Free farrowing/lactation - the critical points

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Danish Pig Levy Fund
SEGES INNOVATION

Critical points

Before investment

- Decision making
- Key decisions

Daily management

- Calm handling of sows
- Use of confinement

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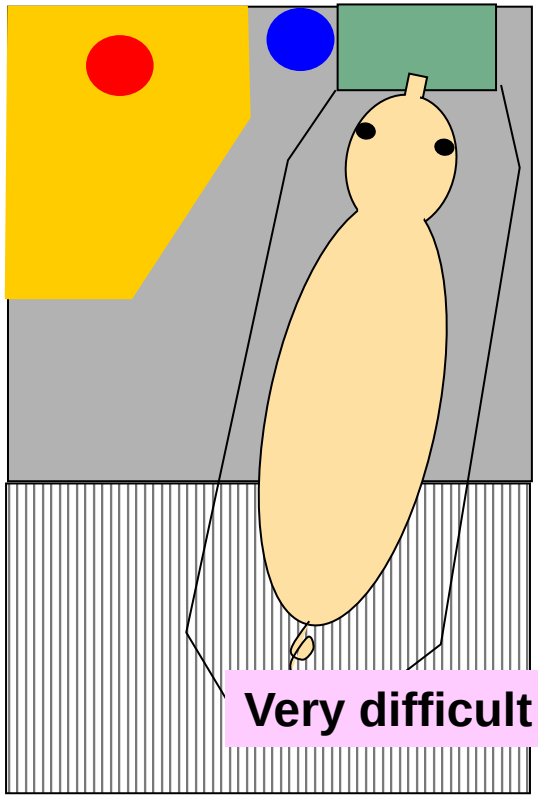
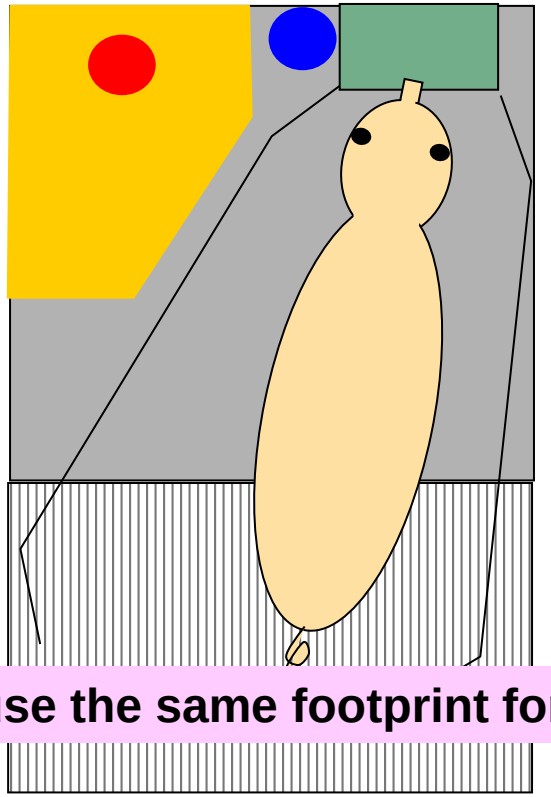
Can we prepare pens with crates?

The answer is ‘no’

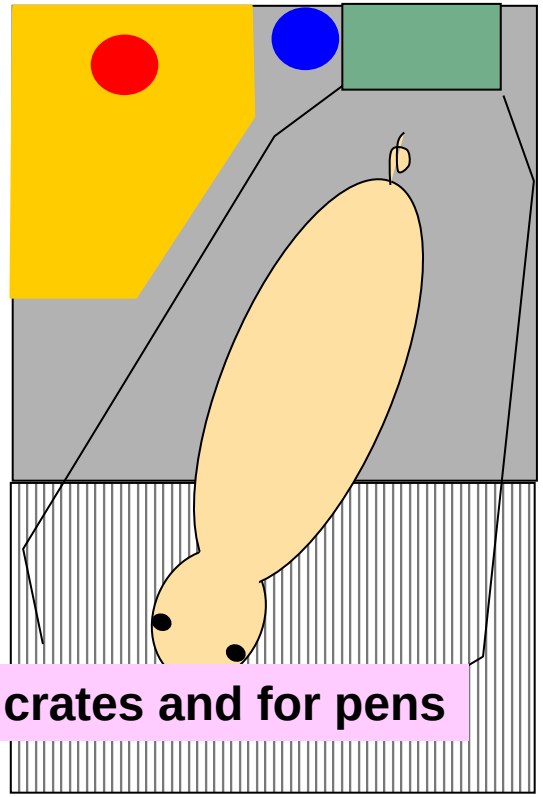
While the crate is **closed**, the sow eats and defaecates in the same position.



