2nd meeting

Housing of sows and gilts (ban of cages)

19th May 2022

SEGES INNOVATION

Inception impact assessment

According to the F2F Strategy, the EU animal welfare legislation should be revised in order to meet the following general objectives:

- Ensure a higher level of animal welfare;
- Align the EU animal welfare legislation with the latest scientific evidence;
- Broaden its scope and
- Make it easier to enforce

Questions to be answered by each topic

- What is the problem to be addressed by the option?
- What is the content of the options?
- Which alternatives have been implemented?
- What are the possible main impacts?
- How to mitigate negative impacts?
- Other options to address the problem?

SEGES INNOVATION

Loose housing of farrowing and lactating sows

Problem to be addressed:

- Loose housing has limited prevalence – except in countries with legislative enforcement
- Challenges
  - Increased risk of crushing of neonatal piglets
  - Increased cost
  - Increased emissions
  - Limited readiness to pay a premium
- Potential
  - Impoved ability to perform natural behaviours
  - Improved access to the udder
  - Improved acceptance of pig industry by society

SEGES INNOVATION

Options or alternatives

- Zero-confinement (free farrowing)
  - Common in countries with legislative enforcement
  - Used in research such as the UMB-pen and PigSAFE
- Temporary confinement (free lactation)
  - Accepted in countries with up-coming legislative enforcement
- Two categories of pens
  - Designed for loose sows – with an option to confine
    - SWAP; ProDromi;
  - Farrowing crate that can be opened

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Why can’t we just….

- Why not just open up the crate?
  - The sows need more space – they cannot turn around unimpeded in an open crate
  - The sows turn away from feeder (and resting areas) when dunging

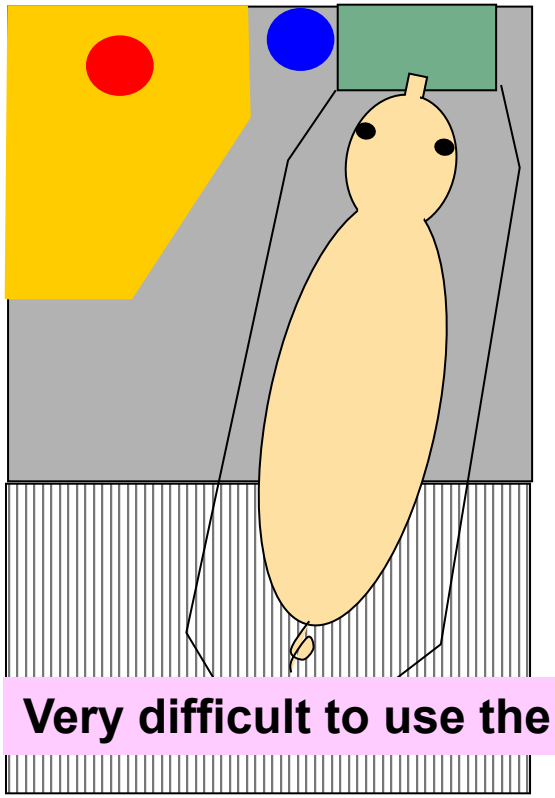
- Why not just copy pen designs from Norway, Sweden or Switzerland
  - They use zero-confinement – so ‘only’ need to design for loose sow
  - Increased litter-size leads to increased need for management in the first few days
    - Use confinement

SEGES INNOVATION

Can we prepare pens with crates?

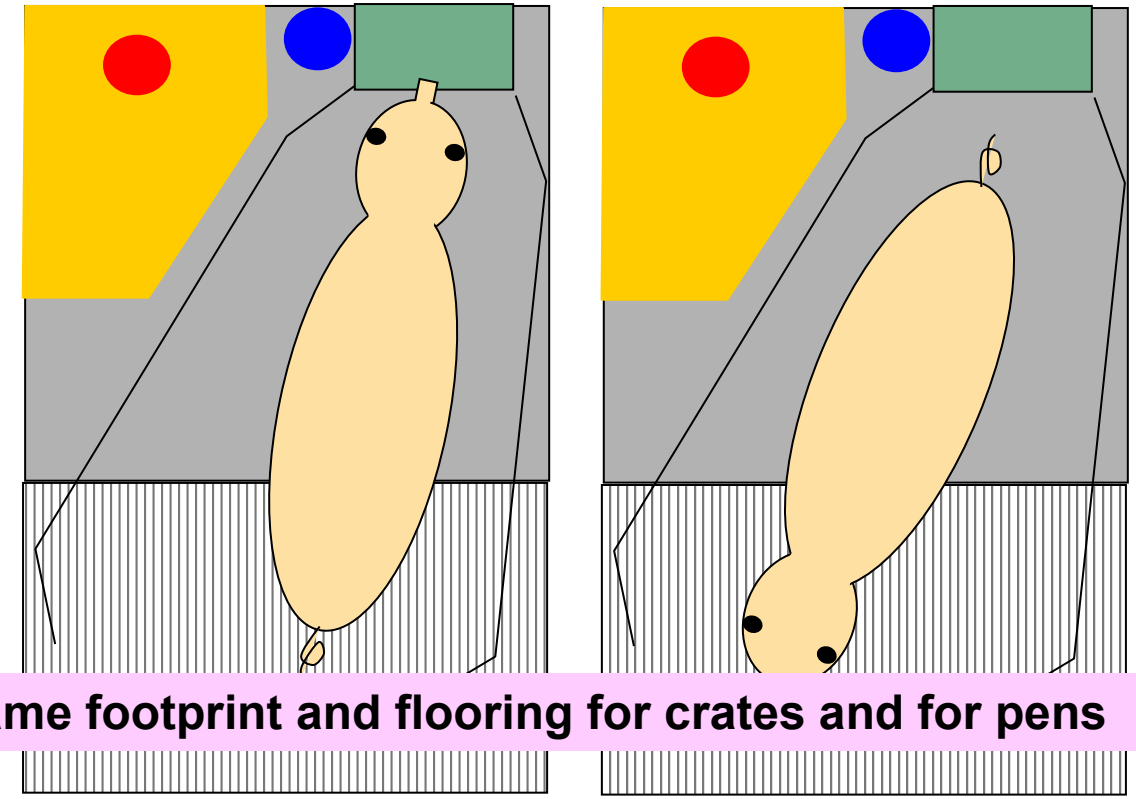
The answer is ‘no’

While the crate is **closed**, the sow eats and defaecates in the same position.



