NZ PORK

Submission on the Proposed Code of Welfare for Pigs and Associated Regulations

8 July 2022

Executive Summary

This submission is from NZPork on the *Proposed Code of Welfare for Pigs and Associated Regulations: Ministry for Primary Industries and National Animal Welfare Advisory Committee Discussion Paper (MPI Discussion Paper 2022/05)*.

NZPork is the statutory body funded by pig farmers to act in their interests while considering New Zealand's interests.

NZPork welcomes the opportunity to submit on the proposals of the National Animal Welfare Advisory Committee (NAWAC); and most importantly, for the opportunity to recommend alternative proposals in a number of areas.

The New Zealand pork industry is supportive of change where it can be justified based on science. We recognise that pig welfare science, and its practical on-farm implementation, continues to evolve. We want to ensure that New Zealand born and raised pork continues to meet the expectations of our consumers while maintaining a financially viable, and therefore sustainable, pork producing sector.

However, startlingly, a number of NAWAC's proposals if implemented would have unintended *negative* animal welfare consequences. This is because while NAWAC is an expert committee, it has no expertise or understanding of pig farming. While NAWAC undertook some information gathering, it did not fully consult or engage with the industry to understand key issues.

The NAWAC proposals are out of line with the standards in the rest of the world, most particularly with the top ten countries that export pork to New Zealand. Our *current* standards mean that the great majority of imports (over 95%) are produced in countries whose practices would be illegal in New Zealand in some respects.

NZPork's alternative proposals

NZPork has sought guidance from its technical advisers to develop alternative proposals which are based on a rigorous in-depth review of contemporary pig welfare science and good practice.

We have also sought independent expert peer review of the NAWAC proposals of most significance to the New Zealand industry. These independent expert reviews reinforce the positions we are proposing.

In the very limited period that has been available since the NAWAC proposals were publicly released we have consulted iteratively with farmers, providing science and good practice justification for the positions we are proposing, and discussing ways these proposals can be expressed into standards that can be practically met and compliance can be established.

The changes proposed by the industry are substantial and meaningful and collectively demonstrate welfare standards that go beyond all major pig producing countries.

The majority of farmers support the industry positions, if accompanied by the following critical provisos:

- Adequate time to implement
- Government support, including but not limited to, funding, facilitating access to funding, facilitating necessary consents
- Government confirmation of concrete mitigations before or at the very least concurrent with the confirmation of the updated Code and regulations
- The standards and regulations set are based on the required animal welfare outcomes, rather than prescription, to enable continuing innovation
- Imports are held to the same standards.

The most significant alternative options proposed by NZPork are:

- **Farrowing:** reducing the maximum number of days a farrowing sow may be confined from up to 33 days currently to no more than 7 days in total, including a maximum of 4 days post-farrowing
- Providing all sows with manipulable material before farrowing

- **Mating:** discontinuing housing sows in mating stalls, while recognising that higher levels of stockpersonship will be required.

NZPork's alternative options for farrowing and mating would position New Zealand's pork industry as an international leader in reduced sow confinement. We are recommending and proposing to facilitate on-farm research to review the length of confinement pre-farrowing and amend if feasible, in accordance with animal welfare, biological variation and good practice management.

- **Space for growing pigs:** enhancing the quality of space provided by the provision of manipulable material; and increasing the minimum space allowance by 13% - within the context that for most of the growing period, pigs have considerably more space.

This increase in the minimum space allowance for growing pigs would put New Zealand's standards ahead of those in the UK, EU, USA, Canada, Australia, China and 99.7% of pig meat imported into New Zealand.

- **Weaning age**: retaining an outcome-based minimum standard to enable the achievement of the best outcomes for both the sows and piglets post- weaning.

As well, there are many other changes in the draft code. All bar one of the minimum standards in the current code have been changed in some way and there are four new minimum standards. Most minimum standards have changes to example indicators. NZPork supports some but not all of these other changes.

Some but not all will generate additional cost.

NZPork's alternative proposals:

- Meet the requirements of the Animal Welfare Act by providing for the physical health and behavioural needs of the pigs under farmers' care, based on science and good practice
- Mitigate the unintended negative animal welfare consequences associated with the NAWAC proposals due to NAWAC's lack of understanding of pig farming
- Offer's some reduction to the exorbitant cost associated with implementing the most significant of the NAWAC proposals.

Economic impact and transition times and transition support required

NZPork's alternative positions will be very costly for the industry. The pig farming sector has an annual farmgate value of $189 million (September 2021). With very limited data, and time available to consider since settling on the industry's positions, the capital costs to implement these changes have been *conservatively* estimated to be greater than $64 million as a minimum. This is excluding resource and building consenting consents, design costs, and all other lead-in costs, and assuming that all farms are in a position to do so. Additional to this is the drop in income due to the productivity drop from increased piglet mortality farmers will experience.

This cost estimate is provisional only. The complexity resulting from consulting on minimum standards with multiple options included, suggested alternatives *and* regulations and transition times simultaneously means that NZPork would expect a full economic impact analysis to be done when a finalised code is confirmed. Building costs and supply issues mean that costs are escalating rapidly. Among other things the full economic analysis will be required to inform transition periods to be set.

These costs will not fall equally across the 85 commercial farmers because of the wide range of farming systems, notably indoor and outdoor breeding systems.
Unless realistic transition periods are set, and government supports the sector with funding and other support including facilitating consents for farm re-development, and most critically, addressing the inequity with imported pork standards in some way, the critical mass of the pig farming sector will be severely threatened. Farmers will exit the industry and New Zealand's pork consumption will be provided by greater quantities of pork imports of a lesser and unquestioned animal welfare standard.

Already the confidence of the pig farming sector has been impacted. Farmers have been shell-shocked by the nature and scale of change proposed by NAWAC, including the negative animal welfare consequences and challenges associated with some of the NAWAC proposals, NAWAC's lack of meaningful consultation with the industry, and the estimates of costs provided by MPI's independent economic assessment. This is in face of over 60% of New Zealand's pork consumption being imported, at lower prices, the great majority of which have lesser standards than New Zealand's current standards.

The price differential with pork imports will further increase with the ratification of New Zealand's FTA with the EU and the removal of the current tariff of up to 5 per cent. The EU provides more than 70% of New Zealand's pork imports currently.

Next steps

We implore the government to work with the pig farming sector to confirm standards and agree to an implementation plan that is achievable for pig farmers to remain financially viable. We would welcome this opportunity to engage meaningfully.

If the government confirms realistic standards, and provides adequate time and adequate support, then the industry, the country, and the Government can all share in the reputation for a world leading pig farming sector.

If this is not the case, then the pig farming sector will be decimated, the New Zealand pork supply ravaged, and New Zealand born and raised pork will be a scarce and expensive product out of the reach of many New Zealanders. New Zealanders' pork consumption will be replaced by imports of lesser animal welfare standards.

NZPork submission on the Proposed Code of Welfare for Pigs and associated regulations

1. Introduction

The New Zealand Pork Industry Board (known as NZPork) is the body established under the Pork Industry Board Act 1997, funded by farmers, with the statutory Object: *to help in the attainment, in the interests of pig farmers, of the best possible net ongoing returns for New Zealand pigs, pork products and co-products;* and *in pursuing this object, to have regard to the desirability of the pork industry's making the best possible net ongoing contribution to the New Zealand economy.*

NZPork's submission therefore is made on behalf of New Zealand pig farmers, and particularly reflects the perspective of the commercial industry given its contribution to the New Zealand economy.

The New Zealand pork producing industry is very small in international terms, contributing less than 0.1% of international production. It is however a very resilient, technically savvy, sector within the New Zealand farming landscape, competing directly with larger international pork industries and existing without any government support at any time. There are less than 90 commercial farms, producing on average around 850,000 kg of pork each week of the year.

Key points to provide the relevant background to this submission are:

- Currently New Zealand's consumption of pig meat is 24.3 kg per capita (April 2022). A very significant amount (around 65%) of this pig meat is imported.
- Because of the significant volume of imports, New Zealand's pork producing industry is heavily influenced by the international feed and pig meat markets and other international events while maintaining its domestic focus.
- Within this context NZPork is focussed on supporting a world class sustainable industry. It invests farmer funds to support international good practice animal welfare, along with environmental practices, and to maintain its very favourable herd health status. Its objective is the production of safe and suitable food that consumers choose to purchase.
- NZPork's consumer research (March – April 2021) established that around three quarters of 1500 consumers surveyed said that both animal welfare (74%) and country of origin (73%) were important / very important factors in purchasing pork. However, these factors were well outstripped by price, with 88% rating price as important / very important.
- Given the importance of price as a purchasing criterion, productivity and efficiency improvements are a major focus for the industry in the face of competition from rapidly growing volumes of imports from countries operating on larger scales and to lesser standards than our own.
- New Zealand is unique in that there are certain areas (Canterbury and South Canterbury arable farming areas in particular) where climate, soil type and availability of straw enable outdoor farming. Around 45% of New Zealand's

breeding sows are farmed outdoors. The remaining proportion of the sow herd is indoors, reflecting common international pig farming practice.

- All farming types offer advantages and compromises in various aspects, including for animal welfare. On animal welfare grounds, NZPork does not preferentially endorse any farming system over any other, so long as the system provides for the welfare needs of the animals.
- Ultimately farmers choose the best option that works for their situation, which is determined by many factors including personal preference, staff availability, skill and experience, profitability, product differentiation, environmental considerations, land suitability and availability and animal welfare.
- Pig farming is not well understood by New Zealanders. It is a niche livestock farming sector within the livestock farming landscape which is dominated by dairy, sheep and beef production. Scrutiny of pig farming is focussed particularly on indoor farming and the use of confinement practices. NZPork's position is to utilise confinement practices for the minimum period required to provide for the welfare of the animals, recognising that indoor pig farms provide many benefits including efficient feed use, stable climate control, hygiene and environmental benefits in close management of nutrients produced.
- NZPork endorses New Zealand's Animal Welfare Strategy (Animal Welfare Matters, 2013) and the values underpinning it:

  - **IT MATTERS HOW ANIMALS ARE TREATED – IT MATTERS TO THE ANIMAL AND IT MATTERS TO US**
    Animals are sentient, which means they can feel pain and distress and have other experiences. All those experiences are important to the animal and it matters to us as a society how animals are treated.

  - **WE HAVE RESPONSIBILITIES TOWARD ANIMALS IN OUR CARE AND ANIMALS AFFECTED BY OUR ACTIVITIES**
    We have a duty to provide for the welfare of animals in our care, by attending to their physical, health, and behavioural needs. We also have a responsibility to avoid causing unreasonable or unnecessary pain or distress to animals affected by our activities.

  - **USING ANIMALS IS ACCEPTABLE AS LONG AS IT IS HUMANE**
    Animals play an important part in many aspects of New Zealand life, including food production, companionship and recreation, and research and teaching. Ideas of humane treatment evolve over time, and our standards of welfare need to keep pace with changes in scientific knowledge and good practice, available technology, and our society.

- It is critical to differentiate between public interest in animal welfare and animal rights activism which generally falls outside of the values underpinning New Zealand's Animal Welfare Strategy. NAWAC's guideline 07 clarifies the relevance

of "good practice" and "scientific knowledge" in understanding societal ethical values and technical viewpoints. While public opinion can be assessed from public consultation, it needs to be contextualised in accordance with NAWACs guideline 07, where it states:

> *"It is important to distinguish between background societal ethical values and current public opinion on particular matters, and to note that a surge of interest in a particular matter may or may not be a good measure of a change in general society's ethical values. Accordingly, NAWAC takes the term "societal ethical values" to mean the general background of thought in New Zealand society regarding what are and are not considered to be acceptable ways of caring for and managing animals. NAWAC will continue to distinguish these wider background values from current issues highlighted during a public consultation period."*

- NZPork takes its animal welfare obligations very seriously. It facilitated the development and implementation of PigCare™, the only whole of industry, independently managed and expertly verified and audited standard in New Zealand's primary production sector. The programme integrates New Zealand's already high animal welfare standards with a focus on farmer care, knowledge, experience and common-sense management by farmers operating pig farms on a daily basis. when it comes to providing for their animals' health and wellbeing.

Fit for a Better World

One of the foundational principles of Fit for a Better World is to create "*Quality products and a confident sector*", stating: "*We will support our food and fibres sector to meet increasing consumer demand for a secure supply of safe and healthy food, and for products that are produced and packaged ethically and sustainably.*" Fit for a Better World talks about the primary sector being a key pillar in the rebuilding of our economy post-pandemic, and states that the strategy has a goal of "*…increasing both the number of jobs in the primary sector and the participation rate of New Zealanders in those jobs.*" It goes on to say: "*We can help make sure that healthy food reaches all New Zealanders by building supply chain capacity to enable the redistribution of products to struggling communities*" and by taking steps to "*ensure our rural communities remain vibrant, resilient and sustainable.*"

The Agriculture, Food & Fibres Sector Vision and Strategic Direction Towards 2030 is described as being vision-led, business-driven, community-driven and government-enabled.

1) Vision-led:

> *"Our new sector Vision and Strategy will guide us towards becoming a leader in premium food and fibre categories. This is a starting point that will get us moving quickly in the same direction, guided by the principles of Te Taiao. It will give us a basis for competitive advantage that will underpin wellbeing and prosperity."*

Pork is the second most popular meat eaten in New Zealand (23 kg/capita/year) after chicken (40.2 kg) and is significantly above beef (11.6 kg) and lamb (4 kg) in terms of consumption per capita per year (OECD Meat Consumption Indicator, 2022). New Zealand pork producers are committed to operating sustainable and profitable farm businesses and, most importantly, producing safe, nutritious, and high-quality food for New Zealanders.

Currently they are only producing 35% of the pork consumed in New Zealand.

Relying on other countries to provide a popular food source does not align with us being a leader in food and fibre. It goes against our standing as a primary producer of sustainable wholesome products that feed the world if we are not able to feed our own population. We too want to be a confident sector producing quality, valued, ethical and sustainable products. The New Zealand pork industry has a very small environmental footprint, contributing just 0.1% of New Zealand's total GHG emissions.

2) Business-driven

> *"Understanding the context and the implications for our businesses and supporting industries is critical to achieving the sector transformation we want. We need growing and profitable businesses because they will help fund the change. This applies to businesses in every part of our sector. It will be important how we connect with businesses in other sectors too, such as banking, energy, and tourism, to create an across economy system change. We need to help businesses identify their transformational pathway, based on the next wave of innovations that is already happening around the world. This will include tuning into new consumer thinking and understanding how consumers will connect with us and our products, brands, and value chains."*

Growing and profitable businesses that feel supported and enabled will invest in change. It is important that pork producers have assurance and confidence to invest in any required changes.

In the last 12 months NZPork has progressed with projects co-funded by the Sustainable Food and Fibres Futures fund. Recently, a project has been approved to develop a consumer-based pork quality standard in collaboration with AgResearch. The aim is to work across the supply chain alongside New Zealand retailers, wholesalers, and processors, to identify eating quality thresholds for domestic consumers, defining criteria and targets for eating quality improvement. An intended outcome is to deliver premium returns for New Zealand pork producers and repeat purchase of New Zealand-born and raised pork when compared to imported pork, which will enable sustainable sector growth into the future.

New Zealand consumers value sustainably produced products. An additional ongoing SFFF project also in collaboration with AgResearch is the development of Pig Gas, a Greenhouse gas emissions calculator. The goal is to support farmer uptake of the Pig Gas model and collate information from users to form aggregate data of emissions profiles.

This will underpin input into the various workstreams of the He Waka Eka Noa Primary Sector Climate Change Commitment.

The New Zealand pork industry is also intending to apply for SFFF funding to support commercially-based research on pig farms to investigate the welfare, performance, and practicality of new systems and technologies with a focus on those used to accommodate sows and piglets at farrowing and during lactation.

3) Community-driven

> *"The principle of doing the right thing is part of the New Zealand psyche. Nurturing connection and respect draws on and builds on the best of who we are. Our ethical approach in our production, processing and marketing systems with respect to animals, people, soil and water needs to be world leading. It includes supporting fair transitions for people within our sector as we undergo transformation to achieve our Vision.*
>
> *Through this, we will gain the respect of our fellow New Zealanders, including young people who will view us positively as a sector to work in, in the future."*

The New Zealand pork industry supports change where it can be justified based on science. We have sought guidance from our technical advisers based on their scientifically informed best judgement of current scientific understanding, in the context of good commercial practice, practicality for farmers, and current societal views. We have identified areas where we feel that animal welfare science supports a change in practice which have been generally accepted by New Zealand's commercial pig farmers. They are substantial and meaningful and ensure that New Zealand commercial pig farmers continue to fully meet the requirements of the Animal Welfare Act 1999. These changes collectively demonstrate welfare standards that go beyond all major pig producing countries.

The economic analysis undertaken by NZPork on the impact of changes it is proposing clearly demonstrate the high capital costs of the required changes as well as economic losses from lower productivity resulting from these standards. The implementation of these changes will require adequate time and government support to be provided to farmers. All other countries which have, or are in the process of, transitioning to reduced confinement farrowing systems have received government support, an adequate transition time and / or market protection.

The transition period needs to factor in sufficient time for farmers to give due consideration to making investment decisions and structural changes to the business at a time which suits them. The timing of change needs to take into account the obsolescence of buildings and equipment, financial suitability, staff availability and training and such things as succession planning. The transition period needs to recognise that in many cases farmers will need time to experiment and trial new systems to identify a system that works for them. This is in addition to the time required to obtain resource and building consents *if possible* and then toproceed with the construction.

Environmentally, the New Zealand pork industry has a very small environmental footprint, contributing just 0.1% of New Zealand's total GHG emissions. New Zealand pork is a naturally very low emissions animal protein with a small environmental footprint relative to the alternatives. Pig producers were early adopters of covered anaerobic effluent ponds, which are used to capture methane and generate biogas. Biogas is then used as an energy source on-farm. An estimated 10% of the total sow herd, all indoor-based, have implemented this technology. Much like the offshoring animal welfare by putting the responsibility back on the countries we import pork from, importing pork is at odds with our commitment to move towards being a zero-carbon society. Further supporting the viability of New Zealand's pork sector will enable continued adoption of sustainable practices within our primary sector.

4) Government enabled

> *"Forming an effective industry-government partnership is central to achieving the Vision. Central and local government are significant funders and providers of many critical services, as well as a policymaker and regulator. We need to be clear about the roles of government and our sector to make sure we get the balance right. Regulation, in particular, can enable innovation and value creation by focusing on intended outcomes rather than prescribing activities, while also providing standards that address some behaviours that are too harmful and just can't be accepted."*

The pork industry is involved in a number of government partnerships. NZPork is a stakeholder in He Wake Eke Noa and is committed to playing its part in meeting New Zealand's emissions reduction targets.

NZPork is a Government Industry Agreement (GIA) partner, has just recently confirmed the support of commercial farmers to enter into an operational agreement for readiness and response activities for non-zoonotic pig-specific pests and diseases, is a member of the Livestock Sector Biosecurity Council actively participating in Foot and Mouth Disease (FMD) preparedness, a signatory in the Biosecurity Business Pledge, and a member of the Farm to Processor Animal Welfare Forum. NZPork is committed to proactive engagement for primary sector good. For example, in 2019 in partnership with MPI, NZPork (funded by levy payers) funded an awareness programme about African Swine Fever (ASF) targeted to non-commercial pig owners and hunters.

We have a history of delivering projects with co-funding from MPIs SFF/SFFF such as:

- Sustainable Outdoor Farrowing Systems for New Zealand (MPI Technical Paper 2018/12)
- Sustainable Dry Sow Housing and Management (Project No. 07/071)
- Good Practice Guide to Nutrient Management in Pork Production
- Loose Housed Farrowing Pens (Project No. 11 – 042)

We have collaborated with NIWA to trial and demonstrate the advantages of Covered Anaerobic Pond (CAP) systems for the collection and use of biogas from pig waste. The resulting system won the Small-Medium business category in the Energy Efficiency and Conservation Authority Awards (EECA) 2010. Currently we have two projects co-funded by SFFF and in collaboration with AgResearch, as mentioned above.

We agree that setting standards and regulations based on required animal welfare outcomes will ensure technical improvements and innovation remains possible, and that practices can continue to progress in a workable manner on farm as societal values continue to evolve.

It is no exaggeration to say that unless any new standards and regulations, including those proposed by NZPork are proactively managed by Government, with a range of mitigations confirmed and made public to accompany or precede the issue of the new Code and regulations, there will be a significant exit of farmers from the industry and subsequent impacts on the whole supply chain due to the loss of critical mass to sustain a domestic pork industry. The result will be less New Zealand pork available at a higher price, farms closed, jobs lost across the supply chain, rural communities affected, more imported pork, generating more food miles, and disadvantaging cultural communities in New Zealand.

2. The Legal Framework

The Animal Welfare Act 1999 provides for the welfare of animals in New Zealand. The Act sets obligations on people who own and are in charge of animals to provide for their welfare.

The purposes of the Act that are most relevant are set out in the Long Title to the Act, the purpose provision for Part 1 (section 9), which requires owners and persons in charge of animals to attend properly to the welfare of animals, and the purpose provision for Part 5, which covers codes of welfare (section 68). It is the codes of welfare which provide greater detail on animal management and care than is contained in the Act.

The relevant parts of the Long Title include:

> ***An Act—***
>
> *(a) to reform the law relating to the welfare of animals and the prevention of their ill-treatment; and, in particular,—*
>
> *(i) to recognise that animals are sentient:*
>
> *(ia) to require owners of animals, and persons in charge of animals, to attend properly to the welfare of those animals:*

The relevant parts of the purpose provision for Part 1 include:

9 Purpose

(1) The purpose of this Part is to ensure that owners of animals and persons in charge of animals attend properly to the welfare of those animals.

(2) This Part accordingly—

(a) requires owners of animals, and persons in charge of animals, to take all reasonable steps to ensure that the physical, health, and behavioural needs of the animals are met in accordance with both—

(i) good practice; and

(ii) scientific knowledge; and

Part 5 sets out the requirements for codes of welfare. Its purpose provision is:

68 Purpose

The purpose of this Part is to establish procedures for the development, issue, amendment, review, and revocation of codes of welfare that—

(a) relate to animals that are owned by any person or are in the charge of any person; and
(b) establish minimum standards with regard to the way in which persons care for such animals and conduct themselves towards such animals; and
(c) include recommendations on the best practice to be observed by persons in caring for such animals and in conducting themselves towards such animals.

2.1 Animal sentience

As noted above, explicit recognition of animal sentience is included in the Long Title of the Act, since the Act's amendment in 2015.

Sentience is not defined in the Act.

However, MPI encapsulates the concept of sentience in its description of Animal Welfare as follows:

*MPI has recognised Animal welfare is described as what an animal experiences, how it performs, or whether it lives in keeping with its nature. Animal welfare is often a compromise between animals' needs and humans' needs and desires – it is society that determines what compromises to animal welfare are accepted as necessary and reasonable. (*Refer: Animal welfare overview | Animals | NZ Government (mpi.govt.nz))

NAWAC understands animal sentience to mean that *animals have emotions, feelings, perceptions, and experiences that matter to them. These can be negative (such as pain or boredom) as well as positive (such as pleasure or comfort). We don't know whether animals' emotions, feelings, and experiences are similar to those of humans. We also don't know if they are felt with the same intensity. But they matter to individual animals and have an impact on their welfare. (Refer:* Animal sentience: their emotions, feelings, and experiences of life | NAWAC)

NAWAC has stated it has always considered animal sentience by way of recognising the different orientations – affective state and natural state – along with biological function.

The inclusion of sentience in the Long Title of the Act is an important contextual perspective within which to evaluate the specific requirements of care that are set out in the Act.

2.2 Principles of care

The Act contains several provisions that set out how animals are to be cared for.

One of the main provisions is section 10 of the Act and concerns the physical, health, and behavioural needs of animals.

Section 10 provides:

> ***10 Obligation in relation to physical, health, and behavioural needs of animals***
>
> *The owner of an animal, and every person in charge of an animal, must ensure that the physical, health, and behavioural needs of the animal are met in a manner that is in accordance with both—*
>
> *(a) good practice; and*
>
> *(b) scientific knowledge.*

Section 10 places a broad obligation on owners to care for their animals in a way that ensures their physical, health, and behavioural needs are met.

The Act's direction in section 10 that the physical, health, and behavioural needs of animals must be met in accordance with both good practice and scientific knowledge.

Neither of the terms "good practice" or "scientific knowledge" are defined in the Act. However, NAWAC has developed the following definitions of these terms for its use (see Guideline 06, paragraph 3):

"NAWAC takes "good practice" to mean a standard of care that has a general level of acceptance among knowledgeable practitioners and experts in the field; is based on good sense and sound judgement; is practical and thorough; has robust experiential or scientific foundations; and prevents unreasonable or unnecessary harm to, or promotes the interests of, the animals to which it is applied. "Good practice" also takes account of the evolution of attitudes about animals and their care."

Good practice does not necessarily mean established or current practice (NAWAC Guidelines 06). But it is a very different standard to, and a much lesser standard than, best practice.

