

What is animal welfare? Let's talk about it!

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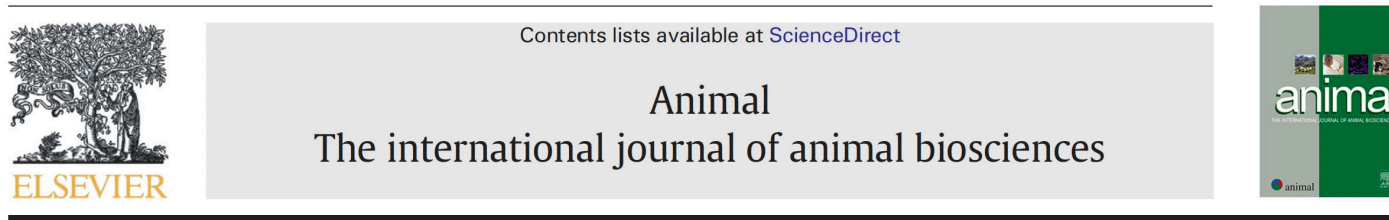
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Banff Pork Seminar, 8-9th Jan 2025

Defining animal welfare

- Integral component of animal care



My pigs are ok, why change? – animal welfare accounts of pig farmers

R. Albernaz-Gonçalves ^{a,b}, G. Olmos ^c, M.J. Hötzel ^{a,*}



Fig. 1. Word cloud with participants' most frequent expressions about the concept of animal welfare in pigs.

Albernaz-Gonçalves et al, 2019

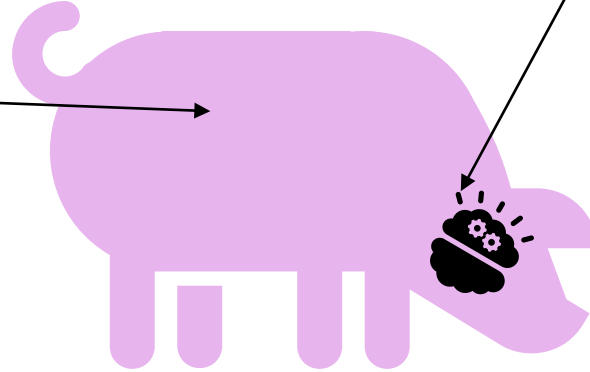
- The physical & psychological state of an individual animal in relation to its environment
- Failure or difficulty in coping with that environment are indicators of compromised animal welfare (Broom, 2011; Keeling, 2019)

When is welfare compromised?

Negative affective states

Physical wellbeing (Biological functioning)

- Lameness & painful conditions
- Disease
- Poor nutrition
- Poor body condition
- Abortions



Psychological wellbeing (Emotional states)

- Social isolation
- Social conflict: aggression, competition
- Inability to perform natural behaviours
i.e.: Rooting, foraging, exploration

When is welfare compromised?

- Natural, highly motivated behaviours
 - Rooting
 - Foraging
 - Exploration
 - Nest building
 - Synchronised feeding
- Good measure of welfare in pigs
- Central to survival = Genetic basis to behaviour
- Inability to express = Source of frustration & stress



More than the absence of negative states

- Frameworks to define & assess welfare (Colditz, 2023)
- Historically, focus on elimination of negative states & experiences
 - Five Freedoms



