GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

Christian-Albrechts-Universität zu Kiel

SUSTAINABLE AND INNOVATIVE HOUSING CONCEPTS FOR SOWS AND REARING PIGLETS

Use of organic nesting material in free-farrowing pens with short term fixation

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Landwirtschaftskammer Nordrhein-Westfalen

Project Zissau - Project objectives and background

Objectives: Development of innovative stable constructions for the husbandry of sows

Background: Revision of the animal husbandry regulations in Germany, which demands far-reaching changes in the current sow husbandry systems

Project sponsors:

With support from
Federal Ministry of Food and Agriculture

Project manager
Federal Office for Agriculture and Food

by decision of the German Bundestag

Research questions of this study

- Does the use of different organic nesting materials differ?

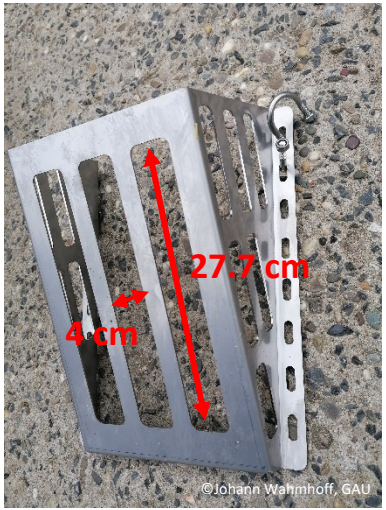
- Does the supply of organic nesting material have an influence on the number of crushed piglets?

[...] ***provision of abundant nesting materials*** *to sows prior to parturition could increase plasma oxytocin concentrations. This would result in* ***improved nursing performance and maternal behaviour*** *during early lactation.* (Yun et al. 2013)

[...] the ***provision of sand and straw*** *[...], affect the maternal behaviour and* ***favor survival of the piglets*** *by increasing sow reactivity and maternal bonding.* (Herskin et al. 1998)

The Farm – Husbandry system and operating metrics

- 150 Sows (Suisag) in a five-week rhythm
- 7 m² pen area (2.8 m x 2.5 m)
- Fixation 2 days a.p. until approx. day 7 p.p.



Material and methods

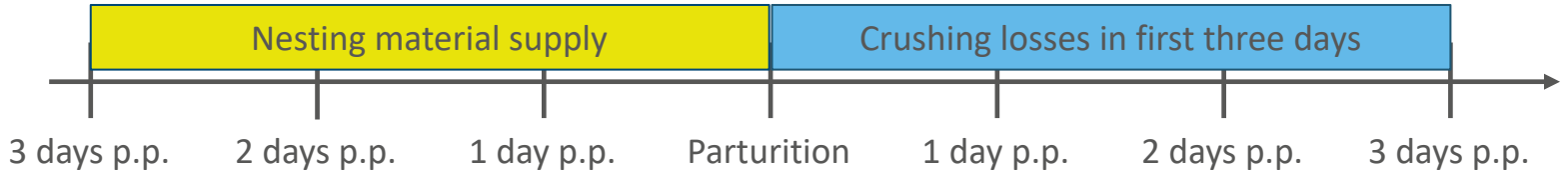
Key data:
- N = 163
- 8 out of 10 planned batches
- 1st to 6th parity

Nesting material:
- Hay (n = 60), straw (n =52) or jute bags (n = 51)
- 120 g in the morning and 120 g in the evening if needed
- From gestation day 112 until birth
- Permanently accessible
- Residues were weighed every morning

