

Health and welfare of loose housed and free-range pigs

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Prevention and treatment of specific diseases to improve production results

Evaluation of the 5 freedoms (pain, fear, discomfort, hunger and abnormal behaviour) to improve animal welfare



Health

Welfare



Crated

Crushing of piglets

**Higher welfare
Lower productivity**

**Lower welfare
Higher productivity**



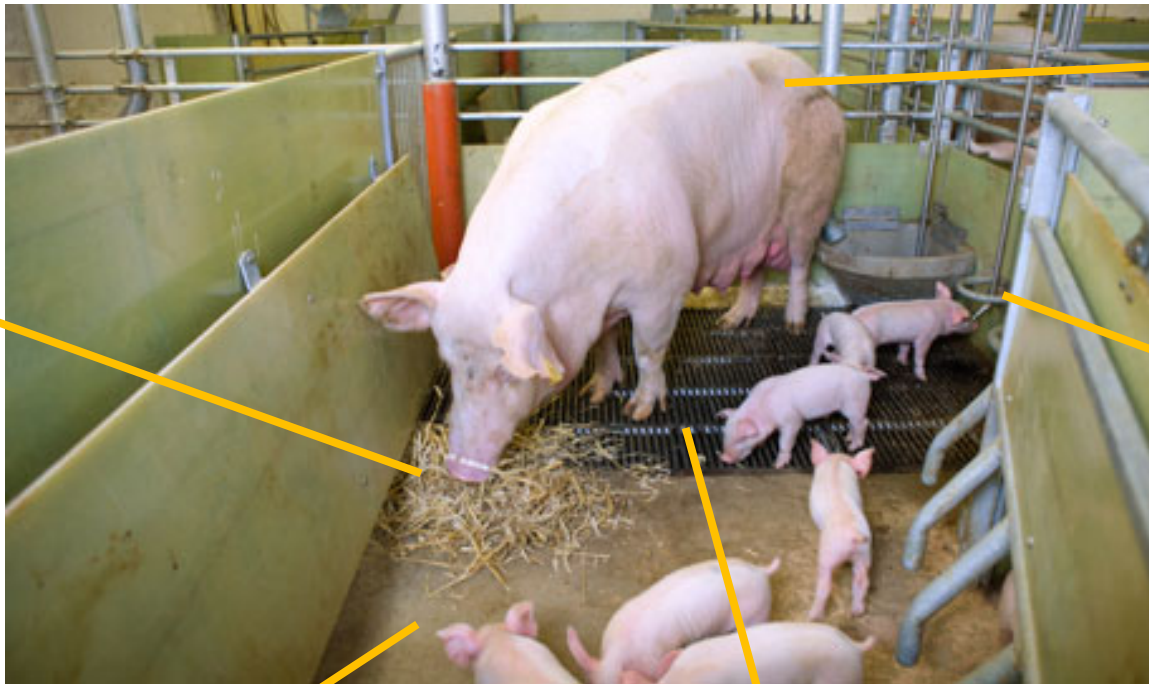
Free-range/organic

Loose housing during farrowing and lactation



**Improved interaction between sow and piglets
→ development of a more natural piglet
behaviour and improved sow welfare**

Loose housing during farrowing and lactation



Straw

Solid floor

Slatted floor

No restraint of the sow

Easy access to water and feed

Free-range during farrowing and lactation

Wildlife

Food and water far away

Soil and grass



Fresh air

Straw

Space to move around



DK: 1-5 sows per farrowing paddock – a single wire fencing system restrains the sows but allows free movement of piglets across the entire farrowing area (opposite to indoor loose group housing)

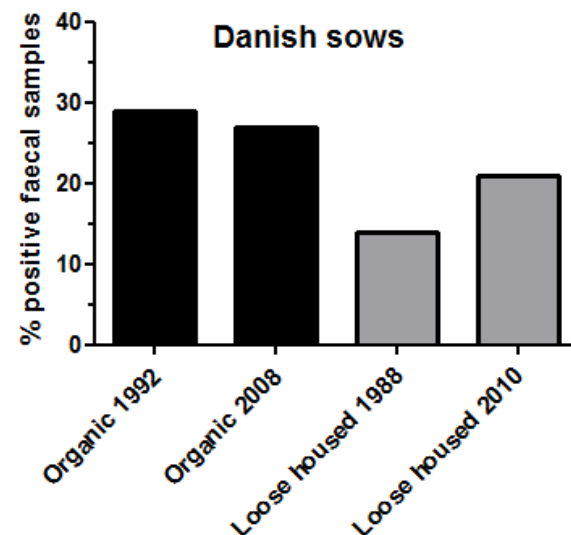
Parasites

- Many parasite species eradicated in intensive systems in Denmark
- Previously lower prevalences in intensive indoor systems compared to outdoor systems
- Reintroduction of bedding material and sprinklers → increase in infection levels?