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 for crates and for pens

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The sow is/will be loose most or all of the time

Farrowing crate
– confined sows

Farrowing pen
– loose sows

Use temporary confiment –

BUT in a pen *designed* for

a loose sow

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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

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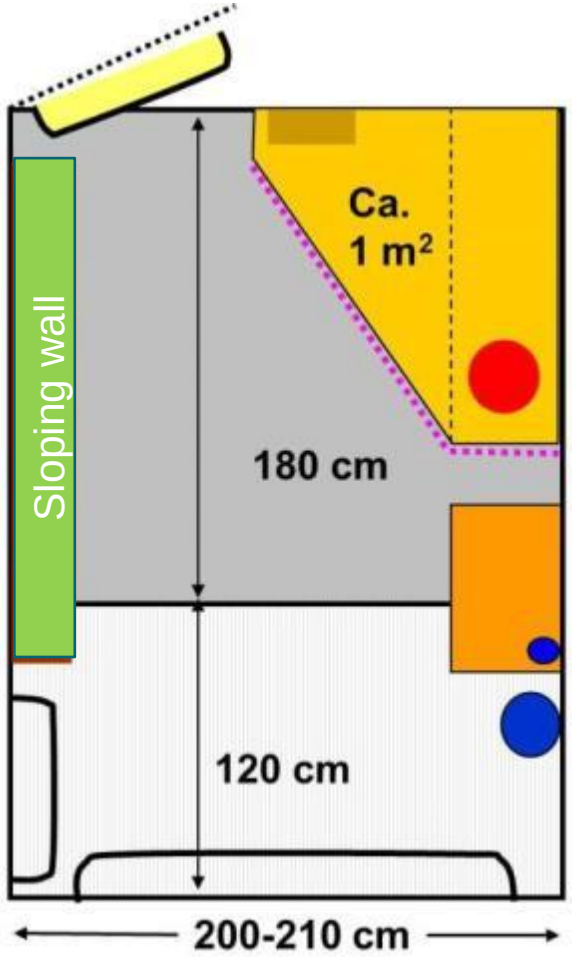
Free farrowing

- 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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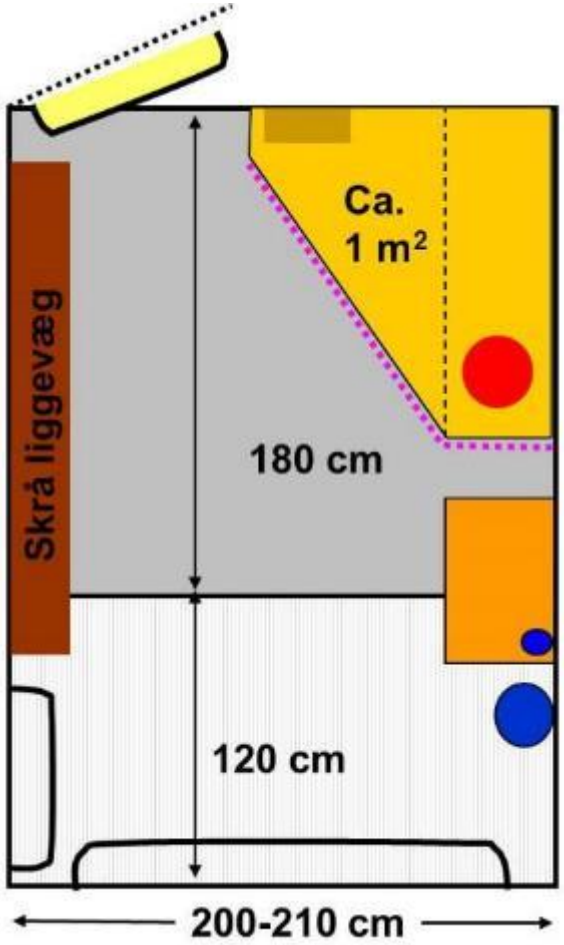
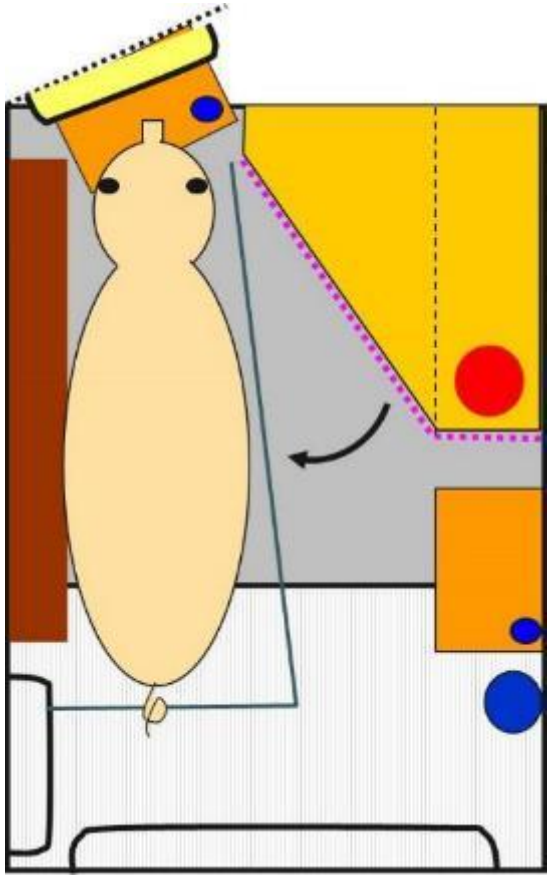
Two pen designs

FF = Free Farrowing



AU/DAWS/PRC +

SWAP = Sow Welfare And Piglet protection



UCPH/PRC

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Two designs

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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Impact of swap on salivacortisol-level (stresshormon)?

