Managing tail biting in undocked pigs on fully-slatted floors with different enrichment strategies

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Background

- Tail docking banned as routine practice
- Tail biting risk higher with undocked pigs
  - Difficulty in management
  - Higher production cost
    - » e.g. environmental enrichment

Can we find an enrichment strategy that is economically feasible and effective to reduce the risk of tail biting in undocked pigs on fully-slatted floors?

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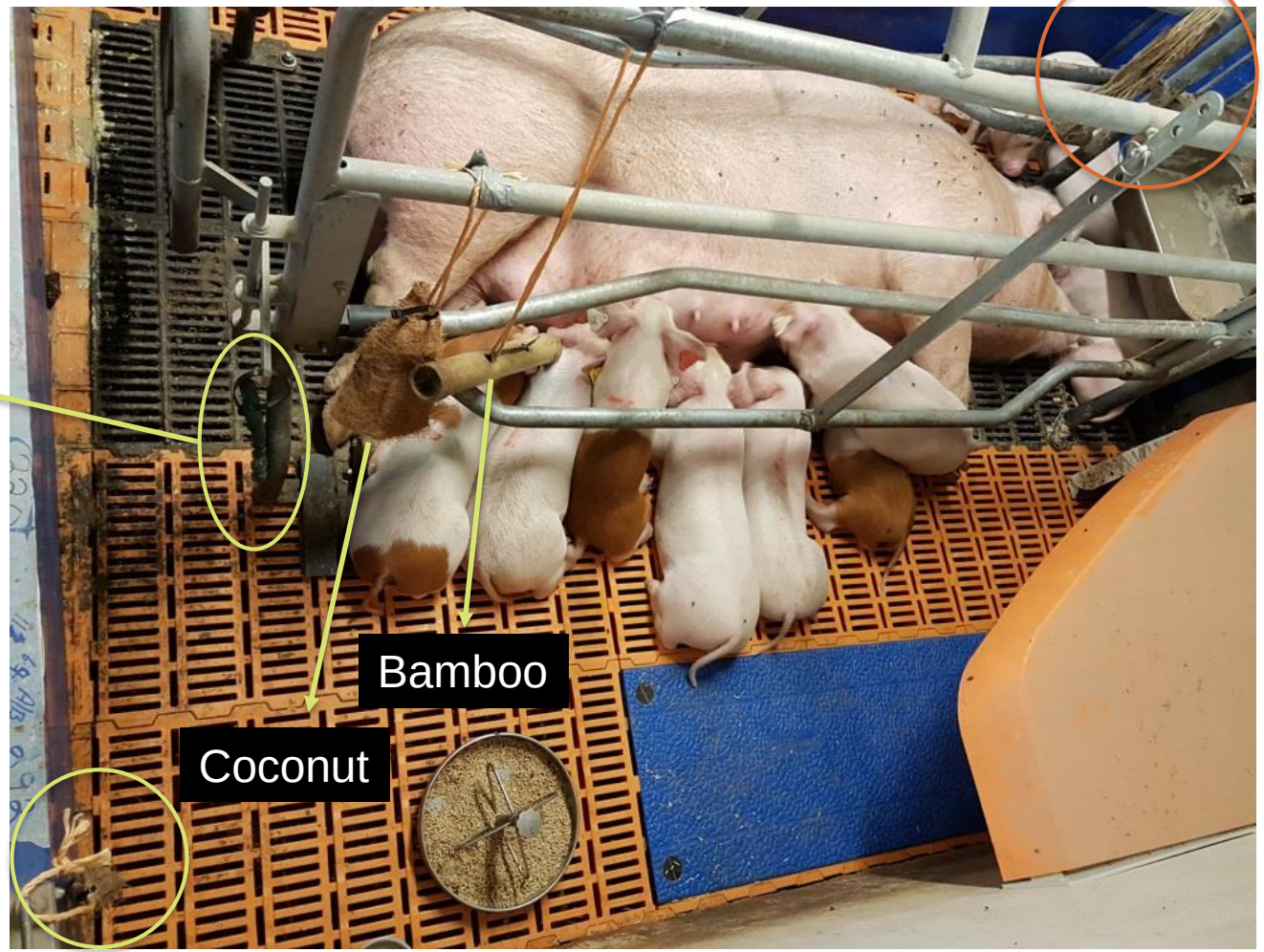
Experimental design

- 576 pigs, 12 pigs/pen, total 48 pens
- Farrow to finish
- Pre-weaning: **Enriched** or **Barren**

