



Session 63: *Improving animal welfare by optimising nutrition/feeding behaviour, Part 1*

Piglet suckling behaviour in relation to fibre type in the maternal diet



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Dietary fibres

- Dietary fibres are defined as carbohydrates that are indigestible by endogenous enzymes. *Jha et al., 2019*
- Diets rich in dietary fibres in gestation have positive effects on:
 - sow aggressiveness and satiety
 - colostrum quality
 - piglet weights at weaning*Li et al., 2019, 2020*
Loisel et al., 2013
- Different properties related to their solubility in water, fermentability, viscosity

Soluble dietary fibres



Rapidly fermented by microbes in the distal small intestine and large intestine



Increase digesta viscosity



Reduce digesta passage rate

Insoluble dietary fibres



Slowly fermented by microbes



Increase passage rate



Increase fecal bulking

Piglet suckling behaviour in relation to fibre type in the maternal diet

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Soluble vs insoluble dietary fibres

Different ratios of insoluble to soluble dietary fibres



Oat hulls
Source of insoluble dietary fibres

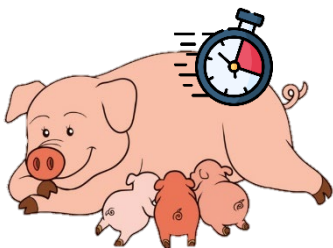


Inulin
Source of soluble dietary fibres

Farrowing duration

Colostrum intake

Litter growth



Girard et al. (2023). Journées Recherche Porcine, 55, 243-244

Main objectives:

- Does the **fibre type** in the maternal diet influence the **suckling behaviour** of piglets ?
- Does the **suckling position** on the udder affect piglet **growth differently** according to **fibre type**?

Secondary objective:

- Are **birth parameters** such as **birth weight** and **birth order** important in determining the **suckling position**?