Image: The Planet Journey

The negatives

Castration



Tail docking



Diseases



More than the absence of negative states

- Now, emphasis on the promotion of positive states & experiences

The positives

Animal-human interaction



Play opportunities



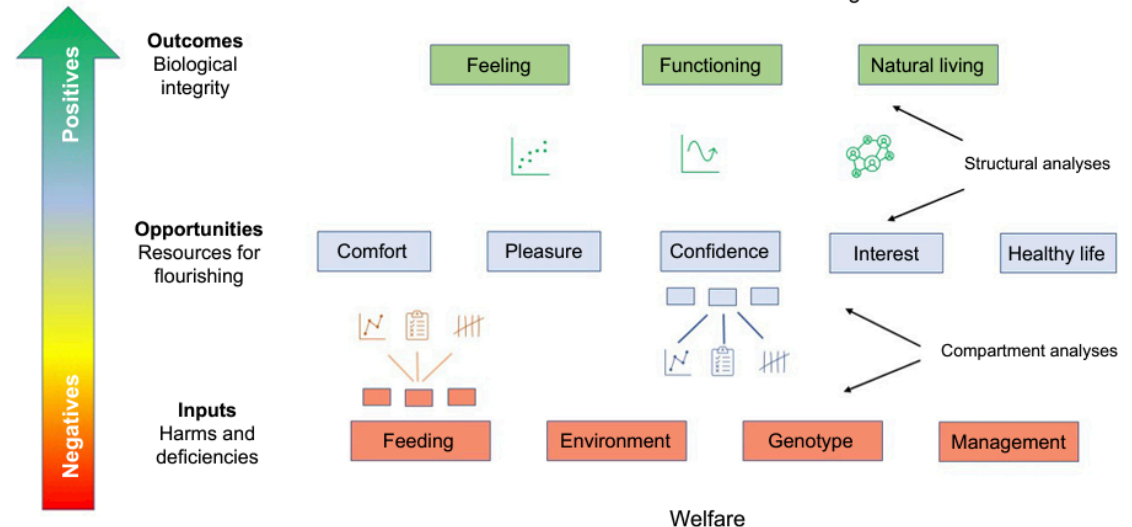
Social bonds



Five Domains



Good Life



Shifting global attitudes towards welfare

- Pork consumers
 - More environmentally aware & health-conscious
 - Seeking ethically produced food
(Kapsdorferová et al., 2024)
- Japan – Demands for higher quality pork
 - Market demands
 - **Quality = Good welfare**
- Europe
- More pronounced in Canada & the US
(Agriculture and Agri-Food Canada, 2011)



Group Sow Housing
making the transition

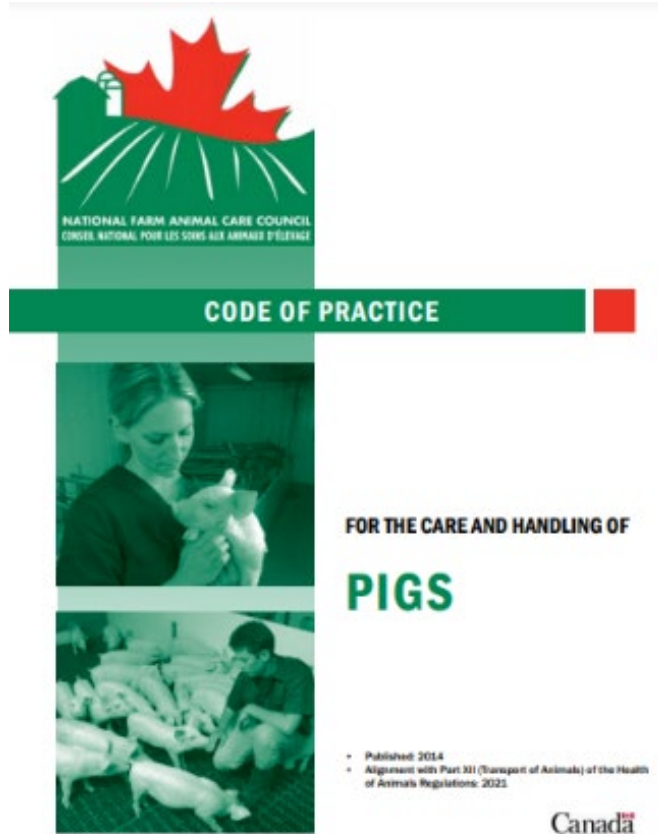


Animal care – A component of good welfare



- Guides on higher welfare standards & ethical farming practices
- Science-backed
- Multi-stakeholder approach
 - Scientists
 - Producers
 - Humane societies
- **Consensus based**
- Globally unique