Experimental design: pre-weaning

Dog chew toy

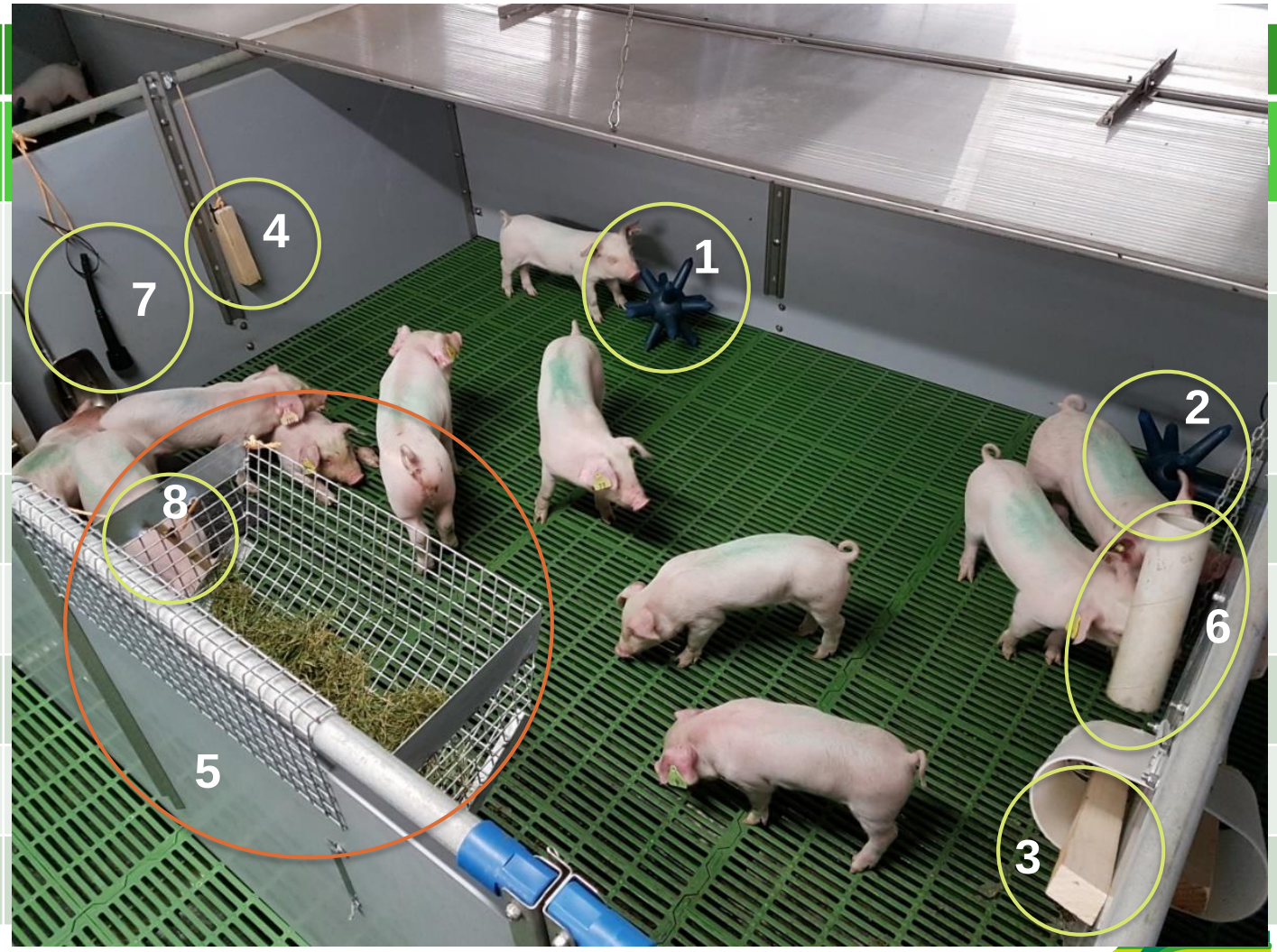


Experimental design

- 576 pigs, 12 pigs/pen, total 48 pens
- Farrow to finish
- Pre-weaning: **Enriched** or **Barren**
- Post-weaning: 3 different replenishment strategies
  - **High** or **Medium** or **Low**