Hales et al., 2014

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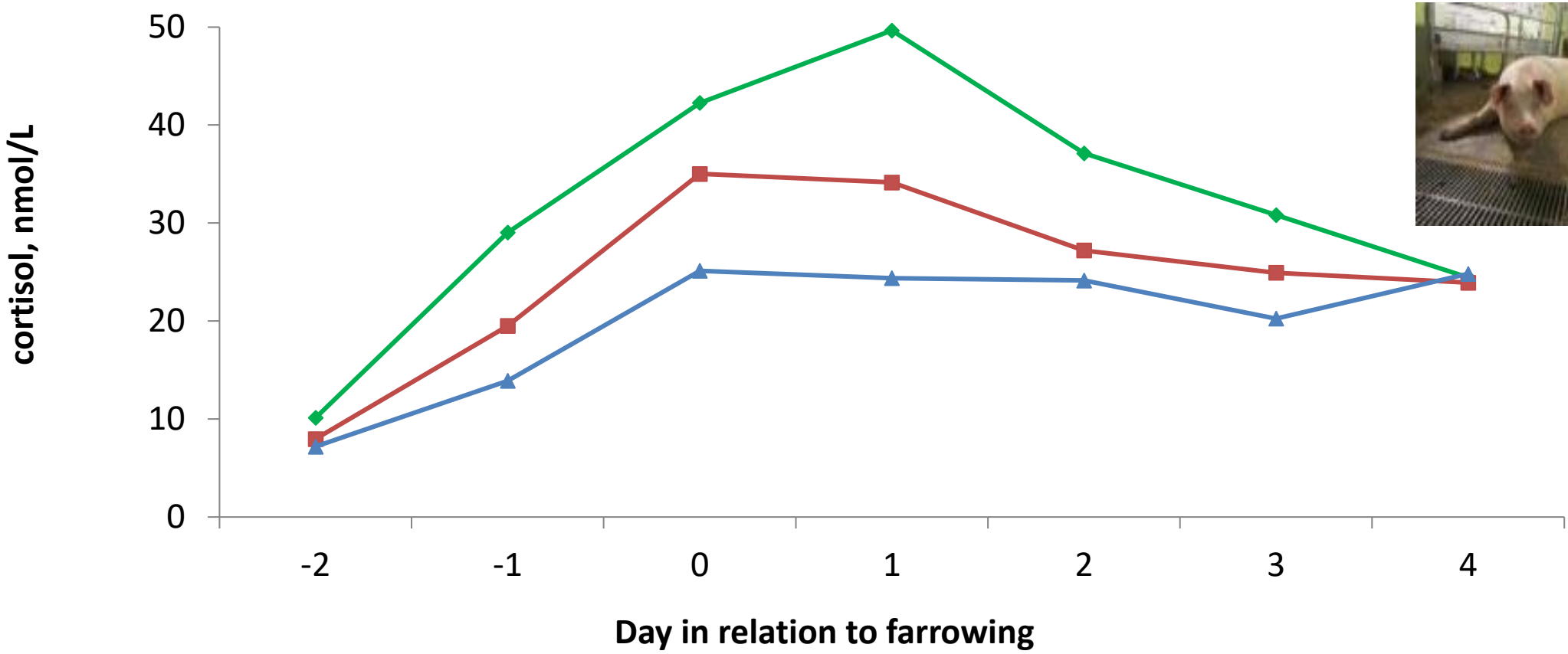
Hales, 2015

