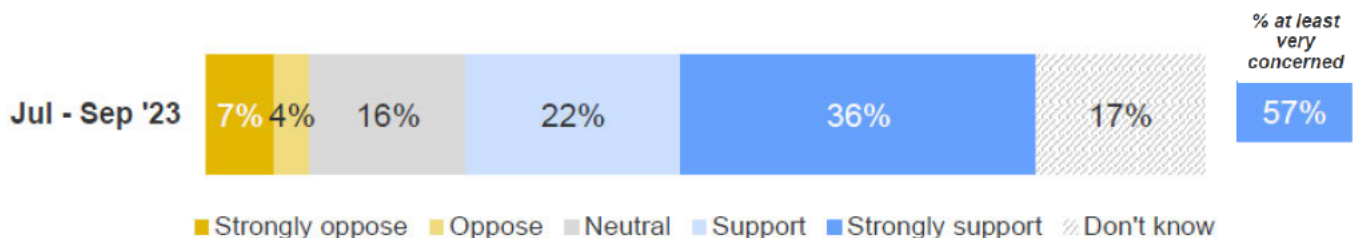


Figure 4. Support for further research into humane ways to stun pigs before processing.

Conclusion

RSPCA Victoria appreciates the opportunity to provide the Economy and Infrastructure Committee with a submission for the inquiry into pig welfare in Victoria.

We acknowledge the efforts made by government and industry towards ensuring the welfare of farmed pigs, however we recognise there are still significant problems which must be addressed. We strongly encourage consideration of the recommendations provided in our submission to improve the welfare of pigs in Victoria.

We strongly encourage the Victorian Government to consider leading the development of contemporary national standards and guidelines for the welfare of pigs to ensure continuous improvement in this industry.

Glossary

Allometric approach: An equation used to determine the space allocation: A (space allowance in m^2) = k (constant) \times body weight 0.66 .

Back-loader: A gas stunning systems where pigs are moved in small groups into the side of the gondola prior to stunning.

Boar stalls: A boar stall is like a sow stall but for boars. It is a metal-barred crate slightly larger than a sow stall at just 2.4m long and 70cm wide.

Creep: A separate area of the farrowing crate away from the sow to protects piglets and keep them warm.

Electric prodders: An electric baton, used to urge animals to move by the administration of an electric shock.

Farrowing crates: A farrowing crate is a metal-barred crate that is similar in size to a sow stall but slightly narrower. Farrowing crates are used to house female breeding pigs who are about to give birth.

Free farrowing systems: Free-farrowing systems are where sows may be confined to a pen indoors but are not physically restricted at any point before and during farrowing and the lactation period.

Mating stalls: A mating stall is a crate used to hold a female breeding pig for artificial insemination.

Side-loader: A gas stunning systems which requires pigs to walk in single file up a narrow raceway and then one by one into the gondola prior to stunning.

Sow stalls: A sow stall, also known as a gestation stall, is a metal-barred crate that houses a single female breeding pig for part of her 16-week gestation (pregnancy).

Temporary crating: Temporary confinement of a sow. It provides lactating sows with the opportunity to move more freely after crate opening a few days after giving birth.