"NAWAC takes "scientific knowledge", relevant to its areas of responsibility, to mean knowledge within animal-based scientific disciplines, especially those that deal with nutritional, environmental, health, behavioural and cognitive/neural functions, which are relevant to understanding the physical, health and behavioural needs of animals. Such knowledge is not haphazard or anecdotal; it is generated by rigorous and systematic application of the scientific method, and the results are objectively and critically reviewed before acceptance."

2.3 Physical, health and behavioural needs

Section 4 of the Act defines "physical, health, and behavioural needs":

> ***4 Definition of physical, health, and behavioural needs***
>
> *In this Act, unless the context otherwise requires, the term* ***physical, health, and behavioural needs****, in relation to an animal, includes—*
>
> *(a) proper and sufficient food:*
> *(ab) proper and sufficient water*
> *(b) adequate shelter:*
> *(c) opportunity to display normal patterns of behaviour:*
> *(d) physical handling in a manner which minimises the likelihood of unreasonable or unnecessary pain or distress:*
> *(e) protection from, and rapid diagnosis of, any significant injury or disease —*
>
> *being a need which, in each case, is appropriate to the species, environment, and circumstances of the animal.*

There are a number of important points to note about the definition of physical, health and behavioural needs. Each need is expressed in *qualified* rather than absolute terms. For example, paragraphs (a) and (ab) provide for "food" and for "water" but these are qualified by the words "proper and sufficient". Paragraph (b) provides for "shelter" but is qualified by the word "adequate". Paragraph (c) provides for the display of normal patterns of behaviour but this is qualified by the "opportunity to display". Paragraph (d) protects animals from "pain or distress" from physical handling but is qualified by the words "unreasonable or unnecessary" pain or distress. Paragraph (e) provides protection from and rapid diagnosis of injury or disease but is qualified by the word "significant" injury or disease.

The qualified rather than absolute nature of the need categories has been supported by the report of the Regulations Review Committee (2017) in response to a complaint by SAFE. The Regulations Review Committee stated:

"It is, on balance, our view that an appropriate interpretation to be given to the

requirement that animals be provided with the "opportunity to display normal patterns of behaviour" is that animals must be able to display a reasonable range of behaviours that are beneficial to the animal."

Each need category listed in the definition is qualified by the words "*appropriate to the species, environment, and circumstances of the animal*".

While the Act itself does not provide for a trade-off between categories of needs in section 4, NAWAC has recognised that in practice, balanced assessments of welfare need to be made (NAWAC Guideline 02). Thus, in certain circumstances, it may be appropriate to give different weightings to different welfare needs, depending on what is appropriate for the particular species, environment or circumstances of the animal. If different weightings are given to different welfare needs those approaches will also need to be based on good practice and scientific knowledge.

An example of this is the use of mating stalls for sows. Confining sows in a mating stall provides each sow with her own food, water and shelter. They do not have to compete with other sows for access to survival-critical resources. Restraint in a stall allows the sow to be inseminated using a method that avoids physical handling in a manner that could lead to distress. Sows in mating stalls are protected from injury as they are not subject to riding, mounting, and aggressive behaviours that are common in recently mixed group-housed sows and sows that are in oestrus. The trade-off against these provisions is that some opportunities to express certain behaviours are prevented, including elements of social and courtship behaviour, physical exercise and exploration. In addition, there needs to be consideration for staff health and safety issues around handling large animals both in close confined and in open areas. A one-person owner operator will not have the opportunity of a larger farm where two or more staff may be present to perform some husbandry tasks such as moving boars and oestrus sows.

The Act is also silent about how the needs of one animal may be traded off in relation to the needs of another. This is particularly relevant to pig welfare at farrowing, when the needs of both the sow and her piglets must be considered. Here also staff safety must be considered.

All animals are required to be provided with "protection from any significant injury" under section 4(e). The reduction in compliance with section 4(e) for piglets needs to be evaluated alongside the greater "opportunity to display normal patterns of behaviours" for the sow in moving to pen-based farrowing systems. although we do support providing sows with manipulable material before farrowing.

We acknowledge that to best provide for the *net* welfare of the sow and her entire litter of piglets it may not always be possible to provide the best welfare outcome for all, at all times, and in all environments. For example, the provision of welfare for the sow and her piglets in indoor and outdoor farrowing systems is different. Evaluation must be based on sound judgement of good practice and scientific knowledge, within the context the Act

requires which is "appropriate to the species, environment, and circumstances of the animal."

The conflict between categories of needs and the needs of different animals is discussed throughout our submission where it is relevant to an assessment of animal welfare.

The requirement for outcome-based standards is particularly relevant to New Zealand pig farms because of the very wide range of farming systems. No two farms will be the same in all respects. There will be differences in the layout of buildings, staffing levels, health status and financial structure.

2.4 Codes of welfare

The broad obligation in section 10 is intended to be supported by the minimum standards and recommendations for best practice contained in codes of welfare which provide considerably more detail in regard to the standards of care.

Minimum standards are the critical component of codes of welfare. They establish the *minimum* requirements for people to attend properly to the welfare of animals in their care in order to meet their obligations under the Animal Welfare Act.

Before deciding to recommend to the Minister to issue a code, NAWAC is required to be satisfied that the proposed minimum standards are the minimum necessary to ensure that the purposes of this Act will be met. Most importantly, NAWAC cannot recommend to the Minister a code that has standards that are more than the minimum necessary to ensure the purposes of the Act are met (section 73(1)(a)).

Minimum standards should be outcome-focused and measurable. A minimum standard should, as far as possible, describe the intended welfare outcome for the animal and be capable of measurement or assessment. Minimum standards have a force in law to the extent that failure to comply with one or more minimum standards may be offered as rebuttable evidence when a breach of the Animal Welfare Act is alleged. Demonstration that a minimum standard has been met or exceeded may be a defence against a charge under the Act. It is only the minimum standards in a code of welfare that can be used as firm evidence that a person has breached their obligations as an owner to provide for the welfare of their animals (section 13(1A) of the Act), and so potentially committed an offence under the Act.

Codes of welfare may also include recommended best practices, but such practices are simply aspirations.

2.5 Regulations

The 2015 amendment to the Act provided for regulations to be developed from some of the minimum standards in codes to allow for better enforcement of low to medium animal welfare offending.

Regulations essentially fill a compliance and enforcement gap between the Act and codes of welfare as they:

- are more specific than the Act
- are directly enforceable – unlike codes of welfare
- have appropriate penalties for low to medium offending.

2.6 Summary of Animal Welfare Act requirements

To summarise, the Act's requirements that are relevant to the Draft Code's minimum standards include the following:

- the standards must be the *minimum necessary* to ensure owners attend properly to the welfare of their animals;
- the welfare needs of animals that must be met are their *physical, health, and behavioural needs*;
- the welfare needs are qualified, not absolute
- the physical, health, and behavioural needs must be
    1. in accordance with *good practice and scientific knowledge*;
    2. the needs must be *appropriate to the particular species, environment, and circumstances of each animal*;
- the Act does not explicitly consider how needs categories can be balanced, nor how needs of two animals can be balanced. Judgement based on good practice and scientific knowledge is required.

2.7 Judicial review proceedings

In 2020 the High Court determined that the minimum standards and regulations for farrowing crates and mating stalls were unlawful and invalid, and directed the Minister to consider making new regulations setting a transition period to phase out farrowing crates and mating stalls and amend the relevant minimum standards accordingly.

The basis of the High Court judgement was that NAWAC's reasoning and process were flawed, in that NAWAC, as its case was presented, appeared to 'change its mind' from 2010 (and previously) to 2016, following NAWAC's in-depth review of farrowing crates. The judgement interpreted that NAWAC 'changed its mind' to avoid putting in place a transition period that would have been required under the 2015 amendment to the Act which removed the 'exceptional circumstance' clause.

The judgement stated that it was not for the court to rule on the "*desirability or otherwise of particular pig farming practices.*" The Court's role was to assess whether powers have been exercised lawfully, and whether decision-makers (i.e., regulators, Ministers) have adopted an appropriate process when enacting their decision-making powers. Any consideration of the systems and science and good practice, including workability, underpinning farrowing and mating practices was out of scope.

2.8 New regulations on farrowing crates and mating stalls

Following the High Court determination, Cabinet authorised regulations covering farrowing crates and mating stalls, essentially extending the status quo. The regulations came into force on 18 December 2020 and expire on 18 December 2025.

At that time, MPI advised NZPork that "*the purpose of these regulations is to allow farmers who are currently using farrowing crates and mating stalls to continue doing so as long as they comply with the new regulations. This provides short-term certainty for the industry and follows talks on the issue between NZ Pork, the Ministry for Primary Industries and the Government.*"

"These regulations have an end date in 2025 however they will be updated based on NAWAC's code review process (currently underway), which is likely to recommend further regulations are made."

These regulations (Animal Welfare (Care and Procedures) Amendment Regulations (No 2) 2020) were made under section 183A (2) of the Animal Welfare Act 1999 which cover practices judged not to fully meet the obligations of the Act, and for which a transition period is required.

As MPI noted at the time, the regulations will be updated based on NAWAC's code review. The code review was expected to confirm the nature of a new minimum standard and recommend further regulations are made. The regulations would require a transition period to be set. NZPork agrees that scientific knowledge and good practice is now at the stage that options are available which better balance the welfare of the sow and her piglets than the traditional use of farrowing crates.

The transition period set will be based on an assessment of impacts, including the economic impact of implementing the new minimum standard and regulations, which will be at a substantial cost to farmers and also time-consuming to design and build new facilities.

Importantly the new minimum standard (and regulations) has not yet been set so the transition period cannot yet be determined, because the practice that is being transitioned to and the time and financial investment required to achieve it is not yet known.

3. Public consultation on the draft Code – some concerns with the process to date

Minimum standards must be assessed based on good practice and scientific knowledge

NAWAC is established as an expert committee. But NAWAC is not an expert committee on pig farming. NAWAC has no good practice pig farming knowledge or experience on the implementation of proposed changes.

This is evidenced by NAWAC's lack of understanding of the unintended animal welfare consequences of setting a minimum weaning age (refer our response to Qs 11 -12, and

41 – 43), and also its proposals around a massive increase in minimum space allowance for growing pigs (Qs 8 -10, and 38 -40).

NAWAC made insufficient effort to harness good practice knowledge into its evaluation. NAWAC completely excluded NZPork and its technical experts from its Pigs Sub-committee considering farrowing crates and mating stalls. NAWAC did undertake some information gathering by way of farm visits, an industry presentation and one industry discussion but there was no discussion around specific proposals. There was limited questioning or discussion with farmers regarding the possible impacts of any changes on the farm visits.

There was purportedly industry representation on the 'Code drafting working group' that was established to consider the content of the Code (apart from farrowing crates and mating stalls). At no time was there any mention of the k value of 0.072 to set a minimum space allowance for growing pigs - this was a complete surprise when the draft code was presented. There was no discussion at all on the intention to propose a regulation setting a minimum weaning age for piglets or for changes to tail docking methods, as NAWAC had not got up to this stage of the review of the code content when meetings of the working group were discontinued.

An early 'pre-consultation' version of the draft Code (excluding any mention of draft proposals for farrowing crates and mating stalls) was provided for rushed farmer feedback in March 2021, allowing only 13 elapsed (not working) days for farmers' consideration. At this time there was no consideration of a k value of 0.072 for the minimum space allowance for growing pigs, no discussion at all on the intention to propose a regulation setting a minimum weaning age for piglets or for changes to tail docking methods, and no inclusion at all regarding farrowing crates and mating stalls.

NAWAC's lack of any pig farming expertise among its expert members, its lack of engagement with industry expertise when developing the draft Code (as required by s 71(1)(e) of the Act) and its inability to foresee the unintended animal welfare consequences of its proposals raises serious questions about NAWAC's ability to properly carry out its statutory functions.

NAWAC's science basis is not balanced

NZPork has commissioned expert independent peer review of elements of parts of the science presented by NAWAC to support its positioning.

A peer review of NAWAC Five Domains Assessment, entitled A scientific commentary on the National Animal Welfare Committee (NAWAC) Report titled "Five Domains Model assessment of the relative impacts of a range of farrowing and mating management options on the welfare state of sows and piglets" is included in Appendix A.

This review was conducted by Professor Paul Hemsworth, Dr Lauren Hemsworth, Rutu Acharya and Professor Alan Tilbrook.

Professor Paul Hemsworth is the founding Director of the Animal Welfare Science Centre at and is a world-renowned expert in the effects of human-animal interactions on farm animal productivity and welfare which has greatly improved our understanding of the influence of human attitudes and behaviour upon stress, productivity and welfare. A considerable amount of this work has been focused specifically on pigs.

Dr Lauren Hemsworth is a Senior Research Fellow, Faculty of Veterinary & Agricultural Sciences, The University of Melbourne. Research interests include the human-animal relationship and its influence on animal welfare and productivity, field welfare assessment in farm and companion animals.

Rutu Acharya is a Research Assistant at the Faculty of Veterinary & Agricultural Sciences, The University of Melbourne. Rutu assists in the conduct of research projects across animal species including pigs and is a co-author of peer reviewed articles on the subject of sow maternal behaviour, piglet welfare and human-farm animal relationships.

Professor Alan Tilbrook is nationally and internationally recognised for leading scientific research in animal science and biomedical science (endocrinology, neuroendocrinology, behaviour, stress, and reproduction). He is a global leader in animal welfare science and is the Managing Director of The Animal Welfare Collaborative (TAWC), which is a university-facilitated network of individuals, companies, and organisations working together to make evidence-based improvements in animal welfare.

A separate paper by Dr Lindsay Matthews provides an expert independent peer review of the science used by NAWAC to develop proposals for minimum standards for:

- Farrowing crates
- Weaning age
- Space for grower pigs

Dr Matthews has served on NAWAC, was responsible for establishing the national Animal Behaviour and Welfare Consultative Committee (ABWCC), is a long-standing member of several scientific societies including Council member and Regional Secretary for the International Society for Applied Ethology (ISAE), and has a strong international reputation in the area of animal behaviour and animal welfare research.

This paper is provided in Appendix B.

The purpose of Codes of Welfare are to establish minimum standards, but NAWAC is using Codes of Welfare to meet the ever-increasing demands of animal welfare interest groups to keep raising those minimum standards

NAWAC acknowledges that the proposed changes to minimum standards in the draft Code of Welfare "*will be transformational for the industry*" (Evaluation paper, p 27). However, it is not a statutory function or purpose for NAWAC to transform industries.

Since 2005 NAWAC has muddled minimum standards, best practice recommendations and directions of change for farrowing crates. The recommendation to actively investigate alternatives to the traditional use of farrowing crates has been the basis of NAWAC's advice for many years – reflecting international interest in identifying farrowing systems which have the benefits conferred by farrowing crates while providing the sow with increased opportunity to express a greater range of behaviours.

Both the 2010 and 2018 Codes provided for five days confinement for sows prior to farrowing and up to four weeks confinement after farrowing. The 2010 Code (repeated in the 2018 Code) contained the following aspirations:

"Meeting the needs of piglets can conflict with the needs of the sow, so systems used to manage farrowing sows and suckling piglets have to balance their differing requirements…."

"As stated in the 2005 code of welfare, NAWAC wants to see indoor housing systems shift progressively to those in which the lactating sow and piglets have the benefits conferred by farrowing crates while giving an increased opportunity to move and express a greater range of behaviours, including nest building. NAWAC strongly encourages the industry to identify and adopt such systems as soon as possible."

Both the 2010 and 2018 Codes also contained the same best practice recommendations that sows should not be confined for more than 10 days after farrowing.

The only in-depth analysis that NAWAC has done was its study reported in 2016 Microsoft Word - Farrowing Crate Advice 14 MARCH 2016.docx (nawac.org.nz) where it stated:

"The Committee considers that the use of farrowing crates for the limited period of five days prior to farrowing and four weeks afterwards should be retained. Although NAWAC believes that the confining of sows in farrowing crates for this length of time does not provide for every behavioural need of sows, their use provides the best welfare outcome for the welfare needs of piglets and the best total welfare of piglets and sows, based on currently available farrowing practices and scientific knowledge and as appropriate to the environment and circumstances of the animals. At this time, the minimum standard in the current code is the minimum necessary to ensure that the purposes of the Act are met. NAWAC does not consider that there is any practical alternative system that provides comparable levels of piglet welfare while better meeting the welfare needs of sows."

Now, only six years later, NAWAC is proposing two very different minimum standards that far exceed any previous best practice recommendation: a complete prohibition on the confinement of a sow before or after farrowing; or confinement for no more than 3 days after farrowing.

The proposed changes to farrowing come shortly after the significant changes introduced by the 2010 Code, restricting the use of dry sow stalls to no more than four weeks after mating between 2012 and 2015, and prohibiting the use of dry sow stalls after mating from 2015 onwards.

The speed and significance of these changes have already resulted in a significant decline in the number of commercial pig farmers. This number has continued to decrease by 50% over the last 10 years demonstrated by one pork wholesaler whose number of farmer suppliers has reduced from 30 to 15 in that time. At present the industry is down to about 85 commercial farms producing 625,000 pigs annually. This number will continue to decline if regulations force changes that involve large amounts of capital to be invested, and those same changes make the farms less productive and subsequently less profitable.

Farmers have had no certainty about standards, and this has greatly affected farmers' confidence to invest the future. It has undoubtedly impacted on their mental well-being. NAWAC has undertaken complete reviews of the Code of Welfare for Pigs in 2005 and 2010; followed by an in-depth investigation of farrowing crates in 2014 – 2016. The Code was re-issued in 2018 incorporating the 2018 Care and Conduct regulations. Now in 2022

NAWAC is proposing very major changes. The frequent reviews and significant changes where proposed minimum standards far exceed recent best practice recommendations casts real doubt on whether some of the changes in the latest iterations of the Code of Welfare of Pigs are really minimum standards or rather are political judgements attempting to satisfy the demands of some very small, but very vocal interest groups.

Minimum standards must be the minimum necessary to meet the purposes of the Act

The Act is very clear that the minimum standards must be the minimum to meet the purposes of the Act. NAWAC must be satisfied that this is the case before deciding to recommend a code to be issued by the Minister (section 73(1)(a)).

In respect of space allowances for grower pigs: confusingly, NAWAC has put forward two proposals for a minimum standard. NAWAC states in its Evaluation paper (p 35) *NAWAC is satisfied that both options comply with the purposes of the Act.* But minimum standards are required to be the minimum necessary to meet the purposes of the Act. The two options cannot both be the minimum.

Similarly for farrowing crates, two options for a minimum standard are presented. Here also NAWAC states in its Evaluation paper (p 19) *NAWAC is satisfied that both proposed options comply with the purposes of the Act.*

Two very different minimum standards cannot both be minimum standards. At least one, if not both, of the proposed minimum standards will be clearly inconsistent with the requirements of s 73(1)(a) of the Act.

Animal welfare is a science, but it also involves judgement (as qualified by good practice and an assessment of the needs of an animal, which in each case is appropriate to the species, environment and circumstances (sections 4 and 10(a) of the Act). There is some legitimate scope for differing views among experts, however some of the proposed options for "minimum standards" proposed by NAWAC vary widely.

If NAWAC members have legitimate differences of opinion about a minimum standard, those differences should be mediated, further advice should be sought, or one of the views should be recorded as a minority view. (S 74(2)(c) of the Act already makes provision for differences of opinion to be recorded by NAWAC when recommending a Code of Welfare to the Minister, but the Act makes no provision for two different minimum standards about the same matter).

NAWAC's proposals for widely different "minimum standard" options makes it difficult to persuade farmers or even members of the public that NAWAC's proposals have a credible scientific basis. A farmer is justified in believing that the minimum standards they apply are just as valid, if not more valid, than the range of options proposed by a statutory body with no pig farming expertise, which proposes minimum standards that far exceed the most recent best practice recommendations, and which contain widely different "minimum standards" as options.

Before a draft Code is released for public consultation NAWAC must be satisfied that representatives of the persons likely to be affected by the draft have been consulted about it

NAWAC did not "consult" with NZPork (the representative of persons likely to be affected by the Code, s 71(1)(e) of the Act). The cursory involvement of NZPork and its technical advisers has been explained above.

NAWAC's obligation to consult NZPork under s 71(1)(e) of the Act before publishing a draft code of welfare is more than a summary requirement. The legal requirements for consultation are well established and encapsulated in the following quotation from the leading consultation decision in *Wellington International Airport Ltd v Air New Zealand* (refer [1993] 1 NZLR 671 (CA) per McKay J at pp 683-684).

If the party having the power to make a decision after consultation holds meetings with the parties it is required to consult, provides those parties with relevant information and with such further information as they request, enters the meetings with an open mind, takes due notice of what is said, and waits until they have had their say before making a decision, then the decision is properly described as having been made after consultation.

As noted above:

- NAWAC excluded NZPork and its technical experts from its Pigs Sub-committee considering farrowing crates and mating stalls;
- The 'Code drafting working group' –
    - did not consider farrowing crates or mating stalls;
    - contained no mention of the k value of 0.072 to set a minimum space allowance for growing pigs;
    - contained no discussion at all on the intention to propose a regulation setting a minimum weaning age for piglets or for changes to tail docking methods;

- The early 'pre-consultation' version of the draft Code was provided for rushed farmer feedback in March 2021, allowing only 13 elapsed days for farmers' consideration and did not contain any mention of –
    - the draft proposals for farrowing crates and mating stalls;
    - a k value of 0.072 for the minimum space allowance for growing pigs;
    - the intention to propose a regulation setting a minimum weaning age for piglets or for changes to tail docking methods.

Two key aspects of the review of the Code (farrowing crates and mating stalls) were addressed separately to the Code drafting working group by a subcommittee that did not include any industry representation. Furthermore, there were unexpected changes to the Code between the conclusion of the 'Code drafting working group', the "pre-consultation" draft of February 2021, and the draft version issued for public consultation in April 2022. If NZPork had been consulted as required by s 71(1)(e), then this would not have been the case.

A consultation period of only 10 weeks is an unfair burden on farmers

Feedback from commercial farmers is that the amount of material provided, and the substance of the consultation questions, is quite overwhelming. Not only do farmers have to consider all the material but the consultation questions require them to assess the impact including feasibility on their own operations. Farmers are generally fully committed on their own farms. Submitting on proposals that have such a significant impact on their future in many cases has had to be an after-hours task.

Various estimates from farmers as to the time taken to complete a submission were 30 – 40 hours, 60 hours, and 80 hours – not including thinking time, which might be in the middle of the night. Feedback from other farmers was that they would not be able to do their submission justice given work pressures.

The perception is that NAWAC took 18 months to get to the point of releasing its draft proposals, but farmers have been given just 10 weeks to respond.

We concur with similar comments in Dairy NZ's submission on their Code review process e.g.:

- This volume of change is difficult to review and analyse to provide valuable feedback on
- We are concerned that this consultation will not be able to provide for adequate feedback from affected parties (such as farmers) due to the complicated nature of what is being proposed
- Some changes to the Code are overly prescriptive and not drafted in a way that focuses on desired welfare outcomes

Concerns with some of the consultation questions

NZPork's assessment supported by feedback from farmers is that some questions are leading.

For example, Questions 1 and 8 (addressing farrowing systems and space for grower pigs respectively) ask respondents which of the two options they support, not whether they support either of the two options. Both these questions are however followed by a question asking if there may be another option that may be considered.

The questions on regulations and transition periods only consider the two options provided They do not ask questions about any alternative option that the respondent may have proposed for consideration. Not only are respondents asked to invest considerable time in assessing options that they do not support, but more critically, the implication is that these are the only two options under consideration.

This is further evidenced by media and public commentary focussing on the two available choices which in our view railroads submission respondents considering their responses.

NZPORK'S RESPONSES TO QUESTIONS CONCERNING DRAFT PROPOSALS

FARROWING

Q1. Do you support Option A (Free Farrowing) or Option B (Temporary Crating)? Why / why not?

We do not support either Option A or Option B as currently worded for Minimum Standard No.10. In principle we support having options for both free farrowing and temporary crating so that farmers can choose to adopt a system based on their situation, circumstances and preference. For this to be the case and to enable research, refinement and innovation in what is a rapidly developing body of knowledge and application, neither option should be so prescriptive as is proposed in this draft code.

The scientific literature demonstrates that piglet mortality is higher in freedom farrowing systems (Option A) compared to those that enable some degree of confinement of the sow. Piglet survival is improved with the use of a farrowing crate during the critical period of a piglet's life (Moustsen et al., 2013; Hales et al., 2014; Goumon et al., 2022; Heidinger et al., 2022). As over 80% of piglet deaths occur during the first week after farrowing, this period represents a highly vulnerable stage of a piglet's life and the most critical time for ensuring their nutritional, thermal, health and behavioural needs are met to promote good welfare and survival. Piglets die from a variety of causes. Crushing by the sow has been reported as the most common (accounting for between 19% and 58% of live born piglet deaths), followed by low viability (2%–30%), starvation (5%–20%) and diarrhoea (10%) (Kilbride et al., 2012; Roehe et al., 2009).