When the crates is **open**, the sow continues to eat at the trough.

But turns away from the trough when defaecating.

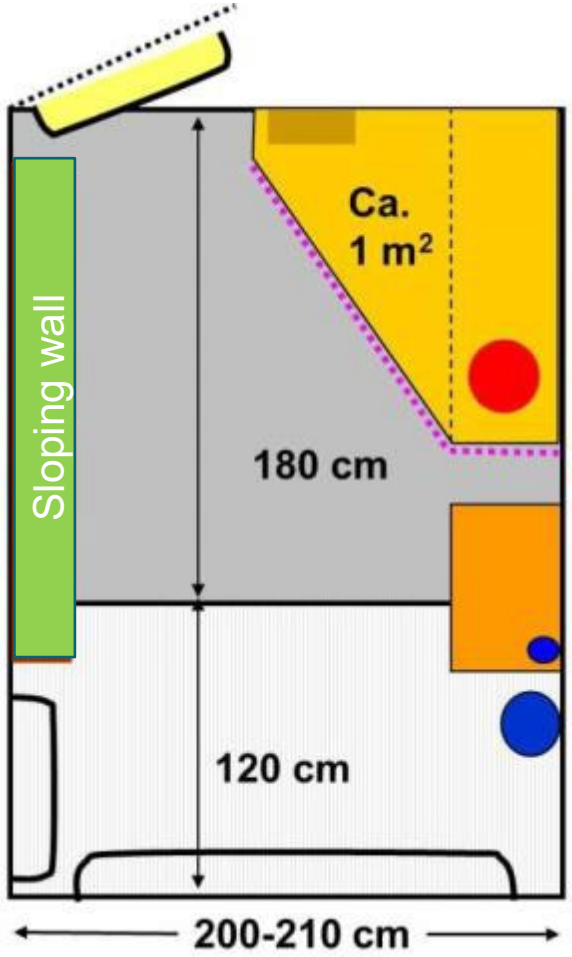


Very difficult to use the same footprint and flooring for crates and for pens

SEGES INNOVATION

Free farrowing or option to confine temporarily?

- Initially - Pen meeting needs of sow, piglet, caretakers



1. Creep area adjacent to the pathway

- Piglets are checked everyday
  - Safety
  - Fast
  - Limit risk of disease transfer

2. Sow-resting area next to creep

- The sows choose to lie next to creep
  - Partly solid floor – at least in Denmark
    - Reduce environmental impact
      - Partly solid floor is cheaper than aircleaners etc
    - Warmth – dry floors before farrowing – and piglet survival
    - Keep nestbuilding- and rooting material in pen – not in slurry

3. The sow walks away (turns away) from feeding area, when defaecating

SEGES INNOVATION

Three commercial herds

- Ok small scale
- Three herds – results

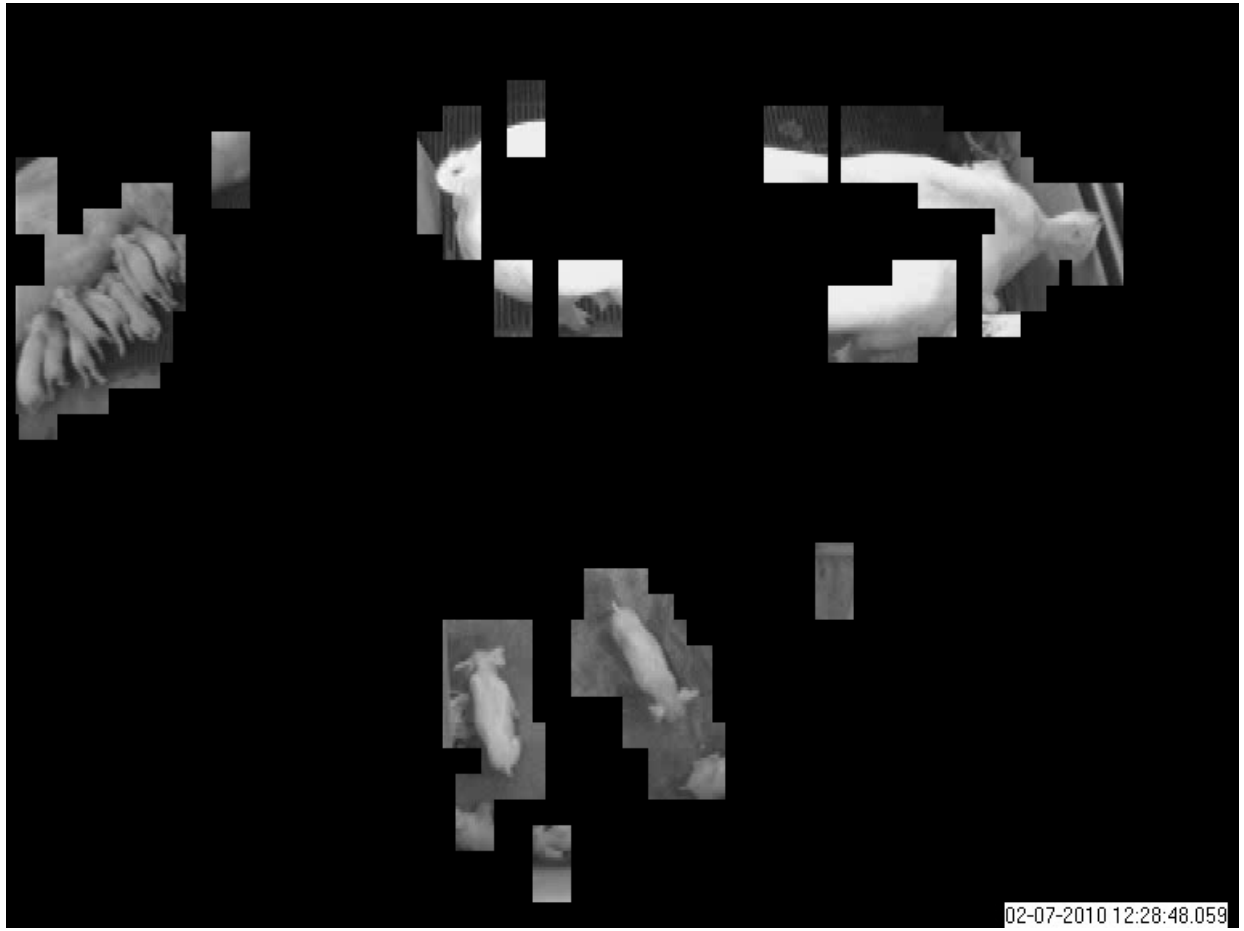
Piglet mortality, expressed as numbers, in crates and pens in Herds A, B and C.
White bars=mortality before litter equalisation, Black bars=mortality after litter equalisation. P-value for herd × housing interactions: mortality before equalisation: P =0.107; mortality after equalisation: P =0.031. Black bars with different superscripts differ (P <0.05).