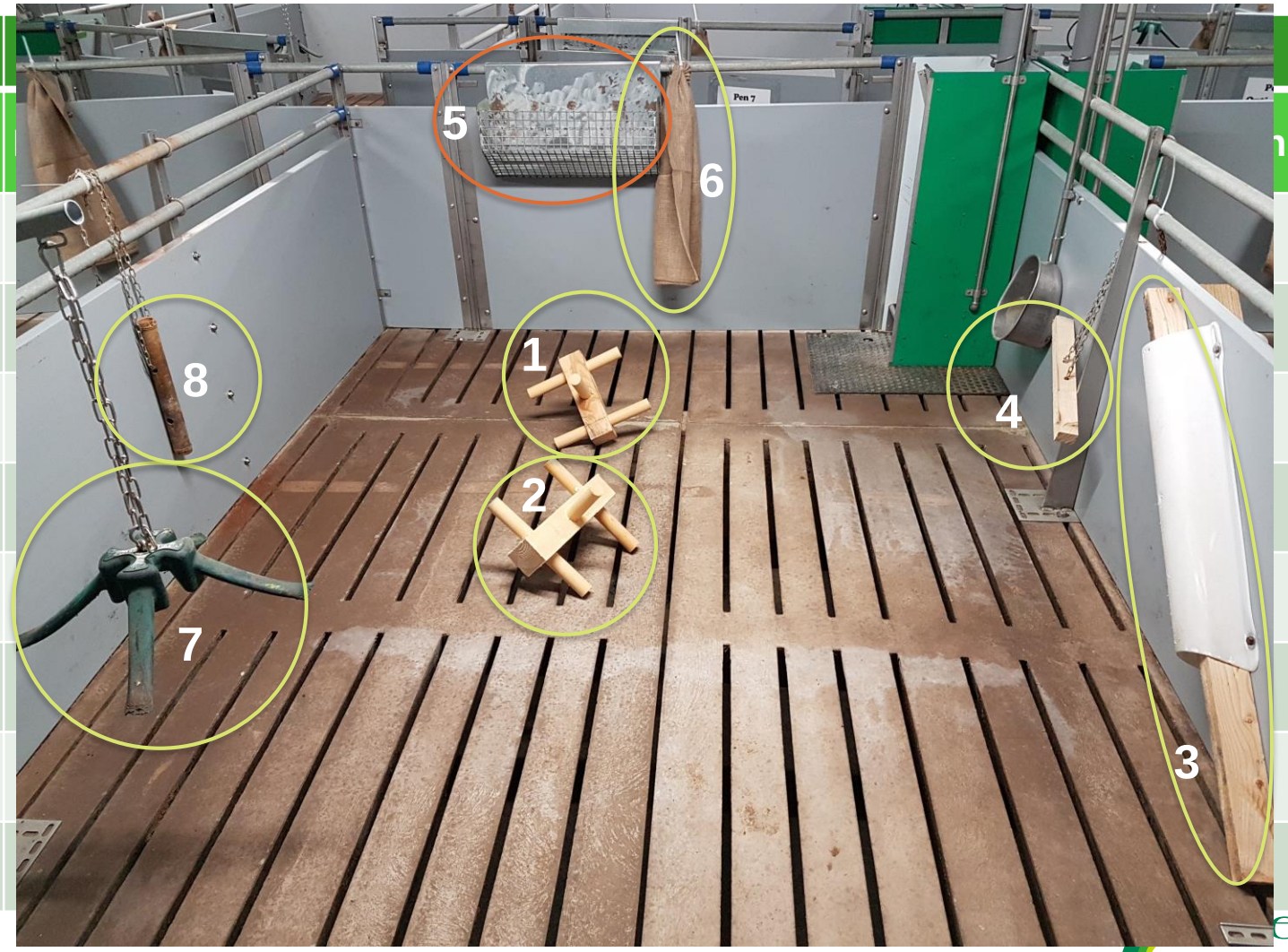
Post-weaning: 8 enrichment items (weaner)

Category
1. Easyfix® floor toy
2. Easyfix® floor toy
3. Spruce post
4. Pine block (hanging)
5. Grass (rack)
6. Cardboard roll
7. Rubber pipe
8. Thin wooden stick



Finisher pen: 8 enrichment items

Category
1. Larch floor toy
2. Spruce floor toy
3. Larch post
4. Spruce block (hanging)
5. Grass (rack)
6. Hessian sack
7. Rubber toy
8. Bamboo stick



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✓ 2-3 times	✓ Once daily	✓ Monday/Wednesday/Friday
✓ *ad-libitum*	✓ 48 h before	✓ 7 d before replacement
✓ Higher qu	✓ Lower quan	✓ Lower quantity of grass

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  - 2 × 3 design

Treatment	1	2	3	4	5	6
Pre-weaning	Enriched	Enriched	Enriched	Barren	Barren	Barren
Post-weaning	High	Medium	Low	High	Medium	Low

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Hypotheses

- Early enriched environment for pigs

  → less tail biting behaviour

- The high replenishment strategy

  → more effective in reducing tail biting

- Complex enrichment strategy can be cost-beneficial

  → improved performance

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Measurements

- Pig physical measures
  - Tail/ear lesion scores
- Direct behaviour observation (individually identified)
- Enrichment replenishment → cost
- Growth
  - Individual weight (weaning/transfer/17wks/pre-slaughter) / Days to finish (105kg live wgt) / Feed intake (group)
- Teagasc Pig Production Model*
  - Compare with pigs in the same research farm† (“docked barren”)

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* Calderón Díaz et al. (2019). Description, evaluation, and validation of the Teagasc Pig Production Model. *J. Anim. Sci.*

† Rooney et al. (2019). The effect of incremental dietary energy density from 13.8 to 15.9 MJ DE/kg on piglet vitality and growth to weaning. *ASAS MidWest Meeting, March 11th-13th, Omaha, Nebraska, USA*.