Option A could lead to negative outcomes for sows where staff are unable to safely handle a sow for the purposes of treatment or examination. This could lead to delayed treatment or necessitate excessive handling, causing unnecessary stress. There is not even an ability to briefly restrain the sow for animal management purposes in the event that she or her piglets need treatment or examination. Switzerland, Sweden and Norway do not permit routine temporary crating of sows but all of these countries allow sows to be confined if they are exhibiting aggressive or abnormal behaviour (ranging from approximately 3 – 7 days). Germany and Austria are the only other countries that have introduced legislation to phase out the current use of farrowing crates, with both allowing sows to be routinely crated for 5 days post-farrowing.

Research on piglet mortality in pen based systems

NAWAC has provided a summary of 18 publications that reported pre-weaning piglet mortality levels in farrowing crates and pen-based farrowing systems (Table 1, page 23 - 25 of the Code evaluation document). A recent review of alternative farrowing systems (Goumon et al., 2022) discussed the limitations of existing studies which is pertinent to highlight here. Many have small sample sizes, which limits the conclusions that can be made as to whether differences between experimental treatment groups (or a lack of difference between experimental treatments) were significant or not. This is particularly relevant when interpreting piglet mortality data. Many studies do not report a standard

deviation, which does not enable an analysis of the coefficient of variation to determine whether the studies had a sufficient statistical power.

NAWAC has acknowledged that their comparison was simplistic and that it does not account for large variations between husbandry methods and pen types and individual sow performance. We would agree with this statement and urge cautious interpretation especially when comparing studies. Even within a study, a minimum of approximately 150 litters per experimental group is required to detect a difference in piglet mortality of 0.2 piglets per litter at a power of 0.8 – which calls into question the significance of the results in the majority of existing research (Goumon et al., 2022). Some studies comparing piglet mortality in farrowing pens and farrowing crates have as little as 8 sows per treatment (e.g., Zhang et al., 2020). A sample size of approximately 400 sows and litters per treatment group would be required to detect a difference in mortality of 1% if different farrowing systems are being compared, assuming 5% variance and a power of 0.8. When results are presented as either 'not significantly different' or 'significantly different' it is important to critically evaluate the methodology (i.e., experimental design and the number of observations per treatment group) and the biological significance of the reported results.

Goumon et al. (2022) made the point that there is a lack of long term and commercially based data. Many of the published studies do not provide enough detail about piglet mortality, pen types, or management. The exceptions to this were Hales et al (2015) and Chidgey et al. (2015). Hales et al (2015) compared different combinations of confinement pre- and post-farrowing as follows:

- loose–loose (LL) (N = 682 sows). Sows were loose housed from the time they entered the farrowing pens to weaning
- loose–confined (LC) (668 sows). Sows were loose housed until the completion of farrowing, and then confined to day 4 after farrowing
- confined–confined (CC) (658 sows). Sows were confined at d 114 of gestation to day 4 after farrowing.

The data were collected from one commercial pig farm in Denmark that was using SWAP pens. All sows were loose housed from day 5 to weaning.

Total piglet mortality was greater in LL (26.0%) and LC (25.4%) compared with CC (22.1%; $P < 0.001$). A larger proportion of piglets was crushed in LL (10.7%) compared with LC (9.7%; $P = 0.03$), which again was greater than CC (7.8%; $P < 0.001$). Total born alive averaged 17 piglets per litter in this study, which involved hyperprolific Danish sows. Whilst the absolute levels of piglet mortality are likely higher than would be expected to occur in New Zealand given smaller litter sizes here, it is clear that there was an advantage to piglet survival when sows were confined for a longer period (e.g., CC sows vs. LC or LL sows). This was also the case for crushing-related deaths specifically, which are a significant piglet welfare concern.

Chidgey et al. (2015) compared sow and piglet performance between conventional farrowing crates (N = 338 sows) and pens with temporary confinement to day 4 post-farrowing (N = 398) over 14 farrowing batches spanning approximately 18 months. This data was collected from a commercial farm in New Zealand operating two different farrowing systems simultaneously. Many factors were the same between treatments including stockperson skill, sow genetics, nutrition, management, and herd health status. The results showed that piglet mortality was higher in pens with temporary crating (10.2%) compared with farrowing crates (6.1%). After day 4 post-farrowing a greater proportion of piglets died in pens due to being crushed (42.5%) compared to crates (30.8%) in the same timeframe.

Welfare compromise and causes of death in piglets

Newborn piglets are born with relatively low energy reserves, and the immune system of the neonate is anatomically and functionally immature given that maternal antibodies do not cross the placenta of the sow (Alonso-Spilsbury et. al. 2007). Cold exposure begins at birth with a rapid drop in temperature (by 15 to 20°C) whilst transitioning from the intrauterine environment to ambient temperature conditions. In unsuckled piglets, liver glycogen stores reach minimum levels at 12-18 hours, whilst muscle glycogen stores reach minimum levels at 26-48 hours of age (Lay et. al. 2002). Piglets are born virtually hairless, wet, and have no brown adipose tissue to help facilitate non-shivering thermogenesis (Herpin et. al. 2002). Indeed they have very little adipose tissue at all when newly born and almost no insulating subcutaneous fat. In short, they are physiologically and immunologically vulnerable at birth, and very susceptible to the effects of chilling, starvation, colostrum deprivation and crushing.

Crushing

An important consideration when assessing the welfare impact of crushing is whether or not piglets were conscious during the event, as dull consciousness reduces the noxious effect of a negative affective experience (Mellor and Stafford, 2004). A study examining crushing behaviour of 24 sows and the subsequent survival of crushed piglets found 95% of piglets survived being crushed for <1 minute, but only a third survived being crushed for >4 minutes (Weary et al., 1996). Piglet distress calls are correlated with crushing events to the extent that the 'piglet scream test' has been used in many previous experiments to evaluate a sow's maternal responsiveness by simulating an overlaying or trapping event (Cronin & Cropley 1991; Wechsler and Hegglin 1997; Andersen et al, 2005). Only conscious piglets would be capable of emitting a distress vocalisation during crushing to induce a reactive response from the sow. The use of a piglet vocalisation cue to simulate a sow's response to a crushing situation suggests that it is highly likely piglets are conscious for at least some period during crushing events. As such they are likely to have a negative affective experience.

For the piglets that die after being crushed for a prolonged period, it is suggested the mechanism is asphyxia and subsequent reduction of blood oxygen levels. Likely mechanisms involved in fatal asphyxia episodes include: external airway obstruction or

smothering (occluding the external air passages e.g., nose or mouth); extrinsic compromise of thoracic cage function (body wall compression restricts movement of the respiratory muscles e.g., the intercostal muscles and the diaphragm, reducing lung capacity during inspiration): and intrinsic compromise of thoracic cage function (e.g., multiple rib fractures and tension pneumothorax) (Byard and Jensen, 2007).

During piglet crushing, external airway obstruction and extrinsic compromise of thoracic cage function are the most likely explanation underlying death by asphyxia. Breathlessness describes a subjective state representing a negative affective experience. Breathlessness may be associated with visible outward signs such as dyspnea or labored breathing, which cannot clearly explain mental states, especially in animals (Beausoleil & Mellor, 2015). Elements of breathlessness experienced by overlain piglets may also include air hunger and respiratory effort where thoracic movement is restricted (Parshall et al., 2012). In summary, the likely affective states experienced during crushing would be pain, fear, panic, dizziness, breathlessness, and helplessness.

Starvation and hypothermia

Several studies show a relationship between energy metabolism and thermoregulation in neonatal piglets. The rectal temperature of piglets at 24 hours post birth correlates positively with colostrum ingestion (Muns et al 2016; Devillers et al 2011). Hence, deaths due to starvation are often associated with hypothermia and vice versa. Piglets deprived of colostrum that experienced ambient temperatures of 34°C could not maintain their body temperature and began to experience cold stress resulting in increased use of their energy reserves through gluconeogenesis (Kammersgaard et al., 2011). The likely affective experience associated with hypothermia will depend on its severity (mild, moderate, or severe), duration (minutes to hours) and whether the severity is of a magnitude that leads to depressed cognitive function (Mellor and Stafford, 2004). As hypothermia progresses in piglets that are aware, they may endure negative mental states including thermal discomfort, lethargy, exhaustion and confusion (Mellor et al., 2009). Conscious piglets that starve to death will experience severe hunger. If this is accompanied by hypothermia, the experience may not be continuous given a reduced level of consciousness as both conditions progress (Mellor and Stafford, 2004). Without the impedance of hypothermia, however, piglets would likely experience hunger, thirst, dizziness, and weakness due to hypoglycemia as the effects of starvation advance.

Mortality range

The range in preweaning piglet mortality in pen-based farrowing systems reported across publications varies significantly. In loose farrowing systems it may range from 11.7% (Hales et al., 2014) to 31.9% (van Wettere 2017). With temporary crating for 3 to 5 days post-farrowing it has reportedly ranged from 10.2% (Chidgey et al., 2015) to 21.5% (Condous et al., 2016); and from 11.6% (van Wettere 2017) to 21.6% (Condous et al., 2016) when confining sows for up to 7 days. Two studies that confined sows for either 10 or 14 days post-farrowing reported pre-weaning piglet mortalities of 12 – 15% (Lambertz et al 2015; Nowland et al., 2019). The only clear conclusion from these studies is that there is

considerable variation in performance results, and welfare outcomes, given the range in mortality levels. What is not clear are the interacting factors e.g., duration of confinement *and* space *and* pen design features (level of piglet protection) *and* parity, *and* previous experience, *and* litter size *and* stockperson skill, etc. The results are similarly variable when considering pen size.

In the 'Evaluation of the Code of Welfare: Pigs' report discussing outdoor piglet mortality in New Zealand (page 26 – 27), NAWAC states that:

"The project "Sustainable Outdoor Farrowing Systems for New Zealand" (Morel & Barugh, 2018) identified litter size and farm management/skilled staff as key factors for reducing piglet mortality on New Zealand farms, and NAWAC ***encourages further work to reduce piglet mortality****."*

In the next paragraph:

"NAWAC acknowledges that there will be a ***higher risk to piglet survival if loose farrowing systems are adopted*** *but can see no reason why pre-weaning mortality rates should exceed current losses in outdoor systems used by 45% of the New Zealand industry today - with mortality rates reported to vary from 15% to 25% between farms."*

So, on the one hand the pork industry is being encouraged to reduce piglet mortality in outdoor systems, but on the other, it is acceptable to convert to farrowing systems indoors that have higher piglet mortality than is currently achieved, so long as they don't exceed that of outdoor systems – despite encouragement to reduce piglet mortality in general.

Q2. Would Option B (Temporary Crating) meet the minimum animal welfare requirements of the Act? Why / why not?

We support the *principle* of Option B, whereby temporary confinement is permitted. We do not support the proposal as written in NAWAC's recommendations.

The use of a farrowing crate for a short period after farrowing would meet the requirements of the Act when considering both the sow and piglets. Temporary confinement enables husbandry tasks such as farrowing supervision, intervention and physical examination of the sow during/after parturition, and the administration of treatment or medication for the sow when required. It enables sows to be cared for in a manner that is not disruptive or stress inducing (for the sow or piglets) by excessive handling. This is important for minimising welfare impacts in general. Once sow are loose in the pen, they have physical freedom and opportunities to display a range of behaviour including maternal, exploratory and social behaviour.

Compared to freedom farrowing systems, temporary confinement in a crate would enable essential husbandry tasks/ interventions involving piglets such as reviving those that need assistance following birth, cross fostering to ensure all piglets receive colostrum and have ownership of a functional teat, assistance to latch onto a teat, the administration of treatments or medication including iron supplementation, drying piglets, moving chilled piglets into the heated creep area and intervening when crushing or trapping events happen. These essential tasks are much better enabled by temporary

confinement, and all contribute to providing for piglet welfare in addition to reducing crushing injuries and deaths by restricting the sows' movement at a time when piglets are most at risk. This is supported by the findings of many peer reviewed scientific research articles that have been published comparing the effect of the duration of confinement in a crate on sow behaviour and piglet survival.

Pen size

We would like to address the minimum size of a farrowing pen that has been specified for Option A (freedom farrowing) and Option B (temporary crating) in Minimum standard No. 10, which is 6.5m^2. We are not aware of any literature that has determined what the optimal farrowing pen size is to provide for sow and piglet welfare. NAWAC has not explained or justified how they arrived at a minimum pen size of 6.5m^2.

A pen size of 6.5m^2 is excessive. Large pens do not enable the thermal needs of piglets to be met and therefore impede their achievement of successful thermoregulation. Piglets do not learn to use the creep reliably for a number of days after being born. In large pens, piglets will find it more difficult to locate the creep area and can spend a significant amount of time expending energy soon after birth by wandering around in a large area that is much lower than their required temperature shortly after birth. The further away piglets wander from a heat source, the less likely they are to identify the thermal gradient arising from the heated area. Those that lie against the sow instead of in the safe creep area are at a much greater risk of being crushed or injured as the sow changes posture.

The size of a farrowing pen is just one of many aspects to farrowing pen design that needs to be considered to provide for welfare, including:

- the design of the creep area,
- escape/retreat areas for piglets,
- how to provide supplemental heating,
- comfortable flooring,
- separation of lying and dunging areas,
- preventing draughts at piglet level,
- easy to clean construction materials to maintain hygiene,
- ease of stockperson access and supervision,
- the ease with which sows are moved into and sows and piglets are moved out of a pen, and
- how to set up feed and water provision.

For this reason, we need standards that enable pig farmers to choose from the range of existing options (or develop a design) that will best meet the needs of their pigs, that enables the adoption of new technology or systems that are currently in development or may be introduced in future.

A recent publication by Heidinger et al. (2022) tested 5 different pen types and four different durations of crating (no confinement, or confinement ranging from 1 day before until up to 5 days post farrowing) on three research farms (N = 638 litters in total). The

average preweaning piglet mortality was 19.2% across all three farms, and nearly 70% of piglet deaths were due to crushing. Live-born mortality and mortality due to crushing was significantly higher when no confinement was applied compared to sows that were crated, regardless of the duration. Three of these pen types were 5.5m^2, and the authors concluded that these pens were not outperformed by the two larger options that were also tested.

Many of the above elements were evaluated in a project comparing ten different farrowing pens under identical conditions in a commercial farm with 1,000 sows (Hansen, 2018). The factors that were evaluated were considered essential for the sow, piglets, and staff in terms of the day-to-day use. No analysis of performance was carried out as it was focused on an operational evaluation primarily, through assessing a variety of environment and management-based indicators (safety, design, ease of supervision, ease of providing obstetric aid) and animal-based indicators (lesion scoring, use of the creep, cleanliness of sows and piglets). Data was collected from 583 sows, or nearly 60 farrowings in each pen type. A scoring system ranging from 'poor' to 'very good' was used to evaluate each parameter. Unsurprisingly, no pen scored "good" or "very good" in all parameters and while it improved the understanding of some of the key cornerstones in pen design, it was acknowledged that no single or specific pen will meet all criteria (Hansen, 2018).

Whilst the currently available research does not have an answer as to what an optimal pen size may be, there may be such a thing as a pen that is too big or too small. Baxter et al. (2015) compared piglet survival in pens with differing nest area sizes: either 3.3m^2 (small) or 4.0m^2 (large). The number of sows in each of two pen size treatments was unbalanced (40 sows in the small pens and 44 in the larger pens) however the space provided influenced pre-weaning piglet mortality. Significantly greater live-born mortality was reported in the larger (18.1%) compared to the smaller area (10.9%) (Baxter et al., 2015).

Some attempts have been made to qualitatively determine minimum pen size by considering physical sow size, posture and behaviour during different phases of parturition. The greatest requirement for space occurs during the nest building phase assuming the sow is loose at this time and was calculated to be at least 4.9m^2 to enable turning, activity and separation of nesting from the dunging area. Sows need 2.79m^2 during parturition to lie comfortably on their side, and 3.17m^2 in early lactation to enable nursing, turning around to inspect piglets, get up and lie down unimpeded and defecate away from the lying area. These values are based on the original biometric equations to determine space requirements in the early 1980s (e.g., Petherick 1983). However an updated approach to understanding the space requirements of sows and piglets at farrowing and during lactation confirmed similar requirements (Pedersen et al., 2013).

Pens which are too small will make it more difficult for the sow to turn around unimpeded and lie comfortably. Smaller pens also make it more difficult for piglets to walk around the sow safely or have a safe area (excluding the creep) to retreat to. This means the sow and her litter are inevitably in close contact more often and will share space more

frequently which puts piglets at risk of being trampled or crushed. Pen hygiene can be an issue where the area provided is too small although the flooring type (solid or partially solid vs. slatted) and pen shape (e.g., square vs. rectangular) is more influential than pen size. For these reasons the design and management of farrowing pens is considered more important than pen size. This was the view of experts who discussed pen design at the Freedom in Farrowing and Lactation conference in 2021. Additionally, there is a difference between minimum pen size and optimum pen size, and scientifically determined vs. politically determined.

Large pens present challenges with meeting the thermal needs of piglets. The sow is most comfortable at a temperature of 18 - 22°C whilst newborn piglets require a temperature of over 30°C. A well designed farrowing pen has an attractive warm creep area. The creep needs to be close to where the sow farrows so piglets can easily access it soon after they are born. The creep should also be accessible by stockpersons without them needing to enter then pen. The risk of a large pen is that it is more difficult to maintain an appropriate temperature for the piglets other than in the creep and piglets can become chilled soon after birth, which advances to hypothermia, weakness, and often starvation.

An additional point of discussion at the Freedom in Farrowing and Lactation conference (2021) was the importance of a diversity of pen types being available to suit different needs, considering farmer preference, ability to build new or retrofit only, and to meet any market requirements. All pen types must take the staff into account. A real risk is retailers imposing their own criteria to go "above and beyond" or "better/higher" than what is legally required. This has made European farmers very nervous to invest as they feel they can't make a decision that will be compliant for years to come.

Countries that have adopted pen based farrowing systems vary in the minimum pen size that is required. Switzerland and Austria have a minimum pen size of 5.5m^2, Norway and Sweden require a minimum of 6 m^2 and Germany requires at least 6.5 m^2. Finland permits the use of farrowing crates but has a state subsidy to encourage the uptake of farrowing pens, which must have a minimum size of 6m^2 (with 4.5m^2 being available to the sow) in order to qualify for funding. In Norway, most farmers now invest in pens that are >7 m^2 as they are used as 'birth to 30kg' pens. On these farms the sow is removed from the pen at weaning but the piglets remain until they are sold to a finisher at ~30kg.

In conclusion, there is no evidence that better welfare outcomes will be achieved in accordance with a specific pen size and a 6.5m^2 pen size is not justified as the minimum standard.

Stockperson safety

Stockperson-directed aggression in the context of pen-based farrowing systems has not been well researched, despite the concept of the '3 P's' emphasising the importance of the pigs, the pens, and the people (Baxter, 2022). Marchant-Forde (2002) reported stockperson-related aggression in 62 gilts that were observed for three lactations in either farrowing crates or in pens within a group lactation system. Stockpersons scored sow aggression whilst weighing piglets at birth and again at day 7 and 14 of lactation.

Aggression was scored on a scale of one (no obvious sign of aggression, not bothered) to five (extremely aggressive, tries to attack and would readily bite). Incidences of savaging behaviour were also recorded. Five of the 62 gilts killed piglets by savaging, four being housed in the pens. Mean aggression score increased with increasing parity (parity 1 score = 1.33, parity 2 = 2.09, parity 3 = 2.14), and was significantly higher in pens than in farrowing crates.

At 6 – 8 weeks before parturition, a human approach test was performed to categorise gilts on a shy/bold scale, and record the average time taken to approach a human (Marchant Forde 2002). Those that attempted to attack a stockperson more than once were classified as 'dangerously aggressive.' Within the pen system, aggression scores were positively correlated with boldness scores during the human approach test and gilts that were described as being more shy were more likely to savage piglets (Marchant Forde 2002). Stockperson-directed aggression was displayed relatively consistently within lactation and in subsequent parities, and while it did not confer advantages in terms of piglet survival, there was a tendency for piglets of aggressive sows to have a higher growth rate from birth to 7 days of age. One aspect to note is the risk of subjective bias whereby stockpersons may have felt they were in greater danger when in the group lactation systems, therefore rating the sows as being more aggressive. Alternatively, an aggressive response by sows may have been heightened if the stockpersons were apparently nervous or fearful. An additional influence is the method used to weigh the piglets at days 0, 7 and 14 which can be done in a manner that, relatively speaking, either evokes or reduces a maternal response in sows (Chaloupkova et al., 2008).

Caille et al. (2010) evaluated stockperson-directed aggression by sows in farrowing pens with temporary crating and with straw bedding. Observations were recorded whilst staff performed routine piglet care and pen cleaning. Sow behaviour was observed whilst still confined in a crate, and post crate-opening (from day 11 following parturition). Aggressive displays included vocalising towards stockpersons, attempting to bite the cleaning tools, and biting or attempting to bite the stockperson. The number of aggressive displays towards the stockperson averaged 5.38 events between day 11 – 17 and 4.75 events in the following week. By the fourth week of lactation this was significantly lower at 0.75 aggressive displays towards stockpersons.

In New Zealand, the Health and Safety at Work Act 2015 (HSWA) sets out the principles for businesses to provide a safe working environment, the Person Conducting a Business or Undertaking (PCBU) having the primary duty of care being that a business has the primary responsibility for the health and safety of workers and others influenced by its work. The purpose of the HSWA is to provide a balanced framework to secure the health and safety of both workers and workplaces. To understand farmers' responsibilities under the HSWA, NZPork commissioned a study to provide information on the risks associated when working during the mating, farrowing, lactation and weaning processes within the existing indoor pig farming crate systems with direct comparison to indoor systems without the protection of crates and stalls. We have included the report as Appendix C.

The study identified the relatively higher stockperson risk without the protection of the crate and stalls. In regard to the post-farrowing health and safety risk, the first 5 - 7 day period was identified as a priority.

Q3. Is there another option that could be considered? Please provide your reasoning and evidence that this alternative option would meet the minimum requirements of the Act.

Scientific evidence and good practice support improving the welfare of sows and piglets in indoor farrowing systems by reducing but not eliminating the period of sow confinement and providing manipulable material to all sows around farrowing. It is acknowledged that to best provide for the welfare of the sow and her numerous piglets it may not always be possible to provide the best welfare outcome for all, at all times. The comparison of the welfare advantages and disadvantages of outdoor versus indoor farrowing for both sows and piglets are illustrative of this fact. For both outdoor and indoor farrowing attention is focussed on maximising *net* welfare to the extent possible.

For indoor systems short-term confinement that coincides with the most critical days of a piglet's life, *and* the period where sows are intentionally very inactive, benefits both. Piglet mortality is significantly reduced compared to loose farrowing systems and the sow has more freedom of movement and can express a wider range of behaviour at a time when she is more motivated to do so after the early post-parturient period.

Approaches to the duration and timing of sow confinement

Whilst nest building behaviour occurs most intensely in the 12 – 6 hours before farrowing commences, sows may be seen performing aspects of nesting (e.g., pawing, manipulating objects with the mouth), whilst they are farrowing in between the birth of individual piglets. It will not be clear as to when nesting behaviour is complete, as Option B states, unless there is continuous observation of sows that are close to farrowing. In most cases the point at which nest building was completed would only be determined retrospectively.

Likewise, the onset of farrowing is not known before it occurs. We explain below (within the response to this question) that there is biological variability in gestation length and farrowing duration. Additionally, expected farrowing dates are not always accurate where recording errors occur. It has become clear that specifying a fixed time at which confinement of sows may be implemented before farrowing is totally impractical. It does not recognise the inherent biological variation that comes with working with animals and runs the risk of farmers not complying with a minimum standard or regulation; or compromising piglet welfare, through no fault of their own. We are prepared to conduct research to better inform such decisions around the timing of confinement to optimise sow and piglet welfare and management of pen based farrowing systems. However at this stage we believe it is permissible to confine the sow (with nesting material) pre-farrowing.

Whether farmers use the sow's estimated farrowing date, animal-based behavioural indicators, physical indicators, physiological indicators associated with imminent signs of

parturition, or all of the above, it will not be possible to accurately judge every time for every sow or gilt. There are added complications of differences between primiparous and multiparous individuals, different approaches to farm management, weekend farrowings, periods of short staffing and owner-operator farms.

One such approach could be to specify a total number of days that a sow may be confined for, to be spread over pre- and post-farrowing stages but not in excess of the maximum total duration. Another could be to confine sows overnight (with manipulable material) if there are indicators that farrowing is imminent (even if the expected farrowing date is more than a day away). This methodology has been applied in a research setting to allow sows to habituate to the crate before farrowing whilst having access to manipulable material, yet avoided piglets being born while the sow was loose in a pen. An additional approach could be to confine the sow upon confirmation that milk is present as an indicator that farrowing is imminent (approximately 24h away) (Kinane, 2020).

Austria and Germany developed legislation in 2020 to phase out the current use of farrowing crates, having 13 and 15 years respectively to transition, specific funding grants to make the changes, and additional ongoing agricultural subsidies. Both countries allow the routine temporary confinement of sows. Austria allows confinement for 1 day pre-farrowing (although it is not clear how this would be determined or enforced) until 5 days post farrowing. Germany will allow farmers to apply a total of 5 days of confinement across the pre-and post-farrowing period.