Piglet suckling behaviour in relation to fibre type in the maternal diet

Introduction

Material and methods

Results

Conclusions

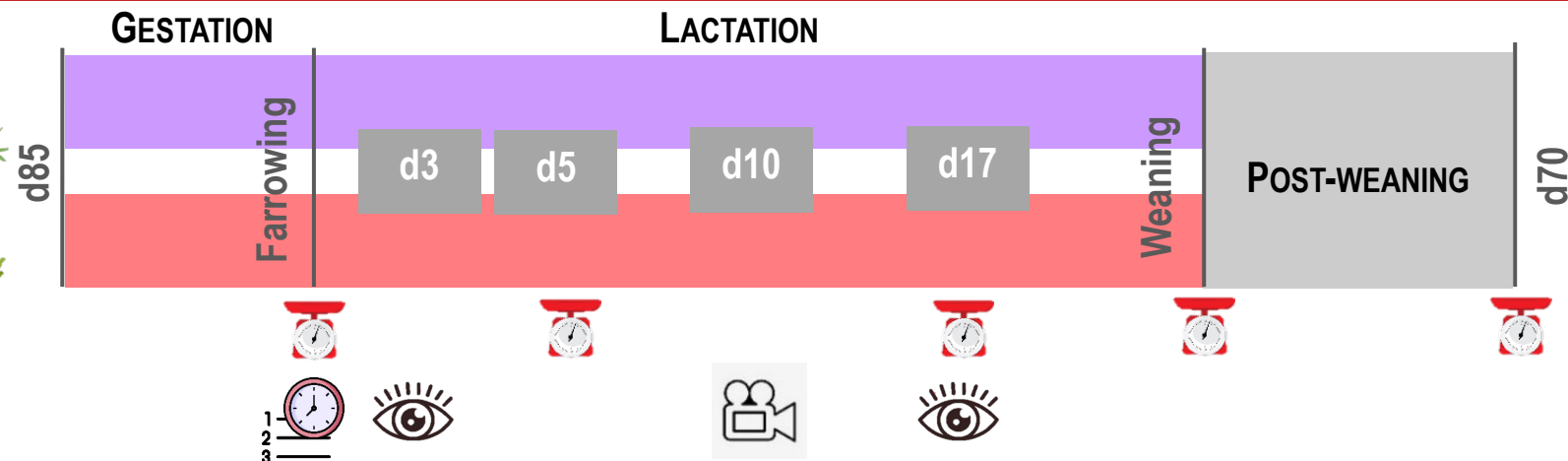


Study design and measurements

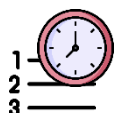
40 sows

parity 2.8 ± 1.6

12.4 ± 1.9 piglets
per litter



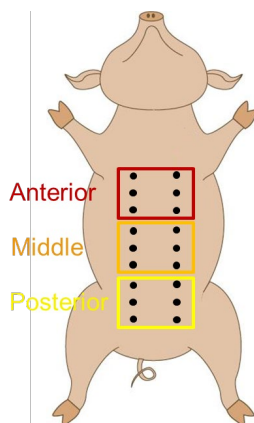
Body weight



Birth order



Observation of the suckling position during 2 suckling bouts



Piglets suckling in the different sections