Animal (2014), 8:1, pp 113–120

SEGES INNOVATION

Piglet survival

- Sow versus pig welfare
- ‘Killer’ sows
  - ~50% of the loose sows are ‘Killers’
  - ~20% of the sows in crates
- Identification of ‘Killer’ sows
  - Need to find them in time to save the piglets
  - Research-fishing-expedition (5 to 10 years??)
  - How many will we find?
  - Likely intervention = crate (50% of the sows?)

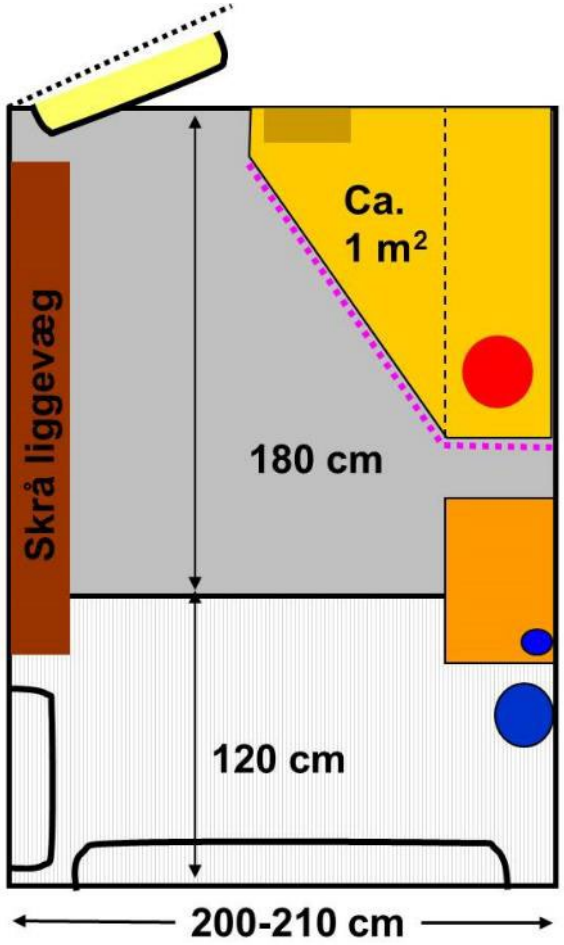


Impact of confinement?