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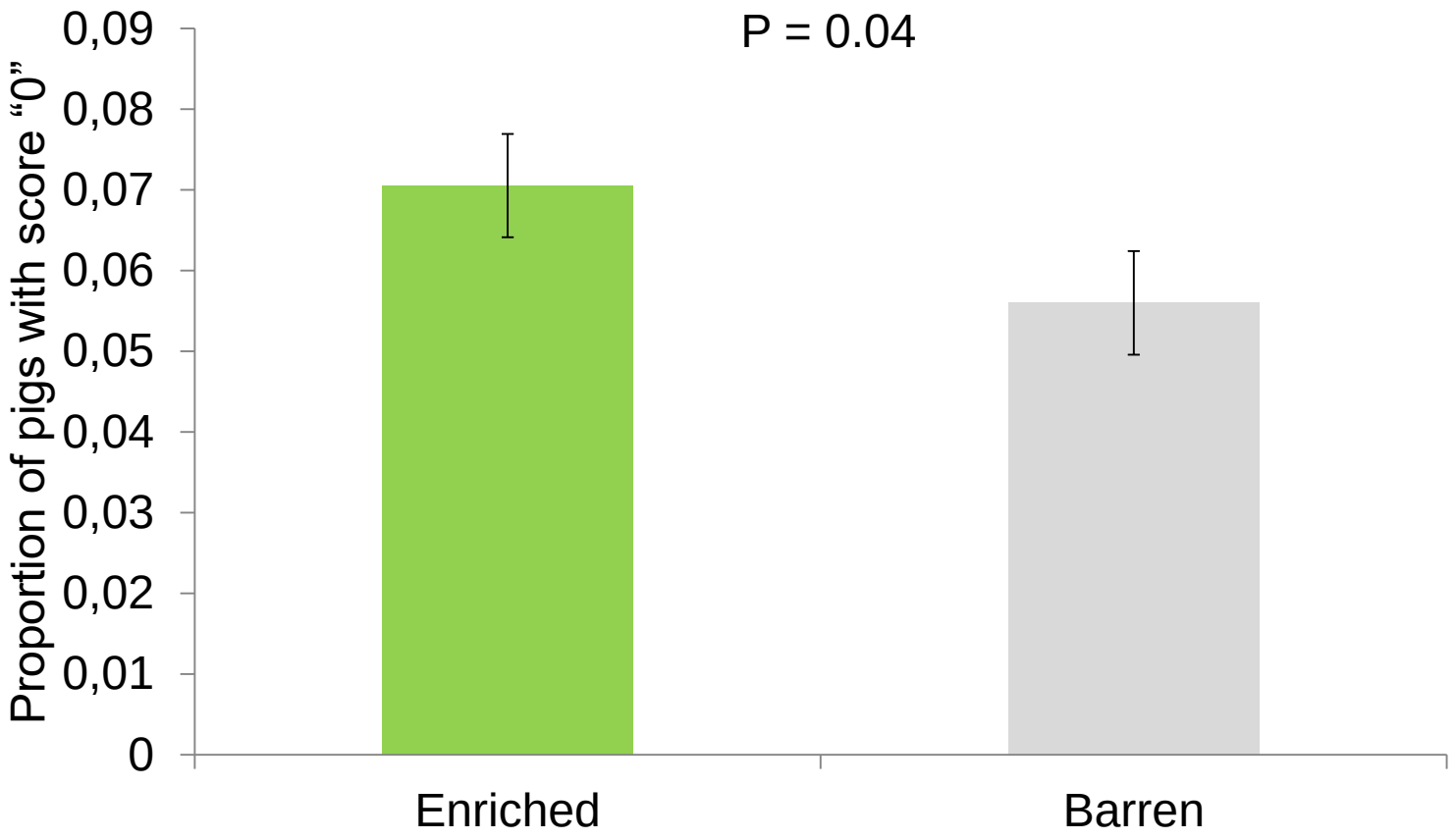
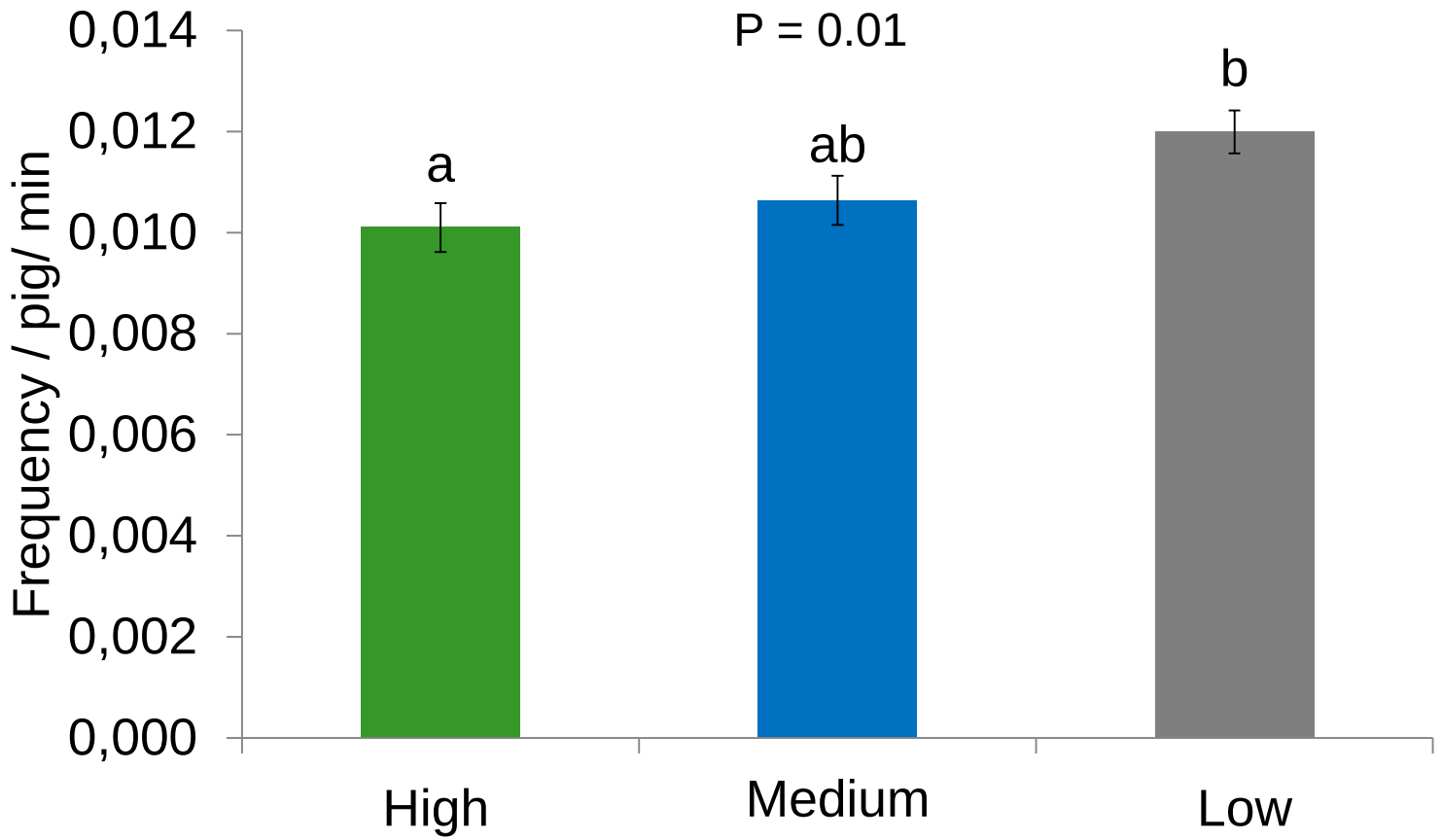
RESULTS

