2nd meeting

Housing of sows and gilts (ban of cages)

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19th May 2022

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Danish Pig Levy Fund

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

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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

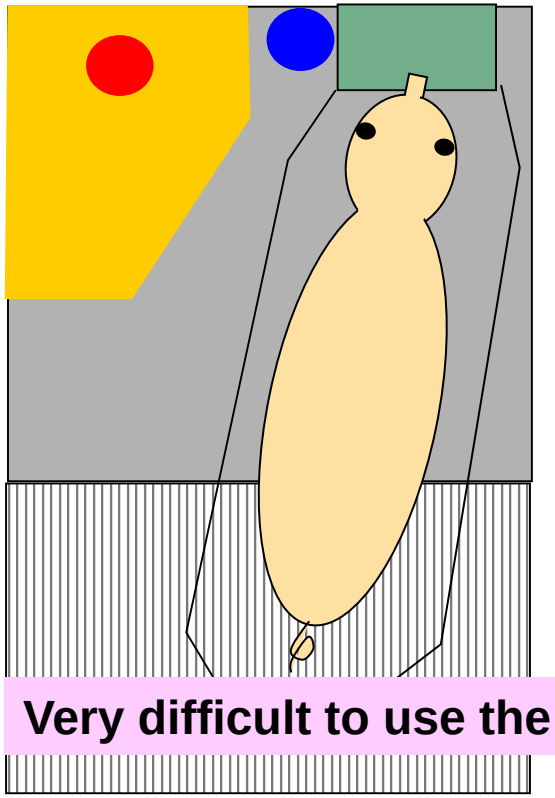
- Why not just copy pen designs from Norway, Sweden or Switzerland
  - They use zero-confinement – so ‘only’ need to design for loose sow
  - Increased litter-size leads to increased need for management in the first few days
    - Use confinement

SEGES INNOVATION

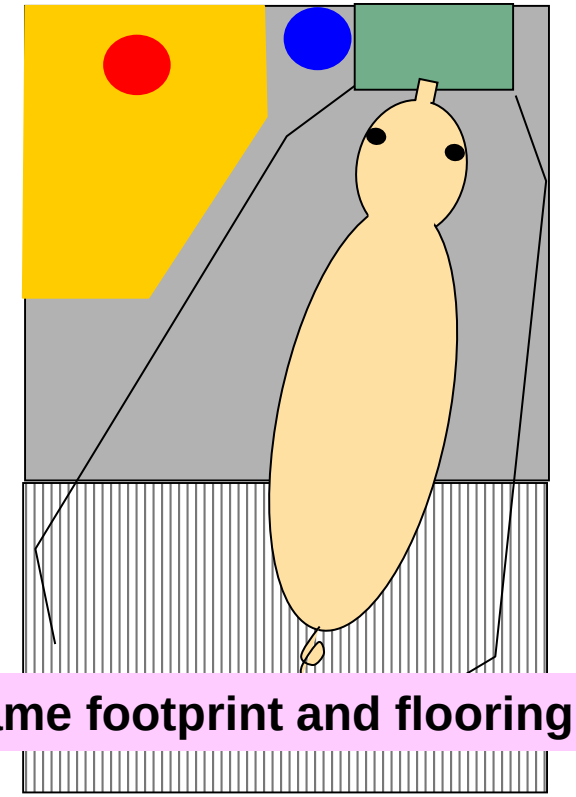
Can we prepare pens with crates?

The answer is ‘no’

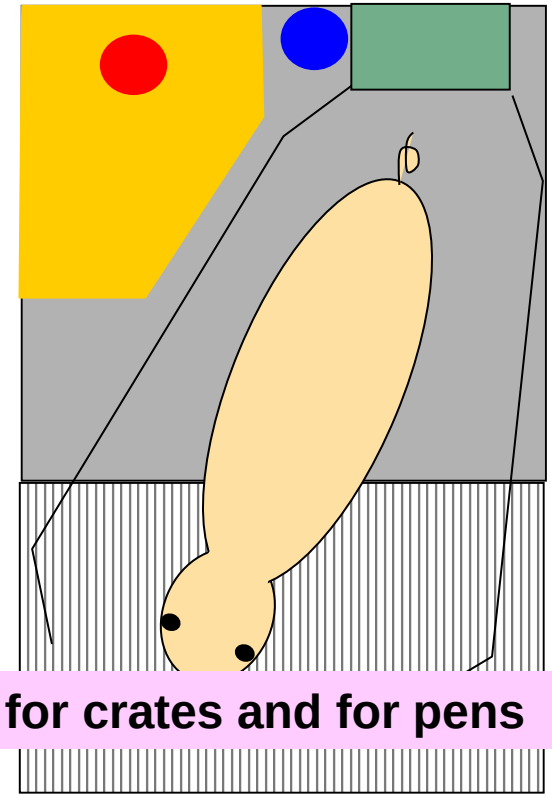
While the crate is **closed**, the sow eats and defaecates in the same position.