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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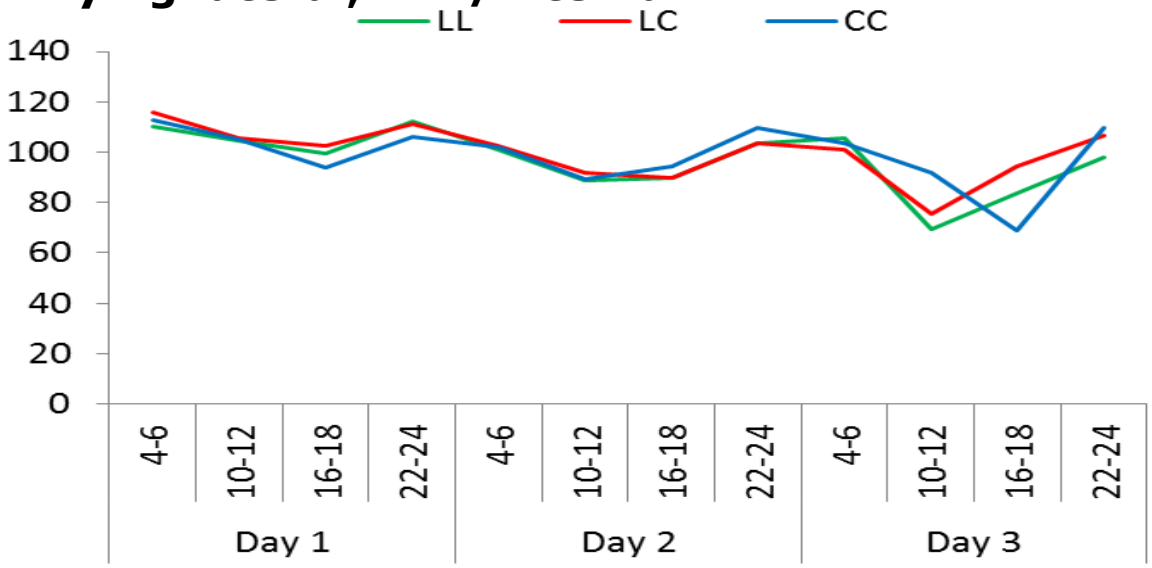
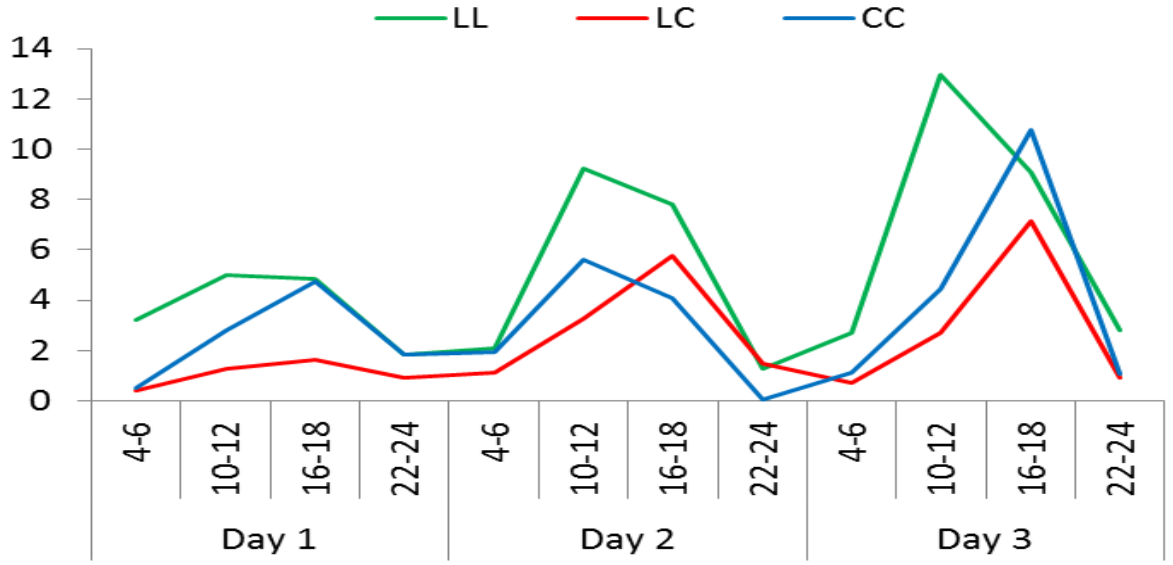
Sows postures