Animal care – A component of good welfare



- Animal care is animal welfare
- Many producers voluntarily adhere
 - 97% of pigs raised and slaughtered in Canada (Code Technical Panel, 2020)
 - Daily animal care practices that improve welfare
- NSERC Chair in Swine Welfare – Industry’s commitment to welfare



Good welfare benefits pig & farm productivity

- Welfare is not only implemented out of expectation
- Appreciation for the associated productivity benefits is also a factor

Healthy, psychologically-sound animals raised to high welfare standards

- Timely return to estrus post-weaning¹
- Fewer non-productive days²
- Better retention, longevity & lower mortality³
- Improved health and resilience²
- Higher quality meat products^{4,5}

1 Schwarz et al 2021

2 Lagoda et al 2021, 2021b, 2023

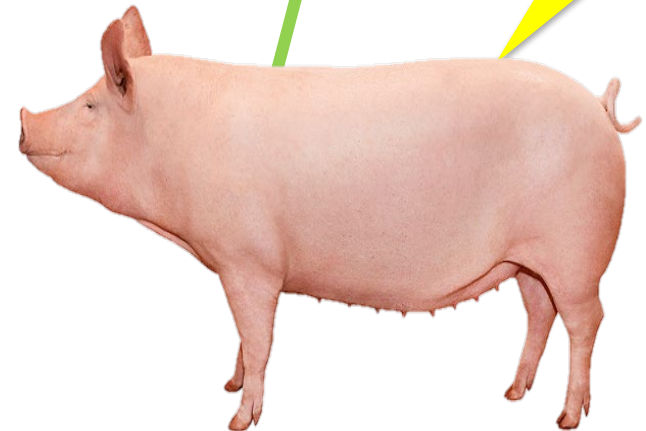
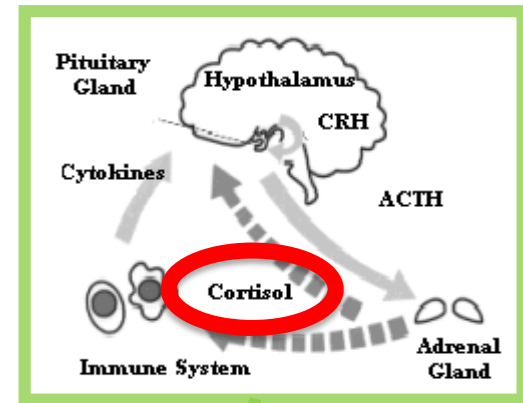
3 Stalder et al 2004

4 Boyle & O'Driscoll, 2011

5 Dawkins 2019

The biology of good welfare & productivity

- Compromised welfare activates the stress response
 - Redirection of energy resources away from growth, towards survival
 - Compromised immune response
 - Increased susceptibility to disease
 - Need for antibiotic treatment = Risk of antimicrobial resistance
- Knock-on effect on multiple body systems = Compromised productivity



Supporting welfare for increased productivity

– Examples from sows

- Provision of nesting material
 - Satisfy nest building behaviour
 - Support maternal behaviour
- Support piglet behavioural development
 - Reduce oral manipulation of pen mates
 - Learning – novelty; reduces fearfulness
 - Ingestive behaviours



Maternal Care Behaviours

High scores for:

- Nest building
 - Communication
 - Carefulness
- } Greater number of piglets weaned
-
- Communication
 - Carefulness
- } Lower piglet mortality