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

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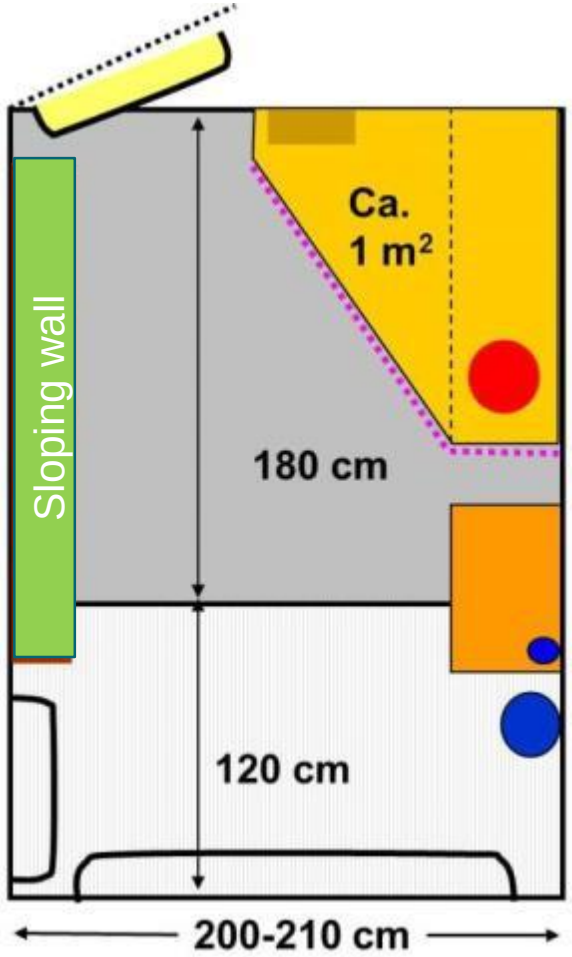
Free farrowing or option to confine temporarily?

- 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

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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

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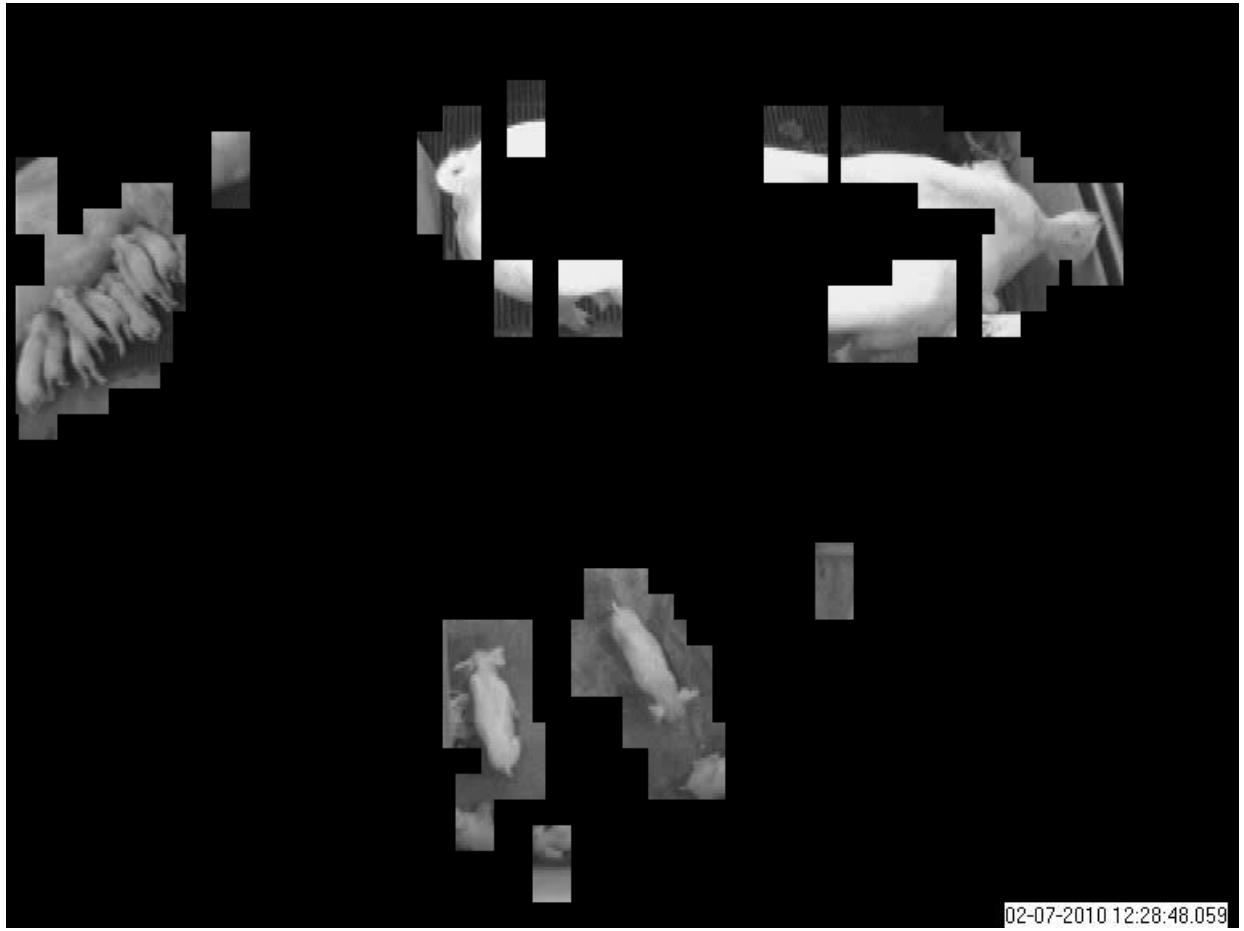
Piglet survival