Suckling area fidelity between day 3 and day 17

Relationship between suckling position and growth parameters



Video recording

Frequency (/24h)

Duration (total and per bout)

Interval between 2 suckling bouts

Number of fights



Piglet suckling behaviour in relation to fibre type in the maternal diet

Introduction

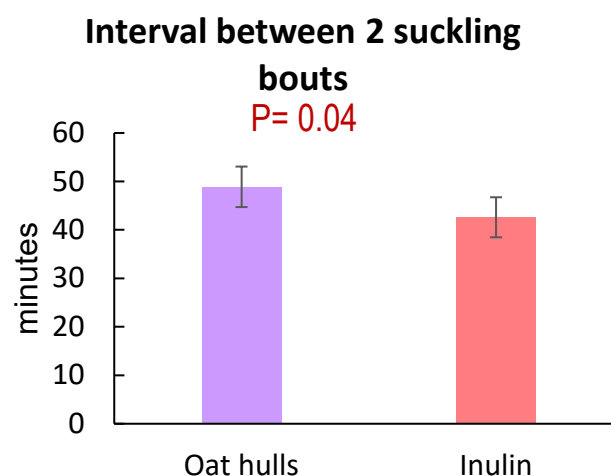
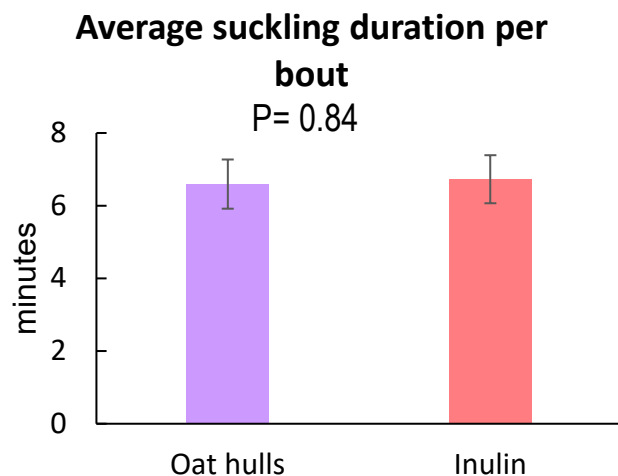
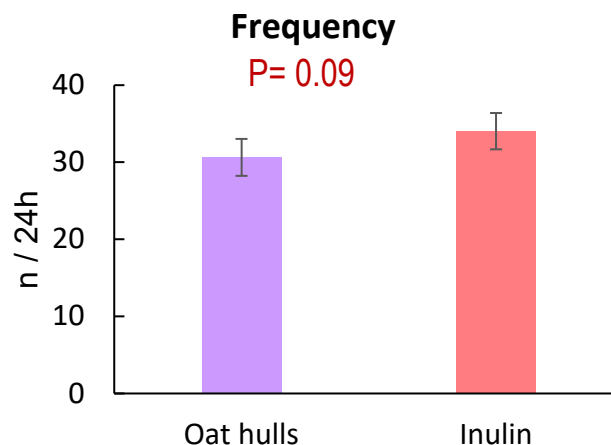
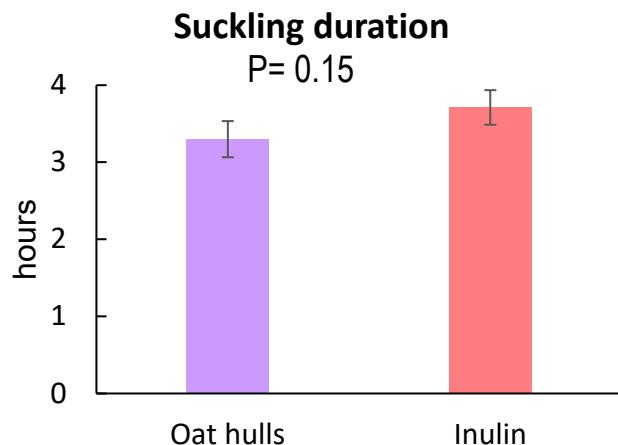
Material and methods