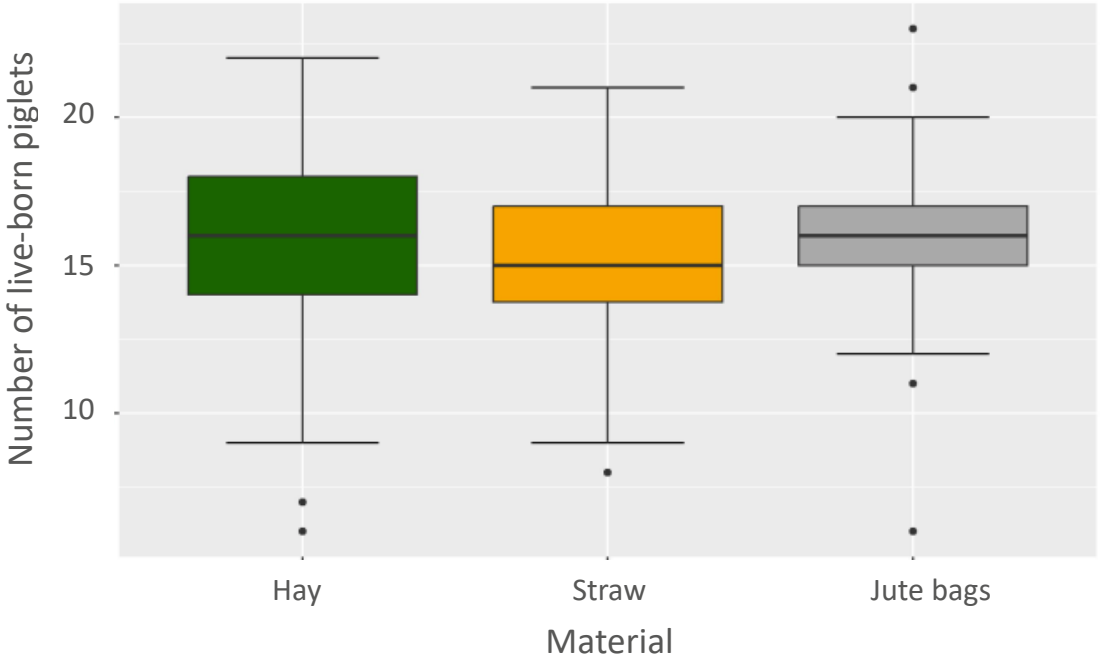
Crushed piglets:
- Daily documentation until day 3 p.p.
- Total number during suckling period

Statistical analysis

- The data on cumulated amount of nesting material during the first three days after parturition and the number of live-born piglets were tested with an **ANOVA**
- The data on crushed piglets were tested with a **binomial test**