SEGES INNOVATION

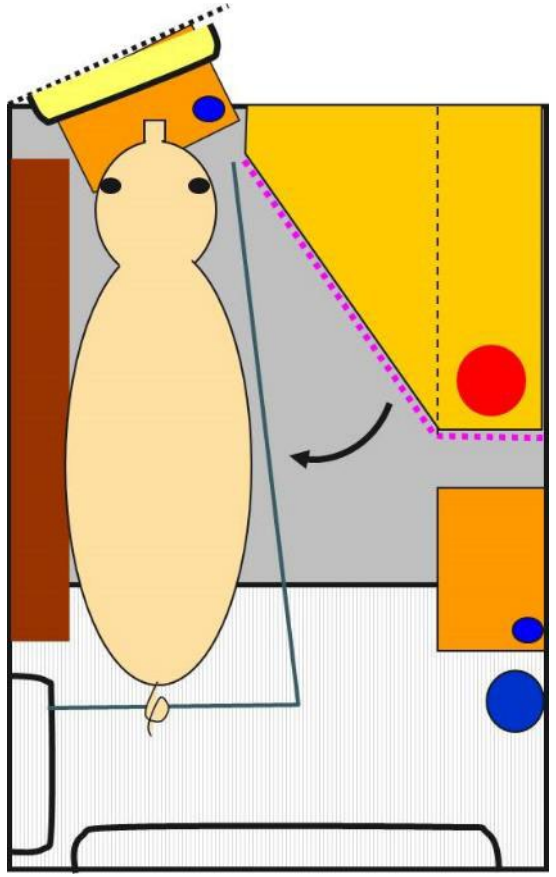
Two pen designs

FF = Free Farrowing



AU/DAWS/PRC +

SWAP = Sow Welfare And Piglet protection



UCPH/PRC

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Two designs

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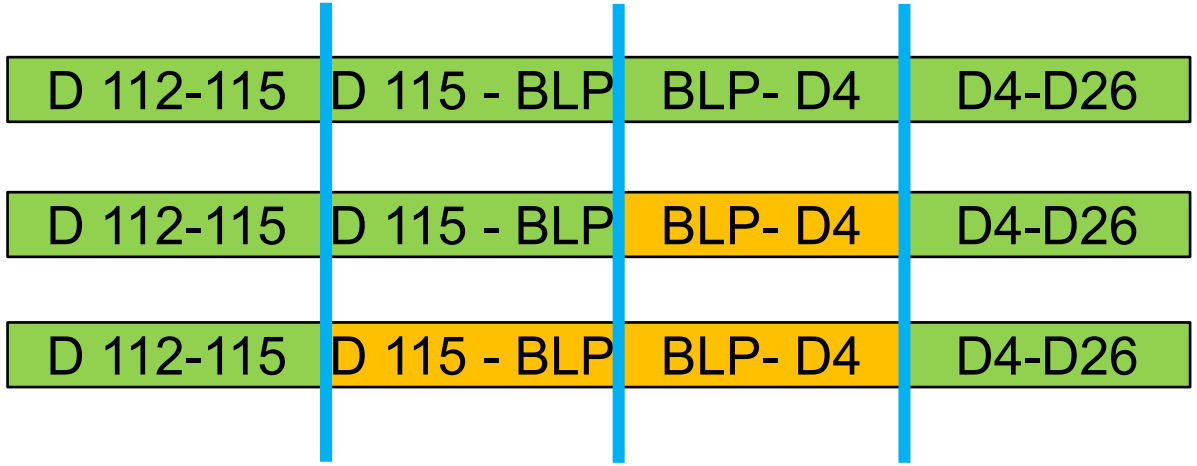
SWAP

Herd trial
Three groups (nest building/day 0-4)

- LL
- LC
- CC



- 570 litters per group (PRC)
  - Production results and post mortem analysis

- 3*36 sows (+ double up) (Hales - PhD)
  - Cortisol (saliva)
  - Pulse/HRV
  - Behaviour

SEGES INNOVATION

Impact of swap on sow movement?

- Before farrowing – nest building period
  - No difference in duration of nest building period
  - No difference in duration of nest building per hour
- After farrowing
  - The sows were lying lateral majority of the time
  - >110 minuts out of 120 minuts observed (4 x daily)

No difference between loose and confined
- in pens designed for loose housed sows

SEGES INNOVATION

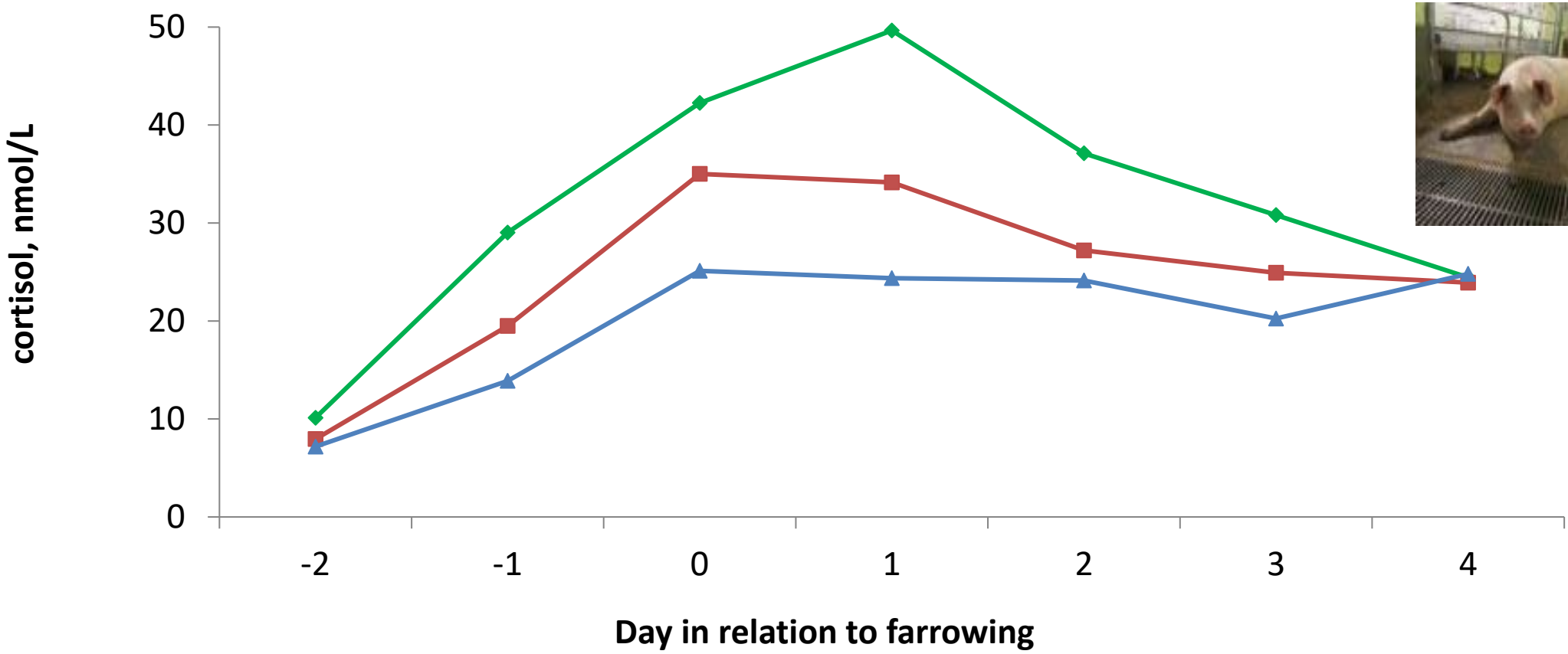
Hales, 2015

Cortisol

LC: Loose-Confined: *Loose D114 gest until finished farrow then confined day 4 post farrowing*