- 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?

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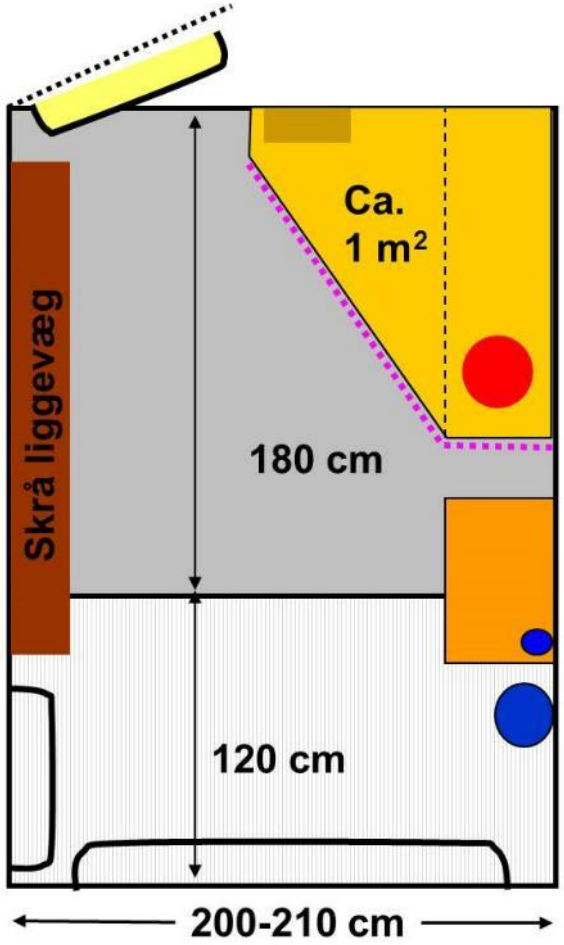
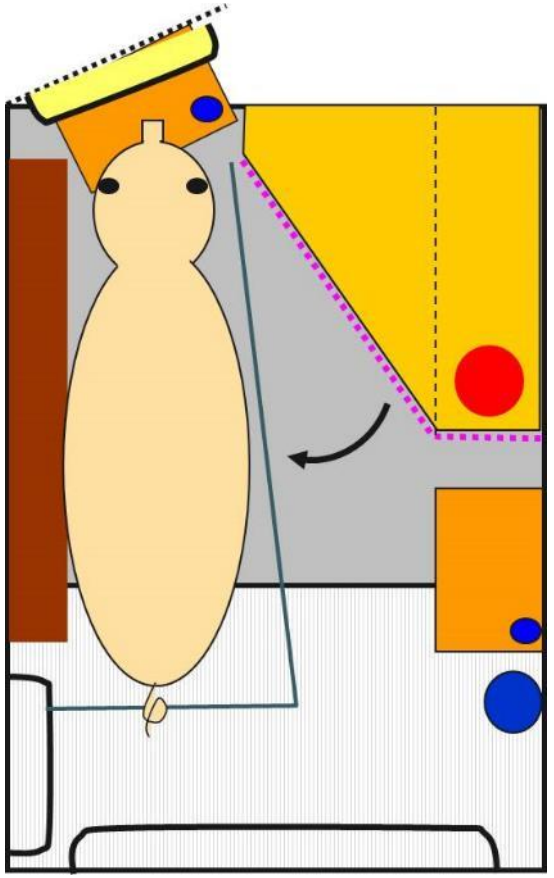
Two pen designs