In Norway, farmers were routinely allowed to use farrowing crates in the period from 3 days before farrowing until 7 days after farrowing, for the first 3 years following a transition to pen-based farrowing systems. After this period routine confinement was no longer permitted. However, confinement is still allowed in the following cases:

- In conjunction with feeding
- In conjunction with veterinary treatment or insemination
- Especially restless individuals during heat
- Especially restless sows from the time of farrowing and up to 7 days after farrowing

Regardless of the methods put in place, there needs to be flexibility and it is clear that more work needs to be done to determine how the application of temporary confinement should be applied in New Zealand. NZPork is happy to contribute to such research (discussed further below).

Accordingly, we propose the wording below as an alternative for NAWAC's proposed minimum standard No. 10:

a. Material must be provided that can be manipulated from at least 48 hours before farrowing, until farrowing occurs. The material must be destructible and deformable, safe and hygienic, and topped up daily (if appropriate) until farrowing.
b. There must be an unobstructed area behind the sow to ensure piglets have a safe area to be born into and for stockpersons to assist with farrowing when required.
c. Confinement of sows in a crate is permitted for a maximum period of seven days.
d. The period of confinement before farrowing should be as close to the time of farrowing as possible.
e. In all systems with temporary confinement in a crate, confinement must be removed from day four post farrowing, or the sow moved to alternative accommodation that meets the requirements of (f).
f. The accommodation from day four post farrowing must be of a size and layout that allows the sow to turn around, move freely and lie down at full length without leg restriction.
g. Where free farrowing pens are used for farrowing or lactation these must be of suitable design and sufficient size to allow the sow to turn freely, lie down at full length and without leg restriction.
h. Temporary confinement of sows (for up to 3 hours at any one time) is permitted for animal management purposes such as examination, piglet fostering, suckling management, administration of treatments etc.
i. The farrowing system must provide an area to which the piglets can retreat when the sow moves.
j. The piglet safe area must enable piglets to maintain their body temperature either through the provision of artificial heating or a sufficient quantity of an appropriate bedding material.

These suggested changes appropriately consider sow and piglet welfare. It is imperative that other farrowing systems (outdoor, free farrowing) continue to be defined by the intended outcome for sow and piglet welfare as appropriate to these systems, rather than prescriptive criteria, including pen size, that are likely to stifle innovation.

These requirements will place New Zealand ahead of the standards required in the UK, EU, USA, Canada, Australia and China at present (who collectively produce the great majority of pork in the world) and futureproofs the industry by aligning it with other early adopters and yet to be proposed farrowing system standards internationally.

Describing how the needs of the sow and piglets should be met is more appropriate in guiding the uptake and refinement of such systems. Within Q 48 (with Appendix D) we have identified the very extensive range of factors that must be considered in designing farrowing systems to provide for animal welfare and facilitate good practice management.

We believe the above alternative for minimum standard No. 10 meets the purposes of the Act in the following ways:

- Providing for the sow's behavioural needs by providing manipulable material to express nest building behaviour
    - *This would promote exploration and investigation behaviours leading to the experience of positive affective states such as interest, engagement, satisfaction and enjoyment.*
- Meeting the physical and health needs of piglets by providing piglet protection and a retreat area during the most critical period when the risk of mortality is greatest
    - *This would enable piglets to consume enough colostrum, establish normal patterns of nursing behaviour, interact with the sow, and meet their thermal needs. The likely resulting positive affective states include calmness, security, sociability, control, satiety and physical and thermal comfort.*
- Meeting the sow's physical, health and behavioural needs by reducing the duration of confinement to a defined and limited time that has been demonstrated as a period during which sows exhibit very low levels of physical activity
    - *This would enable the sow to express a greater range of behaviour including exploration, greater freedom of movement and utilisation of different areas for specific behaviours with the pen; with associated positive affective states such as control, interest, relaxation, physical and thermal comfort, and curiosity.*
- Meeting the behavioural needs of sows and piglets by reducing confinement to allow more reciprocal sow-piglet behaviour
    - *This would promote sow-piglet behavioural interactions and allow sows to express more maternal behaviour towards piglets, with associated positive affective states including sociability, playfulness, calmness, maternal reward, interest, and control.*

Based on the scientific evidence (provided below):

1) Sows should be provided with nest building material before farrowing.
2) It is not possible to define or identify the point at which sows have completed nest building.
3) The farrowing process is disrupted by changing the sow's environment close to parturition.
4) Approximately 50% of sows will farrow outside of staffed hours.
5) Sows spend most of the time (~90%) lying down in the first three to four days post-farrowing regardless of being housed in a crate, a pen, or a nest outside.
6) Piglet mortality is lower when sows farrow in a crate vs. a loose pen.
7) Most (not all) piglet mortality occurs in the first week of being born, and the most vulnerable period of a piglets' life is during the first 4 days.
8) Only 50% of piglets are using the heated piglet retreat area (the creep) by day 3.

9) Biological variation needs to be taken into account when operating any system (e.g., gestation length, nest building onset and duration, farrowing onset and duration, litter sizes, primiparous vs. multiparous sows, the need to cross foster).

Nest building

We support providing sows with manipulable material to promote nesting behaviour. Nest building is recognised as a highly motivated species-specific behaviour in sows and has been intrinsically linked to the complex cascade of hormonal fluctuations that initiate parturition (e.g., progesterone, prolactin, prostaglandin F2a). The expression of nest building has been shown to influence the duration and outcome (e.g., stillbirth rates) of the farrowing process by influencing the secretion of other major hormones including oestrogen (oestradiol and estrone) oxytocin and relaxin (Gilbert et al. 1996; Gilbert 1999; Algers and Uvnäs-Moberg 2007; Nagel et al. 2019).

Our view is that manipulable material should be provided from 48 hours before the expected farrowing date and until farrowing occurs. The material should meet the description of being destructible and deformable, safe and hygienic, and topped up daily (if appropriate) until farrowing. This does not preclude the use of straw but enables farmers to use material including (but not limited to) shredded paper, jute (hessian), hay, or other suitable materials that meet the above description.

Timing and length of sow confinement pre farrowing

Sows are mated either by artificial insemination (AI) or with the use of a boar (natural mating). On some farms, gilts tend to be naturally mated whilst sows are artificially inseminated. Others only use one method (e.g., only natural mating or only AI) and many will artificially inseminate sows and then run boars with group housed sows to identify those that may come back on heat. Within a mating batch, farrowing dates will be relatively synchronised but there will still be biological variation in gestation length which has been reported to range from 112 to 120 days (Oliviero et al., 2010). Early farrowing (before 114 days) occurs in 10 – 22% of sows (Vanderhaeghe et al., 2011; Tospitakkul et al., 2019).

Estimated farrowing dates may not always be accurate and farms are not staffed 24/7. This is all key information in considering how farmers could confine a sow according to the requirements of the proposed Option B in minimum standard No. 10, which is no earlier than "... after completion of nesting behaviour".

Getting the timing right for confining an individual sow in a farrowing crate under farm conditions, in a way that makes nest building possible and does not increase the risk of piglet crushing, is a considerable challenge (Oczak et al., 2019). As approximately 50% of sows farrow overnight outside of staffed hours (Olsson et al., 2018), confining sows at the completion of nesting behaviour would necessitate virtually 24/7 staffing of farms to observe sows that were close to farrowing. Getting the timing wrong could result in an increase in piglet deaths, unnecessary disruption and stress for the sow and subsequent disturbance of nest-building behaviour or the farrowing process (Lawrence et al., 1992; 1997; Jarvis et al, 1997; Pedersen and Jensen, 2008). Furthermore, interrupting a farrowing

sow to stand her up and manoeuvre her into a farrowing crate within a pen poses a risk of newborn piglets being trampled in the process.

Stress can interfere with the normal farrowing progress, and it has been demonstrated that elevated cortisol can antagonise oxytocin (Lawrence et al., 1992; Nagel et al., 2019). A small study of 14 gilts first introduced them to a free farrowing pen with straw, with five remaining in the pen to farrow and the remainder being moved into a farrowing crate after the birth of the first piglet. Upon being moved to a farrowing crate, four gilts were injected with an opioid antagonist naloxone, and five gilts were injected with saline (Lawrence et al., 1992). The gilts that remained undisturbed all gave birth to a second piglet within 53 minutes. Three of the five disturbed saline-treated pigs did not produce another piglet for 2 hours, at which time oxytocin was administered to resume parturition, indicating that environmental disturbance through changing the environment close to parturition disrupted the farrowing process. All of the naloxone-treated gilts gave birth spontaneously within 2 hours of being moved.

The effect of timing of introduction to the farrowing environment was investigated in gilts and sows that were introduced into free farrowing pens either early (days 95 – 105) or late in gestation (day 114) (Pedersen and Jensen, 2008). A third treatment group comprised of sows that were introduced to a farrowing crate in late pregnancy however a limitation of this study was that there was no early introduction to a farrowing crate treatment for comparison. Sow behaviour and piglet birth intervals were recorded. Late introduction to a farrowing pen or farrowing crate increased restlessness before farrowing (Pedersen and Jensen, 2008). Primiparous sows that were introduced late to farrowing crates had detrimental effects on the progress of farrowing and the percentage of stillborn piglets compared with sows in pens, however without an early introduction group for farrowing crates it is not possible to separate the effects of the system and timing. Piglet mortality data was not presented but data on near-crushing incidents showed that sows in farrowing crates tended to have fewer near-crushing situations than sows in pens. The odds ratio for sows to respond to the sound of a screaming piglet did not differ between treatments, indicating that maternal responsiveness towards piglets was not different between sows in crates or pens (Pedersen and Jensen, 2008).

An earlier review of the effect of stress on parturition in pigs noted that confinement in a farrowing crate itself may induce a weak opioid-restraint of oxytocin during late parturition, which could reflect a mild adverse response to giving birth in the crate (Lawrence et al., 1997). Elevated concentrations of adrenocorticotrophin hormone (ACTH) have been reported in sows farrowing in both crates and pens, with crated sows having marginally greater concentrations relative to penned sows (Jarvis et al. 1997). However farrowing crates do not act to strongly inhibit posterior pituitary release of oxytocin (Lawrence et al., 1997). As such, the evidence suggests that farrowing crates are not a potent source of stress for sows during farrowing. Significant rises in maternal cortisol during parturition were observed in sows irrespective of their farrowing environment (Lawrence et al. 1994; Nagel et al, 2019).

Some sows will still be active during the early stage of parturition and leaving the sow unconfined at this time has been associated with higher liveborn piglet mortality. Hales et al (2015) found that farrowing duration did not differ between confined and loose housed sows. Dead piglets were more likely to have died from crushing in the treatments where sows were loose housed for a period of time either before and/or after farrowing compared to those that were confined before farrowing and for up to four days following ($P<0.001$). The risk of being crushed was 3.5 times greater in sows that were confined from day 114 pre-farrowing and then loose from day four post-farrowing (CL, $P<0.001$), 4.3 times greater in sows that were loose pre-farrowing and confined from the end of farrowing to day four (LC, $P<0.001$) and 3.4 times greater in sows that remained loose (LL, $P<0.001$); compared to sows that were confined (CC) (Hales et al., 2015).

Section 10 of the Animal Welfare Act states that the owner of an animal, and every person in charge of an animal, must ensure that the physical, health, and behavioural needs of the animal are met in a manner that is in accordance with both (a) good practice; and (b) scientific knowledge. In setting a *minimum standard* we believe it is justifiable to confine a sow before farrowing, *providing* manipulable material is available as previously described. This will allow elements of nesting behaviour to be satisfied in keeping with meeting the sow's behavioural needs. Good practice would see that the farrowing process is not disrupted; piglet mortality is reduced by providing piglet protection during farrowing; and stockpersons can safely provide for the physical and health needs of sows and piglets during the farrowing process.

Further on-farm research is needed to determine the optimal timing of confinement before farrowing. This would encompass an investigation of behavioural, physical and physiological indicators as necessary in addition to understanding practicality, management and stockpersonship. New Zealand Pork will develop a proposal to conduct this research as soon as possible with co-investment via MPI's Sustainable Food and Fibres Futures Fund.

Duration of sow confinement post farrowing

We believe that a period of temporary confinement of the sow for up to four days post farrowing meets the requirements of Section 10 of the Animal Welfare Act. We would again emphasise that this does not preclude farmers adopting free farrowing pens and it does not require farmers to confine sows for four days post farrowing; it sets an upper limit of confinement in keeping with good practice and scientific knowledge. For similar reasons outlined above there needs to be a consideration of animal welfare and good practice and stockperson safety.

Cross fostering and suckling management (split suckling, assisting weak piglets to suckle) are good examples of practices that provide for piglet welfare and ensure safety for staff and are facilitated by confinement of the sow in early lactation. These practices are essential to ensuring that all piglets ingest a sufficient quantity of colostrum and continue to have ownership of a functional teat during the suckling period. The consequences of

not doing so include starvation (which predisposes piglets to hypothermia and crushing) and later disease where colostrum intake was insufficient.

Cross fostering may be necessary for a number of reasons:

- A mismatch between the number of piglets born alive and the number of functional teats a sow has:
    - Average number of total teats per gilt at selection for breeding = ~15.5
    - Minus the inaccessible, blind, scuffed, damaged teats = ~13.5 **functional** teats per sow
- The number of piglets born alive exceeds functional teat numbers in 5 - 15% of farrowing weeks, depending on the farm

Teat numbers decline with advancing parity as they may be injured (e.g., stood one by another sow, chewed by piglets) or functionally compromised due to disease e.g., post-weaning granulomatous mastitis. Granulomatous mastitis is predisposed by wet floors or faecal material on the teat end peri-farrowing or during the first 3 days post-weaning, often in combination with solid floors during lactation that result in the teats being in contact with manure/soiled straw.

Granulomatous mastitis is a common disease on farms that use straw bedding for group housing of pregnant nonlactating sows, though the incidence varies (Hultén et al., 2003). Additional risk factors include high number of parities, long duration of lactation, and teat wounds at time of weaning. The risk for recurrence of granulomatous mastitis in subsequent lactations is high and results in a decrease in udder distention, indicative of a reduced capacity for milk production and is apparently also connected to a decrease in litter size at weaning. Granulomatous mastitis does not just reduce teat functionality but is associated with destruction of milk-producing tissues and a reduction in the number of milk-producing glands. Furthermore, higher mortality rates of piglets may be the result of consumption of milk contaminated with microorganisms (Hultén et al., 2003).

Cross fostering needs to be performed between 12 and 24 h after farrowing, before teat order has been established, so piglets gain as much benefit as possible from absorbing colostrum immunoglobulins and lymphocytes (Bandrick et al., 2008, Bandrick et al., 2011, Pieters et al., 2007).

Split suckling is a technique where the litter is split into two groups to temporarily separate the largest piglets (in a closable creep, behind a board or in a box) to allow their smaller littermates an opportunity to suckle. The groups are rotated typically after 2 – 4 sucking events each, but all piglets are able to suckle overnight.

Assisted suckling involves having to supervise and assist vulnerable and/or weak piglets to gain access to a teat and to start suckling. Stockpersons have to physically hold a piglet(s) onto the sow's teat during milk let down to ensure they can suckle unhindered, sometimes calming the sow and stroking her udder. This is more labour intensive than split suckling.

Other types of fostering are carried out for the following reasons:

- Small and weak piglets may be moved to a sow with good teat access, good milking ability and nursing behaviour to effectively double their chance of surviving (usually the bottom ~5% of piglets by birthweight are grouped on the same sow, usually a second parity sow);
- Shunt fostering when there are more piglets than available teats or to ease suckling pressure on a compromised sow;
- Creating new litters of "fallback" piglets that are not thriving and are at risk of starvation
    - On many farms around 4-7% of pigs will start to fall back at around day 3-4 indicating a faltering teat. Leaving those pigs increases risk of death, creating new litters of the fallbacks dramatically increases their survival rate)
- Holding back small piglets that should not be weaned until they are larger;
- If a sow or gilt is savaging it may be necessary to shunt foster the whole litter. More often though, gilts or sows that savage their piglets are sedated or a muzzle is placed on them for 1-2 hours to facilitate onset of suckling and to calm her enough to accept the litter. Placing a muzzle on a loose-housed angry gilt (or injecting her with a sedative) is virtually impossible without substantial risk to stockpersons. Confinement allows this to occur
- If a sow or gilt dies during/soon after farrowing, it is necessary to shunt foster the whole litter.
- If a sow has mastitis and her litter appear to be doing poorly as a result it is often very effective to swap her litter with a vigorous litter that will stimulate her udder more strongly and cure the mastitis via achieving milk-flow (in addition to anti-inflammatory treatment of the sow).

Given the variability in gestation length, confining sows for up to four days post-farrowing will significantly improve the ability to carry out cross fostering, split suckling and to provide suckling assistance. All types of fostering are possible in farrowing crate-based systems; however, some are not facilitated in loose systems. While the vast majority of sows are tolerant of stockpersons handling their piglets it is not uncommon for a loose-housed sow to behave defensively to 'protect' her piglets by turning and biting a stockperson who is handling her pigs, especially if one squeals. Even if a neighbouring piglet squeals a sow will often behave reactively which can escalate to attacking a stockperson. This will make stockpersons fearful of applying routine husbandry practices that reduce piglet mortality in loose farrowing.

Successful fostering relies on the sows accepting the piglets and being willing to suckle them. A stockperson can often facilitate this by calming the sow and stroking her udder to get her to lie down and start suckling. Such interactions are very valuable in facilitating positive human-animal interactions and decreasing sows' fear and reactivity towards stockpersons. Careful supervision is important after fostering has taken place in the event that the sow does not readily adopt the piglets. The use of a farrowing crates affords some protection during this introduction stage if necessary.

The genetics we currently use do not necessitate a lot of shunt fostering. This cannot be guaranteed in the future since it is very difficult to get world-class genetics into New Zealand and we cannot predict what may be available in the future. Minimum standards should accommodate some flexibility here.

Ultimately piglets should be offered the right to be born on a farm where advanced husbandry practices can be applied to drive piglet mortality down to single figures. Mortality is taken seriously in other species in New Zealand (e.g., lambs, calves, and poultry). Piglets should be no different.

A number of studies have demonstrated that a period of temporary confinement, relative to loose farrowing, is effective at reducing pre-weaning piglet mortality, with many of these already having been discussed. Indeed NAWAC has presented an option that would permit the temporary confinement of sows, stating that "...a brief period of restraint, once [nest building] behaviours have been satisfied, may provide a means to protect the newborn piglets until they are recovered from birthing" and: "It could be argued that short term confinement for farrowing (up to 72 hours), as a means to protect the neonatal piglets, provided the sow has been given opportunity for nesting before the onset of parturition, and sufficient space for the balance of time that she is suckling her piglets, may comply with the requirements of the Animal Welfare Act."

In considering the piglets, we believe there is scientific evidence in support of a longer period of sow confinement than is proposed in Option B, to better provide protection for piglets and in consideration of good practice on farm. The draft Code even states in section 5.1 (page 18) that: "Most piglet mortality from crushing by the sow occurs within the first **four** days after farrowing." However proposed minimum standard no. 10 (Option B) proposes limiting confinement to 3 days.

It takes some time for the piglets to be able to recognise cues that the sow is about to change posture (e.g., from standing to lying, or rolling) and to learn where the creep area is and start using it consistently. Piglets only *start* using the creep area to a substantial extent from day 3 after birth (Hrupka et al., 1998, Berg et al., 2006, Vasdal et al., 2009). Piglets are observed using the creep only 50% of the time by the third day of life (Vasdal et al., 2010).

There is evidence across different types of farrowing systems – crates, loose pens, and outdoor systems – that sows spend most of their time at rest in the days after farrowing. This facilitates the development of a teat order and teat ownership in piglets, whilst the sow is recovering from parturition and establishing a cyclical pattern of milk let down. Lateral lying was the most common posture in sows that farrowed in pens and in farrowing crates (Hales et al., 2016). In the first 48h post farrowing sows spent on average approximately 100 minutes per 120-minute observation window lying down, regardless of being confined in a crate or loose in a pen. In the same study, sows spent 46 minutes standing up in the first 24h post farrowing regardless of treatment.

Sows in loose farrowing pens have been observed to spend up to 20 hours per day lying down in the first 3 days post-farrowing (Danholt et al., 2011). A similar comparison of sows

in loose pens and in farrowing crates reported sows lying laterally for 75% of observations during the first 48 hours post-farrowing, with no significant difference between treatments (Cronin et al., 1994). Another study reported the percentage time that sows spent in different postures during the first three days post-farrowing. Sows were housed in farrowing crates, loose farrowing pens, or in a pen within a group lactation system (Nicolaisen et al., 2019). In all three farrowing systems, sows spent 90% of the time in a lying position (either sternal or lateral recumbency) during the first three days. There were some differences on day 1 and day 3 between sows in farrowing crates and sows in loose pens, but not between sows in farrowing crates and sows in group lactation systems on the same days.

Earlier work observing free ranging domestic landrace sows documented their maternal behaviour in a semi-natural environment (Jensen, 1986). Time-lapse photography was used to capture images of each sow's nest once every 10 minutes between 0300 and 2200 for the first four days post-farrowing. Sows were observed within the nest for 100% of observations during the day of farrowing and day one post farrowing, and were in the nest 91%, 89% and 82% of the time on days 2, 3 and 4 post farrowing respectively (Jensen 1986).

MATING STALLS

Q4. Do you support the proposal to limit the use of mating stalls? Why / why not?

The use of mating stalls minimises or eliminates some negative welfare outcomes that can be experienced by sows during the mating period. That being said, on-farm experience has demonstrated there are alternatives that preclude the need to house sows in mating stalls at this time, although temporary restraint in a mating stall for the purposes of artificial insemination is justifiable. Such alternatives require higher levels of stockpersonship and management.

An inability to house sows in confinement over mating would not have a *significant* impact on sow welfare although there is little data on risks to sow welfare during the oestrus period specifically. Most of the literature focuses on mixing-related stress during the wean-to-service period (Arey 1999; Greenwood et al., 2014; Stevens et al., 2015) rather than the welfare of sows in a group that are on heat, or the welfare of sows that interact with other sows that are on heat.

The proposed minimum standard No. 11 in the draft code states a maximum period of 3 hours in a mating stall, no more than 3 times per oestrus cycle. It should be noted that, there may be unintended negative welfare outcomes that contradict the intent of the proposed minimum standard No. 13 (Mixing pigs). Sows are typically inseminated twice, and up to 3 times during the oestrus period, this would result in at least 4-6 handling events. Each time sows are moved to be inseminated they will be subjected to periods of separation from, and then subsequent reintroduction to, other sows at various stages of their oestrus cycle who are engaging in behaviour such as riding and mounting, and dominance displays. Moving sows in and out of insemination stalls when they are oestrogen dominant may result in unnecessary stress for the sow which may negatively impact their welfare.

However, there is a significant volume of literature describing the social dynamics of pigs and the development of their complex hierarchical structure when living in a group. Mixing sows earlier after insemination (1 – 7 days) resulted in higher levels of aggression and cortisol concentrations than mixing later (35 days post insemination) (Stevens et al. 2015). More skin injuries, more vulva injuries and a greater incidence of lameness were also observed by Knox et al. (2014) in sows mixed early after insemination than in those mixed later in gestation. While group housing may overall encourage the sexual behaviour of sows (Barnett and Hemsworth, 1991), there is evidence that grouping stimulates the sexual behaviour of dominant sows but suppresses that of the subordinate, submissive individuals (Pedersen et al., 1993).

Social stress, and social submission caused by the presence of a dominant sow, may be implicated in these effects on sexual behaviour and thus raise welfare concerns with grouping of sows at weaning and around mating (Barnett and Hemsworth, 1991). Plasma cortisol concentrations one day after mixing was higher for sows mixed at weaning, compared to sows that were housed in stalls at weaning, but mixed within 2 days after insemination (Rault et al., 2014). This could be due either to the stage of reproduction, or the accumulation of various stressors (or both) when weaning sows into groups.

Considering the effects of physiological and behavioural changes, and the introduction to a different physical and social environment at weaning; the challenges associated with aggression, stress, and injuries at mixing may have the greatest implications for sows mixed early after insemination. Thus, the objective is to minimise handling and social disruption, and maintain a calm and consistent routine around this relatively short period of time to avoid these risks to welfare.

Q5. Is there a different approach to managing mating that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

We would propose an alternative to the currently worded minimum standard No. 11, as follows:

a. Stalls may be used for the temporary confinement of sows for animal management purposes only (such as artificial insemination or examination). When used for such purposes, the sow must not be held in the stall for more than 3 hours at any one time.
b. An exception to (a) above is sow confinement at farrowing.

It is our view that restraint of sows or gilts for the purposes of artificial insemination (as a routine animal management task) should continue to be permitted. Additionally, we believe that the use of voluntary access or free access stalls meet the purposes of the Act through providing the choice to access a retreat area at any time and enable individual feeding during a time when sows experience agonistic or other unwanted behaviour in a group setting.

We disagree that there should be a limit on the number of times that a sow may be in a mating stall for and see it as excessive to regulate both the duration *and* the number of times a sow may be in a mating stall. There will be biological variation in the expression and duration of oestrus among sows and gilts. The actual oestrus period lasts approximately 48h, ranging from 31 to 64h in sows, with gilts having a shorter oestrus period (~40h).