Lying lateral, min/interval



Standing, min/interval



Hales, 2015

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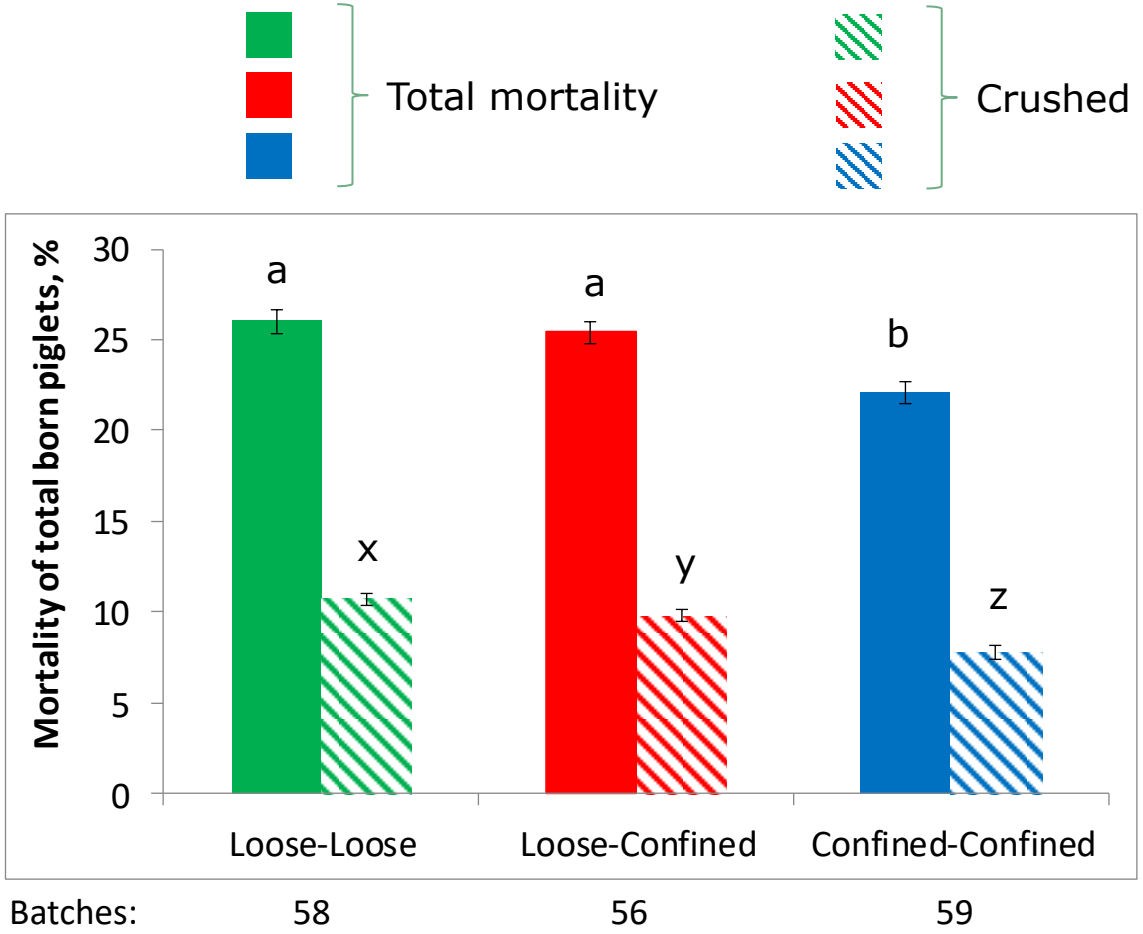
Piglet mortality - impact of confinement



Hales, 2015

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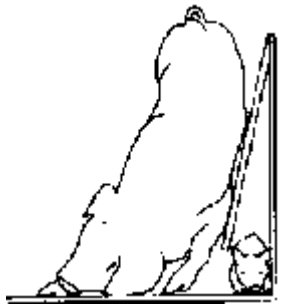
Farrowing unit – loose sows

- Two kinds of pen design

SWAP = Sow Welfare and Piglet protection

FF = Freedom farrowing



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Decisions before building and running afterwards

- Key decisions
- Once you've build – conditions are given - live with it….and optimize within conditions

- Start with successful implementation of higher welfare initiatives
  - Understanding:
    - What do pigs do
    - When do they do it
    - Why do they do it
    - How do they do it
    - …

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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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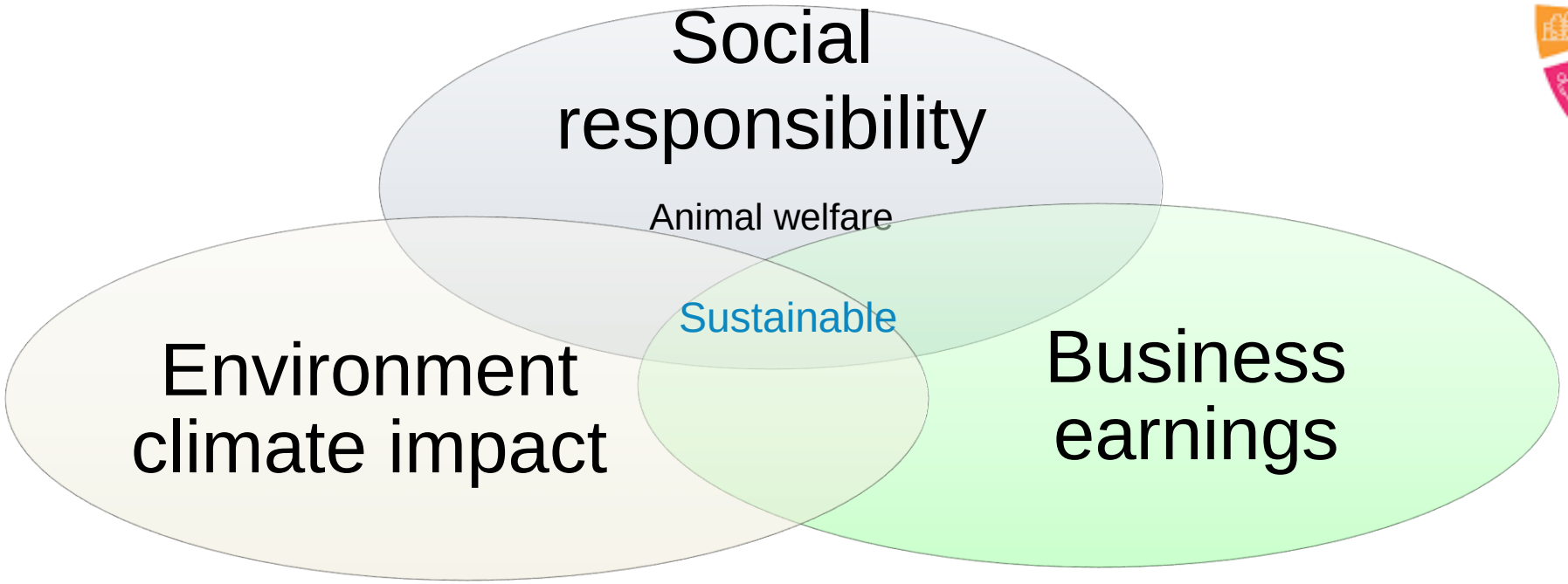
A more sustainable Danish pork production