LL: Loose-Loose: *Loose D114 gest until day 4 post farrowing*

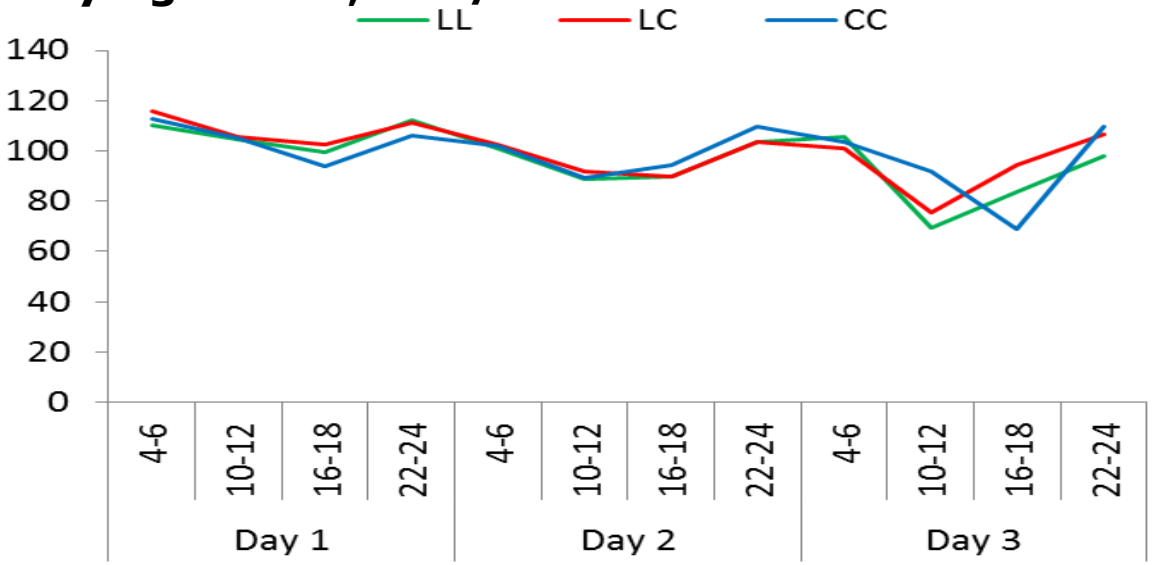
CC: Confined-confined: *Confined D114 gest until day 4 post farrowing*