FF = Free Farrowing



AU/DAWS/PRC +

SWAP = Sow Welfare And Piglet protection



UCPH/PRC

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Two designs

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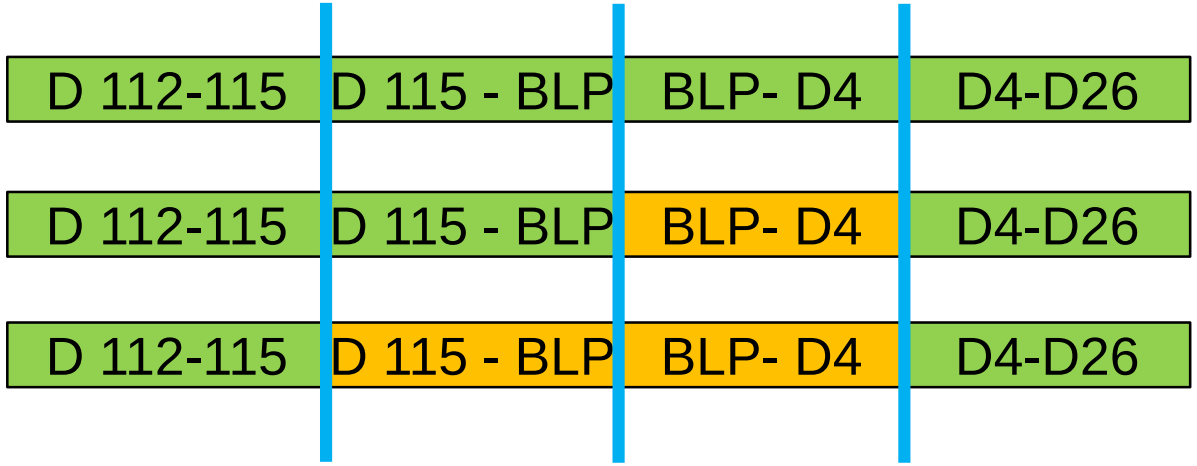
SWAP

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

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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

Hales et al., 2014

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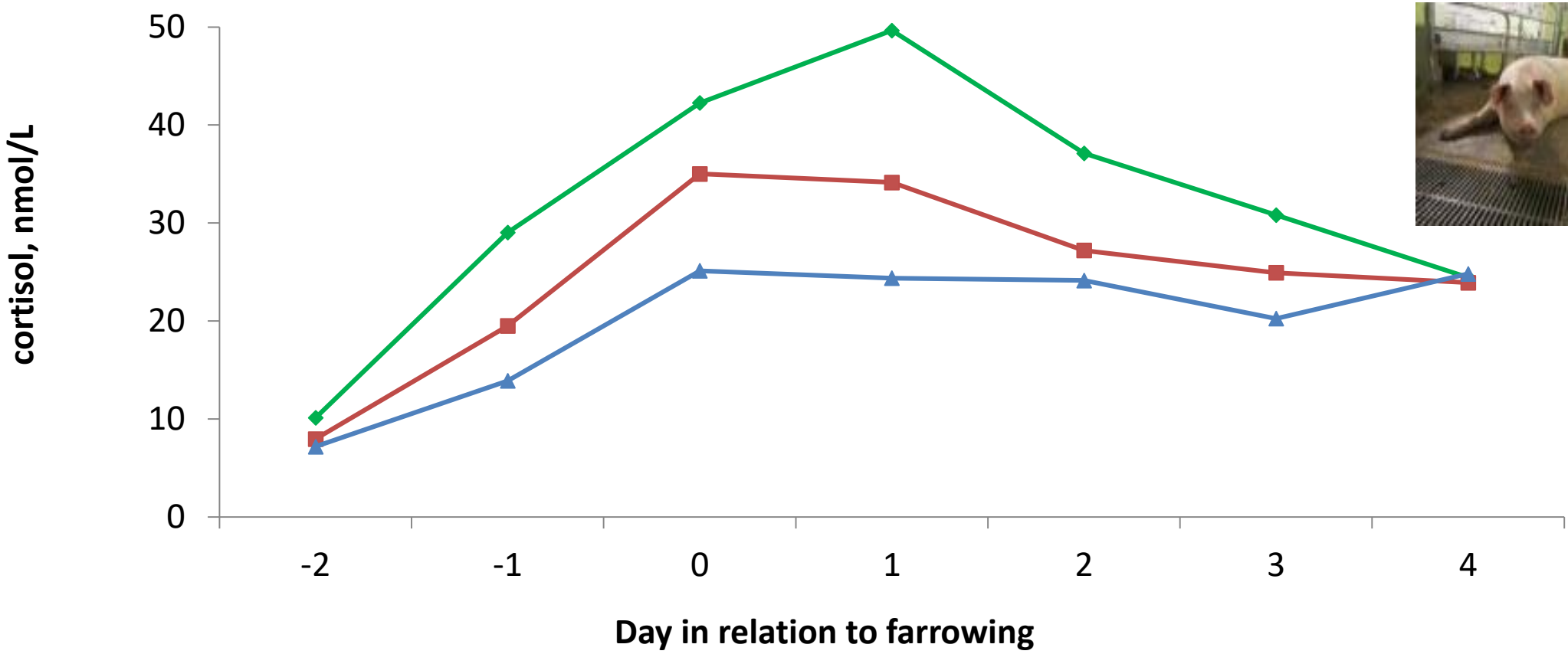
Hales, 2015

