



Does housing influence maternal behaviour in sows?

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Introduction

Slide 2

➤ Mate

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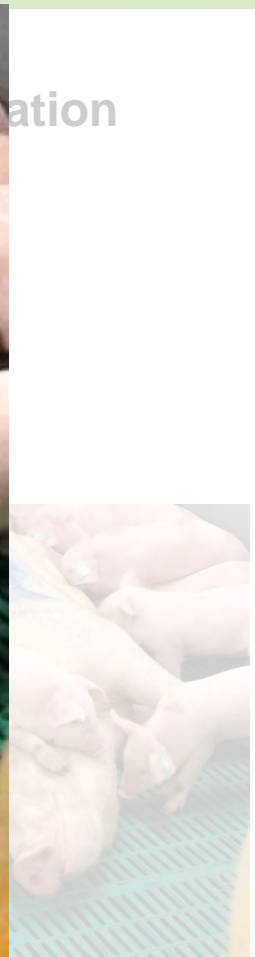
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➤ Mate

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Does housing influence maternal behaviour in sows?

Group-housing vs. Single-housing



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Material & Methods

- 47 multiparous sows (4 batches)
- Mixed breeds (PIC / Porkuss)
- 13 piglets per sow

Single-housing





Reproductive traits

Statistical analysis

Slide 4

➤ **Reproductive traits**

- Birth and weaning weight of piglets
- Piglets born alive
- Stillborn piglets
- Weaned piglets
- Piglet losses

➤ **MIXED procedure in SAS®**

➤ **Fixed effects**

- Housing (group-housing, single-housing)
- Batch (1 - 4)
- Parity class (1 - 3)

➤ **Random effect birth and weaning weight:** Sow (group and batch)

➤ **Covariable weaning weight:** Birth weight / Lactation length



Reproductive traits

Results & Discussion

Slide 5

Least square means of reproductive traits

	Group-housing (GH) (n = 23)	Single-housing (SH) (n = 24)
Piglets born alive / sow	16.6	15.7
Stillborn piglets / sow	1.1	1.7
Birth weight (kg) / piglet	1.3	1.3
Total piglet losses / sow	1.8	2.9
Piglets weaned / sow	12.5	12.2
Weaning weight (kg) / piglet	7.6	7.8

Total piglet losses: **10.7 % GH < 18.3 % SH (p < 0.05)**

Crushed piglets: **34.1 % GH < 49.3 % SH (p < 0.05)**

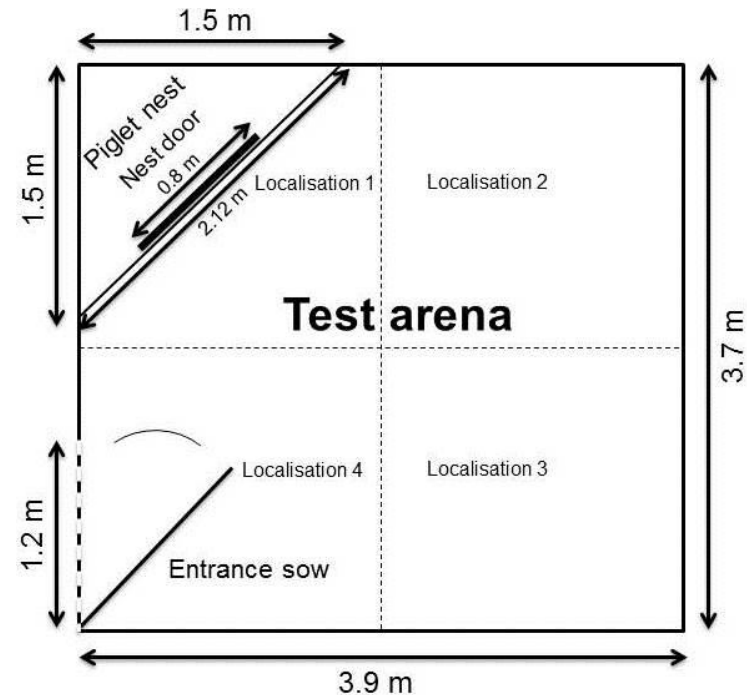
Discussion

- Previous research found no significant differences (Bohnenkamp et al. 2013)
- Stockpersons became more familiar with **GH system** (Li et al. 2010)
- **GH sows** had the opportunity to leave their home pens
- **GH conditions** met better natural behavioural patterns (Jensen 1986)

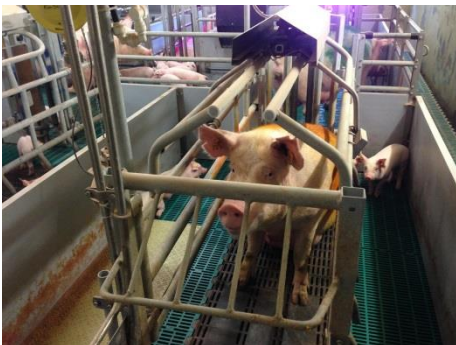
Behavioural testing

Material & Methods

- **Week 2 and 4 post partum**
- **Behavioural tests**
 - 1) Piglets scream test in home pen
 - 2) Reunion test in home pen
 - 3) Piglet scream test in test arena
 - 4) Separation test in test arena