Results

Conclusions



Suckling behaviour on day 10



- Suckling duration of **3.5 h per day**
- Average suckling duration per bout of **6.36 min**
- Piglets from sows fed **inulin** had a **shorter** interval between 2 suckling bouts, and tended to **suckle more often**.

Piglet suckling behaviour in relation to fibre type in the maternal diet

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Introduction

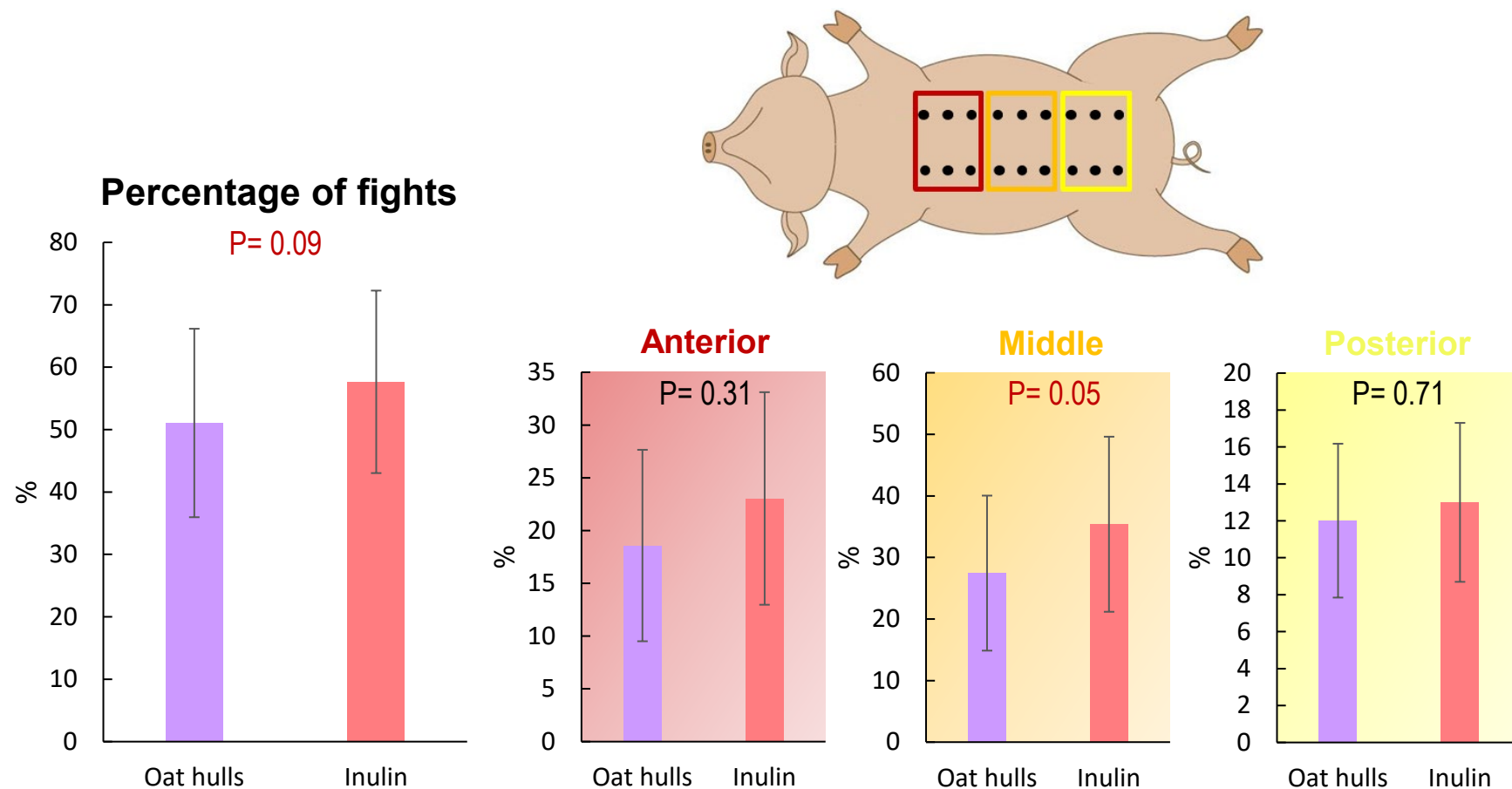
Material and methods

Results

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Percentage and location of fights on day 10

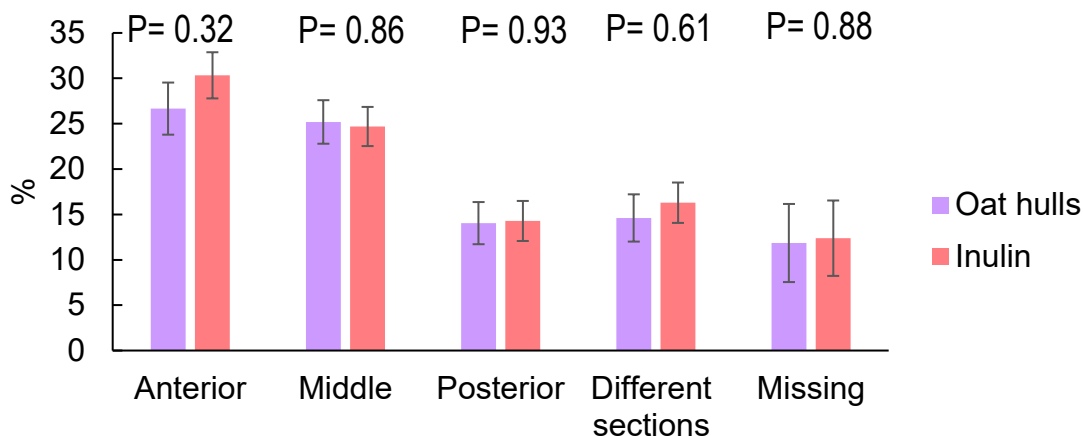


Piglets from sows fed **inulin** tended to **fight more**, especially in the **middle area**.