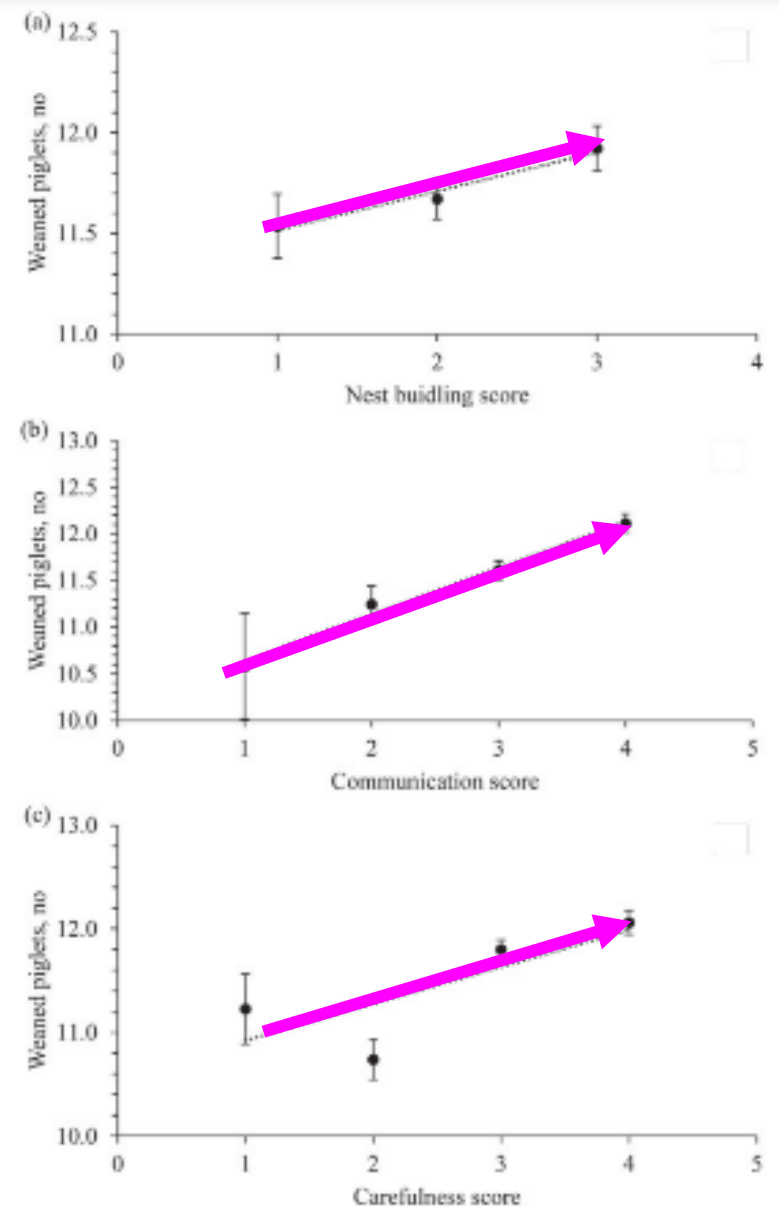


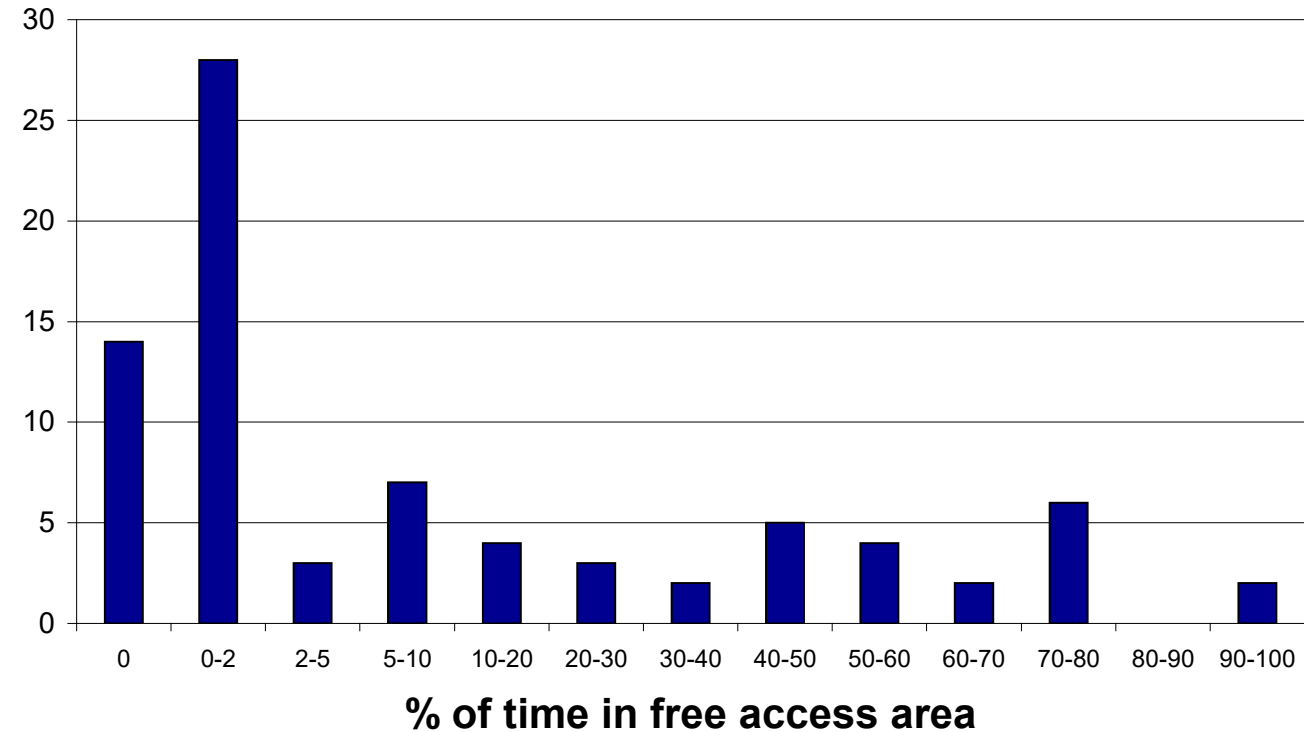
Figure 8. Relation between number of weaned piglets and behavioral scores: (a) nest building ($F_{1, 799} = 6.8, P = 0.009$), (b) sow communication to piglets ($F_{1, 799} = 14.0, P < 0.001$), and (c) sow carefulness toward piglets ($F_{1, 799} = 6.8, P = 0.009$).

Supporting welfare for increased productivity

– Examples from sows



Sows in the Loafing Area over 24 hrs



- Approx. 14% of sows never exit stalls
- Approx. 28% spend less than 2% of time out

Supporting welfare for increased productivity

– Examples from sows



- Group pens with functional areas
 - Comfortable resting surfaces
 - Pens that offer hiding spots
 - Protection during feeding

1 Merlot et al, 2016, 2022

2 Gardan-Salmon et al, 2019

3 Grzeskowiak et al, 2023

4 Lagoda et al, 2021, 2021b, 2023

Supporting welfare for increased productivity

– Examples from sows

- Housing with enrichment & novelty



Steinerova et al, 2024



Lagoda et al, 2023

Prairie Swine Centre



- 1 Merlot et al, 2016, 2022
- 2 Gardan-Salmon et al, 2019
- 3 Grzeskowiak et al, 2023
- 4 Lagoda et al, 2021, 2021b, 2023

Supporting welfare for increased productivity

– Examples from sows

- Improved litter performance
 - Fewer stillborn and mummified
 - More born alive and total born piglets
 - Fewer abortions
- Reduced stereotypies = Satisfied behaviour needs!
- Improved health, retention & reduced mortality



Supporting welfare for increased productivity

– Long-term effects

Animal Welfare

www.cambridge.org/awf

Research Article

Cite this article: Lagoda ME, O'Driscoll K, Galli MC, Cerón JJ, Ortín-Bustillo A, Marchewka J and Boyle LA (2023). Indicators of improved gestation housing of sows. Part II: Effects on physiological measures, reproductive performance and health of the offspring