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*



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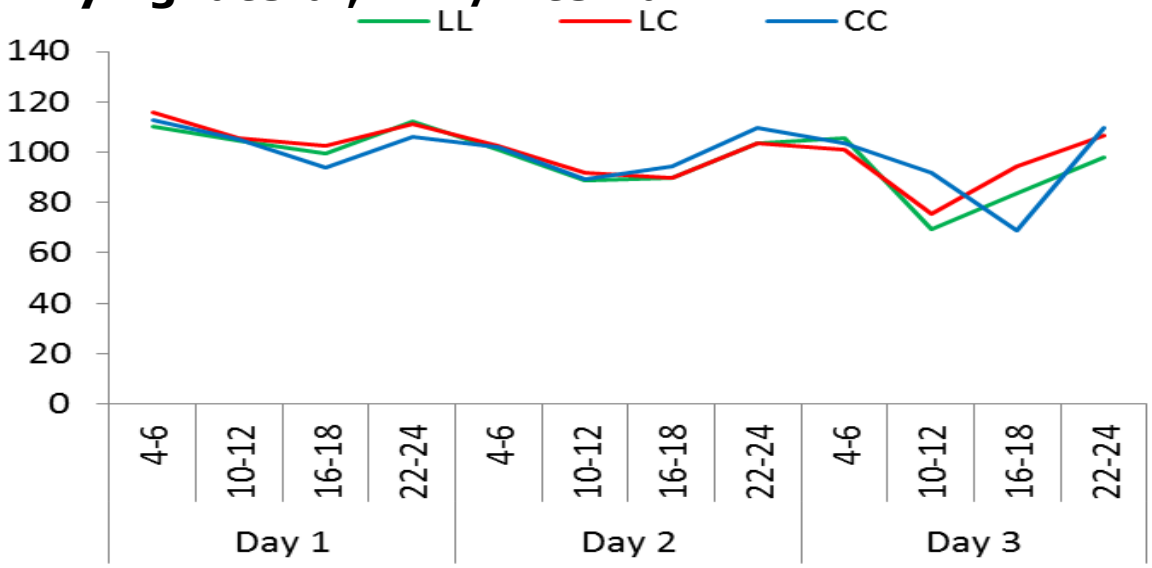
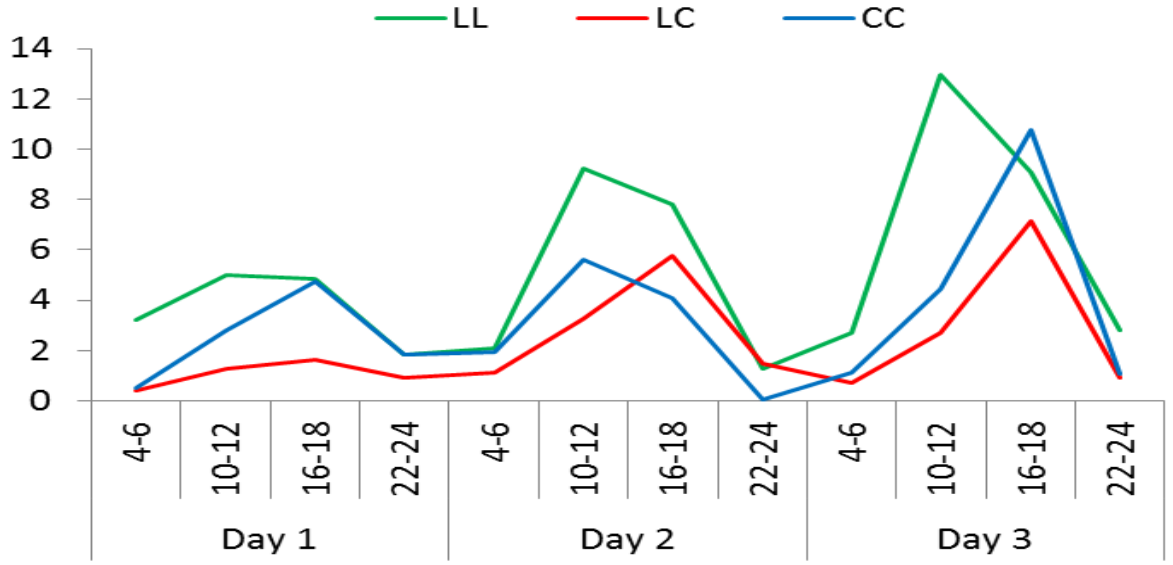
Sows postures