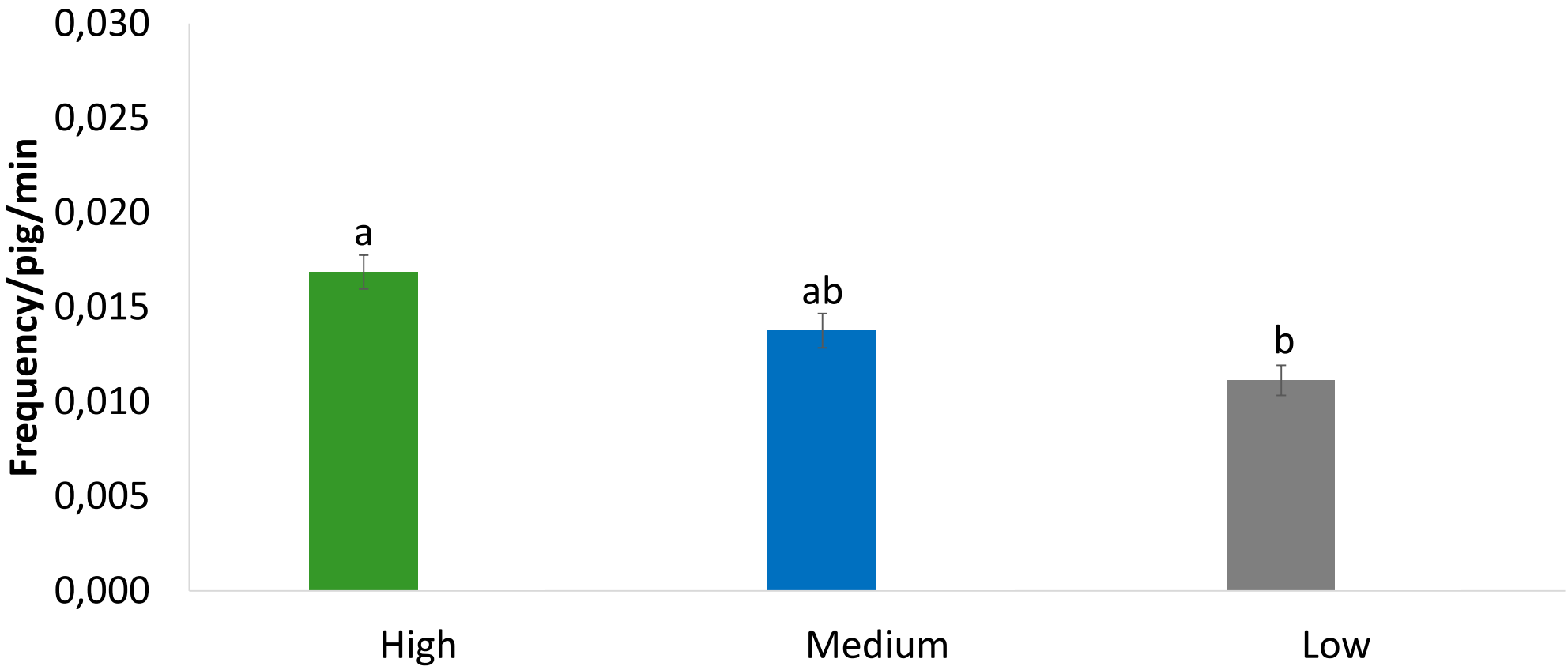
Pre-weaning: overall ear lesion



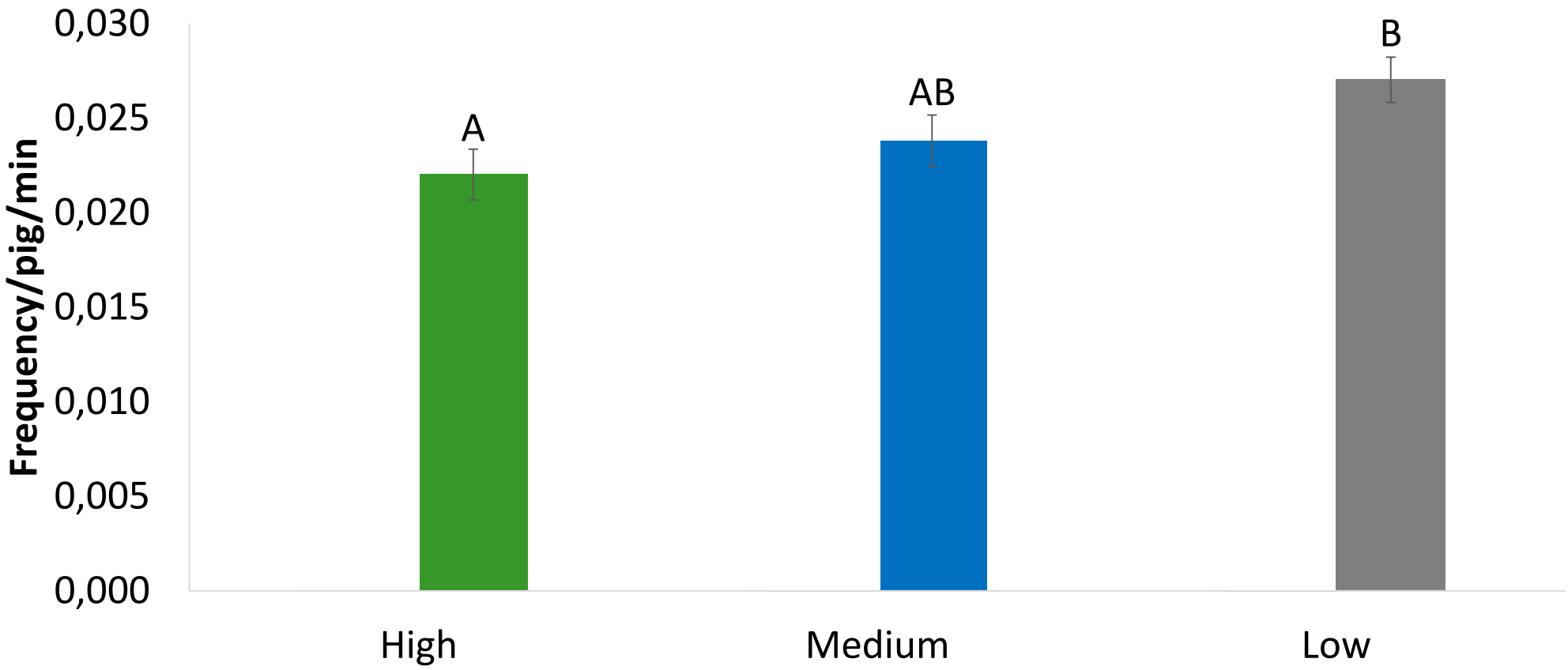
Post-weaning: overall harmful behaviours