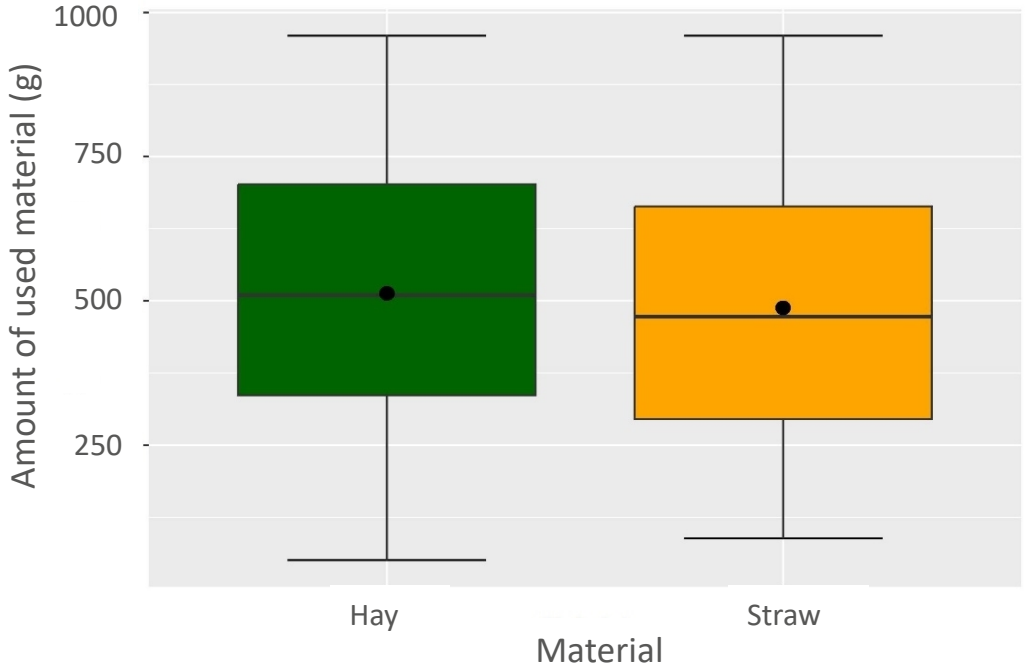


Number of live-born piglets for each material



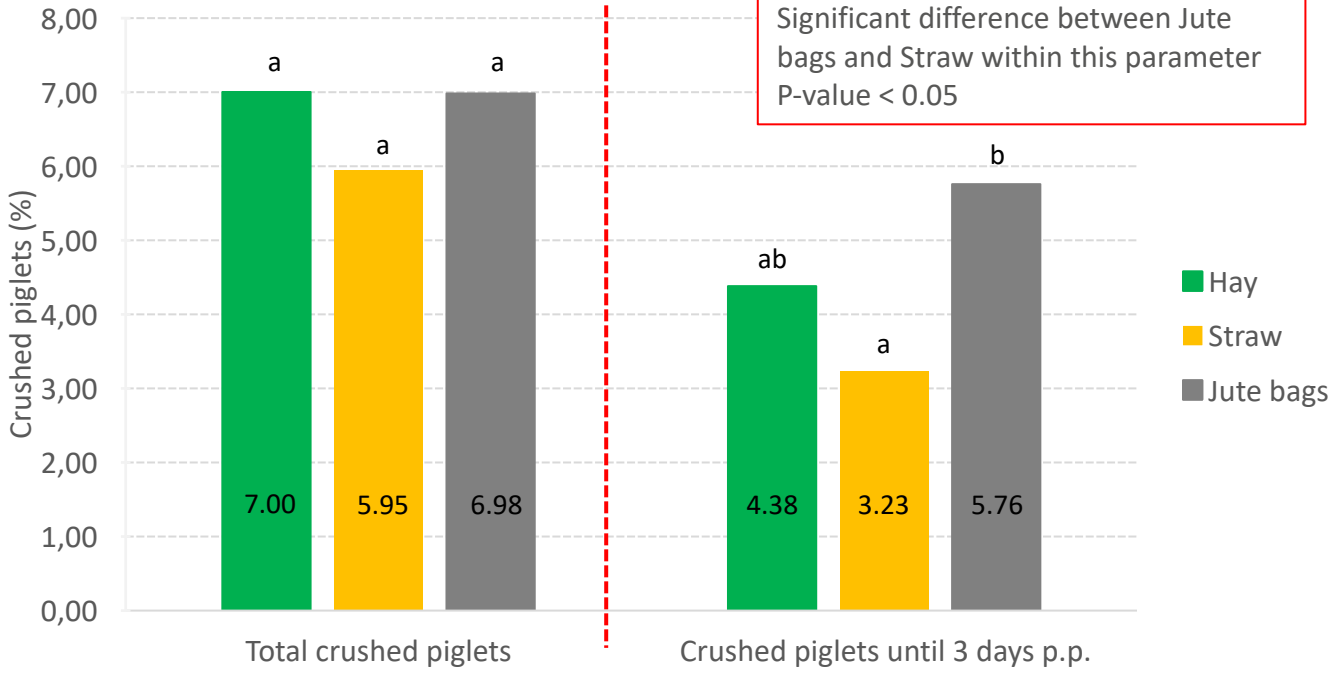
P-value > 0.05

Amount of used nesting material in 3 days a.p.