Home pen GH



Home pen SH





Behavioural testing

Statistical analysis

Slide 7

➤ Behavioural variables

- Active / inactive
- Exploring nest / floor / walls
- Contact
- Nursing
- Vocalisation

➤ GLIMMIX procedure in SAS® (Poisson distribution)

➤ Fixed effects

- Housing (group-housing, single-housing)
- Batch (1 - 4)
- Parity class (1 - 3)
- Test week (2, 4)

➤ Random effect: Sow (group and batch)



Behavioural testing

Method & Results

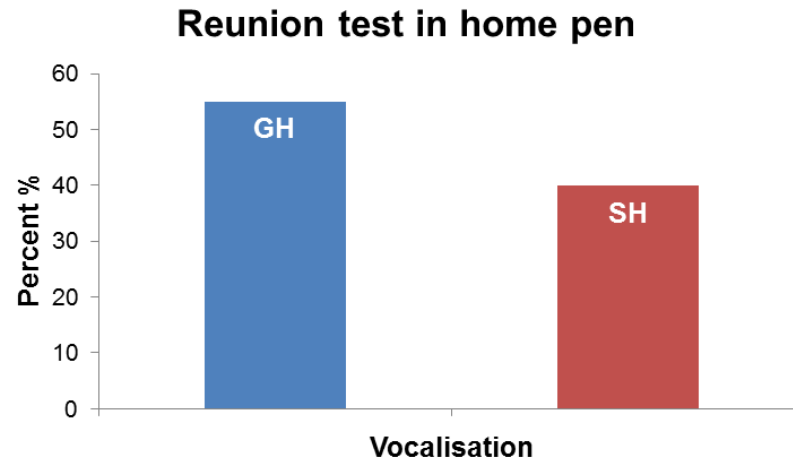
Slide 8

Piglet scream test in home pen

- **GH sows** showed more medium to strong reactions ($p < 0.05$)
- **GH sows** finished the test in a standing posture more frequently ($p < 0.05$)

Reunion test in home pen

- **GH sows** tended to vocalize more frequently ($p < 0.10$)





Behavioural testing

Discussion

Slide 9

Discussion - Results in home pen

- **GH sows** reacted stronger and stood up more frequently
(Arey and Sancha 1996)
 - Responsiveness of sows is important for piglet survival
(Hutson et al. 1991; Weary et al. 1996)
 - Constant and strong communication between **GH sows** and piglets
(Pitts et al 2002; Arey and Sancha 1996)
- **GH sows were high responsive and had fewer piglet losses!**

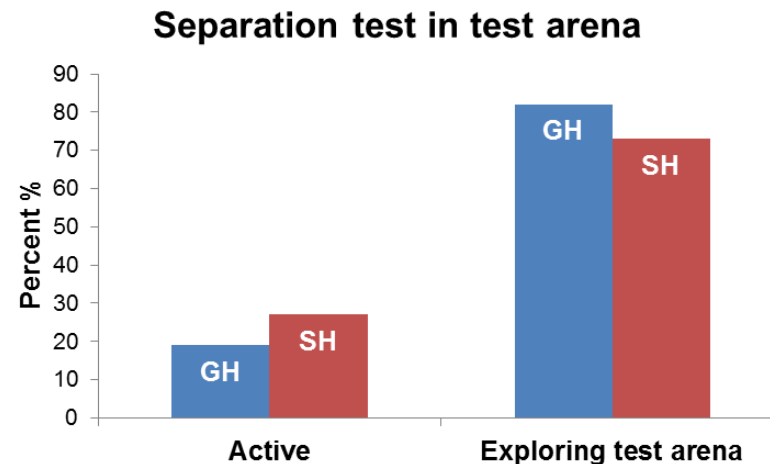


Piglet scream test in test arena

- **SH sows** were more frequently near her piglet ($p < 0.05$)
- **SH sows** vocalised more ($p < 0.05$)

Separation test in test arena

- **SH sows** walked more ($p < 0.05$)
- **GH sows** explored the test arena more ($p < 0.05$)



Discussion – Results in test arena

- **SH sows** were more strained in test arena
 - Not used to leave the home pens and move freely
- **SH sows** were more stressed by separation
 - Always surrounded by their piglets



Conclusion

- ❖ **Housing has an effect on maternal behaviour**
 - ❖ **GH sows had fewer total piglet losses**
 - ❖ **Good maternal behaviour is needed in home pen**
- Relevant for farm practice!**



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