Lying lateral, min/interval



Standing, min/interval



Hales, 2015

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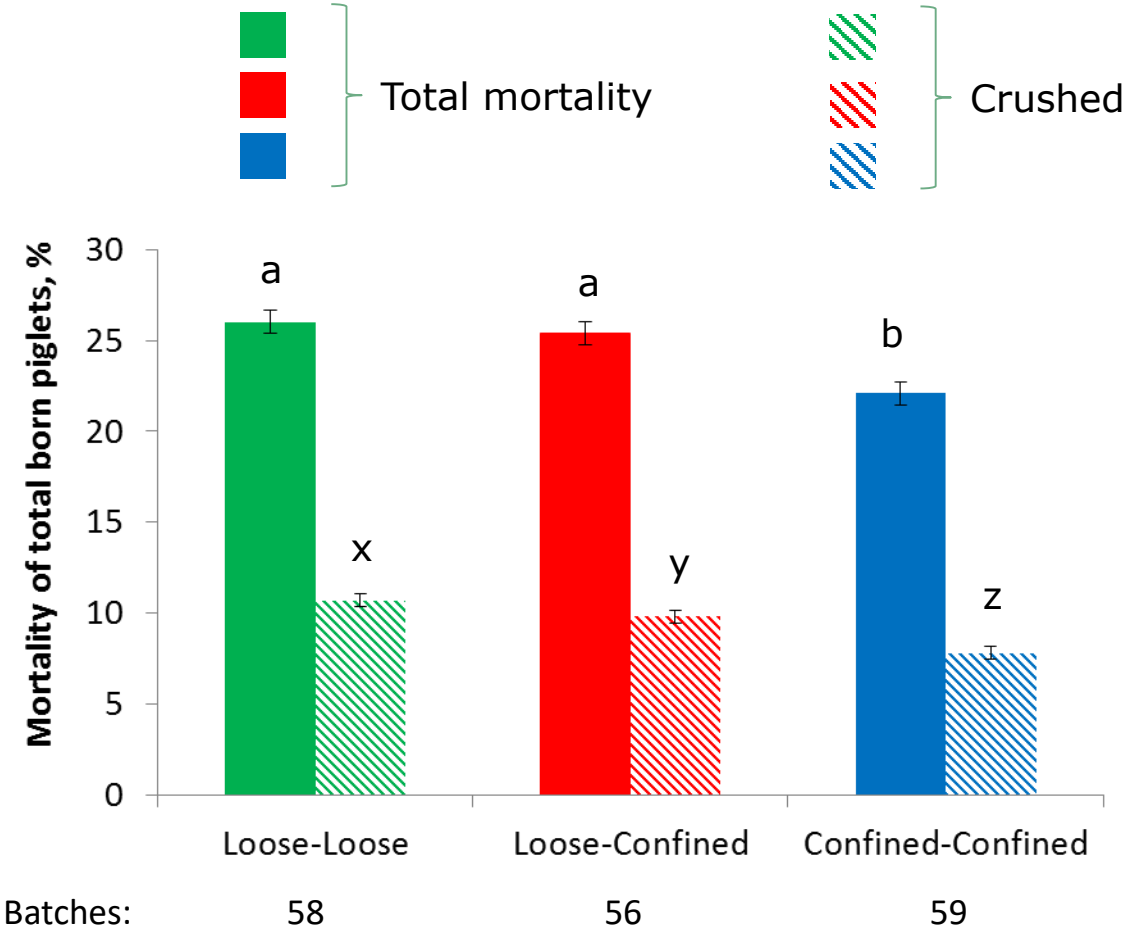
Piglet mortality - impact of confinement



Hales, 2015

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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

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‘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