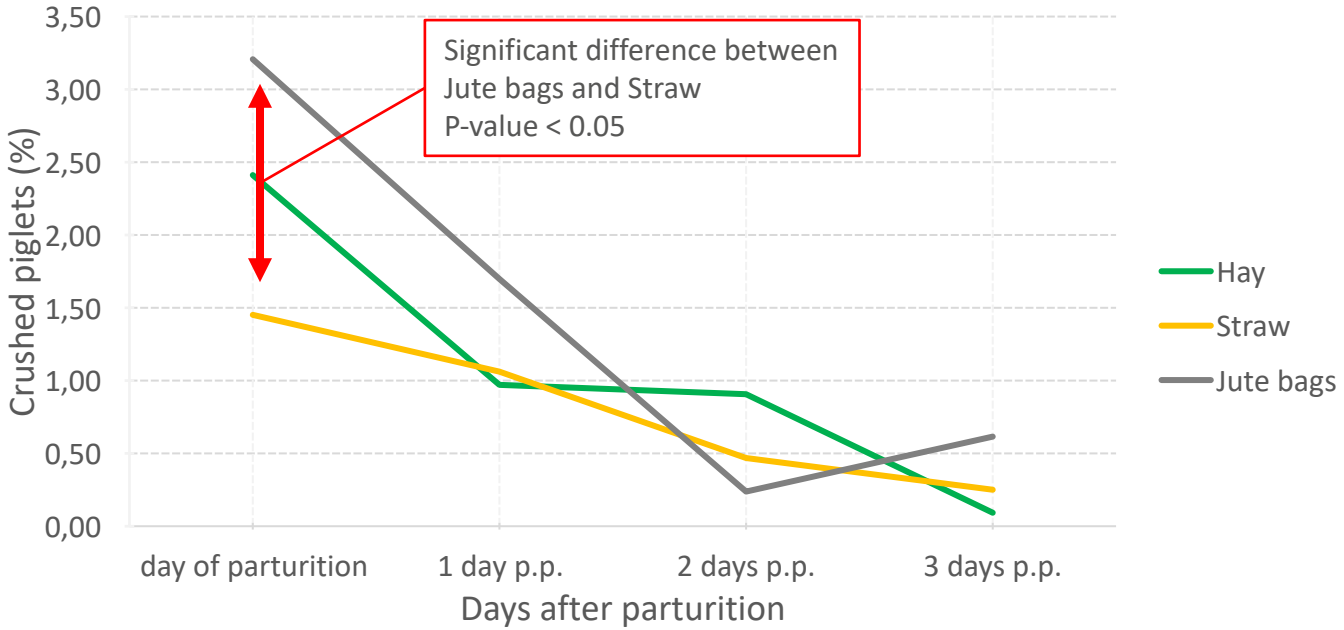


P-value > 0.05

Number of crushed piglets for each material

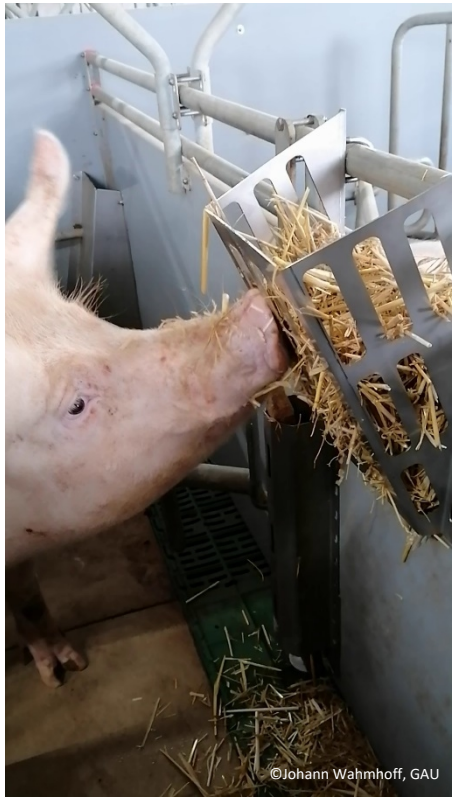


Average crushing losses during the first 3 days p.p.



Conclusion

- Hay and straw were both used by the sows with comparable amounts during all days.
- For sows provided straw, a fewer number of crushed piglets was observed compared to sows with jute bags as nesting material.
- Behaviour analysis of sows planned to get more insights into relation between nesting material and crushing losses.



Thank you for the attention!

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References

Herskin, M. S.; Jensen, K. H.; Thodberg, K. (1998): Influence of environmental stimuli on maternal behaviour related to bonding, reactivity and crushing of piglets in domestic sows. In: *Applied Animal Behaviour Science* 58 (3-4), S. 241–254. DOI: 10.1016/S0168-1591(97)00144-5.

Yun, J.; Swan, K. M.; Vienola, K.; Farmer, C.; Oliviero, C.; Peltoniemi, O.; Valros, A. (2013): Nest-building in sows: Effects of farrowing housing on hormonal modulation of maternal characteristics. In: *Applied Animal Behaviour Science* 148 (1-2), S. 77–84.

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Average amount of used nesting material