Rearing undocked pigs on fully-slatted floors using multiple enrichment and variety: a pilot

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Background

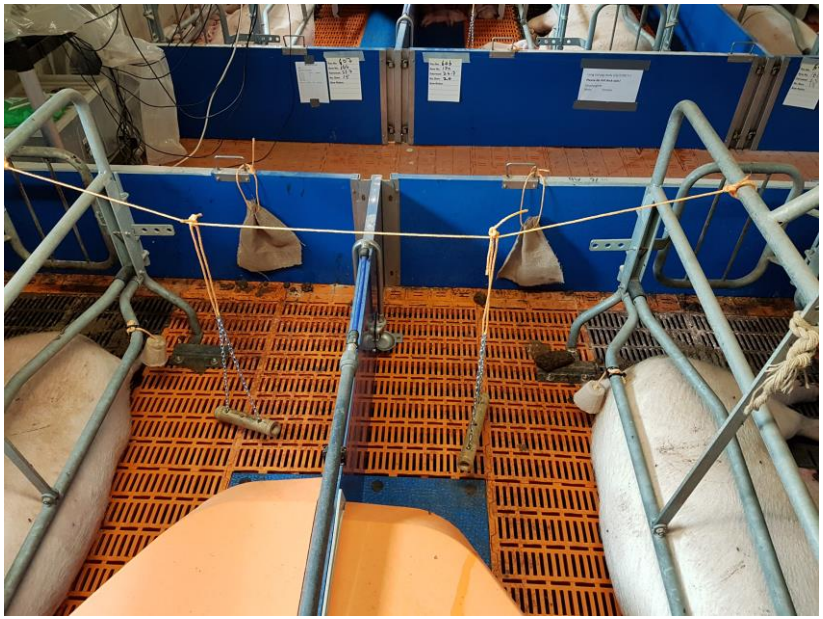
- Tail docking banned as routine practice (Council Directive 2008/120/EC)
- Higher risk of tail biting in undocked than docked pigs (Lahrmann et al., 2017)
- Loose material is effective but alternatives on slatted floors?

Aim & hypotheses

- Is it possible to manage tail biting in undocked pigs with fully-slatted floor compatible enrichment?
  - Yes, tail biting risk will be low with mild tail lesions
- Does enrichment variety make a difference?
  - Yes, better tail lesion scores when pigs have more variety of enrichment

Animals

- 96 pigs (12 pigs/pen), 8 pens
- Farrow to finish



8 Enrichment Categories

	Properties (Van De Weerd et al., 2003)					
Category	Rootable	Durable	Edible	Presentation	Texture	Location
1. Easyfix	Y	Deform	Chew	Move	Soft	Floor
2. Root toy – floor	Y	Deform	Chew	Move	Soft	Floor
3. Wood – floor	Y	Destruct	Ingest	Attach	Hard	Floor
4. Wood – hang	N	Destruct	Ingest	Suspend	Hard	Eye
5. Rack (loose materials)	N	Renew	Ingest	Attach	Loose	Eye
6. Fabric	N	Destruct	Chew	Suspend	Soft	Eye
7. Chewtoy – hang	N	Deform	Chew	Suspend	Soft	Eye
8. Bucket (loose materials)	N	Renew	Ingest	Suspend	Loose	Eye

8 Enrichment Categories x 4 items

	Properties (Van De Weerd et al., 2003)					
Category	Rootable			sentation	Texture	Location
1. Easyfix				Move	Soft	Floor
2. Root toy – floor				Move	Soft	Floor
3. Wood – holder				Attach	Hard	Floor
4. Wood – hang				uspend	Hard	Eye
5. Rack (loose materials)				Attach	Loose	Eye
6. Fabric				uspend	Soft	Eye
7. Chewtoy – hang				uspend	Soft	Eye
8. Bucket (loose mat				uspend	Loose	Eye

4 Combinations

- 1 item per category in each combination

→ 8 items/combination

	A	B	C	D
1	Easyfix	Easyfix	Easyfix	Easyfix
2	Brush	Dogtoy	Rubberboot	Easyfix
3	Larch(m)	Pine	Spruce	Larch(s)
4	Pine	Bamboo	Larch	Spruce
5	Grass	Straw	Sawdust	Paper
6	Cotton	Cardboard	Coconut	Hessian
7	Tennis	Rubber	Dogtoy	Bamboo
8	Sawdust	Grass	Peat	Carrots

Treatment groups

1. Same (4 pens)
   - Combination A, B, C, or D for entire rearing (weaning/finishing)
2. Switch (4 pens)
   - Every 2 weeks the ‘Combination’ was changed