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

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Space – dilemma between space for welfare and risk of emissions

- Austria
  - 5.5 m^2/sow
- Germany
  - 6.6 m^2/sow
- It’s not as simple
  - Is there a perfect size?
    - Key decisions
  - Solid or partly slatted floor?
- Examples
  - Square pens (equal sided)
    - Fully slatted floor
  - Rectangular pens
    - Dimensions – pen
      - Fixed width
      - Fixed length
      - Fixed ratio width/length
    - Dimensions flooring (solid / slatted)
      - Within each of the above designs
        - Fixed ratio solid/slatted floor
        - Fixed depth of slats of 100 cm
        - Fixed depth of solid of 200 cm

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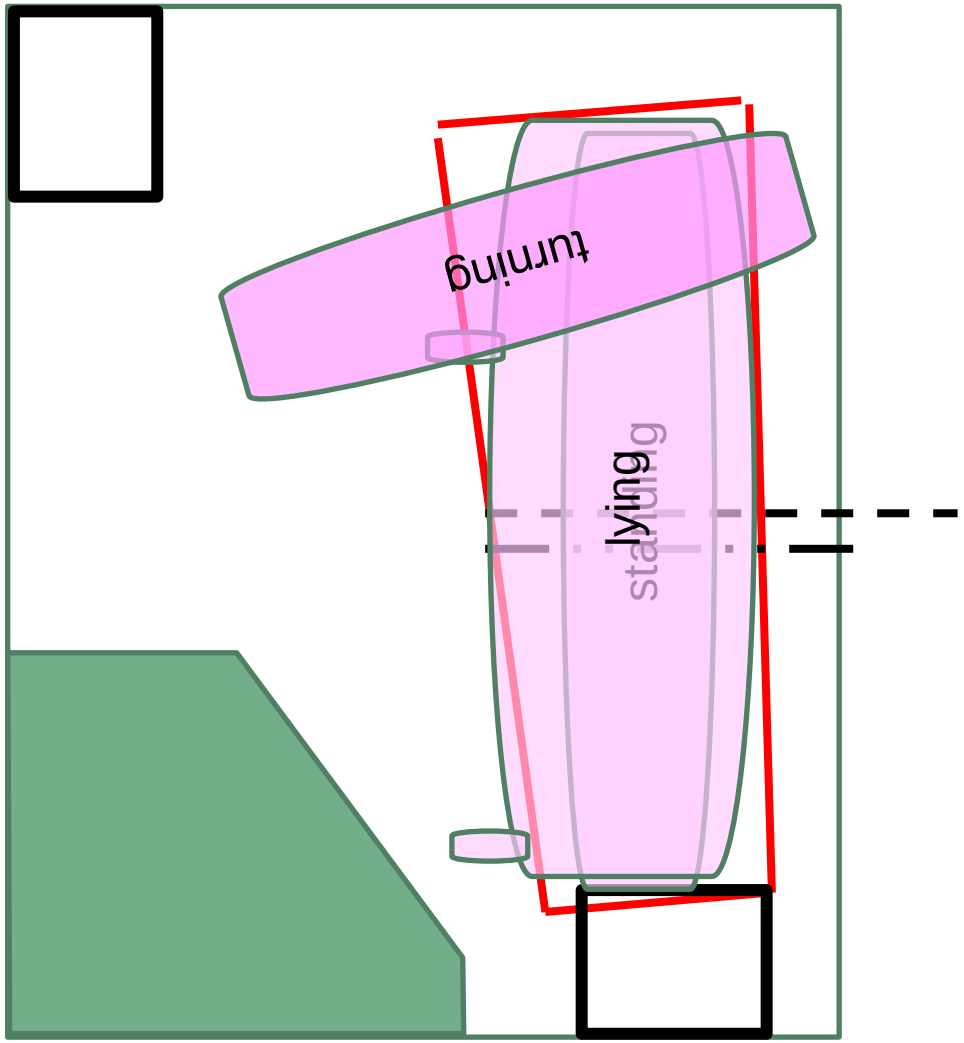
Rectangular – fixed width (220 cm)
273 cm * 220 cm = 6.0 m²