There is little to no literature demonstrating detrimental effects of a short period of confinement of weaned sows relative to group housing sows at weaning. To the contrary, there is evidence that mixing sows at weaning results in higher physiological stress, based on cortisol concentrations, than housing in stalls at this time. Furthermore, keeping the sow in a stall whilst on heat when she is receptive to mating avoids multiple handling events and prevents unnecessary stress on the sow. As such we believe that a short duration in a mating stall meets the purposes of the Act as this provides protection from injury, facilitates physical handling in a manner which minimises the likelihood of unreasonable or unnecessary pain or distress, enables the provision of adequate food, water and shelter and still provides opportunities for sows and gilts to display social and courtship behaviours in the presence of boars during oestrus.

Farmers that currently use mating stalls in a manner that does not meet the proposed changes will need time to convert or rebuild their mating area and to adapt to managing sows in an alternative system. There may be production consequences of doing so which will be outlined in response to Q34.

NESTING MATERIALS

Q6. Do you support the proposal to provide access to materials that can be manipulated? Why / why not?

Yes, we support the principle of the proposal outlined in minimum standard No. 9 (Behaviour). Many farmers are already providing items such as specialty pig toys, organic materials that are destructible and chewable, and/or hanging objects for enrichment. We would emphasise that any manipulable materials provided must be safe, hygienic, and must not compromise pig health. Nest building is not covered here because it is addressed in Minimum standard No.10.

Farmers need a choice of manipulable material options so that they can provide different types and combinations of materials for the benefit of the pigs. Additionally, they need to be able to choose options that minimise dust and interference with existing flooring and drainage systems (which can lead to reduced air quality and poor hygiene).

For clarity we suggest that reference to "nest building" is removed from the list of normal behaviours included in Minimum Standard No.9 (a) - covered further in Q7 next.

Q7. Is there a different approach to providing for the expression of normal behaviours that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

In support of our response to Q6 above, our view is that the below wording should be in the minimum standard (in bold):

Minimum Standard No. 9 – Behaviour

a) Pigs must be managed in a manner that provides them sufficient opportunities to express and satisfy a reasonable range of behaviours. These include, but are not limited to, interactions with other pigs and investigating and interacting with their environment.
b) Pigs must have access to a combination of materials that can be manipulated that are safe and hygienic, that can include but are not limited to, chains, untreated timber, toys, organic matter (e.g., wood, straw, natural fibre such as hemp) or rope, to enrich the environment without compromising their health.
c) Where undesirable behaviours such as tail, ear and vulva biting are detected, management, housing and equipment design, and environmental conditions must be reviewed to investigate and where possible reduce or remove the cause.
d) When pigs are mixed they must be provided with adequate opportunities to retreat from other pigs.
e) Pigs must not be restrained by tethering.

The wording for (b) does not materially change NAWAC's draft proposal and will still facilitate the provision of opportunities to display normal patterns of behaviour including investigation, manipulation and exploration. There are many means by which normal behaviour of pigs may be provided for and minimum standard No. 9 will interact with others, including MS No. 6 (Housing and Equipment). The example indicators provide sufficient guidance as to the outcomes that may be evident through satisfactorily meeting minimum standard No. 9 (including with the incorporation of our wording for part b as above).

SPACE FOR WEANER AND GROWER PIGS

Q8. Do you support Option A (k value of 0.047) or Option B (k value of 0.072)? Why / why not?

We have provided a separate summary of literature with regard to space for growing pigs (Appendix E).

Neither Option A (k of 0.047) or Option B (k of 0.072) is supported.

A k of 0.072 is scientifically unjustifiable and a k of 0.047 overestimates the spatial requirements of pigs in a group (Averos et al., 2010). These k values reflect a lack of understanding of how growing pigs utilise the space provided to them, and that they are managed in stages. Pigs are not kept at a constant space allowance from weaning to finishing. They are initially provided a space allowance that is significantly above the

minimum requirements when they are introduced into a pen. Over time as the pigs get older, they 'grow into' the space. The minimum space allowance is only reached for a very short period at the end of a production stage.

A k value of 0.047 means that the minimum space allowance would be 1.6 times or 56% greater than the current requirement, and a k value of 0.072 would be 2.4 times or 140% greater than the current requirement. The use of a 'look up' reference table denoting the minimum space allowance for pigs within discrete weight bands is problematic. This means pigs at the lower end of each weight band are expected to be kept at a minimum space allowance that has been determined by the upper limit of each weight band – so a 50 kg pig is expected to have the same minimum space allowance as an 85 kg pig.

The evaluation of the welfare of grower-finisher pigs in the context of space may be based on indicators relevant to their health and productivity, their ability to express highly motivated behaviours, and their affective state. Three types of space requirements have been described: static, dynamic, and social. The static space represents the size of a pig based on its length, width, and height. Dynamic space is additional to the animal's static space to enable specific non-locomotor body movements (Curtis et al., 1989). The social space allowance is the space required for pigs to engage in normal social interactions. It is less well defined in the scientific literature, and has not been determined systematically. As has been the foundation of most of the scientific literature on this subject, sufficient space will result in healthy pigs that have a good feed intake and average daily gain, low morbidity in terms of injury and disease, and low mortality. Aggression and other behaviour problems will be minimal, positive social and play behaviour will be evident and their thermoregulatory needs will be met.

Both options for proposed minimum standard No.6 include a change to using a reference table for space allowance per pig with six weight bands between 10 kg and ≥ 85 kg. This implies that growing pigs will be moved six times which is significantly more frequent than current practice and would not be conducive to good welfare outcomes. Increasing the minimum space allowance for growing pigs by either of the current proposals would leave many farmers with having to either at least halve their current herd size; or more than double the number or size of current buildings, or more frequently move and mix pigs. Frequently shifting and potentially mixing unfamiliar pigs in order to comply with greater minimum space requirements would lead to negative welfare impacts caused by mixing and moving stress and would likely compromise all-in-all-out practices (whereby each group of pigs is normally managed as a stable cohort to maintain biosecurity with all-in-all-out segregation of different age groups to prevent disease transmission). Furthermore, different ages of pigs may need to be combined in a pen. For example a selection of weaners being removed from one pen to reduce the stocking density and shifted into to a grower pen with older and bigger animals. This would expose the younger and smaller pigs to risks such as disease and social aggression.

The negative impacts of mixing and moving pigs can last 1 – 2 weeks. In one study, mixed growing pigs were observed fighting nearly seven times longer than unmixed control pigs and were still fighting significantly more than controls 8 days later (Stookey and Gonyou,

1994). Compared to the control group, average daily gain was 19% lower in the mixed pigs and these effects on growth were still apparent two weeks after mixing had occurred (Stookey and Gonyou, 1994). This growth suppression after grouping may have been the result of stress persisting within the pen after mixing. There may not be overt signs of aggression during this time, which usually subsides after 48 hours. However, there can still be the stressors of threatening behaviour and submission that alters pig performance after fighting disappears, suggesting there is still a welfare impact apparent for some time after mixing. The authors concluded that not only were there deleterious effects caused by severe aggression during the first 24h after mixing, but pigs experience social stress beyond the first 24 hours that is significant enough to reduce growth performance in the subsequent two weeks.

Most studies investigating the effect of space allowance on pigs do not generally determine what the minimum space required per pig is, but how much space pigs will use when given the opportunity. There are two predominant methods by which the effects of different space allowances are investigated. One method uses a set pen size but changes the number of pigs in each pen to achieve different space allowances per pig in the same total area. The other method is to keep pigs at a constant space allowance by modifying the pen dimensions weekly in line with pig growth. Neither approach reflects what happens on farms. Studies using this methodology are potentially confounded by comparing different group sizes as well as different space allowances without an ability to separate these effects.

NAWAC's evaluation report mentions the findings of Scollo et al., (2014) which found little overall difference in behaviour between pigs kept at k = 0.03 and 0.047 and no difference in physiological stress indicators. However, pigs kept at a k of 0.03 sat more often, had more total skin lesions and exhibited differences in learning processes. The authors hypothesised a stress-induced alteration to neural structures associated with spatial learning and memory. Pig behaviour is influenced by more than the amount of available space including group sizes, social rank and group dynamics and environmental complexity. Though it is mentioned that pigs were provided with metal chains as basic environmental enrichment in the aforementioned study it is not clear as to what the ratio of pigs: chains was, or whether pigs were observed interacting with them.

It is crucial to understand that whilst each pig takes up space in a pen, they also contribute free space to the total communal area available. The area of unused space per pig increases in proportion to group size. This is why group size is an important consideration relevant to the available space per pig. One study calculated that pigs in groups of 80 would be expected to have 36% more unused space per individual pig than pigs in a group of 20 (McGlone and Newby 1994).

Q9. Do these two options (around spacing for grower and weaner pigs) meet the minimum requirements of the Animal Welfare Act? Why / why not?

Neither option for minimum space for growing pigs represent minimum standard. Both options far exceed the minimum necessary to provide for animal welfare under the Act

and are not supported by animal welfare science. The unintended consequences of either option will result in reduced welfare outcomes as outlined above and in Appendix E.

NAWAC has not adequately explained why increases of such magnitude have been proposed other than to express concern that "…current space allowances for weaner and grower pigs code do not fully provide for the needs of the pigs." NAWAC states that it has carefully considered the available science, but there is very little evidence of how space allowance alone impacts welfare outcomes. Very little is known about the ways in which animals share space over time, or the synchronicity in their behaviours as a group (Petherick 2007). As with most aspects the contributors to the welfare of growing pigs are multifactorial.

We are concerned about the science that has been used to develop options A and B regarding the minimum space allowance for growing pigs. The k value of 0.047 is based on all pigs being able to lie in a recumbent position without touching one another, at a specific weight (110kg) and where the ambient temperature is likely to exceed 25°C (EFSA, 2005). At 110kg liveweight, 25°C is the upper critical temperature (UCT) as calculated using the following formula: $UCT\ (°C) = 34.7 - 0.33 \times Body\ weight\ (kg)^{0.72}$. Thus, a k value of 0.047 is qualified by the situation as it applies to 110 kg pigs at 25°C because under these conditions the pigs would be at risk of heat stress. This does not mean that it is a suitable minimum space allowance for all growing pigs. Additionally, pigs in New Zealand are an average carcass weight of 71.2 kg, which is approximately a 94 kg liveweight at slaughter assuming a killing out percentage of 76%.

A group of pigs lying laterally without contact with one another, as a k value of 0.047 would intend to achieve, is an indicator of heat stress. This is a behavioural adaptation to high temperature that may be accompanied by panting, drinking more water, lying in the dunging area and reducing their feed intake to reduce heat production (Hillmann et al., 2004; Spoolder et al., 2012; Nannoni et al., 2020).

Lying behaviour is related to the effective temperature of the pigs' environment, but also to their normal behaviour. Research investigating interactions between metabolism and pig behaviour has shown that comfort behaviour under thermoneutral conditions is represented by pigs lying together and touching one another – described as looking like "cigars in a box" (Geers 2007). Early experiments have shown that growing pigs preferred to huddle together at night than operate a switch to turn on a radiant heat source, suggesting that pigs prefer to keep warm through having contact with one another whilst resting (Baldwin 1974).

Although pigs predominantly lie fully recumbent, the space they occupy is on average half of a fully recumbent pig due to space-sharing as a group when lying together. Ekkel 2003 showed that on average only 60% of the lying animals appear to lie down in a fully recumbent position. As a group there is a mixture of pigs lying fully recumbent on their side, semi-lateral, sternal, and some that are standing. Space allowance should be considered with this in mind. Pigs at different ages (from weaners to finishers) spent ~70%

of the time at rest regardless of space allowance indoors and they share the lying space with one another. As pigs grow older, overlying behaviour reduces and lateral lying increases.

The k value of 0.072 for option B appears to have been sourced from one publication (Averos et al., 2010) and there are several issues with using this reference to set a minimum standard and potentially a regulation.

Firstly, the k of 0.072 relates to **non-slatted floors.** The same paper calculated a k for **fully slatted floors**, which was 0.039. Even so, these numbers were determined from collating data from 21 other studies using a mixture of flooring types, group sizes, and space allowances. These 21 studies were chosen as they reported on behavioural time budgets of pigs, particularly the amount of time spent lying. The data from these studies was collated and modelled to determine the point at which more space will not result in pigs spending more time lying. It effectively finds the saturation point for time spent lying, as it relates to space allowance. It then presumes that increased lying time is a proxy for good welfare, yet we know that space is not the only factor that will influence lying time in pigs (e.g., age, thermal conditions, social rank, flooring type, sickness). Lying time is not the only indicator of welfare as it relates to space, as also the quality of space influences activity levels. Pigs with a more enriched environment will spend *less* time lying and more time engaged in exploratory behaviours. This is important to recognise as NZPork supports the principle of providing pigs with objects or materials to enable exploratory activities, which would in theory reduce lying time, yet have a welfare benefit.

Secondly, the coefficient of determination (r^2) is very low for both k values reported in this study. This means that a k value of 0.072 for non-slatted floors only explains 14% of the variance in lying behaviour. The k value of 0.039 for fully slatted floors only explains 19% of the variance in lying behaviour. So effectively, space allowance at these two k values only explains 14% and 19% of the 'reason' as to why growing pigs lay down for the amount of time that they do.

Thirdly, only 7 out of 21 studies used for this analysis had non-slatted flooring in their experiments. There wasn't enough data for non-slatted floors, so the approach was to generate the estimates and statistics by testing different threshold k values. Statistical significance increased as the k value increased up to the value of 0.072. Beyond a k value of 0.072, statistical significance did not increase further. This is how they derived the k value of 0.072. As such, it is not scientifically justifiable to use this to set a minimum standard for a Code of welfare.

The authors go on to state that a k-value equal to 0.047, derived from the area occupied by a pig lying in fully recumbent position (Petherick, 1983), would overestimate the spatial needs of pigs housed in a group, because it does not account for the distribution of behaviour over time, the different lying postures of group members and group dynamics. They instead suggest a k value of 0.039 meets the space needs of pigs on slatted floors without affecting their behavioural responses and their productive performance. However, in making this recommendation, there is no apparent understanding or

discussion of commercial practice, where pigs will be kept at a much higher space allowance than the minimum for most of the growing cycle.

NZPork does agree that the minimum space allowance for growing pigs should be increased. The detail and justification for this is outlined in our response to Question 10 below.

Q10. Is there another option (around spacing for grower and weaner pigs) that could be considered? Please provide your reasoning and evidence that this alternative option would meet the minimum requirements of the Act.

NZPork's analysis of the available science regarding the relationship between k values and a potential welfare impact on pigs has determined that the current k value of 0.030 should be increased. Based on our analysis we submit that there is scientific justification of adopting a k value of 0.034 for groups of 10 or more pigs. We are of the opinion that this would not provide sufficient space to pigs in smaller groups and therefore propose a different calculation for groups of less than 10 as follows:

m^2 per pig = $(N+4)/(N+1) \times 0.034 \times BW^{0.67}$ where N represents the number of pigs in a group.

The space allowance should not include that occupied by the feeder, feed trough, open drains, external dunging areas or excessively fouled areas of deep litter pens.

The k value of 0.034 is based on normal behaviour of pigs in a group as follows:

- On average approximately 60% of pigs in a group appear to lie down in a fully recumbent position
- The space they occupy is on average that of partially recumbent lying pigs
- Pigs prefer to lie together therefore space-sharing occurs in group situations and the amount of space required is not equal to all pigs being fully recumbent simultaneously

Edwards et al. (1988) found an adverse effect on profitability (not welfare) if k was below 0.027. A minimum k of 0.030 was recommended for fully slatted floors in this publication. A more recent study by Gonyou et al. (2006) found that the critical k value below which average daily gain was affected (as suggestive of a stressor) was between 0.032 and 0.035. The European Food Safety Authority (EFSA, 2005) reported that under thermoneutral conditions the amount of physical space required for pigs, with 80% of the group lying down and 20% of pigs being active, can be estimated using a k of 0.034. At a k value of 0.034, this supports normal physiological function, no restriction of access to food and water, and normal lying and active behaviour under thermoneutral conditions in groups of 10 or more (EFSA, 2005).

A k value of 0.034, and an adjustment for groups of less than 10 pigs, meets the purposes of the Act in the following ways, across each point in the growing cycle:

- Physical and health
    - Unimpeded opportunities to access feeders and drinkers resulting in likely positive affective states such as postprandial satiety, vitality

- Ensuring the pigs' thermal needs are met with effective heating, cooling, and ventilation resulting in likely positive affective states such as thermal comfort, physical comfort, calmness, relaxation
- Providing an environment with good air quality resulting in likely positive affective states such as respiratory and olfactory comfort
- High levels of hygiene through the ability to separate lying and dunging activities resulting in likely positive affective states such as control, security, restfulness

- Behaviour
  - Providing space for lying, dunging, eating, drinking, spontaneous locomotion, social and play behaviour resulting in likely positive affective states such as restfulness, calmness, comfort, sociability, interest, playfulness, curiosity, control, vitality
  - Providing a combination of suitable enrichment materials for exploration and manipulation resulting in likely positive affective states such as satisfaction, interest, occupation, playfulness

By adopting a k value of 0.034, this will place New Zealand ahead of all main pork producers globally (China, EU and UK, USA, Brazil, Russia, Vietnam, Canada, Mexico, Australia) and 99.7% of the countries that export pig meat into New Zealand.

With our proposal to use a different calculation for group sizes of 10 pigs or less, we are further strengthening the welfare of growing pigs in a manner that no other country in the world is doing.

WEANING AGE

Q11. Do you support this proposal (weaning at 28 days)? Why / why not?

We do not support a proposal to require a minimum weaning age of 28 days for piglets. The age at which a piglet is weaned is far from the only determinant of their welfare. The scientific evidence supports that there are benefits to piglets that are weaned at a later age (relatively speaking), however, focusing on piglet age at weaning as the primary welfare indicator does not represent an animal-based approach to providing for their needs. It is also important that piglets are weaned at an appropriate weight, are healthy, are consuming creep diet before weaning, and that their weaning weight is compatible with the available post-weaning accommodation and nutrition. The proposed minimum standard does not take account of the variation in piglet weight-for-age between farms.

Earlier weaning may at times be necessary in the immediate sense to address welfare risks to the sow (e.g., rapidly declining body condition, illness) which will of course also ultimately impact piglet health, welfare and survival if not remedied (as a consequence of poor nutrition when milk supply is impacted). There are likely to be welfare impacts on sows that have an extended lactation when this may not be in their best interest from a health and/or body condition perspective, although these are not frequent issues with New Zealand genotypes. However, a litter of 11 – 12 piglets weighing 8+ kg each can be physically and metabolically demanding on a sow.

Some of NAWAC's justification for weaning piglets at a later age is based on reports of abnormal or redirected behaviours at weaning. In the Evaluation of the Code of Welfare: Pigs report, NAWAC has referenced the EFSA report from 2007 which was summarised as stating that "weaning at 3 weeks causes belly nosing, frustration and injuries due to chewing at pen mates." There is evidence that belly nosing may be observed following the weaning of piglets, and that it may be more prevalent when weaning is carried out at an earlier age (EFSA, 2007). The same review mentions a study where piglets weaned at 14 days of age spent more time nosing and chewing pen-mates than piglets weaned at either 7 or 28 days (Worobec et al., 1999). The review made the point that it is difficult to disentangle the effects of absolute weaning age vs. time elapsed between weaning and other factors including data collection. In a multifactorial study investigating the effects of environmental enrichment, weaning age (3 vs. 5 weeks) and maternal predisposition to tail manipulation, O'Connell et al. (2005) found no effect of age at weaning or maternal predisposition on tail manipulation, sucking or chewing behaviour in piglets post-weaning, however belly nosing occurred more often in early weaned pigs. Mason et al. (2003) recorded the behaviour of pigs for two days after weaning at either 21 or 35 days. There was no difference in nosing or chewing behaviour between the two ages immediately post-weaning.

As lactation progresses sows nurse their piglets less frequently and for a shorter duration (Valros et al., 2002). Yi et al. (2019) recorded nursing duration, nursing frequency and sow activity in 48 sows weaned at day 35 of lactation in loose farrowing pens (Yi et al., 2019). The results showed that sows increasingly refused to nurse their piglets as lactation progressed. From week 4, sows increased the amount of time lying ventrally (obscuring their udder) and increased the time spent standing. Between week 2 and week 5 of lactation, the time spent lying ventrally and standing more than doubled (Yi et al., 2019). These observations represent that sow's attempts to control piglet access to the udder. An additional concern for sow welfare is teat and udder damage caused by piglets attempting to induce milk let-down. This frustration behaviour exhibited by piglets, and its consequences for the sow, will increase as lactation length increases and nursing frequency decreases.

It is important to correct how NAWAC has interpreted EU Directive 2001/93/EC as stating that ..."no piglet shall be weaned from the sow at less than 28 days." This is incorrect. The directive states:

"No piglets shall be weaned from the sow at less than 28 days of age unless the welfare or health of the dam or the piglet would otherwise be adversely affected.

However, piglets may be weaned up to seven days earlier if they are moved into specialised housings which are emptied and thoroughly cleaned and disinfected before the introduction of a new group and which are separated from housings where sows are kept, in order to minimise the transmission of diseases to the piglets."

This means the minimum weaning age in the EU is actually 21 days, providing there is appropriate housing, hygiene, and management to adequately manage risks to piglets.

Piglets are routinely weaned before 28 days in the EU. A study evaluating health, welfare and reproductive performance indicators in pig herds from five EU countries (not identified) reported lactation lengths of at least 20 days and an overall mean lactation length of 26 days (Chantziaras et al., 2018).

Q12. Is there a different approach to weaning age that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

Minimum standard No. 15 – Weaning, as it is currently written in the 2018 Code, states that: "Weaning must be managed in a way that avoids undue stress on the sow and piglets and minimises negative impacts on their health and welfare." As it currently stands this minimum standard is appropriate. It is non-prescriptive through focusing on achieving an outcome that considers the welfare of both sows and piglets. A minor alteration to the current wording is suggested below (added words in bold). This will still enable flexibility in deciding when piglets are weaned, and what this decision is based upon to provide for sow and piglet welfare.

Proposed alternative minimum standard for weaning:

Weaning must **occur at a time and** be managed in a way that avoids undue stress on the sow and piglets and minimises negative impacts on their health and welfare.

We would additionally add a recommended best practice that: "Piglets under 5 kg at the planned weaning time are fostered onto a nurse sow to enable them to reach a weight sufficient to cope with the rigours of weaning."

STOCKPERSONSHIP

Q13. Do you support this proposal (on stockpersonship)? Why / why not?

Yes. Stockpersonship is a critical component of providing for animal welfare. When staff are first employed on a farm they go through an induction process. However, we disagree with the recommended best practice that states "*Persons involved in the farming of pigs should receive training from accredited training providers.*" We would note that this relies on there being accredited training providers who offer such a programme, which is not necessarily under the control of the pork industry or those employed as stockpersons.

This RBP also implies that farmers are not capable of or qualified to deliver such training to staff themselves even though it relates to their pigs, their farm, their systems. The NZ Pork industry covers the cost of training provided to stockpersons via the ProHand® Pigs programme, which was developed by the Animal Welfare Science Centre at Melbourne University. This training programme is focused on promoting positive human-animal interactions and positive behaviour towards pigs in everyday on-farm settings. NZPork also provides on and off job training and education to stockpersons on animal welfare, behaviour and handling via our Level 3 New Zealand Qualification Authority (NZQA), Certificate in Pork Production qualification offered through Primary ITO. PigCare, our

on farm welfare assurance programme, evaluates stockpersonship and management as part of the audit process.

Q14. Is there a different approach to stockpersonship that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

No.

TYPES OF FEED

Q15. Do you support this proposal on feed? Why / why not?

The wording in the minimum standard re: "slow energy release feed" captures a range of appropriate nutritional strategies that can be implemented to satisfy hunger (as opposed to referring to "bulky or high fibre feed" only).

However, Minimum standard 3 (e) states that: "Automated feeding systems must be monitored and physically checked at least once every 12 hours to ensure they are in working order and any problems rectified promptly." This is not practical. Twelve-hour shifts are not standard on farms. Once daily checking is adequate. Additionally, most electronic feeding systems are alert capable and monitor individual feed intake. The majority have an alarm to notify when there is an out of feed event or other issue.

Q16. Is there a different approach to feed that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

As mentioned, daily checking of automatic feeding systems is sufficient as opposed to 12-hourly. These are routinely checked throughout the working day by staff undertaking normal work procedures and most have an alarm setting.

AIR QUALITY

Q17. Do you support this proposal on air quality? Why / why not?

Yes, this proposal is supported. This proposal has lowered the maximum ammonia levels (at pig level) that were in the previous Code, from 25ppm to 15ppm.

Q18. Is there a different approach to air quality that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

No.

MIXING PIGS

Q19. Do you support this proposal on mixing pigs? Why / why not?

Yes. Note that in practice it could be challenging to be compliant with this minimum standard if the increases in the minimum space allowance for growing pigs would result in more frequent mixing of pigs, and if sows are not housed in a mating stall.