Week	Same 1	Same 2	Same 3	Same 4	Switch 1	Switch 2	Switch 3	Switch 4
0	A	B	C	D	C	D	A	B
2	A	B	C	D	B	C	D	A
4	A	B	C	D	A	B	C	D
6	A	B	C	D	D	A	B	C

All combinations represented equally in both ‘Same’ and ‘Switch’

Measurements

- Enrichment measures
  - Replenish twice/day
  - Loose materials – weight
- Production measures
  - Individual weight (weaning/transfer/pre-slaughter)
  - Feed intake (group)

Measurements

- Pig physical measures
  - Tail/ear lesion scores, tail posture, tear staining scores every 2 week (individual)
  - Direct behaviour observation (individual):
    - » 5 min enrichment / 5 min behaviour
    - » AM/PM / day; 2 days/week

Injurious behaviours	Positive behaviours
Tail/ear manipulation	Play
Other biting	Nosing (face) (Camerlink and Turner, 2013)
Aggressive behaviours	
Mounting	
Bellynosing	

Measurements

- Pig physical measures
  - Tail/ear lesion scores, tail posture, tear staining scores every 2 week (individual)
  - Direct behaviour observation (individual):
    - » 5 min enrichment / 5 min behaviour
    - » AM/PM / day; 2 days/week
  - Video scan: enrichment (group)
    - » 1 day/week, 7am-8pm, 20 min/scan
    - » Number of pigs interacting with each enrichment