R60FWFR

Fixed ratio 2:3

R60FWFS

Fixed slats 100 cm

R60FWVS

Fixed solid 200 cm

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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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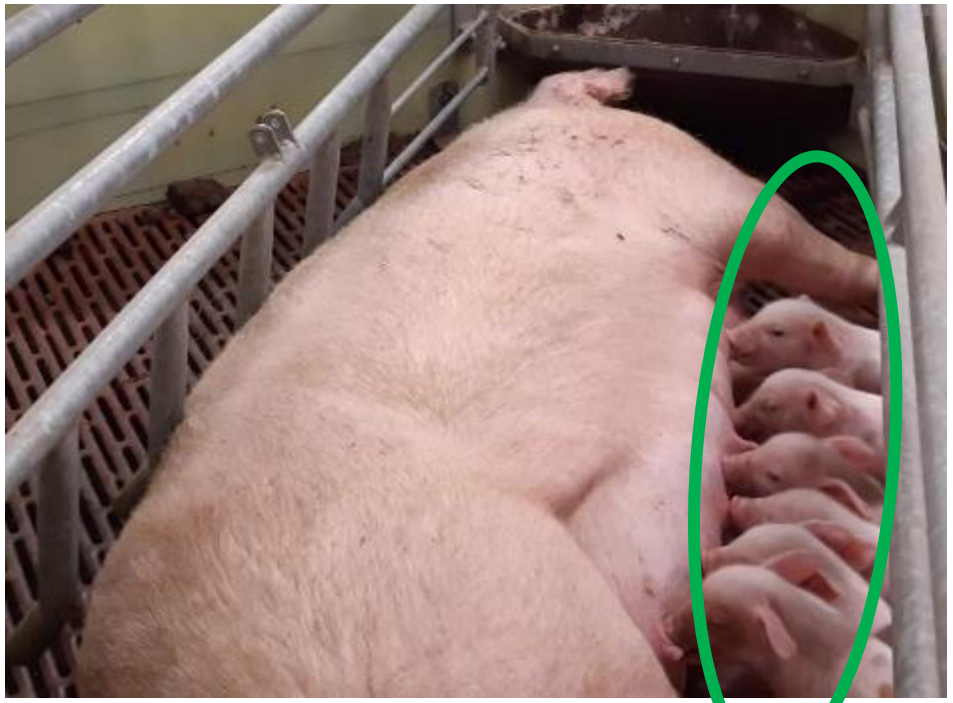
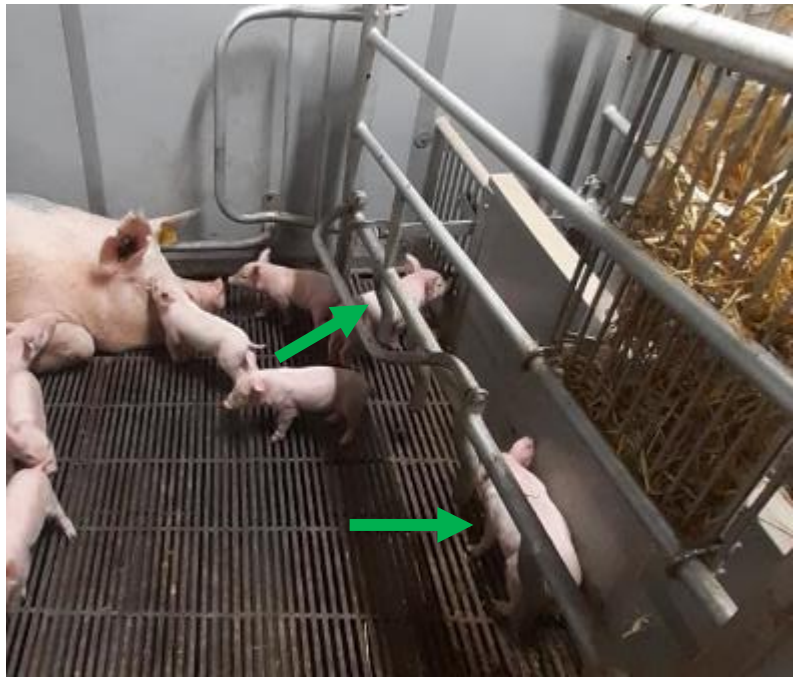
‘Ideal’ pen size (2)

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

- Functional areas
- Piglet safety zones





Pen layout (1)