Q20. Is there a different approach to mixing pigs that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

No.

TAIL DOCKING

Q21. Do you support this proposal on tail docking? Why / why not?

We do not support some aspects of the proposal on tail docking, namely the proposed Minimum Standard No. 18(b) which limits the method of tail docking to cautery only. As an industry the goal is that in future tail docking will not be necessary, *and* there will not be any negative welfare outcomes of rearing pigs with non-docked tails (i.e., no tail biting and its associated negative consequences). This is in part why we feel it is justifiable to increase the minimum space allowance for growing pigs and to provide them with enrichment material, both of which have been identified as individual factors that may reduce tail biting. However, no country that has prohibited tail docking has managed to do so whilst simultaneously eliminating tail biting. Despite the EU having prohibited the routine tail docking of pigs, 90 – 95% of pigs are tail docked (Wallgren et al., 2019).

Currently tails may be docked via the use of clippers or cautery. As tail docking is carried out in piglets less than 7 days of age, this means they are still housed with the sow at this time. On outdoor farms, the sow and her piglets will be housed within huts or arks with straw bedding. Outdoor farmers have advised that the use of cautery is a fire risk and would not be an option in their systems.

Farmers that comply with the proposed Minimum Standard No. 18(a) (that measures to prevent tail biting must be implemented and documented before tail docking is considered), and yet still have issues managing tail biting, will struggle to manage the resulting negative welfare outcomes if they cannot use cautery as an option for tail docking. Tail docking is not permitted in a small number of countries e.g., Norway and Finland. On average Norway requires greater minimum space requirements for growing pigs compared to the EU and all pigs must be provided with manipulable material. Despite this, slaughter lesion data reveals that fresh tail lesions had a reported incidence of 7.8%, 9.1% and 6.5% in 2016 – 2018 respectively (Norwegian Food Safety Authority Annual report, 2018). These values are likely significantly underestimated as they traditionally only record pigs with fresh wounds as having tail lesions. A more thorough evaluation that records the percentage of fully intact tails, shortened tails (without visible

wounds), tails with minor acute wounds and major acute wounds would be much more accurate in establishing the prevalence of tail biting on farms.

Heinonen et al. (2021) applied these four categories when evaluating the percentage of pigs that had tail damage. The study was carried out in Finland, where tail docking is prohibited. Tail damage was evaluated at slaughter and via veterinary visits on-farm and was related to other factors such as pig health and manipulable material to better understand contributors and/or mitigations for tail damage caused by biting. Over 10,000 pigs were evaluated on 84 farms. Additional farm level information was collected including health status of pigs, the provision of enrichment, type of enrichment, and whether pigs were observed using it. Using wood as enrichment was associated with fewer tails having major wounds as observed at slaughter. Underlying health issues such as leg problems were seen as factors that may be associated with a greater incidence of tail lesions. However, herds that provided wood as enrichment, and with no leg problems as observed by a veterinarian, still only had a 50% incidence of pigs with intact tails at slaughter (Heinonen et al., 2021).

As with most procedures performed on animals, handling and restraint is necessary whilst a procedure is performed. Marchant-Forde et al (2009; 2014) reported that tail docking using a gas-heated cauterising iron took longer and was therefore more stressful than tail docking via clippers. Piglets that were docked via cautery iron vocalised for a significantly longer period and at a higher frequency than piglets docked with a cutting implement (Marchant-Forde et al., 2009). There is a further risk whereby piglets that move whilst being restrained may be accidentally burned (as well as stockpersons).

There are conflicting conclusions as to whether wound healing is affected by docking either with cutters or cautery. Some publications have found no difference in wound healing, whereas follow up studies have reported that tails docked via cautery healed slower compared to the use of cutters (Sutherland et al., 2009), and had more severe lesion scores as a result (Marchant-Forde et al., 2014).

If some farms are not able to dock tails and experience tail biting issues, some additional consequences (other than animal welfare impacts) could be an increase in pig mortality, and financial implications of production loss, carcass condemnations and increased labour and veterinary costs. Using the 350 sow farrow-to-finish model farm example in Sapere's report, a 1% increase in post weaning mortality would result in a loss of $19,000 per year and a 1% increase in carcass condemnations would be greater still.

Q22. Is there a different approach to tail docking that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

From limited data available, between 0.5% and 3% of pigs in New Zealand are recorded as tail-bitten at slaughter, with a few herds below that and some herds experiencing short or prolonged periods above that, sometimes exceeding 15%. Reducing the incidence of tail-biting is occasionally achieved by removing one particular trigger, but more often is

achieved by changing a number of elements at the same time. It is almost always a complex problem and it is difficult to identify which factors are contributing.

New Zealand producers are implementing management techniques to address tail biting which include specific management interventions such as identifying and removing the 'biters' and having dedicated hospital pens for the separation and treatment of bitten pigs. The Code currently permits tail docking, and this flexibility is critical. It enables farmers to trial rearing pigs with intact tails with the knowledge that they have a proven solution available to them if tail biting becomes a problem. NZPork is of the view that tail docking must be retained as a preventive measure. Several attempts to stop docking have been followed by a rapid resumption of the practice in response to the negative welfare outcomes that ensued.

The current minimum standard should not change. We have proposed an increase in the minimum space allowance for growing pigs and are supportive of providing pigs with a combination of materials for enrichment. Both of these are individually recognised as factors that can reduce the incidence of tail biting and other harmful behaviours in pigs (EFSA, 2007). In effect these changes complement a reduction in routine tail docking. However there are several elements identified as possible causes of tail biting in pigs and many factors may be present at once, interacting and compounding to different degrees. These include the pen design and structure, hygiene, diet and nutrition (including both the oversupply or undersupply of nutrients), thermal comfort, air quality, lighting, health, genetics, and social factors (e.g., stocking rate, group size, and individual pig behaviour). However as tail docking remains the most effective preventative of tail biting, with other management measures only being equivalent to tail docking at best, this should remain as an option.

There is no convincing evidence that hot iron cautery is a less painful or otherwise a superior method. As we have different management systems, some of which cannot use a docking iron, it is important that there are options for carrying out tail docking if it is required.

WELFARE ASSURANCE SYSTEMS

Q23. Do you support this proposal on a Welfare Assurance System for pigs? Why / why not?

We do not support this proposal as being appropriate for a minimum standard. This proposal would imply that if a farmer is not part of a welfare assurance scheme, then there is a risk to animal welfare in much the same way as not meeting any of the other minimum standards in the Code. As currently worded, it would only be a requirement that *commercial farms* have a fully documented and auditable welfare assurance system that ensures compliance with the minimum standards required by the Code. This excludes a large population of pig keepers that historically are the primary source of animal welfare complaints to MPI. It is unclear as to what the definition of a *commercial farm* is with respect to pig production. All pig owners and persons in charge of pigs are responsible

for ensuring compliance with the animal welfare code. MPI is the regulator who ensures and enforces this compliance when necessary.

The New Zealand Pork industry has an on-farm welfare certification programme already in place, called PigCare™. This programme provides assurance that certified producers are compliant with the required minimum standards and relevant animal welfare regulations, but it is not a regulatory tool. The PigCare™ audit protocol goes beyond the Code of Welfare to include additional requirements relating to animal health, the farm buildings and facilities, stockpersonship, management, biosecurity and husbandry practices. Producers currently choose to be certified under this programme and are encouraged to do so by NZPork and by pork wholesalers, most of whom require PigCare™ certification as a condition of supply. An approximate 90% of pigs produced by commercial farmers is PigCare™ certified.

Q24. Is there a different approach to welfare assurance for pigs that could be considered? Please provide your reasoning and evidence that this different approach would meet the minimum requirements of the Act.

As mentioned above PigCare™ is not a regulatory tool and whilst we will continue to encourage PigCare™ certification to all commercial pig farmers in New Zealand, we accept that not all farmers will do so. We believe the high level of uptake of PigCare™ by commercial farmers endorses it as an important programme in setting a consistently high standard for the industry and protecting the overall integrity and reputation of our valued pig producers. Additionally, PigCare™ is recognised by wholesalers and retailers who process and sell pork products throughout New Zealand providing assurances that the pork they market has been raised to the required standards. If producers do not meet the PigCare™ standards, pork products from that farm cannot use the 'Born and Raised in New Zealand' PigCare™ certified label. As a result, they may be paid less for their pigs unless the farm receives and passes another audit.

GENERAL QUESTIONS

Q25. Do you agree that the minimum standards in this Code are the minimum necessary to ensure that the physical, health, and behavioural needs of pigs will be met? For example, do the minimum standards reflect good practice (not just current practice), current scientific knowledge and available technology? If not, what alternative(s) do you suggest? Please state your reasons.

In some cases, as already identified, we submit that the proposals go beyond the minimum necessary to ensure that the physical, health and behavioural needs of pigs are met. Some of the proposals (such as the two options for minimum standard No.6) are unprecedented and unjustifiable, will likely reduce animal welfare at certain stages of the growing cycle and are completely out of line with the rest of the world.

Q26. Do you agree the example indicators given in this Code are appropriate to describe how to measure or assess the achievement of the intended outcome of the minimum standards? If not, what alternative(s) do you suggest? Please state your reasons.

There are some concerns relating to example indicators that have been included in the draft code:

For MS6, one of the example indicators is that "Pigs are not seen resting in the dunging area." However, there will be occasions where pigs will choose to rest in the dunging area despite having plentiful space for lying elsewhere.

We disagree with the example indicator for MS10: "The majority of the flooring in the nest area is solid." A solid floor does not allow drainage of moisture. If moisture is excessive the sow will be forced to lie on a wet surface which is a risk factor for mastitis. It is not necessary to require solid floors if substrates other than straw are permitted, as the current wording allows. Solid floors are less hygienic as raised floors allow for good drainage and are easy to clean.

Also, for MS10: 'There is an unobstructed area behind the sow when farrowing'. This is unachievable if it is not possible to confine sows before farrowing. Farrowing onset cannot be accurately predicted and the sow may choose to lie with her back end against an object (i.e., a wall) that impedes the exit of piglets.

Q27. Do you agree that the recommendations for best practice in this Code are appropriate? If not, what alternatives do you suggest? Please state your reasons.

With the limited amount of time available to evaluate all minimum standards, example indicators, recommended best practice, and additional material included in the suite of code documents it is challenging to give feedback on all of the RBP. Additionally, whilst there is an evaluation report that explains the development of minimum standards, the same justification and analysis is lacking as to how RBP is developed. This is a major concern because RBP have a tendency to become minimum standards in future.

Q28. Do you have anything further you wish to say on the Code from an animal welfare perspective?

Minimum standard No 14 – Handling 14(b) states: 'Pigs must not be picked up or suspended by any leg, the ears or tail.' Picking up young pigs by the back legs is a very common method that is intentionally taught to stockperson trainees. Piglets handled calmly in this manner rarely vocalise, which avoids distressing the sow or other piglets. The USA's PorkCheckoff programme includes training material instructions for handling piglets at weaning as follows:

"To properly catch a pig, securely grasp the hind leg of the pig. If the pig is heavy, use your other hand to grasp its other hind leg. Allow the pig's front legs to help support its weight until it is in a vertical position. Lift the pig straight up to a height that will safely clear all gates and bars. If necessary, hold the pig under its ribcage to help support its weight.

"To pick up a small pig, catch the pig by its back leg. Hold it with its head down and back legs pointing up. To set down a small pig: Never release pigs until they have two points of contact with the ground. Allow both front feet to touch the ground and then release the back legs carefully." Source: PorkCheckoff Safe Pig Handling Computer-based Training.

Minimum standard 14(b) as written reflects a lack of understanding of normal and acceptable handling techniques. When young piglets need to be caught and picked up, this needs to be carried out in a manner that is not stressful to the piglets themselves, or to other pigs around them, or the sow if they are still suckling. The current method allows a stockperson to do this by leaning over the side of a pen from an outside passageway. Chasing a pig around a pen in an attempt to catch them is disruptive and stressful. Carefully securing a back leg whilst the piglet is unawares, and gently lifting them means this process is faster, calmer and quieter with minimal stress. That is why this technique is common on pig farms around the world.

Minimum standard No. 21 – On Farm Killing

NZPork gave feedback on a pre-consultation version of the Code to suggest that there be a weight limit for carrying out blunt force trauma as a method of emergency on-farm destruction. There was no pre-existing weight limit before NZPork made this suggestion, which was incorporated into a subsequent version of the draft Code following a Code Drafting Working Group meeting on 16 February 2021. The updated pre-consultation version of the draft Code stated that "Pigs over 20kg must not be rendered insensible by a blow to the head," as was suggested by NZPork. At a subsequent working group meeting this proposal was discussed and the limit was reduced to 15 kg.

The current draft now states in (MS No. 21(d)) that "Pigs over **5kg** must not be rendered insensible by blunt force trauma." This change was made without further discussion and following the adoption of NZPork's initial suggested weight limit. A 5kg weight limit would be difficult to manage in practice and may lead to more negative consequences in a situation where immediate action must be taken to alleviate suffering.

Following further discussion with farmers we believe that the wording should state that blunt force is a permitted method of emergency on-farm destruction in pigs that are not yet weaned or are up to 15 kg (which ever applies first).

The Five Domains assessment of animal welfare impacts and enhancements in farrowing and mating systems

We have several concerns with the manner in which the Five Domains assessment of mating and farrowing system scenarios was conducted. NZPork sought a peer review of NAWACs Five Domains report, which was carried out by overseas experts in pig welfare and production systems who have a history of publishing research in these areas. This is attached as Appendix A. The authors of the peer review did not support NAWAC's conclusions in the Five Domains report and have raised concerns such as the heavy reliance on behavioural indicators leading to a focus primarily on one domain, the exclusion of physiological indicators of stress and the failure to consider live-born piglet mortality as a welfare impact or acknowledge that there is a greater risk of overall pre-weaning piglet mortality in some systems than in others. The reviewers found that there is either insufficient or conflicting evidence in the literature to support some of the NAWAC's conclusions in the Five Domains report.

The indicators chosen to represent the impacts and opportunities for enhancement were all animal-based indicators. Any consideration of how the different systems were managed was excluded. This was a critical omission given that the ability of stockpersons to carry out essential husbandry tasks that provide for welfare would be different across the scenarios. An example of this was given at a Code working group meeting in regard to piglet fostering and how some types of fostering are effectively not possible in some farrowing systems. Somewhat contradictorily, throughout the Five Domains report there is occasional reference to management to defend unfavourable welfare outcomes in loose systems, e.g., the discussion on piglet crushing (P. 20):

"*While the Likelihood of near-miss crush injury is greater in indoor systems when sows are loose, it is not dissimilar to the risk for piglets born outdoors and may be reduced by* ***management*** *and pen design.*"

And (P. 22):

"*Piglets are dependent on the sow to provide colostrum and milk until weaning; however, the sow, the system (including pen design) and* ***management skills*** *all influence piglet mortality.*"

The above quote emphasises the importance of stockpersonship and the design of a system – therefore implying that they are both relevant considerations. Yet, only animal-based indicators were used in the assessment.

The Five Domains assessment is of animal welfare in specific *housing systems* that influence their welfare. Thus stockpersonship / husbandry and management must be a factor for consideration.

We are additionally concerned about double (and sometimes triple) counting of impact indicators and inconsistent application across sows and piglets. For example, a) getting up/lying down, b) slipping and gait, *and* c) lameness were all included as sow impacts. These were combined into one indicator for piglets (lameness/foot/leg issues).

Birthing difficulty *and* long farrowing duration are included as impacts for sows to illustrate the effect of not having access to nest building material.

Face lesions and skin lesions were both assessed for piglets, and face lesions and aversive response to piglets were two indicators that represented the same welfare concern (teat competition).

Some of the indicators that were chosen to represent welfare impacts were not appropriate. Piglet vocalisations were identified as being indicative of a lack of maternal attention from sows. There is no evidence to connect piglet vocalisations with a lack of maternal care.

Shoulder sores were evaluated as a sow impact that develops between weaning – mating. There is no supporting evidence that this is the case. All publications on shoulder sores relate to sows in lactation or in gestation stalls, as they take time to develop. Sows in

New Zealand are group housed soon after mating in stalls (in farms that use them), unlike some countries that publish research on decubital shoulder ulcers.

QUESTIONS: PROPOSED REGULATIONS

PROPOSED REGULATIONS: CRITERIA

Q29. Do you agree with our choice of criteria (practicality, efficiency and economic impact)? Why or why not?

We do not disagree with the broadly defined criteria per se.

However, particularly in light of the very significant changes being proposed, the criteria need further specification to be meaningful. For example, within a practical option 'that can be implemented quickly and is not too complex', all of the following need to be considered:

- Is it possible to obtain the resource consents required to increase building footprints?
- If it is possible, how long will it take?
- How long will building design take, including consideration of the layout of the infrastructure to support a change in farming practice?
- Will the farmer have sufficient confidence in the future of pig farming in New Zealand to contemplate the changes?
- Will infrastructure be available? Will building supplies and building labour be available within a defined timeframe?
- What additional skilled staff will be required to manage the new system? Will such skilled staff be available?

Within an economic option 'that does not impose unnecessarily high costs on farmers', all the following need to be considered:

- How expensive will it be – covering consenting, building supplies and labour, infrastructure, requirement for additional skilled staff?
- What impact will the required changes have on the productivity of the farm? The productivity impact needs to be sum of all productivity changes from all the necessary changes.
- Will the farm be viable having made the changes?
- Will funding be available to make the changes?

Importantly, we point out that whether or not regulations are set, <u>all</u> changes to minimum standards that require change to building footprint, drainage, infrastructure, labour / staffing requirements, productivity decreases will require the same level of practicality and economic impact assessment.

Q30. Has MPI missed any other criteria that could help meet the overall objectives?

The criteria as described are too broad-brush to enable specific evaluation. See our answer to Q29 above.

We agree with MPI's criteria that any regulations must "*meet the requirements of the Act*" and have noted some of these requirements below.

Section 184(1)(b)(ii) of the Act requires the Minister to consult on any proposed regulations under s 183A before deciding whether to recommend the making of those regulations. While MPI is currently consulting on some general matters relating to the proposed regulations, the proposals have not yet been decided, the regulations have not been drafted, and so the current consultation cannot fulfil the requirements of s 184 of the Act. Further consultation will be required by the Minister under s 184(1)(b)(ii) once a decision has been made about the proposed practices for which a transition period will be required under s 183A(5) of the Act and draft regulations have been prepared with the reasonably necessary transition periods.

The transition period under s 183A(5) of the Act (which may be up to 10 years) will commence from the date the regulations come into force. This is because it will only be when the draft regulations are proposed and the practice that fully complies with the requirements of the Act is known that the reasonably necessary transition period can be determined.

In setting the transition period under s 183A(5) of the Act the transition period cannot run from 18 December 2020 (the date of the Animal Welfare (Care and Procedures) Amendment Regulations (No 2) 2020) because the proposed practice that will fully comply with the requirements of the Act was not known at the time those regulations were made in 2020 and the new transition period cannot relate to that earlier practice that was set in 2020.

The 5 year transition period relating to the confinement of a sow during farrowing, which is contained in the current regulations (the Animal Welfare (Care and Procedures) Amendment Regulations (No 2) 2020, as made on 14 December 2020), will expire after 18 December 2025, and was not made in accordance with the requirements of s 183A(5) because there was no assessment whether that time period was the time "reasonably necessary" to enable a transition to the practice of no confinement of sows, the transition period was a transitional measure while NAWAC carried out a review of the Code of Welfare to identify a practice that would fully comply with the requirements of the Act, and the proposal to prohibit confinement of a sow before and after farrowing is only one of the minimum standards being proposed by NAWAC.

The consultation questions deal with a proposed transition period in relation to the proposed minimum standards in a somewhat confusing manner (Qs 37 and 52 concern nesting material, Qs 40, 44 and 52 concern grower space, Qs 44 and 52 concern weaning age, and Qs 50-51 concern farrowing). We consider the following proposed minimum

standards will require a transition period in regulations and have discussed the transition period requirements in our responses to the following questions:

- for farrowing (Qs 50-51)
- for grower space (Qs 38-40, 44-45 and 52)
- for nesting material (Qs 35-37 and 52)

PROPOSED REGULATIONS: FARROWING

Q31. Do you agree with NAWAC that a regulation is needed to implement either Option A or Option B? Why / why not?

We agree that a regulation is required to replace the current regulation 26, because a transition period is required.

We do NOT agree that either of Option A or Option B, proposed as minimum standards, would be appropriate for a regulation. We have covered the reasons why in Questions 1 and 2.

We do not agree that Option A (free farrowing) as presented, or any free farrowing option, that does not allow a period of temporary confinement is appropriate. The ability to temporarily confine a sow for a short period after farrowing meets the requirements of the Act when considering both the sow and piglets within particular farming systems. To best provide for the welfare of the sow and her entire litter of piglets it may not always be possible to provide the best welfare outcome for all at all times.

NAWAC's stated *preference* for full free farrowing (p21 of the Evaluation document) is irrelevant to setting a minimum standard or regulation.

We support that there is an option to free farrow (that is, that a period of confinement around farrowing is optional but not required), but the minimum standard and any regulation must not preclude temporary confinement.

It is not clear how the timing of sow confinement could be regulated as it relates to Minimum Standard No. 10 Option B where it states:

(a) If sows are to be confined in farrowing crates:

(b) they must only be confined after the nesting period; and

(c) They must not be confined for longer than 72 hours after completion of nesting behaviour.

We do not support the limitation of confinement to 72 hours post-farrowing, but rather four days (refer Q 2). We have also outlined the significant difficulties in confining the sow "…after completion of nesting behaviour" given that there is variation in gestation length and nesting behaviour onset and duration, approximately 50% of sows farrow outside of staffed hours, disrupting sows close to farrowing interferes with parturition and piglet mortality is higher when sows farrow unconfined.

It is also important that the option remains to briefly confine the sow throughout lactation for animal management purposes – for example; fostering piglets, piglet processing, vaccination, cleaning the pens. Neither of NAWACs proposals allow for this, however the proposed Code for Dairy cattle (2022) allows cattle to be restrained (by tethering) for up to 12 hours without an ability to move freely. Tethering poses a risk of entanglement and injury, whereas restraint in a crate for justifiable management purposes does not pose a similar risk to welfare. Allowing for a brief period of confinement will assist farmers to meet their health and safety obligations for stockpersons.

NAWAC's own guidance states that as far as possible minimum standards should avoid being prescriptive. We agree. In the earlier questions (Qs 1 – 3) we have explained why elements of Option B are not appropriate as minimum standards. Prescriptive minimum standards will stifle innovation particularly in areas of science and good practice, such as farrowing systems, which continues to develop and evolve.

For example, NZPork is aware of two different systems of farrowing, one in operation in New Zealand and another close to implementation here, which are do not fit the conventional mould.

While the purpose of regulations, in addition to, but based on the minimum standards in codes, is to enable direct enforceability, it follows that regulations also must be the minimum necessary to enable the purposes of the Act to be enforced.

As stated above, we agree that a regulation is required to replace the current regulation 26, because a transition period is required. We have proposed an alternative approach in Question 3.

Q32. Do you agree with MPI's initial analysis on farrowing stalls in Appendix Three? Why/why not?

The correct term is farrowing 'crates' not 'stalls'.

We do not agree with either Option A or B as proposed, for the reasons covered in Questions 1 – 3, and Questions 30 and 31.

MPI's initial analysis is brief and qualitative and thus does not represent the extent of the economic impact which is considered further in Questions 50 –53.

MPI's initial analysis under Effectiveness, refers to the Sapere analysis which considers one temporary crating example. We do not want to limit the scope of development and implementation by locking down a set system. Many options may be appropriate to balance the needs of sows and their litters. This is discussed further in Question 48.

PROPOSED REGULATIONS: MATING STALLS

Q33. Do you agree with NAWAC, that a regulation is needed to implement this proposed change to the Code? Why / why not?

We do not agree that the proposed minimum standard would be an appropriate regulation for the reasons covered in Question 4.

We agree that a regulation is required to replace the current regulation 27, and we have proposed an alternative in Question 5. Consistent with our points regarding the importance of being as non-prescriptive as feasible, we support a regulation around limiting the time of temporary confinement for the purposes of mating by artificial insemination to no more than 3 hours at any one time.

A regulation is required because a transition period will be necessary. This is because of the extra space and capital cost that will be involved for some farmers in changing, and the requirements for greater levels of stockpersonship to ensure that the welfare of sows is provided for. The transition period will be dependent on the sum total of changes required.

Q34. Do you agree with MPI's initial analysis on mating stalls in Appendix Three? Why/why not?

No, we do not agree with MPI's initial analysis.

MPI's analysis does not contemplate that on some farms, there will be significant costs for re-building /re-development of the mating area, which in some cases may involve consenting applications. The Sapere analysis (2022) has not estimated these costs – it simply acknowledges that there will be incremental capex on perhaps 60% of indoor breeding farms.

All affected farms will have productivity issues to manage.