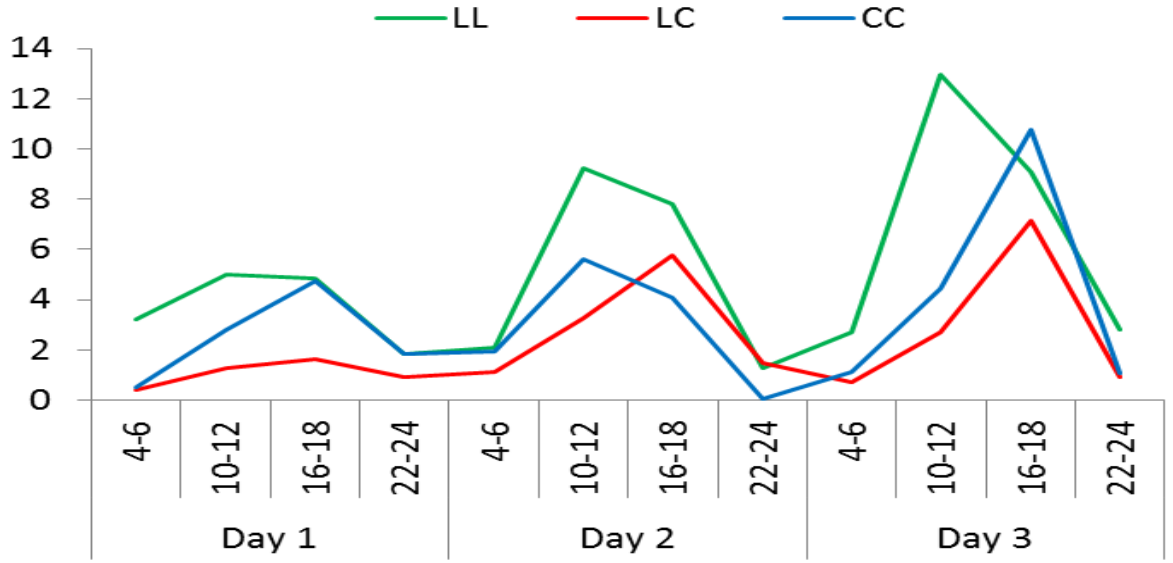
SEGES INNOVATION

Sows postures

Lying lateral, min/interval

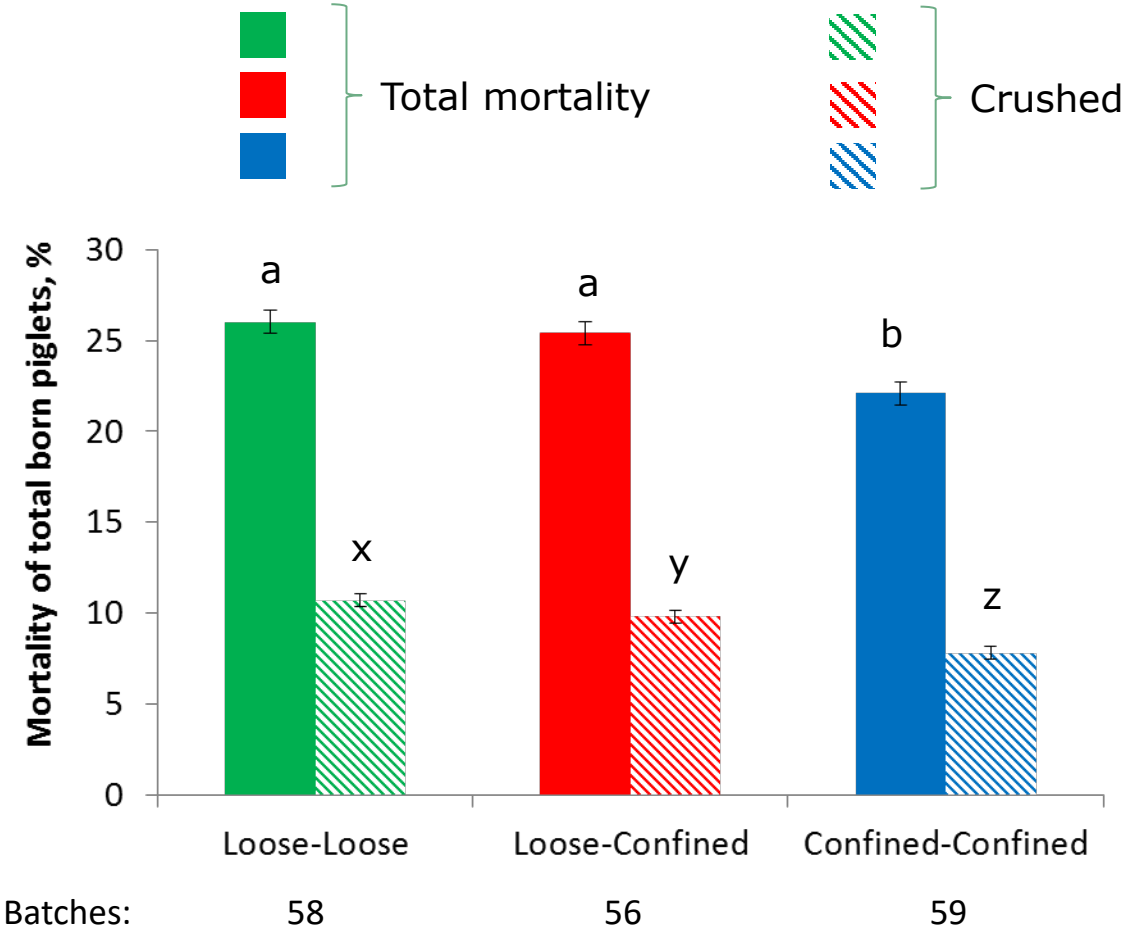


Standing, min/interval



SEGES INNOVATION

Piglet mortality - impact of confinement



SEGES INNOVATION

Initial key decisions

- Pen size
- Pen layout
- Flooring
- Handling of manure/slurry
- Zero- or temporary confinement (TC)

Other key decisions

- Litter size in pen
- If TC - how and when to confine
- Nesting material and amount
- Enrichment
- Weaning age

SEGES INNOVATION

Initial key decisions

‘Irreversible’ decisions

- Pen size
- Pen layout
- Flooring
- Handling of manure/slurry
- *Zero- or temporary confinement (TC)*

Other key decisions

- Litter size in pen
- If TC - how and when to confine
- Nesting material and amount
- Enrichment
- Weaning age

SEGES INNOVATION

‘Ideal’ pen size (1)

- Sows’ dimensions

- Planar width – turning space

Planar width of 153 cm
Planar area of 3.17 m^2

considered necessary to allow unobstructed turning for sows with the 95-percentile weight.