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

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

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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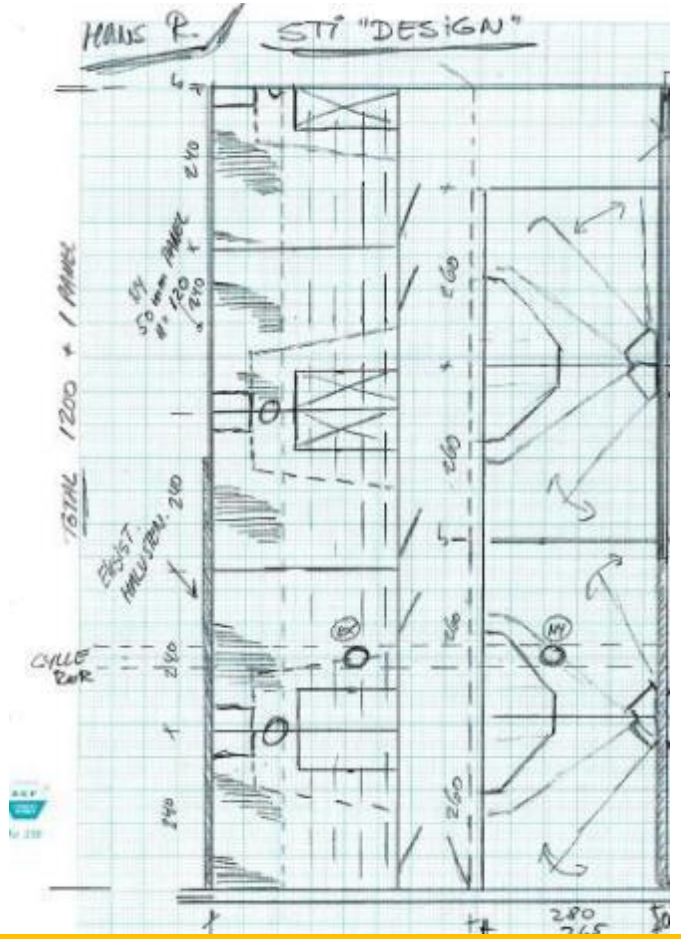
Limited number (e.g. five-ten pens) or full scale – pros and cons

2010-2015

- Limited numbers – pros
  - Get experience
  - Develop and optimize
  - Limited investment

- Limited numbers - cons
  - Ventilation etc
  - Management
  - Sows



2015-

- Full scale – pros
  - Optimize management
  - Sows accustome
  - Stockpeople accustome

- Full scale - cons
  - ‘Irreversible’
  - Large investment

Be aware of the pros and cons of the way you start up with loose housing

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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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Daily management

- Calm calm calm
- Not just in farrowing unit
- Include ‘calmness’ in layout
  - Sections
  - Less pens per section
  - Creep alongside passageway
- Include ‘calmness’ in daily routines
  - Handling of sows and piglets

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Critical points

- Investment
  - Design for a loose sow
    - Acknowledge key decisions and complexity
  - Ensure space for piglets
  - Include three pillars of sustainability
- Daily management
  - Calm handling
  - Optimize
    - Mindset

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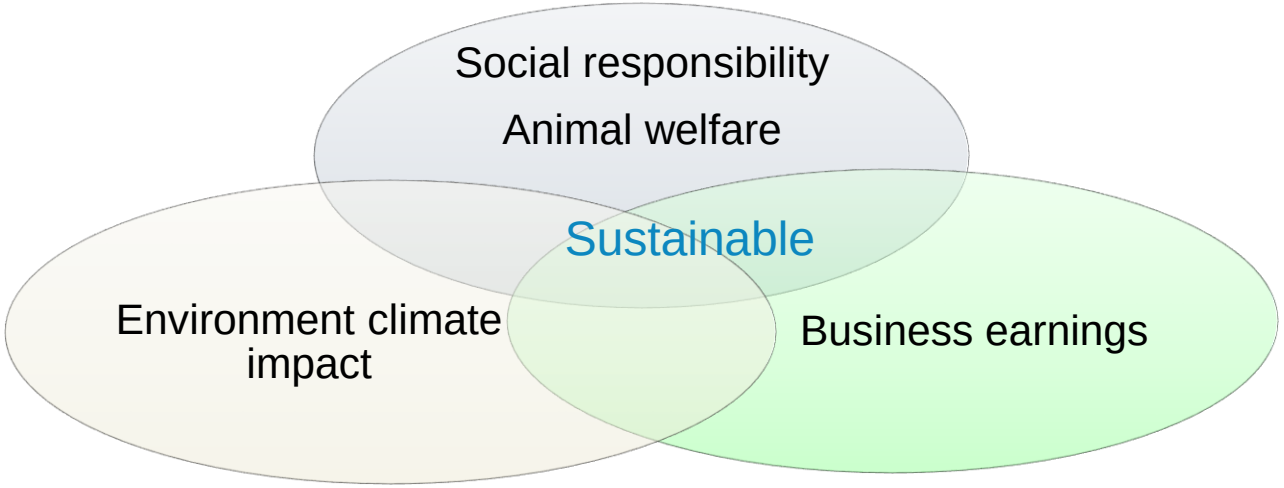
Critical points

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



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Future

- Reflections
  - German legislation
  - End the Cage Age Initiative
  - EU?
- Challenges
  - Sustainability
  - Competitiveness
- Opportunities
  - Increased milk production
  - Large litters
  - Licence to produce

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