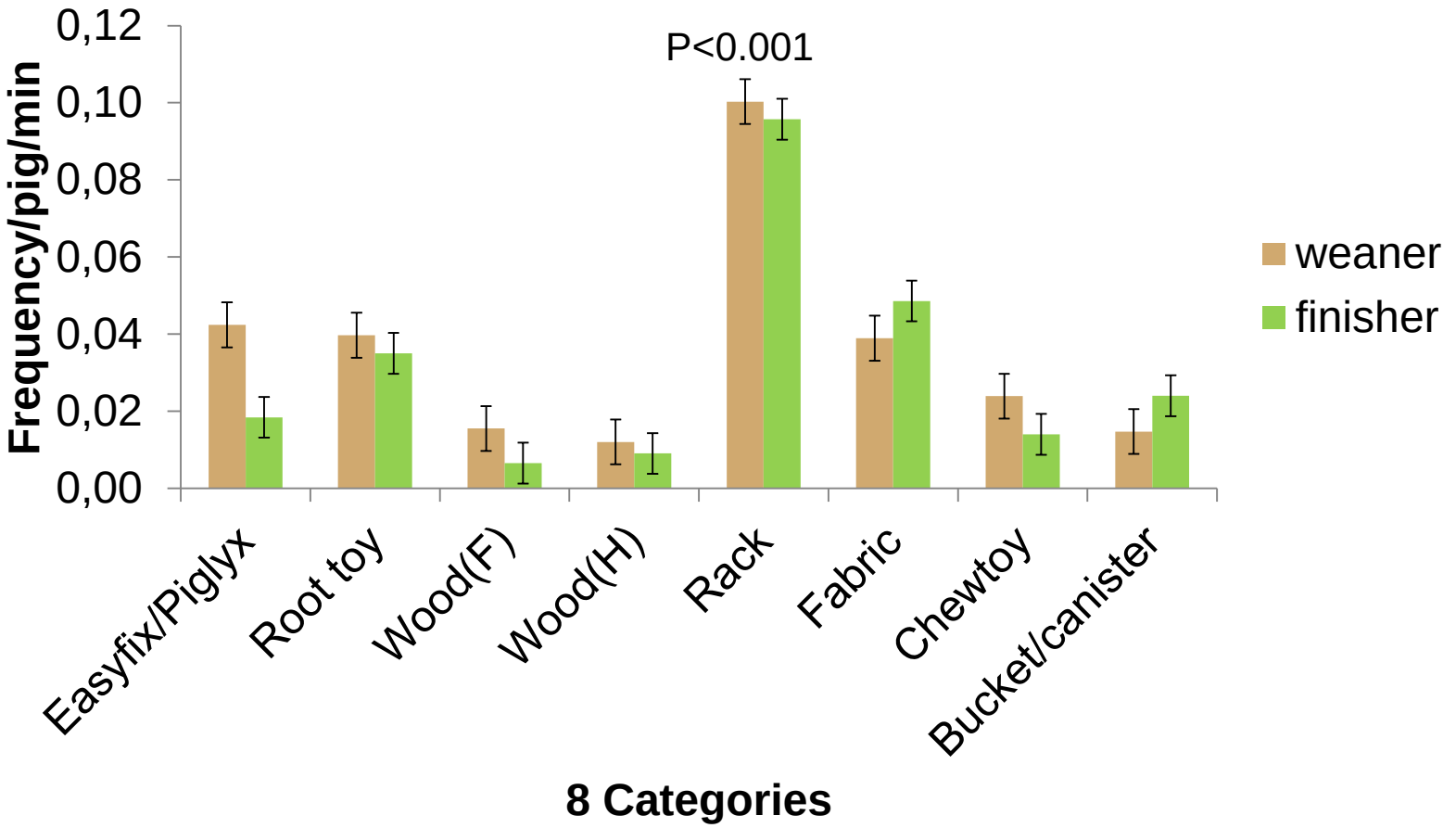
Measurements

- Slaughterhouse inspection (individual)
  - Tail lesion scores
  - Lung/heart/liver scores
  - Carcass weight

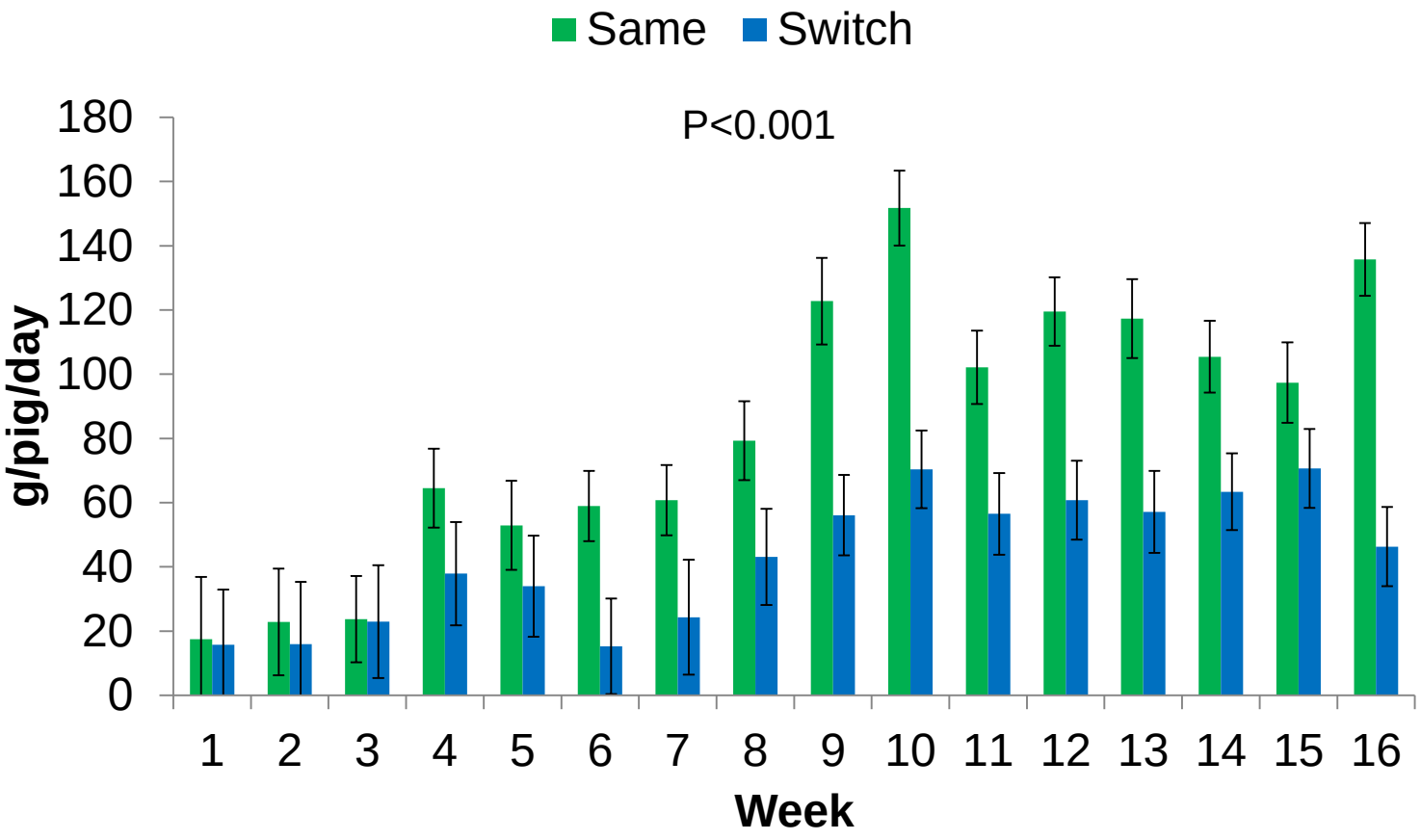
Statistical analysis

- SAS 9.4, PROC MIXED
- Fixed effects: treatment, week(stage), combination(stage); sex
- Repeated effect: week or day; AM/PM