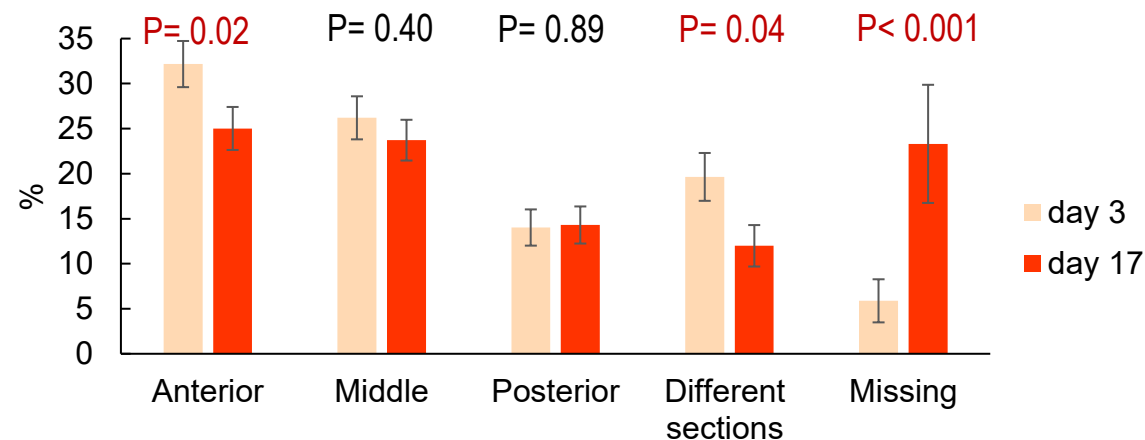


Preferred suckling areas and fidelity between d3 and d17

Percentage of piglets suckling in the different areas according to the sow treatment

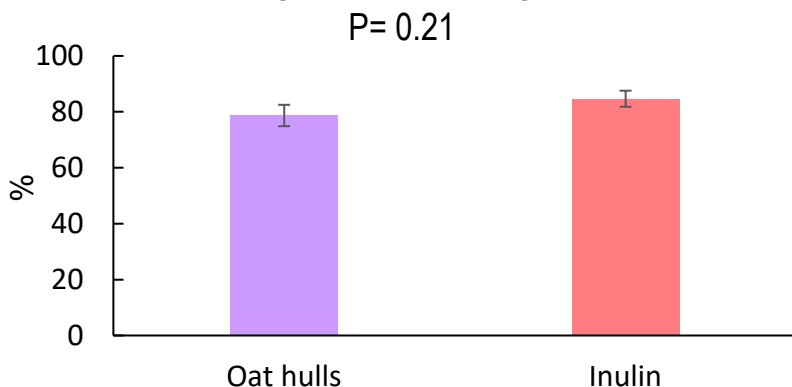


Percentage of piglets suckling in the different areas between day 3 and day 17



487 piglets on day 3 and 480 piglets on day 17

Area fidelity between day 3 and 17



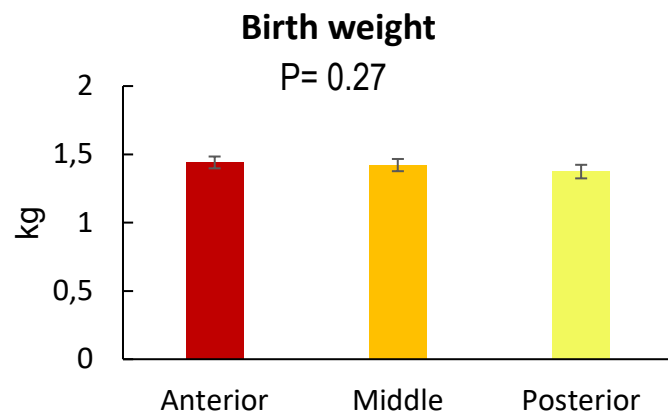
- No effect of the sow treatment
- **Fewer piglets** suckling on the **anterior** area and in **different sections** and **more piglets** with a **missing suckling** on day 17.
- The area **fidelity** between d3 and d17 averaged **82%**