Ascaris suum
(Round worm)

Roepstorff et al. 1992
Haugegaard 2010

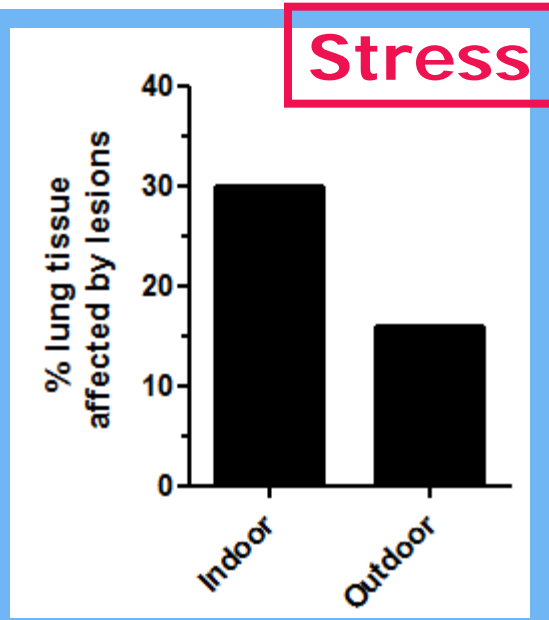


Bacteria

Enzootic pneumoniae - *Mycoplasma hyopneumoniae*

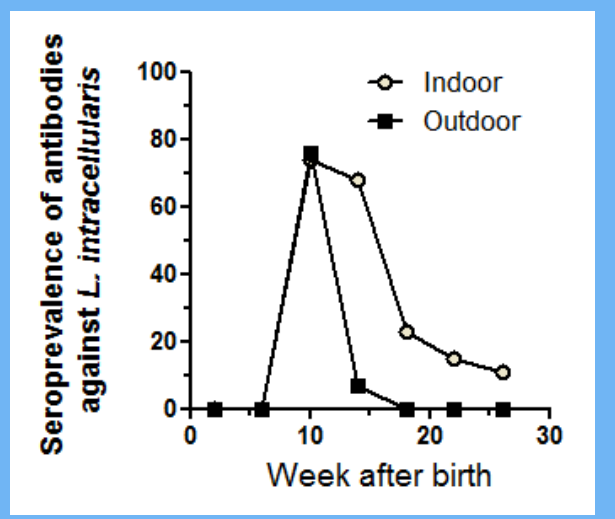
Slaughter at 110-120 kg

Bilic & Bilkei 2005



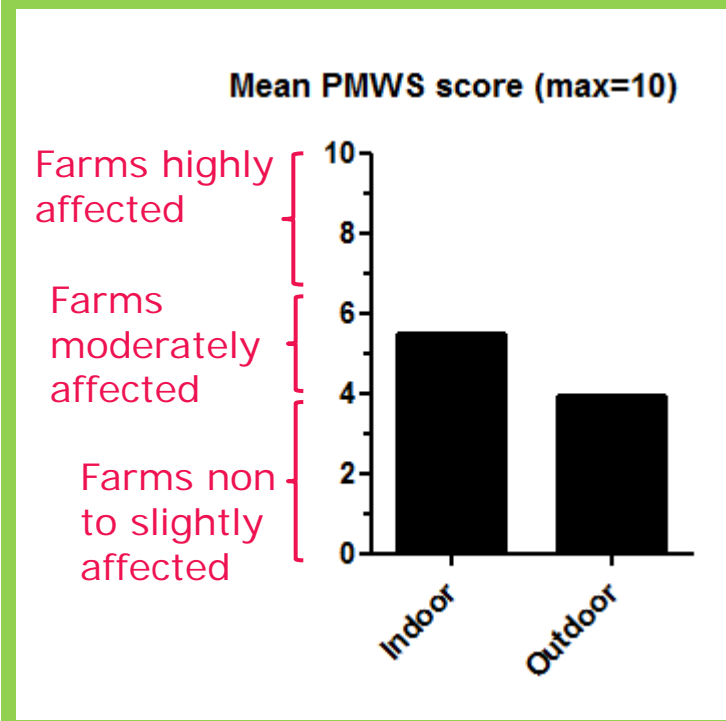
Porcine Proliferative Enteropathy – *Lawsonia intracellularis*

Class & Bilkei 2004



Virus

Porcine weaning Multisystemic Wasting Syndrome (PMWS) - Porcine circovirus type 2



Alarcon et al. 2011

Stocking rate

Environmental concerns \Rightarrow lower stocking rate outdoors:

- Lower risk of spreading of pathogens like bacteria and virus
- More space outdoors for evasive behaviour to avoid various types of aggression

**Low stocking rate
Fresh air**



Climatic stress

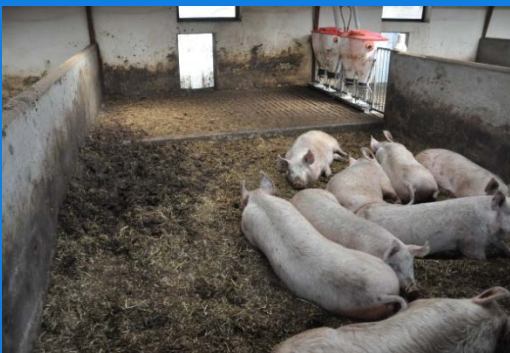


Monitoring and managing the animals



Bedding material

- Allows rooting \Rightarrow increased welfare
- Nesting material \Rightarrow increased welfare
- Reduced hygiene \Rightarrow accumulation of pathogens
- May retain moisture (especially if sprinklers are present) \Rightarrow improved survival of pathogens



Positive selected parameters

Climatic stress

Access to feed and water

Legg problems

Disease barriers

Treatment

Predators

Monitoring

Parasites Hygiene

Respiratory disorders

Diarrhoea

Agression

Anemia

Natural behaviour

Crushing

Stocking rate

Physical activity

Indoor loose
housing

Free-range/
organic

Conclusions

- No management system perfectly satisfies the need for a high level of both health and welfare on all counts
- There are always tradeoffs and production costs is a major constraint
- Interdisciplinary approach for improved assessment of the effect of management on both health and welfare