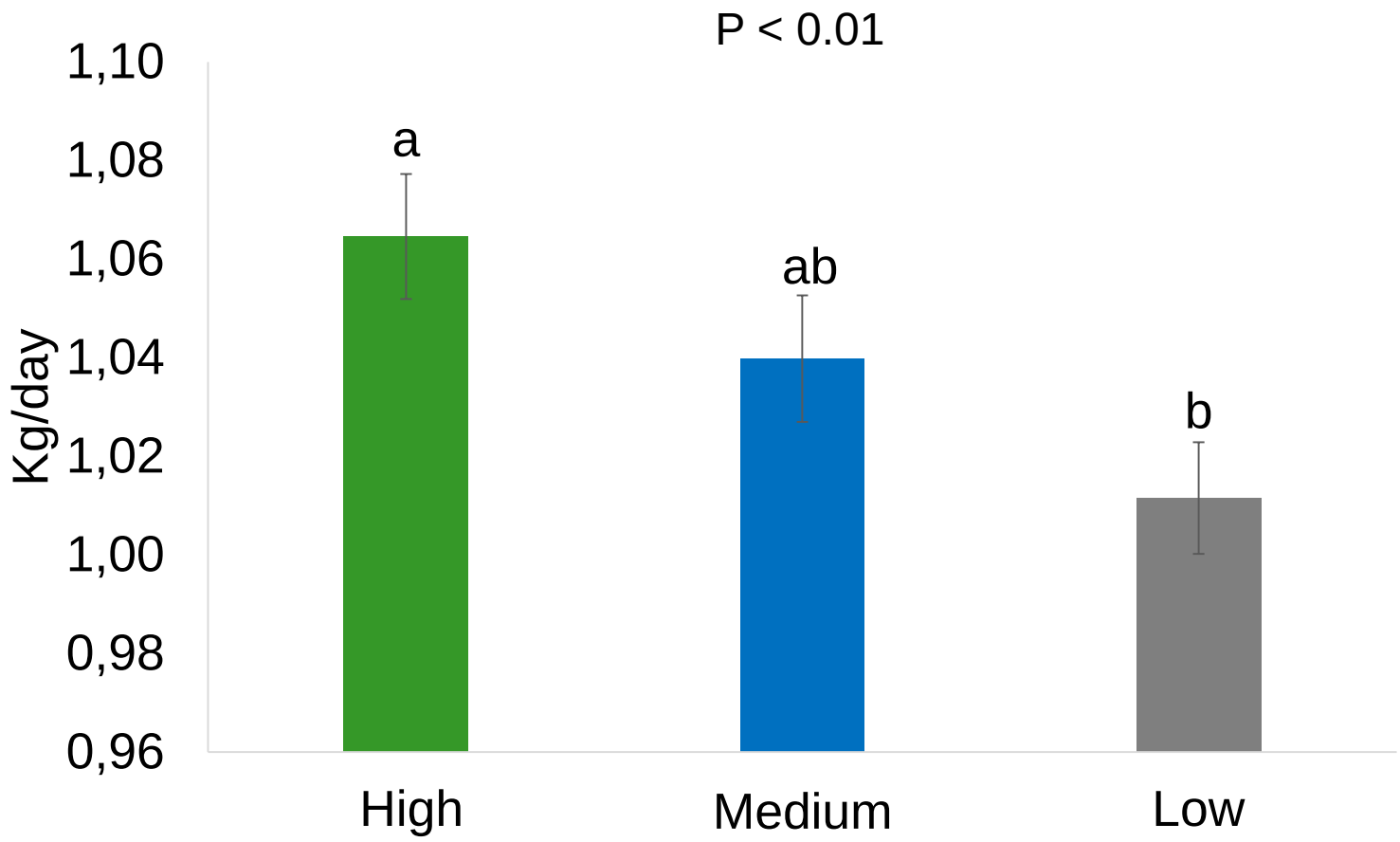
Interaction with grass – weaner



Interaction with other items – weaner



Average daily gain: finisher



Cost comparison between 2 studies

	Undocked enriched	Docked barren
Weaning weight (kg)	7.09	7.00
Transferring weight (kg)	36.94	32.76
Slaughter weight (kg)	110.94	103.4
Average daily feed intake – weaner (kg)	1.06	0.89
Average daily feed intake – finisher (kg)	2.34	2.39
No. weeks taken to slaughter	20.85	20.14
Kill out percentage (%)	74.51	73.60
Enrichment cost (€/pig/production cycle)	1.93	0.10
Net margin / pig (€)	9.25	4.88