Piglet suckling behaviour in relation to fibre type in the maternal diet

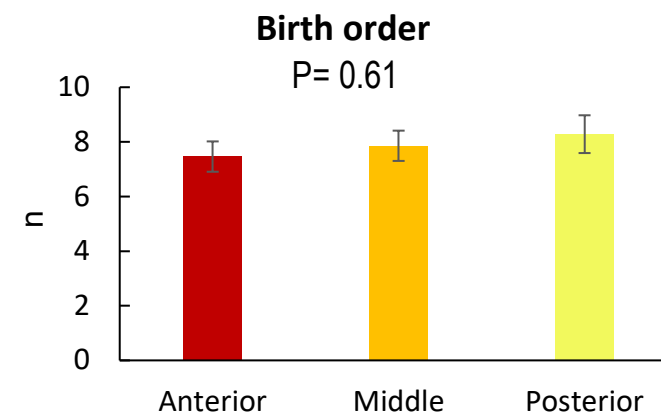
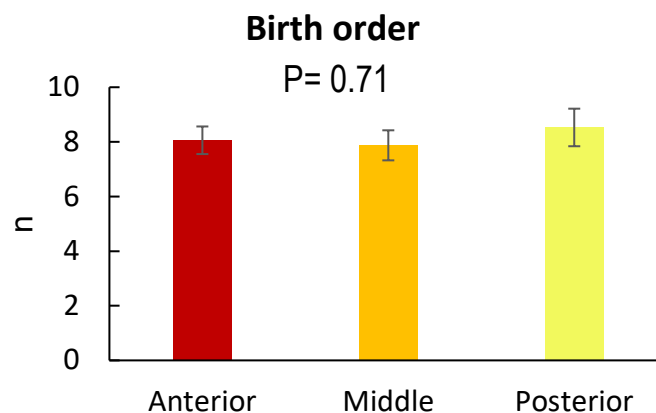
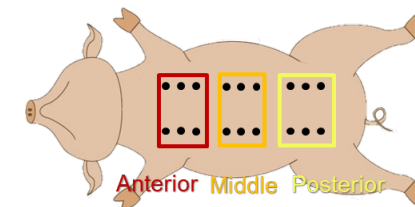
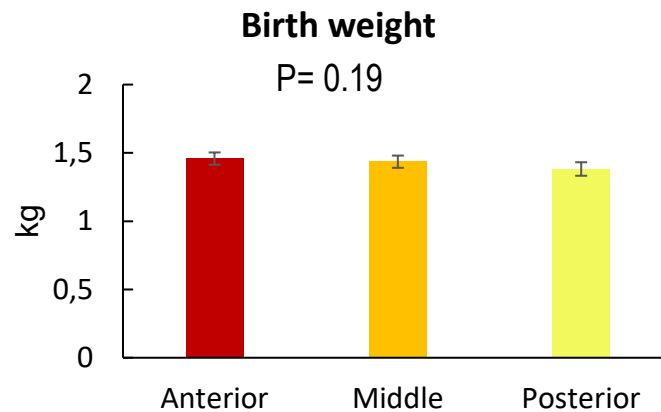


Birth order, birth weight and suckling position

Suckling position on day 3
(346 piglets)



Suckling position on day 17
(287 piglets)



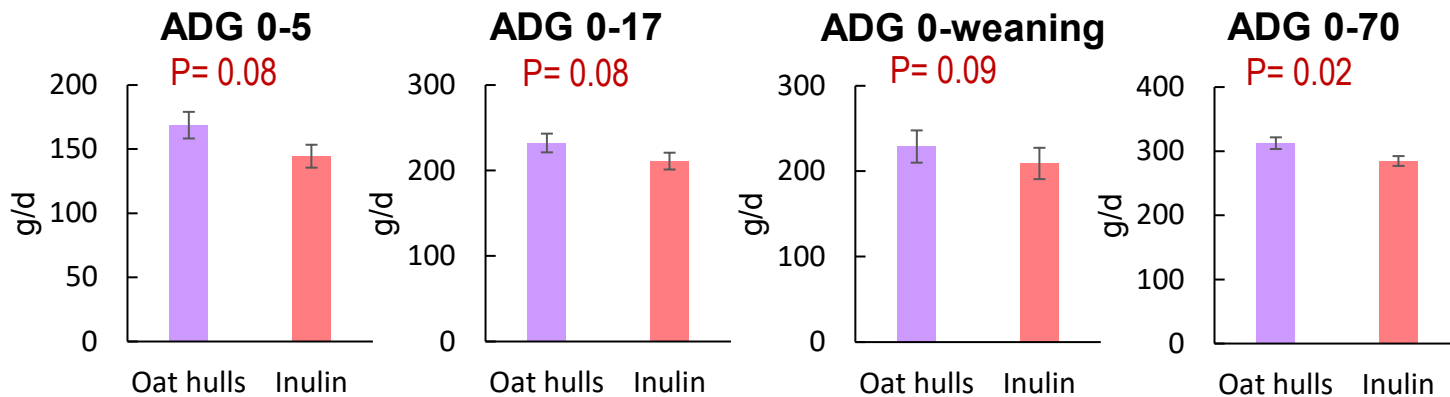
- The **birth weight** was **not related** to the **suckling position** on day 3 or day 17.
- The **birth order** was **not related** to the **suckling position** on day 3 or day 17.