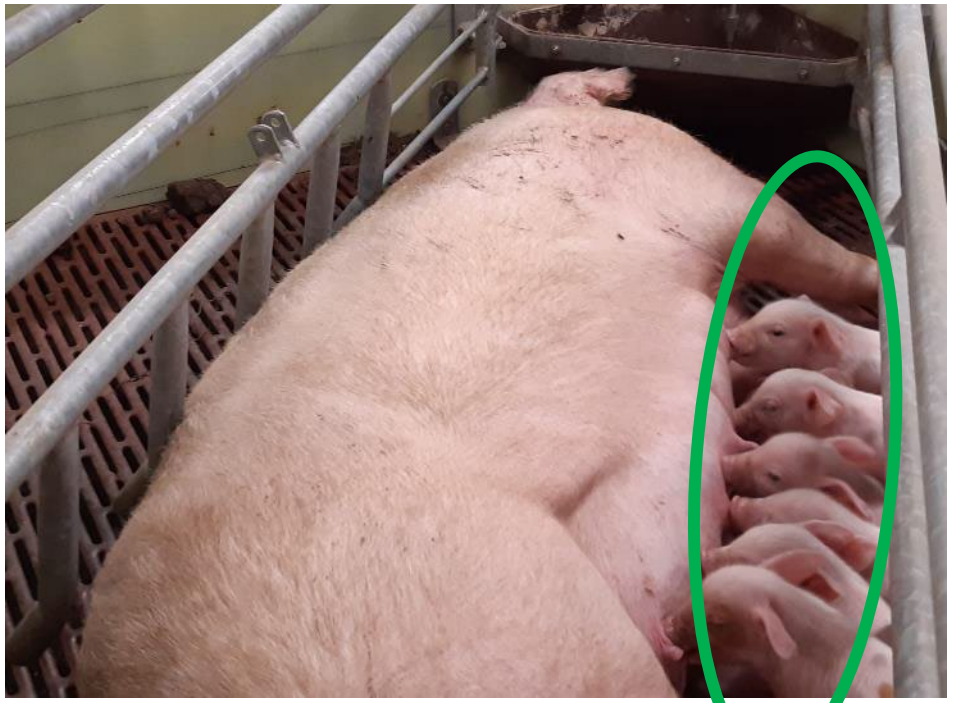
Needs further research

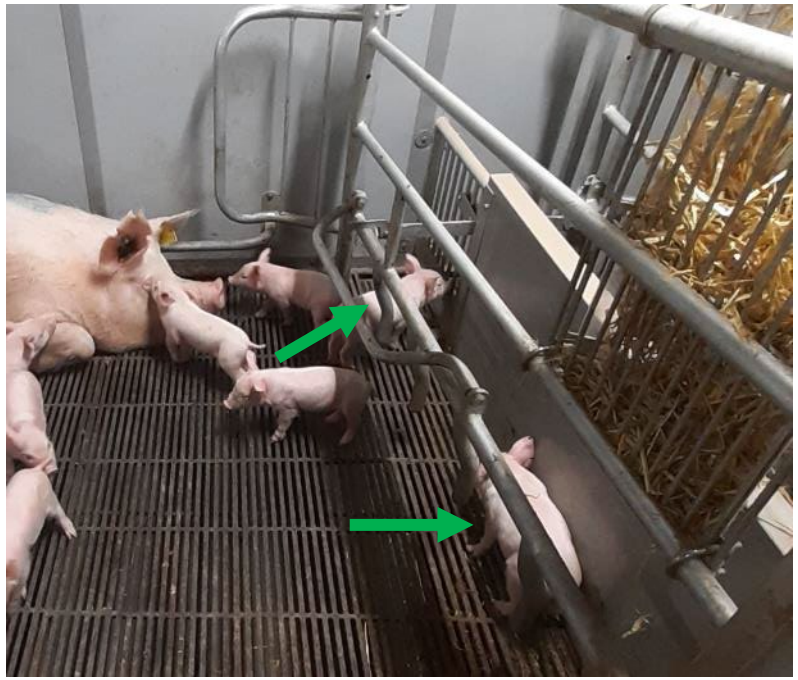
SEGES INNOVATION

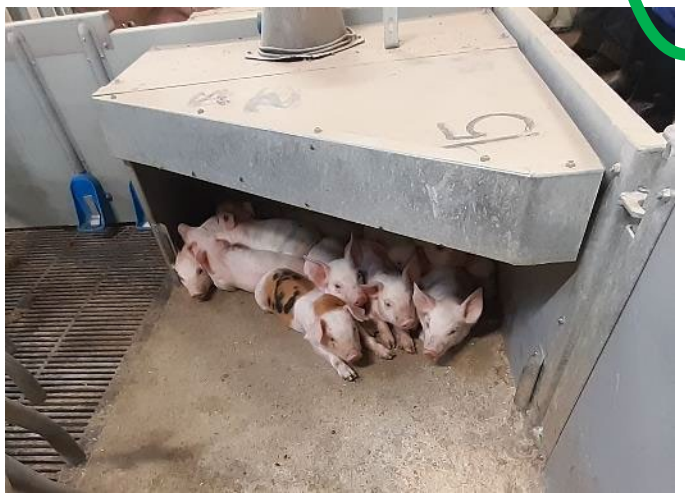
‘Ideal’ pen size (2)

- Dimensions*number
- Piglet dimensions
  - Birth,
  - One week
  - Four-five weeks
- Litter size in pen

- Functional areas
- Piglet safety zones







Pen layout (1)

- First decision
  - Creep area along passageway
    - Safety
    - Efficency
    - Reduce risk of transferring diseases
    - Easy access

https://www.freefarrowing.org/research/references/freedom-in-farrowing-and-lactation-2021-ffl21/