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Conclusion

- Pre-weaning enrichment
  → marginal effect on lesion / behaviour
- High replenishment strategy
  → less harmful behaviour
  → promotes growth

Enhanced enrichment strategies reduced tail biting risks in undocked pigs on fully-slatted floor

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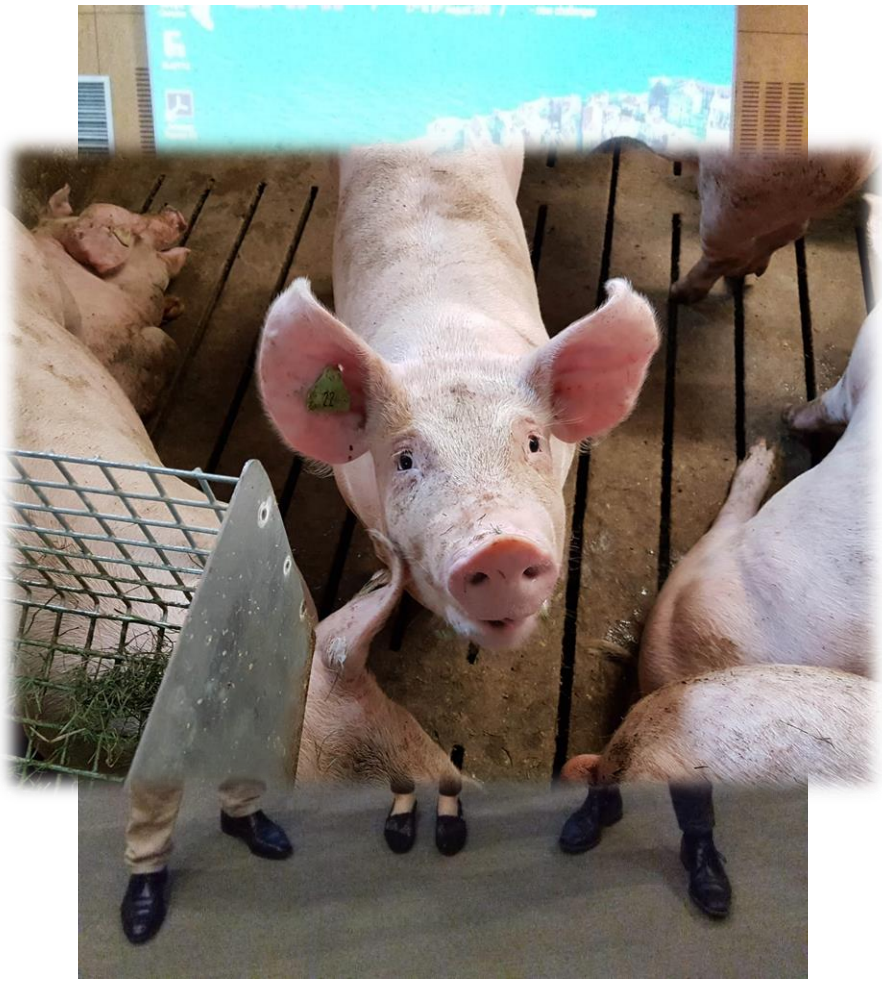
Thank you!

- Our pigs
- Teagasc Moorepark pig unit staff
- Wageningen Academic Publishers
- Walsh Fellowship Programme



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