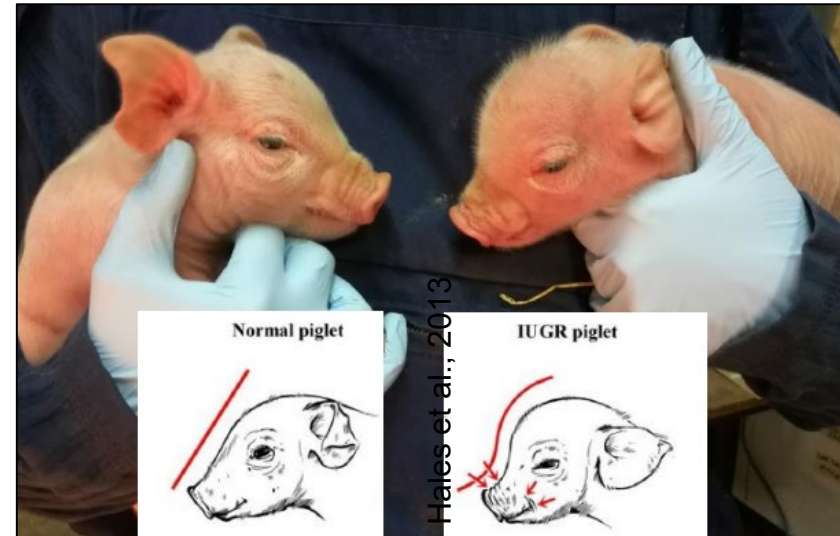
Indicators of improved gestation housing of sows. Part II: Effects on physiological measures, reproductive performance and health of the offspring

Martyna E Lagoda^{1,2}, Keelin O'Driscoll¹, Maria C Galli³, José J Cerón⁴, Alba Ortín-Bustillo⁴, Joanna Marchewka² and Laura A Boyle¹

¹Pig Development Department, Animal & Grassland Research & Innovation Centre, Teagasc Moorepark, Fermoy,



- **Piglets born to sows housed with straw provided from racks, rope, and rubber flooring for comfort¹**
 - Fewer symptoms of growth restriction in-utero
 - Less scour – Greater disease resilience & improved health
 - Reduced cost of production
 - Less need for antibiotics



¹ Lagoda et al, 2021, 2021b, 2023

² Xu et al, 2018

Supporting welfare for increased productivity

– Long-term effects

- Piglets born to **non-lame** sows¹
 - Heavier at birth
 - Fewer skin lesions
 - Vocalized less during stressful situations



PIC UK

RESEARCH ARTICLE

Enriched Housing Reduces Disease Susceptibility to Co-Infection with Porcine Reproductive and Respiratory Virus (PRRSV) and *Actinobacillus pleuropneumoniae* (*A. pleuropneumoniae*) in Young Pigs

Ingrid D. E. van Dixhoorn^{1*}, Inonge Reimert², Jenny Middelkoop², J. Elizabeth Bolhuis², Henk J. Wisselink³, Peter W. G. Groot Koerkamp⁴, Bas Kemp², Norbert Stockhofe-Zurwieden³

Rearing pigs with play opportunities: the effects on disease resilience in pigs experimentally inoculated with PRRSV



Karolína Steinerová^{1*}



John C. S. Harding¹



Sarah E. Parker¹



Heather L. Wilson²



Arthur Nery Finatto¹



Yolande M. Seddon^{1*}

Social and environmental enrichment

Environmental enrichment, novelty & play

1 Parada Sarmiento et al 2021, 2023
2 van Dixhoorn et al, 2016
3 Steinerova et al, 2024

Take-home message

- Improving on-farm welfare: higher priority for the global pig industry
 - Maintain social license of pig production
 - Improve transparency
 - Maximize productivity & sustainability of farm operations



Take-home message

- USASK Swine Welfare & Prairie Swine Centre
- Teams dedicated to swine welfare research
- Working with the industry to deliver practical solutions for welfare
- Provide **support in understanding welfare to inform sound decision making** for your business model



Thank you to session funders



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Thank you for listening!