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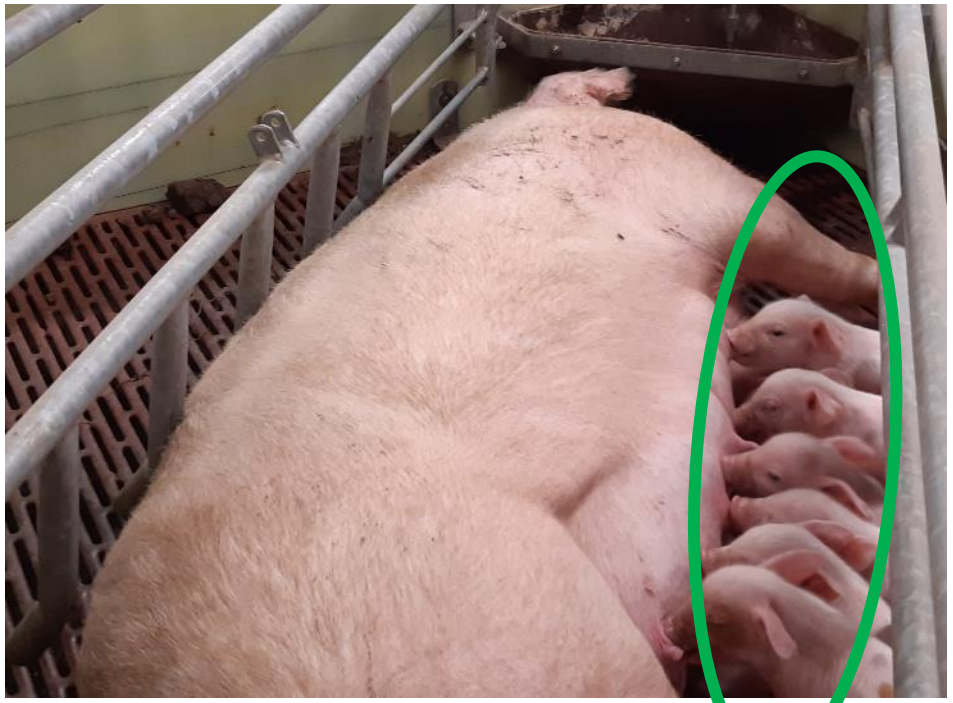
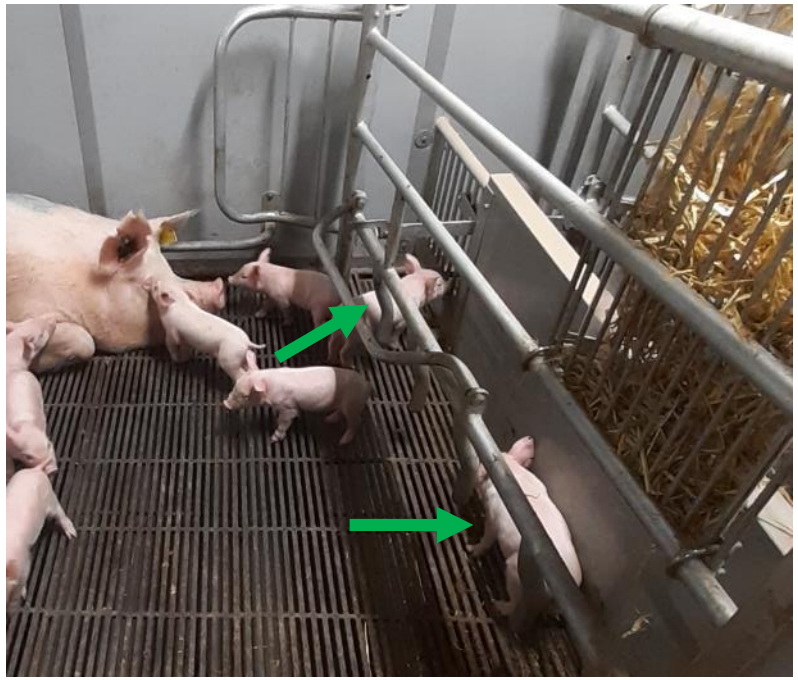
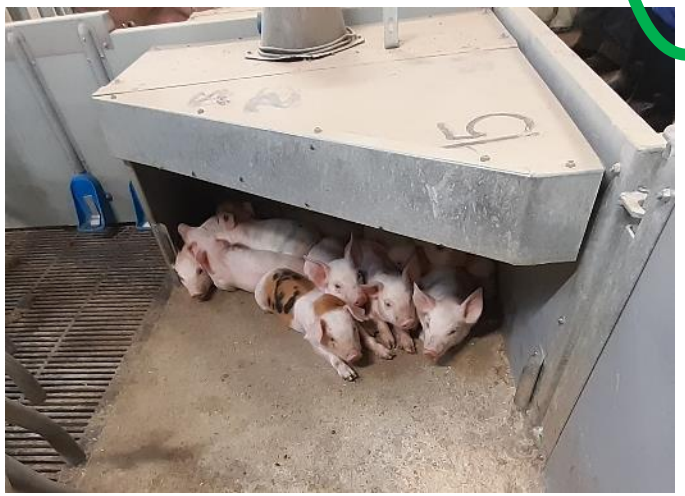
‘Ideal’ pen size (2)

- 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

As part of the Free Farrowing series of workshops, a virtual event (organized by FLI, SEGES, SRUC and Vetmeduni Vienna) was held over two days.