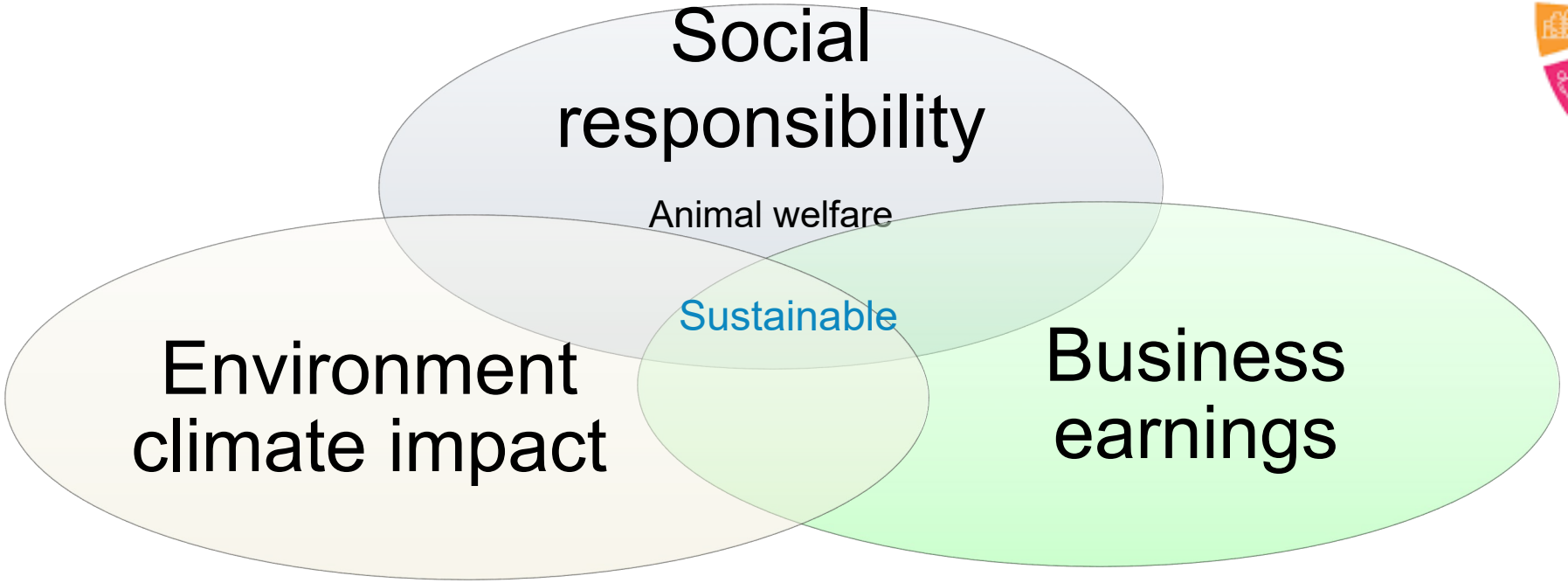
Overcoming barriers, facilitating change

Virtual Workshop August 12th-13th 2021

[FFL21 : Change experiences by a Danish farmer (openagrar.de)]

SEGES INNOVATION

A more sustainable Danish pork production



SEGES INNOVATION

From animal welfare to sustainability

‘We’ want

- Space
- Cleanliness
- Low input labour
- Healthy piglets

‘However:

- Space
  - Larger surfaces - increase emissions
- Cleanliness
  - If slatted floor – increase emissions
- Low input labour
  - If slatted floor – increase emissions
- Healthy piglets
  - If slatted floor – increase emissions

SEGES INNOVATION

Confinement

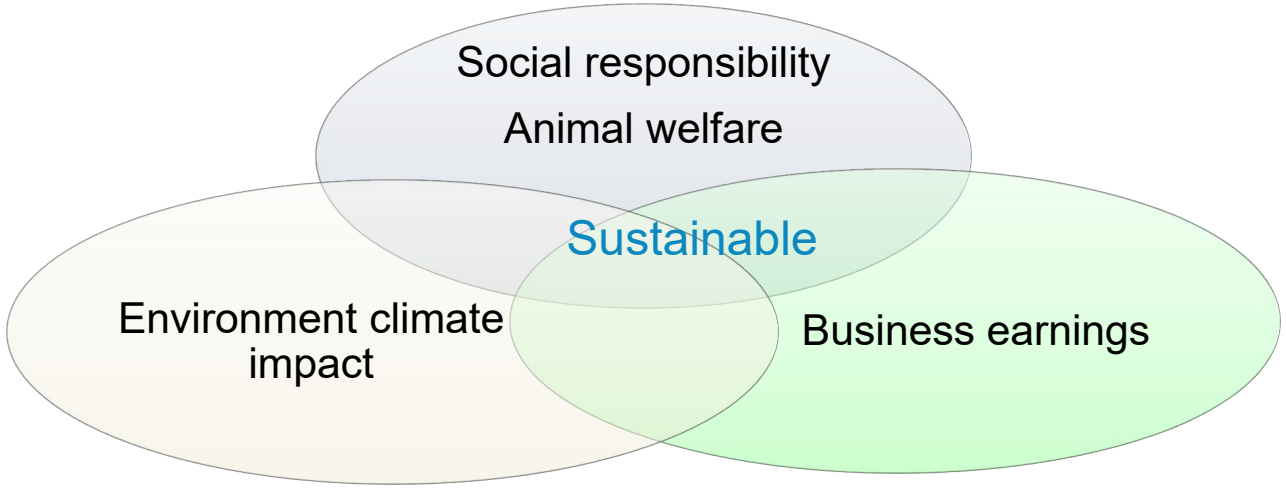
- Temporary confinement – take the best of both loose and confined
  - Loose – natural behaviour, access to udder,
  - Confined – lower piglet mortality, safe work conditions
- Before farrowing - loose
  - No piglets at risk, active nest seeking and nestbuilding
  - Quiet/calm the last couple of hours
- During farrowing - confined
  - Ensure access to udder when confined
  - Recent review
    - ‘Lower’ mortality with TC than FF
    - ‘Higher’ mortality with TC than permanent C
- After a few days – loose again
  - Awareness when opening

Ref:
https://doi.org/10.3389/fvets.2022.811810

SEGES INNOVATION

Where do we go from here – which path do we take?

- Loose housing – with an option to confine
- In respect of the three pillars of sustainability
- Science based
- Work together – across borders



SEGES INNOVATION

Loose housing of farrowing and lactating sows

Problem to be addressed:

- Loose housing has limited prevalence – except in countries with legislative enforcement

Content of options:

- Free farrowing; Temporary Confinement (TC) in pen or open crate

Implemented alternatives:

- Free farrowing in countries with legislation; TC in countries with ‘voluntary’ uptake

Possible main impacts:

- More pig producers willing to try TC; challenge between behaviour and emissions

Mitigate negative impacts:

- Important to consider designed pens; understand sow and piglet behaviour; technical (costly) solutions

Other options to address:

- First movers; share experience; identify knowledge gaps - research

SEGES INNOVATION