Inseminating and then moving a sow ~2h later would risk inhibiting uterine contractions under the influence of oxytocin peaks and suppressed by adrenaline release due to riding and dominance behaviours. If a sow doesn't become pregnant, then she will cycle ~21 days later, meaning she will be out of synch with the sows she was originally weaned with, and may be mixed with a completely unfamiliar cohort based on when she next displays oestrus. There is also the risk that the sow may be culled as she didn't become pregnant.

Rault et al (2014) reported some effects of weaning sows into groups, including lower mating success within 5 d of weaning, and increased between-week variability of the number of sows mated. This study used lockable voluntary access stalls for oestrus detection and artificial insemination of the group-weaned sows. The amount of time that group-weaned sows spent locked in the stall for oestrus detection and AI was not recorded. Their performance, behaviour, and welfare (lesion scores, gait scores, and cortisol) was compared with sows housed in stalls for 7 days post weaning. The study reported that 7% fewer group-weaned sows were inseminated within 5 d after weaning compared to those weaned into a stall (81.7 and 88.9%, respectively; P = 0.05). The wean-to-mate interval was longer by 1 day in group-weaned sows compared to stalled sows. The authors concluded that sows housed in groups at weaning and regrouped after insemination experienced higher stress than sows housed in individual stalls. This was based on higher cortisol and greater levels of aggressive behaviour, and greater weight loss in group-weaned vs. stalled sows.

While we believe that there are alternatives that preclude the need to house sows in mating stalls at this time, such alternatives require higher levels of stockpersonship and management. Given that some farms will have to re-build / re-develop their mating area, and in all cases, management systems will need to be experimented with and extra staff required, a transition period will be necessary.

We have appended a 2021 analysis of the major proposed changes on the operation of 'a typical' 400 sow herd in Canterbury (Appendix F).

Based on 2021 building costs (and all other costs), the capital cost to change to a loose mating area would be $76,000.

There will be additional work and skill required for the provision and removal of manipulable material, and managing sows at this hormonally-charged time, including extra care with handling and moving sows to the insemination facilities adjacent to boars. Managing sows on heat in a group creates issues of sow domination and injury to more submissive sows, in some cases leading to death.

Health and safety requirements for the stockpersons also require management. One of the benefits of sows being housed in mating stalls is safe operator control. For sows in a group two stockpersons may be required which is an additional challenge to manage for smaller operations. In all cases additional movement of sows will be a labour requirement.

Our estimate is that an additional 0.3 of a stockperson unit will be required to manage sow welfare and staff health and safety on an example 400 sow unit.

PROPOSED REGULATIONS: NESTING MATERIALS

Q35. Do you agree with NAWAC, that a regulation is needed to implement this proposed change to nesting material the Code? Why / why not?

Within the draft Code "nesting" is covered in both Minimum Standard No.9 - Behaviour, and Minimum Standard No. 10 – Farrowing.

We have suggested that, for clarity, reference to nesting behaviour is removed from Minimum Standard No.9 (refer our answer to Question 6) because it is covered in Minimum Standard No 10 – Farrowing.

As covered in Question 31, we support that a regulation is required for Farrowing, although not Option A or Option B as proposed. Given that the provision of nesting material is included within Farrowing, it could also be included in the alternative option we have proposed, with the same transition period.

The alternative option we have proposed is for the nesting material requirement to be expressed as meeting the description of being destructible and deformable, safe and hygienic, and topped up daily (if appropriate) until farrowing. Further descriptive wording

could be along the lines "Supplying sows with materials, such as, but not limited to, straw, jute sacks, shredded paper, hay, before farrowing to provide an opportunity to express nest-building behaviour". This does not preclude the use of straw but enables farmers to use a range of materials.

However it is covered, a regulation will be required to provide a transition period for those farms built before 2010 to invest in and construct new slurry / drainage systems if and as required, to consider and implement the provision of appropriate and available nesting materials, and to source and invest in the additional stockperson labour needed to provide the nesting material and then remove and clean it from the farrowing pens.

More details are provided in Question 36 below.

Q36. Do you agree with MPI's initial analysis on nesting material in Appendix Three? Why/why not?

A key consideration is the nature of the description of nesting material (see Question 35 above).

The very prescriptive wording of the NAWAC proposal – requiring at least 2kg of long-stemmed straw – in most cases would require re-development of drainage and slurry systems, both for farms built before and after 2010.

There will be the cost of supply of nesting material. This assumes supply of such material is available. In addition, there will be the stockperson requirement to manage including its provision and removal.

No consideration has been given to the provision of manipulable material for all pigs (Minimum Standard No. 9). There will be costs due to the provision of material and also labour requirements to manage.

Using Sapere's 350 sow farrow to finish example farm, producing 9500 pigs per year, an estimate of the cost of providing hessian as manipulable material for pigs is provided.

Hessian, or jute sacks vary considerably in their price. The recommendation is to provide relatively thick jute (250 – 300gsm) so that it is robust enough and does not shred easily. Jute bags can be purchased at https://www.sandbagstore.co.nz/product/hessian-sandbags-empty/ for $2.35 - $3.25/bag. Assuming the lower price and up to two sacks per sow before farrowing:

Providing hessian sacks to sow as nesting material	**Cost ($)**
Hessian sack cost per item	2.35
Cost per sow pre farrowing (2 sacks before farrowing)	4.70
Total annual cost of hessian sacks for farrowing sows (350 sows @ 2.2 LSY)	3,619

Providing hessian sacks to growing pigs as manipulable material	Cost ($)
Hessian sacks - growing pigs (wean-finish @ 10 bags/week per 50 pigs)	23.5
Hessian cost per growing pig per week	0.47
Hessian cost per growing pig to finishing (= weekly cost * 14 weeks from wean-finish)	6.58
Total annual cost - hessian for growing pigs (wean to finish)	62,510

The price of a medium straw bale varies considerably depending on the time of year (e.g., $90 - $130/bale). Farmers will have better estimates of the cost of straw. Availability and cost will also vary depending on yield year to year and will be variable in different parts of the country. Note that these costs are as at 2021, and with poor harvest conditions in 2022 there has been a major issue with quality and availability of straw, increasing straw prices, as well as freight charges and labour costs. Fertilizer cost increases will be an additional cost in the forthcoming harvest.

Providing long stemmed straw as nesting material	Cost ($)
Straw bale cost, medium bale (250 kg)	100
Cost per kg	0.4
Cost per sow (2kg straw/day for 2 days before farrowing as per the proposed minimum standard)	1.6
Total annual cost for straw for farrowing sows (350 sows @ 2.2 LSY)	1,232

Providing straw as manipulable material for growing pigs	Cost ($)
Straw bale cost, medium bale (250 kg)	100
Cost per kg straw	0.4
Cost per 150g	0.06
Cost per growing pig per week (@150g/pig/day)	0.42
Cost per growing pig to finishing (= weekly cost * 14 weeks from wean-finish)	5.88
Pigs produced per year	9500
Total annual cost - straw for growing pigs (wean to finish)	55,915.92

There would be further costs of providing manipulable material to sows that are not lactating (wean-mating, pregnant), gilts, and boars that have not been estimated here. Storage of manipulable material is a further consideration.

Q37. How long a transition period would you need to implement this proposed change to the Code? Please provide the reasons for your answer.

The impact needs to be considered not only for the provision of nesting material for sows at farrowing in MS No 10, but also for providing manipulable material (enrichment) for all other classes of pigs in MS No 9.

The length of the transition period will depend on the sum of costs including the capital cost of a new / re-developed slurry system if required and the supply, availability and cost of appropriate materials and additional stockperson time involved.

The wording of the nesting material required is crucial. If it is worded as our recommendation in Questions 3 and 35, then more options will be available to farmers. They will not be dependent on the availability year-around of long-stemmed straw, which in turn may negatively impact on farms that farrow outdoors.

The Sapere report (17 February 2022) costs a new slurry system at $42,232 for an example 350 sow farm.

For those farms needing to replace their slurry system, for efficiency, this should be done in conjunction with farrowing accommodation changes, and so will require the same transition period as for farrowing. This will enable farmers to undertake this development at a time it fits with the business goal in terms of building and equipment obsolescence, economics, succession planning, ability to obtain the appropriate consents in a timely manner and availability of building materials and contactors.

PROPOSED REGULATIONS: SPACE FOR WEANER AND GROWER PIGS

Q38. Do you agree with NAWAC, that a regulation is needed to implement either Option A or Option B for space for growing pigs? Why / why not?

We do not accept either Option A or Option B. Neither represent the minimum standard as required by the Act.

Alternative position:

A question has not been asked on implementing any alternative option. We cover it here.

As covered in our response to Question 10, there is scientific justification for adopting a k value of 0.034 for groups of 10 or more pigs.

We believe that this would not provide sufficient space for pigs in smaller groups and therefore propose a qualified calculation for groups of less than 10 pigs as follows:

m^2 per pig = $(N+4)/(N+1) \times 0.34 \times BW^{0.67}$ where N represents the number of pigs in a group.

The space allowance does not include that occupied by the feeder, feed trough, open drains, external dunging areas or excessively fouled areas of deep litter pens.

A k value of 0.034 equates to a very significant increase in the minimum space allowance of 13%. A regulation is required to implement this alternative option to the minimum space allowance for growing pigs because a very lengthy transition period is necessary.

Not only will implementation be very costly, but there are other additional time challenges to address (an assessment of the necessary investment / return, time required to design updated facilities, time required to apply for and receive any required consents, time required to seek and obtain funding, source building materials, and to build and fit out

accommodation including heating and ventilation infra-structure. Deep litter systems will require considerably more bedding.

- Land use consents (i.e., to establish a pig farm under a district plan) are unlimited unless otherwise specified in the consent.
- Resource consents for other activities (such as water taking and discharging) range from 5 years unless otherwise specified and must not exceed 35 years.
- However, we are seeing the maximum term of 35 years granted less and less by Councils and in situations like Otago only 6-year water take and use consents are being granted as the Council works through their new limit setting plan.

Q39. Do you agree with MPI's initial analysis on minimum space for weaner and grower pigs in Appendix Three? Why / why not?

We do not agree with MPI's initial analysis because it only addresses two options (a k value of 0.047 and a k value of 0.072). Neither of these options is a minimum standard, and so neither is an appropriate or effective regulation. Both options would give considerable potential for a reduction in animal welfare.

MPI's analysis within each of the criteria (practicality, effectiveness and economics) provides no detail. It correctly notes that both options would raise issues around practicality and complexity of implementation. But we do not agree with its analysis on effectiveness: neither is an effective option because neither represents a minimum standard.

Too much space will generate a significant outlay capital cost and ongoing running costs in order to produce the same number of pigs. This would affect almost every farm and deliver no economic benefit, making it very challenging if not impossible to make a case for borrowing money and paying it back. It is very unlikely any farmer would contemplate such a course of action.

The MPI analysis notes that even for the lower k value "more input is required on the extent of the costs incurred"; and for the higher k value "more input is required on whether these costs are excessive or not". We agree.

The transition phase required will depend on the stage of normal building and equipment degradation and wear, the cost and time to obtain the necessary building and resource consents, and how it fits into individual farms redevelopment and capital works programme along with business decisions. In some cases, more land may be required.

Q40. How long a transition period would you need to implement Option A and Option B for space for growing pigs? Please provide the reasons for your answer.

We emphasise that we do not agree with Option A or Option B because neither is the minimum required to meet the purposes of the Act.

The 2022 Sapere analysis assessed the Capex and Opex for a 350-sow indoor farrow to finish unit. Capex and Opex for both options are shown below, demonstrating the impossible situation farmers would be in.

Capex: Option A (k of 0.047)

- To meet minimum standard 6 (Grower space), the average farm must increase space for growing pigs by 81 per cent, from 1452 m^2 to 2627 m^2 using a two-stage farm model, which represents the majority of grower facilities.
- The resulting capex requirement to meet minimum standard 6 (Grower space) is $1,178,391.

Opex: Option A

- The increase in grower space requirements will increase heating costs as the lower density of pigs in pens changes the average in pen temperature. Option A reduces
- stocking density to 55 per cent compared to existing levels. The average 350 sow farm's annual heating costs are assumed to be $43,162. The additional costs are scaled up from the lower density to add $34,946 to the annual electricity bill.

Capex: Option B (k of 0.072)

- To meet minimum standard 6 (Grower space), the average farm must increase space for growing pigs by 174 per cent, from 1,452 m^2 to 3,977 m^2.
- The resulting capex requirement to meet minimum standard 6 (Grower space) is $2,531,587.

Opex: Option B

- As with Option A, the increase in grower space requirements will increase heating costs as the lower density of pigs in pens changes the average in pen temperature. Option B reduces stocking density to 37 per cent relative to existing levels. The additional costs are scaled up from this lower density to add $75,076 to annual electricity costs.

These options would require farmers to invest large amounts of capital into a facility which is not going to generate any more income as a result of that investment. The facility represents a depreciating asset which has no residual value at the end of its working life.

Furthermore, the Sapere analysis did not include the cost of extra stockperson time to clean the increased space. It made no allowance for the extra bedding required in eco-barn type systems, nor for handling of extra spent bedding.

Particularly given that there are other proposals in the draft code which will lower productivity and resulting income, it is unfeasible for farmers to consider borrowing to meet either of these two options.

We have not answered this question directly in terms of a transition period. This is because we do not agree with either of the proposals, as they do not meet the purposes of the Act, are likely to decrease animal welfare, and would be prohibitively costly.

However, as covered in Question 38, we have considered an alternative option, as we had earlier discussed in Question 10.

<u>Alternative option:</u>

There is scientific justification for adopting a k value of 0.034 for groups of 10 or more pigs.

We believe that this would not provide sufficient space for pigs in smaller groups and therefore propose a qualified calculation for groups of less than 10 pigs as follows: m^2 per pig = (N+4)/(N+1) x 0.34 x $BW^{0.67}$ where N represents the number of pigs in a group.

The space allowance does not include that occupied by the feeder, feed trough, open drains, external dunging areas or excessively fouled areas of deep litter pens.

To increase the minimum space to a k of 0.034, we have estimated the capital cost for the example 400 sow herd (see Appendix F) operating either a multi-stage or a wean to finish farm as follows:

- Multi-stage: $217,000
- Wean to finish: $1,026,000

Importantly, these estimates are based on 2021 building, freight, labour, and all other costs. We would expect these to be significantly higher given June 2022 building supply issues and building cost escalation (at least 15%). In addition, there will be consent cost and time lag considerations.

Given the magnitude of these costs, which will be additive to other costs of changes being proposed (which will be substantial particularly for indoor farrowing systems) we request the maximum transition period of 10 years. Before farmers can undertake this scale of investment, they need surety that the regulations will not change at the next Code of Welfare (Pigs) review.

PROPOSED REGULATIONS: WEANING AGE

Q41. Do you agree with NAWAC, that a regulation is needed to implement this proposed change to the Code? Why / why not?

No, we do not agree that a regulation is required. We support the current outcome-based minimum standard.

While we have suggested a slight further clarification to the current minimum standard (see Question 12) we do not agree that any substantive change is required to the current minimum standard, or that a regulation should be set.

Q42. Do you agree with MPI's initial analysis on weaning at 28 days in Appendix Three? Why / why not?

We do not agree with this analysis. It is incorrectly stated that the current minimum weaning age is 21 days. This is currently an example indicator, not a minimum standard. The 'effectiveness' of requiring a minimum weaning age of 28 days is stated in Appendix Three, page 48 as having a "*...meaningful impact on farmer behaviour and will enable them to more effectively meet the requirements of the Act. Success can be measured. This will be an improvement on the status quo.*" We question the inference that farmers weaning piglets under 28 days are not effectively meeting the requirements of the Act, and what this assertion is based upon. The introduction of a minimum weaning age in the

Code was completely unexpected as this was not discussed as an area of potential change with the Code drafting working group, farmers, or NZPork. As such it is unclear what information relevant to the New Zealand pork industry was considered when NAWAC discussed introducing a minimum weaning age of 28 days – for example, are there concerns that post-weaning mortality percentage is excessive? We are not of the view that this is an issue in New Zealand, given our high health status and higher piglet weaning weights at a similar weaning age compared to our overseas counterparts.

In 2015, as part of their considerations when the use of farrowing crates was being reviewed, an economic analysis was conducted by Nimmo Bell on behalf of NAWAC and MPI to model different scenarios for alternative farrowing systems and management. One of the scenarios proposed for consideration was a 'three week system' option which would require farmers using farrowing crates to wean piglets at no later than 21 days in order to reduce the duration of sow confinement. For this scenario to have been proposed it is assumed that NAWAC believed it met the purposes of the Act., yet it is at odds with the current proposal to wean no earlier than 28 days.

Sows and gilts within the same farrowing batch do not farrow on the same day at the same time. However, when weaning is carried out, all litters from the same batch are weaned at once in order to practice 'all-in-all-out' management. This means there will be variation in weaning age within a batch. Performance data covering ~70% of the commercial sector reveals that the average weaning age of piglets in the New Zealand pork industry is 25 - 26 days. Requiring a minimum weaning age of 28 days will mean that the average weaning age becomes 35 days due to the range in farrowing dates within a batch.

The consequence of a 5-week lactation will likely be an increased incidence of lactational oestrus. This would affect outdoor herds the worst because piglets reared outside spend less time in contact with the sow as lactation progresses compared to piglets reared indoors. Oestrus can be stimulated while the sow is still lactating with increasing time between successive nursing events, which reduces the nursing frequency per 24h. Nursing frequency normally declines over time, however the way in which weaning is managed currently ensures piglets are weaned at an appropriate weight and stage of development without compromising all-in-all-out or interfering with the sow's reproductive cycle. Increasing the average lactation length by a week poses a significant risk for inducing lactational oestrus 'outbreaks'. The consequence of this is unpredictable wean-to-service intervals which will disrupt the synchrony of the batch and compromised all-in all-out management for disease control (Edwards, 2014). Mating numbers per week become extremely variable and unpredictable when lactational oestrus is an issue, with resultant loss of productivity through to the grower herd and to slaughter.

Requiring a minimum weaning age of 28 days would require additional capacity in farrowing accommodation. When a minimum weaning age is set, this has the effect of increasing the average weaning age by 7 days beyond the minimum. This is because sows farrow within day of one another as mating dates and gestation lengths vary within

a range of 7 days within a batch but weaning as an event happens all at once on the same day. The current average weaning age in New Zealand is 26 days. Requiring a minimum weaning age of 28 days would increase the average weaning age to 35+ days. This would require additional farrowing accommodation on all farms, indoor and outdoor. Coupled with the increase in space requirements for growing pigs and transitioning to farrowing pens on indoor farms this will likely mean that even more buildings and/or land is required.

Increasing the weaning age will reduce the number of litters produced per sow per year, which is a key component on on-farm productivity. This is explained further in the response to the following question, with examples and estimated costs.

Q43. How long a transition period would you need to implement this proposed change in the Code? Please provide the reasons for your answer.

As covered above in Qs 41 and 42, and further explained in our response to Qs 11 and 12, we do not agree with this proposed change. It has the potential to reduce net welfare, and certainly will reduce productivity.

The Sapere analysis (2022) costed some of associated impacts of increasing the weaning age. It however did not consider the impact on a herd's farrowing index.

For the same 350 sow farrow to finish operation currently weaning at 26 days:

- sows would produce 2.3 litters per year
- each sow would wean 26.9 piglets per year
- the farm would produce 9,411 weaners per annum.

Moving to a 5-week weaning instead on the same farm would mean:

- sows would produce 2.18 litters per year
- each sow would wean 25.45 piglets per year
- the farm would produce 8,906 weaners per annum.

This is 500 fewer pigs per year. At 70kg average carcass weight fetching $4.20 /kg this equates to $290/pig. A loss of 500 pigs =$145,000 loss in income per annum for this one example 350 sow farm.

One additional extra week in the farrowing area requires additional farrowing capacity (which was covered in Sapere's analysis), greater piglet mortality, reduced sow productivity and financial loss from an estimated 90 extra pigs to the value of $290 x 90 = $26,100 for this one example 350 sow farm.

No account has been taken of the extra feed costs for the higher levels of feed required by sows in lactation for another week, or of the extra labour required in dealing with the effects and disruption of trying to manage lactational oestrus. Major disruptions with semen supply (a perishable product) which will be compounded with a batch farrowing system. Further productivity loss may occur from less control at mating by higher

dependence on natural mating. More boars will be required to cover this adding to the cost.

Lactational oestrus is a very likely outcome of increasing the minimum weaning age, especially for outdoor producers. The incidence is very variable but lactational oestrus is especially difficult to manage, causing significant disruptions that require additional management input to control. If not controlled, this leads to major mating disruption culminating in an increase in the weaning to mating interval, more non-productive days, and subsequently a reduction in the farrowing index that further compounds the effect of a greater weaning age to result in even fewer weaners produced per year.

If sows experience lactational oestrus, it will be 3 more weeks before they return and be receptive to mating. While the effects are variable, a worst-case scenario could push the weaning to service interval out by 12 days for half the sows, the effect of increasing the interval between farrowing on average from 159 to 174 days. This will reduce the farrowing index or number of litters each sow has from 2.30 to 2.10 per year. If each sow rears the same number of weaners per litter, this reduces the weaners per sow per year from 26.9 to 24.6.

The lactational oestrus effect including the longer weaning age has the ultimate effect of reducing the numbers sold by over 800 pigs a year, reducing farm income by $232,000, which is simply the drop in income from the drop in numbers sold, but excluding the unaccounted costs.

PROPOSED REGULATIONS: TRANSITIONAL PERIOD

Q44. What is the timeframe that would be required for farmers in order to meet higher standards of animal welfare proposed for an amended Code of Welfare?

This question specifically refers to grower space, weaning age and changing slurry systems

We do not agree with either of Option A or Option B proposed for grower space. Neither do we agree with the proposal for a regulation setting a minimum weaning age. We agree that the provision of nesting and manipulable material will require a changed slurry system for a number of farms. Some farms may need to fully replace their flooring and drainage infrastructure which would be an additional cost.

Our reasons for not agreeing have already been covered in responding to specific questions on grower space and weaning age.

However, we support that an increase in grower space is justified, as is the provision of nesting and manipulable material.

We address the timeframe required for farmers to meet higher standards of animal welfare in accordance with the requirements of the Animal Welfare Act in Question 45 below.

Q45. Is there an alternative option available to enable farmers to better transition to the new regulatory requirements?

This question specifically refers to grower space, weaning age and changing slurry systems

We have recommended an alternative option for grower space in our response to Question 10 and discussed it further in Question 40.

Implementing space based on a k value of 0.034, plus putting in place a new slurry system will require the maximum transition period. This is critical given the compounding nature of the changes and the fact that a slurry and drainage system will in some cases require the flooring to be uplifted and replaced.

Again, important qualifiers are the ability to obtain resource and building consents, and the overall resources to invest covering time to plan and design, the availability of labour and building supplies, confidence that funding will be available, confirmation that it is a sound investment, and there will be the additional stockpersons required to meet the additional labour requirements associated with provision and removal of nesting and manipulable material and managing the new drainage/ slurry system.

We have also provided an assessment of the impact of the Option A and B space proposals, from the Sapere analysis, in Question 40, and the impact of a regulation setting a minimum weaning age of 28 days, in Questions 42 – 43.

Q46. What transition support would be useful for ensuring farmers can meet higher standards of animal welfare proposed for an amended Code of Welfare?

This question specifically refers to grower space, weaning age and changing slurry systems

It is no exaggeration to say that the New Zealand pig farming sector will be decimated if the proposals as presented are confirmed. In some cases, the proposals will lead to a reduction in animal welfare.

The Sapere analysis (2022) recognises the decimation of the sector by the NAWAC proposals by:

- Only modelling the more *conservative* of the two options provided for space for grower pigs; and
- Highlighting that given competition for imported pork, it would be difficult to sustain the necessary price increase to enable farmers to fund the changes.

However, the scientifically justifiable changes put forward by NZPork will still put a very significant cost and resource imposition on the industry. The Ministers have confirmed in the Ministerial Foreword of the Joint consultation document that the Government is investigating possible mitigation options "to ensure the New Zealand pork industry has a way forward once these proposals have been finalised".

NZPork strongly agrees this is a necessary and appropriate role for Government. All countries who have transitioned / are transitioning to alternative farrowing systems have had financial and other government support – and these countries have not been faced with very significant costs for the increase in grower space at the same time.

All of the following mitigation options would be appropriate:

- Identify and implement approaches to level the playing field with imported pork in terms of animal welfare standards
- Government support for capital expenditure required to meet the new code
- Government support for, and fast-tracking of, resource and building consent requirements
- Appropriate transition times. Our strong recommendation is that providing higher minimum space requirements should be staggered to follow on from the implementation of farrowing and mating changes where required
- Research assistance (e.g., SFFF) to identify practical systems that enable the sector to meet the new code and provide guidance
- Support for sourcing appropriate skilled stockpersons by way of immigration settings targeted specifically at meeting the requirements of pig farming
- Support for training in New Zealand
- Government endorsement of the New Zealand pig farming industry and its farming practices to support the industry's reputation and cement its social license to operate in New Zealand
- Confirmation that the close-to-finalised-code standards will be transparently evaluated to ensure that the new standards are able to be put into practice by farmers in a financially viable manner. If that is not the case, they will be reviewed
- Strengthening the country of origin of food regulations so they span all pork, and ensure they clearly communicate the origin of pork.