Piglet suckling behaviour in relation to fibre type in the maternal diet



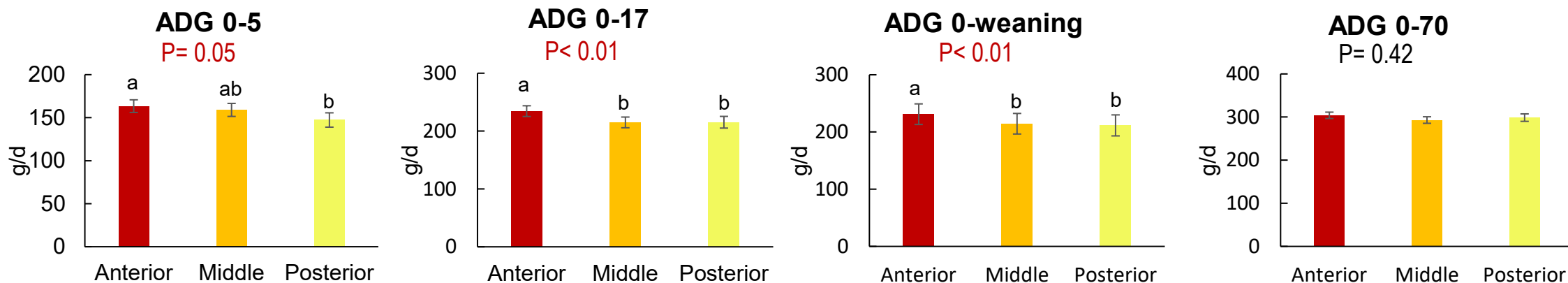
Growth performances

Sow treatment effect



- **No interaction** between the sow treatment and the suckling position
- **Better** growth in piglets originating from sows fed **oat hulls** until day 70
- **Better** growth in piglets suckling in the **anterior** area in the suckling period

Suckling position effect



Piglet suckling behaviour in relation to fibre type in the maternal diet



Conclusions

Does the fibre type in the maternal diet influence the suckling behaviour of piglets? ✓

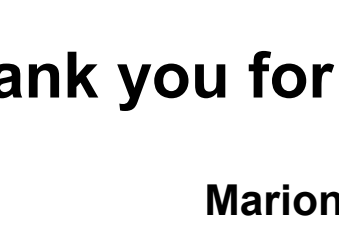
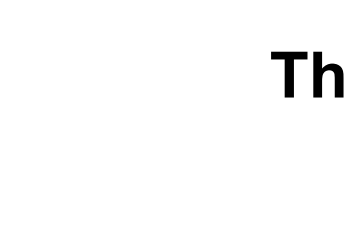
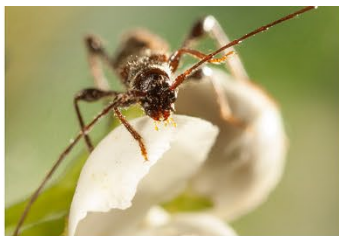
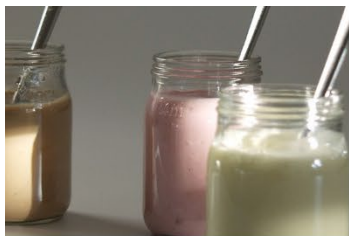
- Piglets from sows fed inulin had a lower weight gain and a shorter interval between 2 suckling bouts, and tended to suckle more often maybe due to more fights → maybe lower milk intake per suckling bout ?

Does the suckling position on the udder affect piglet growth? ✓

- The present results confirm that the anterior area is associated with a better growth in the suckling period. This effect disappears in the post-weaning period.

Are the birth weight and birth order important to determine the suckling position? ✗

- In the present study, heavier piglets or piglets born first did not suckle the best teats.



Thank you for your attention

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