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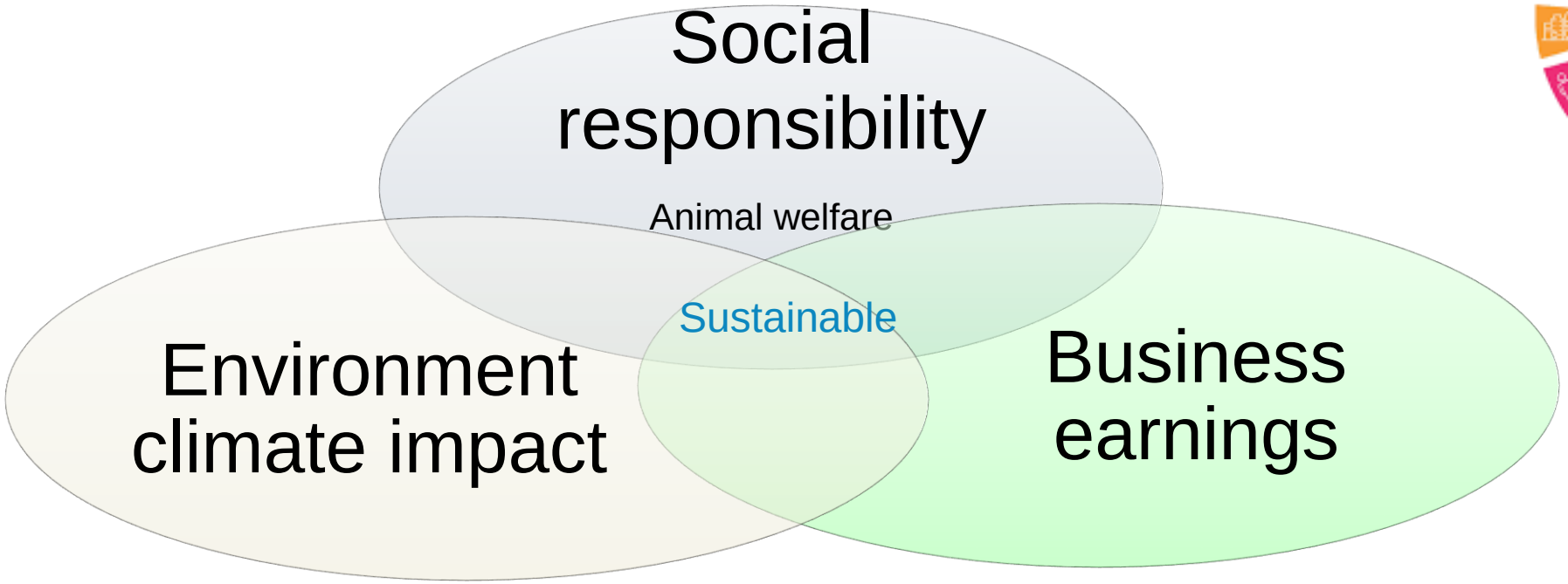
FFL21 : Change experiences by a Danish farmer (openagrar.de)

A more sustainable Danish pork production



SUSTAINABLE DEVELOPMENT GOALS

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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

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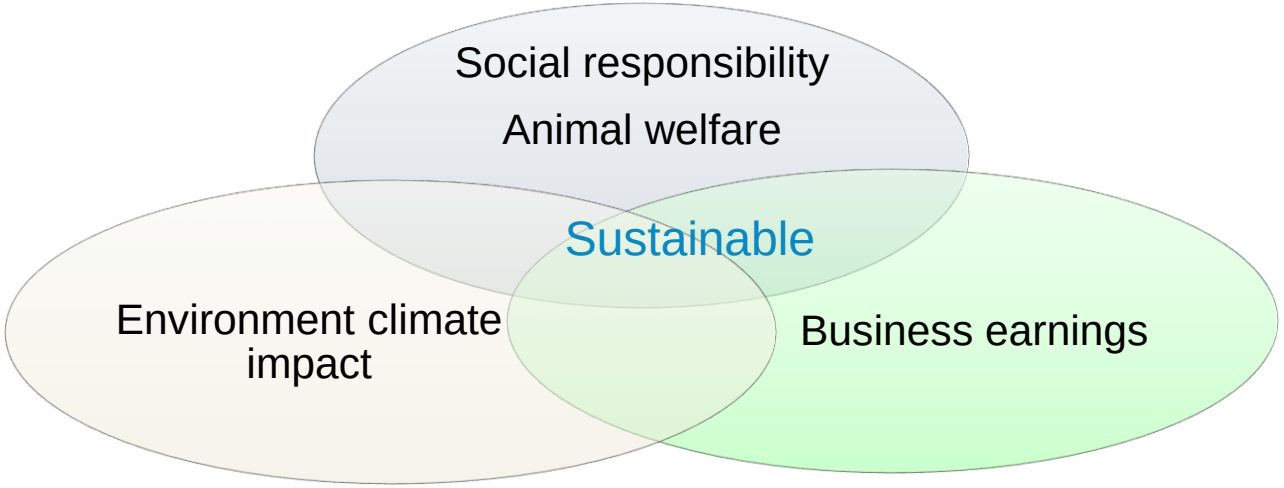
Where do we go from here – which path do we take?

- 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

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