Most importantly the series of mitigation steps must be confirmed and publicised by Government in advance of the new Code and regulations being released so that farmers have confidence that they will be supported. The mitigations must be substantial and meaningful. If they are not, then farmers will exit the industry.

Strengthening of the country of origin regulations is listed last. This is because while it may be of some assistance, as price is a more important purchasing criteria than country of origin or animal welfare, it will not be a panacea.

PROPOSED REGULATIONS: GENERAL QUESTIONS

Q47. Do you consider that any of the other minimum standards require regulations? Please provide reasons for any proposals. If possible, please also include a comparison of your proposals against the practicality, efficiency and economic criteria outlined in section 4.4.3.

Our principal criterion for supporting regulating is to allow for a transition period to be provided.

We do not consider any of the other minimum standards require a regulation. See our response to Q30 regarding the requirements for regulations and the practices we consider will require a transition period under the regulations.

PROPOSED REGULATIONS: TYPES OF SYSTEMS

Q48. Sapere undertook an assessment of the SWAP farrowing system. Are there any other systems available besides the one identified in the report? If so, what are they and can they fulfil the requirements of the Act?

To answer this question: yes, there is a multitude of options of farrowing pens available that achieve and incorporate many of the design and management aspects covered in Appendix D. How many of the currently available systems could be adopted by New Zealand pig producers will depend on the prescriptiveness of the minimum standard. This will also influence any ability to adopt systems that are not yet on the market.

Farrowing systems are designed to meet the specific needs of the sow and her piglets. The needs of a sow change as she transitions through different physiological states over a matter of days (Theil et al., 2022); including late gestation, peri parturition, post-partum and lactating. These physiological states have aligned physical and behavioural needs. The piglets are also transitioning from existing within a protected, buffered intrauterine environment to a less predictable and secure extrauterine life. This change is abrupt for the piglets, and failure to adapt is responsible for the majority of piglet mortality in the first few days of life.

At first observation a farrowing system may appear to be simple in its design. However, there are many considerations informed by scientific knowledge and good practice that have been taken into account in its deliberate design. In essence, the farrowing system needs to meet the needs of the sow, and the piglets, which includes maintaining an appropriate temperature difference between the sow and her piglets, sow comfort, ease of feeding and cleaning, and ease of handling both the sow and her piglets safely.

Q49. How much would it cost you to install the SWAP system? What would the ongoing additional costs of using this system be for your enterprise?

The Sapere analysis assessed the costs of installing a SWAP system for an example 350 sow farm.

These figures were calculated a year ago. Building costs are estimated to have increased 15%. Farmers will be best placed to estimate these costs.

Capex: Option A & B

- The cost of a sow place in a new 6.5m2 Freedom Farrower (SWAP) pen including installation in shed is $13,629.10 at an exchange rate of 0.51 pounds per $NZ (See Appendix B of the Sapere analysis for more details). Option A discontinues the use of farrowing crates while Option B allows temporary use of these. It is assumed that any savings that might result from not including a farrowing crate within the new pen under Option A, because this would not be permitted, would be negated by

spending on pen "furniture" designed to manage piglet mortality in a free farrowing pen, such as sloped panels and creep design.
- Both options include new sow places totalling $1,063,070, a new slurry system costing $42,232 and extra land costs of $70,648.

Opex: Option A & B
- The extra opex needed to operate with 78 new Freedom Farrower (SWAP) sow pens is $48,161 per annum. This is mostly economic depreciation of the pens based on a 30-year life assumption with some additional labour costs based on an assumption that an additional labour costs of 5.1 per cent would be required to operate these pens. In addition, there are extra costs for straw of $7,308 per year.

Foregone revenue Option A
- Pre-weaning mortality is assumed to rise from 12 per cent on a current average farm, to 19 per cent to meet the requirements of minimum standard 10 by the assumed use of pens without inbuilt crates. This lowers the estimated cash earnings of the 350-sow average farm by $119,168 per annum[5]. This represents 31 per cent of the total cash earnings of this average farm prior to meeting the proposed Code.

Foregone revenue Option B
- Pre-weaning mortality is assumed to rise from 12 per cent on a current average farm, to 18 per cent to meet the requirements of minimum standard 10 by the assumed use of Freedom Farrower pens. This lowers the estimated cash earnings of the 350-sow average farm by $103,188 per annum. This represents 27 per cent of the total cash earnings of this average farm prior to meeting the proposed Code.

PROPOSED REGULATIONS: TRANSITION PERIODS

Q50. Does the Sapere report identify all relevant costs of transitioning to alternative farrowing and mating systems? If not, please describe any other relevant costs.

The Sapere analysis indicates the order of magnitude of the costs involved for the NAWAC proposals.

It does not take account of:

- Costs of building where required for loose mating systems
- Costs to invest in more staff and higher levels of stockpersonship to implement

Additionally, it uses building costs already a year out of date, when building costs are increasing by at least 15% annually.

The Sapere report over-estimates earnings based on sow productivity. Farmers should provide more accurate figures in terms of estimated effects on sow productivity.

Q51. The report identifies that an average 350 sow farmer would need 19 years to transition to the draft proposals. Do you think this is an accurate reflection of resource implications, viability, and costs that farmers would face?

We have noted in Question 50 (above) some costs of transitioning to the NAWAC proposals for farrowing and mating that are not included in the Sapere analysis.

As Sapere points out, its analysis focusses in particular on changes to minimum standards No.10 (Farrowing), No.6 (Space for growing pigs) and No.16 (Weaning).

For the whole suite of NAWAC proposals, in addition to the points noted in Question 50, the Sapere analysis did not take account of:

- Loss of productivity from higher weaning age (which reduced the number of litters per sow per year and pigs produced per sow per year)
- The effect of lactational oestrus on productivity
- Higher piglet mortality from a longer lactation
- Accurate costs for manipulable material pre-farrowing and for all other pigs (for enrichment purposes MS No9) have not been captured.

It is not an accurate reflection of the resource implications, viability, and costs that farmers would face for all the following reasons:

- Escalating feed and other costs
- The profitability (per sow) is significantly over-stated in the Sapere report
- The Sapere report warns that given the price of imports, increased prices for New Zealand produced pig meat would be difficult to sustain
- The Sapere report takes no account of the difficulty in finding additional skilled stockpersons
- The business case, on the face of it, is not bankable
- Farmers' resilience, in the face of Government actions, will be sorely tested.

The Sapere report does not establish that it would take 19 years to transition, but rather that it would take 19 years of earnings to meet the costs of the changes.

<u>Alternative option</u>

We have assessed the economic impact of making the farrowing and mating changes we have proposed (refer Questions 3 and 5), plus increasing minimum grower space by 13% to a k value of 0.034 (refer Question 10) on the 400-sow model farm presented in Appendix F (Refer Table 1).

This analysis estimates the capital cost required to change:

- to a temporary confinement farrowing system of 5.75 m², and
- loose mating where required, and
- increase grower space.

The capital cost is:

- $821,442, for additional farrowing accommodation, a multi-stage grower unit and no building required for loose mating
- $897,549 for additional farrowing accommodation, a multi-stage grower unit with building for loose mating required

- $1,630,434 for additional farrowing accommodation, a wean to finish grower unit and no building required for loose mating

- $1,706,541 for additional farrowing accommodation, a wean to finish grower unit with building required for loose mating.

Importantly these costs need to be assessed in the context of annual farmgate value of $188 million (September 2021).

Table 1 of Appendix F also establishes the impact on annual farm income of both a 3% or 6% increase in piglet mortality from using the new farrowing system with temporary confinement only:

- 3% increase in mortality equates to an income decrease of $45,441
- 6% increase in mortality equates to an income decrease of $92,415.

Tables in Appendix F also estimates the effects of using existing post weaning accommodation to house the progeny from reduced herd size, to meet the NAWAC proposed space allowances per pig.

The costs above are exclusive of installation of a new slurry / drainage system, costed by Sapere (2022) at $42,232. Depending on the infrastructure work required this may be a significant under-estimate.

This analysis does not include the effect of lower sow productivity caused by changes to a loose mating facility. It does not include the effects of reduced productivity and income from increased weaning age, higher mortality associated with higher weaning age, or lactational oestrus as we do not agree that this change should be made.

Q52. How much of a transition period would you need to implement the proposed regulations on grower space, weaning age and changing slurry systems? Why?

This question essentially repeats the contents of Questions 44 – 46.

We do not support a regulation for weaning age for reasons spanning animal welfare, productivity, and practicality.

We do not support the proposed regulations for grower space (a k value of either 0.047 or 0.072). There are negative consequences for animal welfare with either of these proposals. Therefore implementing a regulation for this proposal with an associated transition time is inappropriate. The cost of either of the proposals is also prohibitive.

<u>Alternative option for grower space allowance</u>

Increasing the space for growing pigs to a k value of 0.034 as we have proposed as an alternative is still a very significant cost. For the example 400 sow farm (based on 2021 costs) operating a multi-stage or a wean to finish farm, it is:

- Multi-stage: $217,000
- Wean to finish: $1,026,000

Sapere has costed a new slurry system at $42,232.

For some farms this is unrealistic as the installation of the new system will require floors and buildings to be rebuilt from scratch to accommodate the upgrade.

Within the context of all other changes, including capital and ongoing operating costs, additional stockperson requirements, experimentation with new systems, plus the escalation of on-farm costs, the maximum possible transition period should be set.

Q53. What are the implications of the proposed regulations for your farm? What are the implications for the industry?

As per the Sapere analysis, the price of New Zealand pork will have to rise by 18.8% and remain at this level for 20 years. This is the price rise at farm gate to the farmer. The retail price will be further increased to maintain a gross profit margin. Such a price rise will put it out of reach of some New Zealand consumers, thus contracting the market. Sapere warn that such a price increase is unlikely to be sustained by the market in the face of cheaper imports.

Market contraction will generate implications for stakeholders in the wider pork supply chain such as:

- Abattoirs
- Processors
- Nutritionists
- Stock transporters
- Veterinarians
- Feed mills
- Premix manufacturers and feed ingredient suppliers
- Independent retail butchers
- Food manufacturers
- Tradespeople
- Agricultural contractors including grain farmers
- Rural communities – small businesses, schools, cultural groups

Undoubtedly some farms will consider they will have no alternative but to exit the industry if the NAWAC proposals are confirmed. Early indication from farmers is that they will have no ability to make the investment required, with the associated productivity drop and negative animal welfare consequences. Somewhere between 30- 80% may leave. The critical mass of the $700 million domestic industry will be compromised, perhaps irreparably.

At the extreme, New Zealand supplied pork will be replaced by imports and New Zealand will lose a portion of its food security in a key protein source. The supporting supply chain and business networks will be unlikely to return once dissolved, consigning a once thriving industry to history.

We are very concerned about the well-being of farmers and those in the supply chain whose businesses are very dependent on New Zealand born and raised pork. In our introductory comments we have described the uncertainty that farmers have faced over many years given NAWAC's continual reviews.

A perverse animal welfare outcome is likely to be an increase in 'backyard' ownership of pigs, as a consequences of rising pork prices and in the face of food price inflation.

Implications of NZPork's alternative proposals for farmers:

NZPork's alternative positions will be very costly for the industry. The pig farming sector has an annual farmgate value of $189 million (September 2021). With very limited data, and time available to consider since settling on the industry's positions, the capital costs to implement these changes have been *conservatively* estimated to be greater than $64 million as a minimum. This is excluding resource and building consenting consents, design costs, and all other lead-in costs, and assuming that all farms are in a position to do so. Additional to this is the drop in income due to the productivity drop from increased piglet mortality farmers will experience.

This cost estimate is provisional only. The complexity resulting from consulting on minimum standards with multiple options included, suggested alternatives *and* regulations and transition times simultaneously means that NZPork would expect a full economic impact analysis to be done when a finalised code is confirmed. Building costs and supply issues mean that costs are escalating rapidly. Among other things the full economic analysis will be required to inform transition periods to be set.

PROPOSED REGULATIONS: OTHER CHANGES TO THE CODE

Q54. What are the implications of the remaining proposed changes to the Code? For example, what would the costs be to you of providing manipulable material? What would it cost you to address hunger in pigs fed a restricted diet?

Providing manipulable material may require changes to underlying effluent and drainage systems. Availability of some types of material (especially straw) is likely to be a challenge in the immediate future given growing conditions in the last season have meant a reduced supply. Reduced supply will be compounded if there is an increased and sudden demand for straw as manipulable material if there is not transition for this. Alternatives exist including jute or hessian, however it is not clear how much is currently in New Zealand and whether this would meet the demand if indoor farmers were to begin using this substrate almost immediately in significant amounts. However indicative costs have been provided in Question 36.

Similar complexities exist for providing enrichment/manipulable material for all other types of pigs.

PROPOSED REGULATIONS: GENERAL COMMENTS

Q55. Do you see any barriers to the implementation of the proposed Code? If so, what are they and how might they be resolved?

Other countries, such as Denmark, have explained what they see as barriers to the widespread adoption of pen-based farrowing systems:

- There is a 25% extra cost (900 – 2000 more euros per farrowing space).
- Government funding has been small and infrequently available
- Shortage of labour
- There is no premium for loose farrowing indoors
- The 'high welfare' market is saturated

In 2011 an industry goal was set to have 10% of sows in loose farrowing systems by 2020. Very few producers have invested in pigs since then. Farmers expanding production installed farrowing crates, not pens. Those building a **new** pig farm often installed pens however. Today 3.5% of sows are in loose lactation pens (about 9,000 sows).

For New Zealand, there are a number of unsurmountable barriers to the implementation of the NAWAC proposed code. The NAWAC proposals as they stand will mean the pig farming sector and hence the industry will be decimated, as reflected in early indications from farmers in response to Code proposals.

All of the following are barriers:

- Some proposals are not the minimum to meet the purposes of the Act
- Some proposals do not understand the complexity of pig farming, and so do not recognise the unintended consequences of change in one need category on another need category (e.g., space for growing pigs) or another class of pig (weaning age, farrowing); or the unintended hazards (e.g., tail docking by hot iron cautery). In some cases, the outcome means that net welfare is reduced.
- The magnitude of cost in the face of productivity decrease
- The inability to fund because a business case cannot be supported
- The current environment of rapidly increasing feed and other on-farm costs
- The unlikelihood of obtaining resource consents to construct new farms. This means that re-development of existing farms remains the only feasible option

Common feedback from farmers is that they feel there is a lack of Government support and understanding for the sector, and consequently feel that the sector is not valued. The Government's apparent indifference to the inability to source skilled stockpersons within New Zealand and not recognise the need for a (small) number of skilled migrant stockpeople to enter New Zealand is a major challenge for the sector.

There is a strong link between animal welfare and farmer wellbeing. The concept of One Welfare highlights this, where difficulties relating to financial, bureaucratic, physical or mental health, animal health and welfare, or relationship breakdowns can become

overwhelming and seemingly unsurmountable (Pinillos et al., 2016). The significant changes proposed in this Code are placing many of these pressures on farmers currently.

Q56. What benefits do you see from having this proposed Code? Benefits may include, for example, increased certainty about animal welfare requirements.

We do not support many aspects of the draft Code as proposed. The reasons for this have been well covered in our responses within this submission. Refer in particular to Question 55 to understand the range of unsurmountable barriers to implementation. Some proposals have negative welfare consequences.

As we have explained throughout our submission, the New Zealand pork industry is not opposed to change where it can be justified based on science. We have sought guidance from our technical advisers based on their scientific assessment. Based on this guidance, the changes proposed by the industry (alternative options) are substantial and meaningful and collectively demonstrate welfare standards that meet the purposes of the Act and go beyond all major pig producing countries but will require adequate time and government support to be provided to farmers in order to implement these changes.

In particular:

For farrowing: The alternative option proposed by NZPork (refer Question 3) will place New Zealand beyond the standards required in the UK, EU, USA, Canada, Australia, and China at present, and futureproof the industry by aligning it with other early adopters of reduced confinement farrowing system standards internationally.

For mating: The alternative option proposed by NZPork (see Question 5) will preclude the need to house sows in mating stalls, recognising that higher levels of stockpersonship and management will be required.

For farrowing and mating: NZPork's alternative options would position New Zealand's pork industry as an international leader in reduced sow confinement.

Space for growing pigs: The alternative option proposed by NZPork (refer Question 10) is a 13% increase in space. This increase in the minimum space allowance for growing pigs would put New Zealand's standards ahead of those in the UK, EU, USA, Canada, Australia, China and 99.7% of pig meat imported into New Zealand.

In Appendix G we attach a comparison of New Zealand's standards with those of our top 10 importing countries. Appendix H presents a table illustrating the requirements in countries that have adopted pen-based farrowing systems, their transition time and government support.

If Government supports the industry by providing adequate time and adequate support (refer mitigation options presented in Question 46) including public support to farmers, then the industry, the country, and the Government can all share in the reputation for a world leading pig farming sector.

Under this umbrella there *may* be niche opportunities to market New Zealand pork strongly on its provenance. There may be *potential export* opportunities. However, such potential opportunities must be realistically assessed: without government support the critical mass of the pig farming sector will be threatened. This in turn will destabilise the upstream and downstream supply chain.

Q57. What broader impacts do you think this proposed Code could have on New Zealand society, the economy, and the environment?

It is no exaggeration to say that if the unjustifiable suite of NAWAC proposals proceed then the New Zealand pork industry will be decimated.

The loss of critical mass would call into question the existence of a New Zealand pork sector. Wider impacts would affect the viability of abattoirs and processors, pig feed manufacturers and feed mills, nutritionists, veterinarians, independent butchers, grain farmers, transporters, and rural communities.

We need to be prepared for some dissatisfaction from the general public that the industry is implementing a farrowing system that leads to high numbers (many 1,000's) of piglet deaths when farmers have a simple technology such as crates, they could use for a short period to prevent these unnecessary losses in an indoor system.

In addition, the following need consideration:

Food security

The price of the much- diminished supply of New Zealand pork would have to rise. Sapere's economic analysis (2022) has estimated the increase in current price would need to be 18.8%, maintained for the next 20 years. This is a farmgate price and will be scaled up to maintain a gross profit margin at retail. Sapere questions the likelihood of the New Zealand market to be able to absorb this price rise. New Zealand's pork supply will need to be met by increasing levels of imports to meet the shortfall caused by a diminished domestic sector.

Food security then is called into question. Would this scenario provide New Zealand with acceptably reliable access to a sufficient quantity of affordable, nutritious food, in the form required, into the future?

Imported pork would not meet the requirements of different cultural groups of New Zealanders: small whole pigs are a centrepiece of celebrations for Pasifika particularly Tongan and Filipino communities. Asian food markets require whole pig carcasses to cut in-store according to customer requirements.

Imported pork is not in a suitable form for these requirements because it comes in the form of cuts or portions of the carcass with the skin off.

Importation of greater quantities of pork will increase the risk of devastating pig and production animal diseases entering New Zealand (e.g., African Swine Fever, Porcine Reproductive and Respiratory Syndrome, Foot and Mouth Disease). There will be more

non-commercial pigs being raised and with it, a larger population that have been a key risk pathway for the spread of these diseases through waste feeding of products containing meat. This non- commercial sector does not take biosecurity into consideration when compared to the commercial farms many of whom have undertaken costly depopulation repopulation exercises to become free of specific diseases and want to maintain their high health status at all costs. In turn this will raise the risk of New Zealand's feral pigs being infected, thus putting pressure on the traditional food supply of Iwi. It could also threaten the existence of some of our unique health status of rare breeds including the Auckland Island and Arapawa Island pigs.

Overall, if the NAWAC proposals go ahead, the consequence will be the deterioration of the welfare outcomes for more pigs. The reduction in numbers of New Zealand's commercial pigs would be replaced by imported pork produced from pigs farmed to standards that would be lower than any pig farmed in New Zealand.

Use of commercial food by-products

Because of the strong international competition and high feed prices the New Zealand pork industry utilises large volume of commercial food by-products such as bread, biscuits, and dairy by-products lessening competition for crops such as wheat that can go directly to human food manufacture or other livestock feed. This has the double benefit of lessening the amount of these commercial food by-products food products that would otherwise go to land fill.

Environmental footprint

Globally pork as a protein is a relatively low source of emissions.

Pigs are mono-gastric rather than ruminant animals. Feed conversion is very efficient in well managed commercial herds. The majority of pigs internationally are housed indoors, with manure collected and appropriately spread rather than deposited where it is produced in the paddock.

There is a direct link between GHG emission intensities and the efficiency of production. Interventions to reduce emissions are to a large extent based on technologies and practices that improve production efficiency at animal and herd levels.

In monogastric production these include high health herds, improved genotypes, precision feeding in correctly balancing the diet and feed digestibility, efficiency of reproduction as well as efficiently using energy.

As noted in our Introduction pig farmers were early adopters of covered anaerobic effluent ponds, which are used to capture methane and generate biogas. Biogas is then used as an energy source on-farm. An estimated 10% of the total sow herd, all indoor-based, have implemented this technology. Much like the offshoring animal welfare by putting the responsibility back on the countries we import pork from, importing pork incurring food miles is at odds with our commitment to move towards being a zero-carbon society. Further supporting the viability of New Zealand's pork sector will enable continued adoption of sustainable practices within our primary sector.

Q58. How do you think consumers could be made aware of the benefits of purchasing pork produced under improved animal welfare conditions?

When it comes to welfare schemes it is important that these actually align with what the consumer wants in a product, and what they are willing to pay for it. A presenter at the Freedom in Farrowing and Lactation conference in 2021 described the situation in Denmark, where there is a waiting list of producers who would like to get a premium and have actually implemented free farrowing or no-tail docking etc., but retailers had to let some of the producers go as there isn't actually a demand for those standards in the market. An example was given of a contract between a retailer and a pig producer for the supply of pigs with intact tails, but there wasn't a market, so it was cancelled. Whether it is the domestic market, or the country they export to, there is a very, very limited demand for those 'higher welfare' products. It was discussed that perhaps five or six years ago there was optimism for market-driven welfare premiums, but that optimism is gone now.

We would echo the concerns expressed by the UK National Pig Association in their briefing on farrowing systems (February 2021) as outlined below:

- A concern for pig farmers rearing pigs in indoor systems is that they would have to bear the full cost of converting (e.g., to a free-farrowing system) and any associated production losses thereafter, because they are unlikely to be paid a higher price for pigs born in this way
- An NPA member survey suggested that 43% of pig farmers would exit the industry if a ban was brought in at any point. Aside from the fact that the shortfall in production would have to be substituted with imported product from countries still using farrowing crates, there would be huge ramifications for the industry that remained in terms of infrastructure support and critical mass.
- Commercially comparable results consistently show that mortality in alternative farrowing systems is higher than in conventional farrowing crates. Whilst some results are promising, we are simply not yet in a place where the number of piglets dying in these systems is acceptable and it is hard to believe that the general public would accept such losses. We need further research, based on systems comparable to UK production, in order for producers to consider any future infrastructure changes.
- We believe that more pig farmers would be likely to move to temporary crating systems if given the support to do so, as unlike zero confinement, these systems still allow the farmer to have an element of control and protect the sow, piglet and staff if needed but will give farmers an opportunity to manage sows more freely during farrowing.
- Minimising piglet deaths, stock person safety and mental well-being, cost (of conversion and ongoing management), supply chain support, the need for information and training, demonstration of suitable systems in commercial settings, planning considerations, and equivalent standards within trade deals will need to be addressed before further transition could be considered. What is absolutely

crucial is that the welfare of piglets, sows or staff is not detrimentally affected for the sake of something that only aesthetically appears to be better.

More stringent welfare standards do not guarantee a premium price. Often there is not a premium per se, but instead the perceived 'improved welfare' pork sets the price, and the rest is discounted below this. A premium market is by its nature small and specialised, and easily saturated. It does not meet the needs of the average consumer. This is shown by the NZ market where free range has perceived benefits but only has 2.5% of the market. In general, there are extra costs associated with these production systems and demonstrated lower levels of productivity, and hence lower efficiency of production.

There are numerous examples of where the farmer was receiving a premium for 'improved welfare' pork only for it to be sold at retail for the same price as the rest.

New Zealand pork already provides labels to retailers e.g., '100% New Zealand Pork' and 'PigCare: Born and Raised in New Zealand' around the provenance of pork.

Q59. Do you have any other comments you would like to make?

Our submission demonstrates very significant problems with the proposals put forward in the draft Code. We have highlighted the unintended negative animal welfare consequences. We have reinforced the unlikelihood that these proposals could be implemented given their costs and impacts established in the Sapere analysis, which we have shown are under-estimations.

We implore the government to work with the pig farming sector to confirm standards and agree to an implementation plan that is achievable for pig farmers to remain financially viable. We would welcome this opportunity to engage meaningfully.

If the government confirms realistic standards, and provides adequate time and adequate support, then the industry, the country, and the Government can all share in the reputation for a world leading pig farming sector.

If this is not the case, then the pig farming sector will be decimated, the New Zealand pork supply ravaged, and New Zealand born and raised pork will be a scarce and expensive product out of the reach of many New Zealanders. New Zealanders' pork consumption will be replaced by imports of lesser animal welfare standards.

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