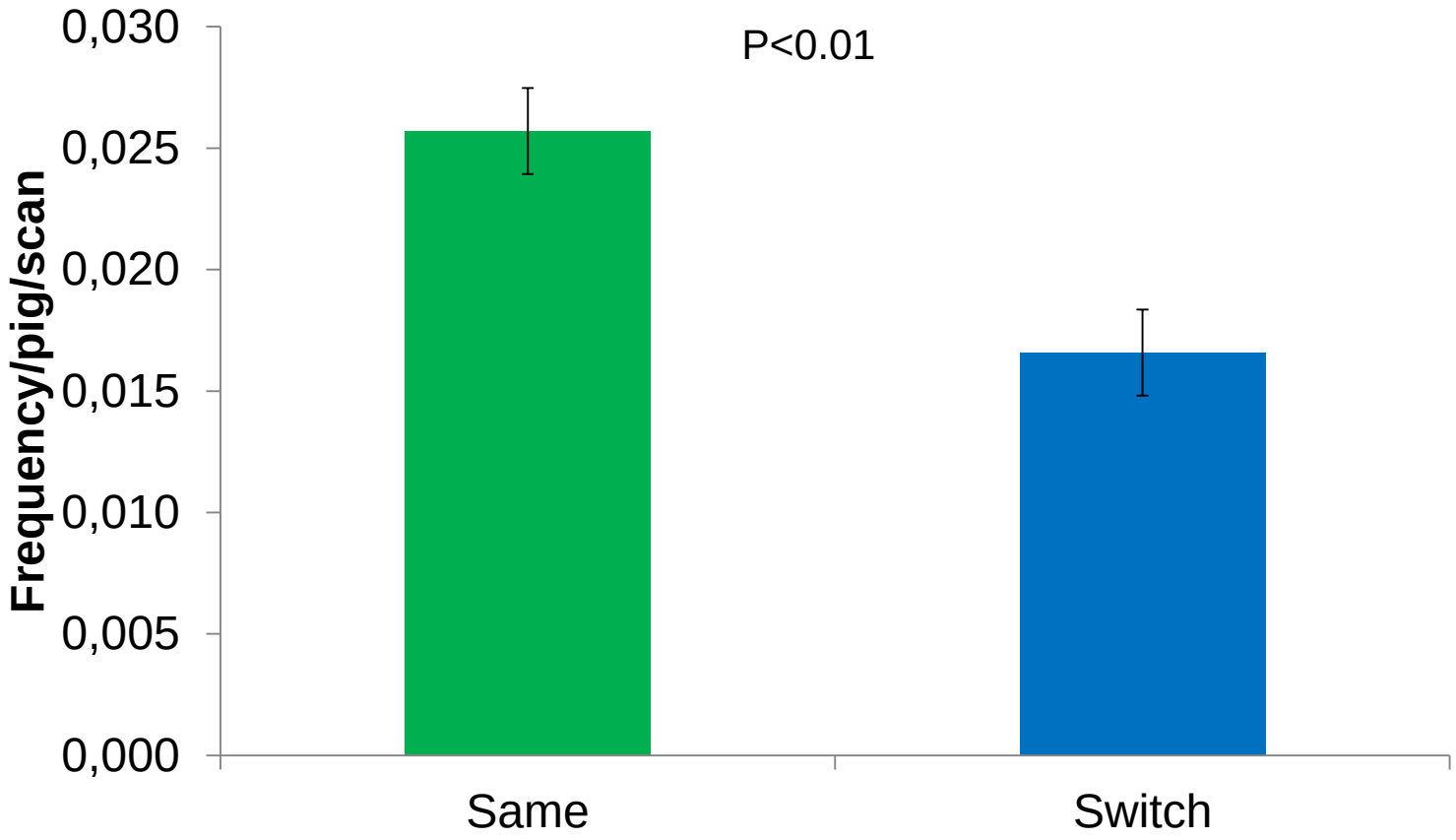
Interaction with different categories by direct observation



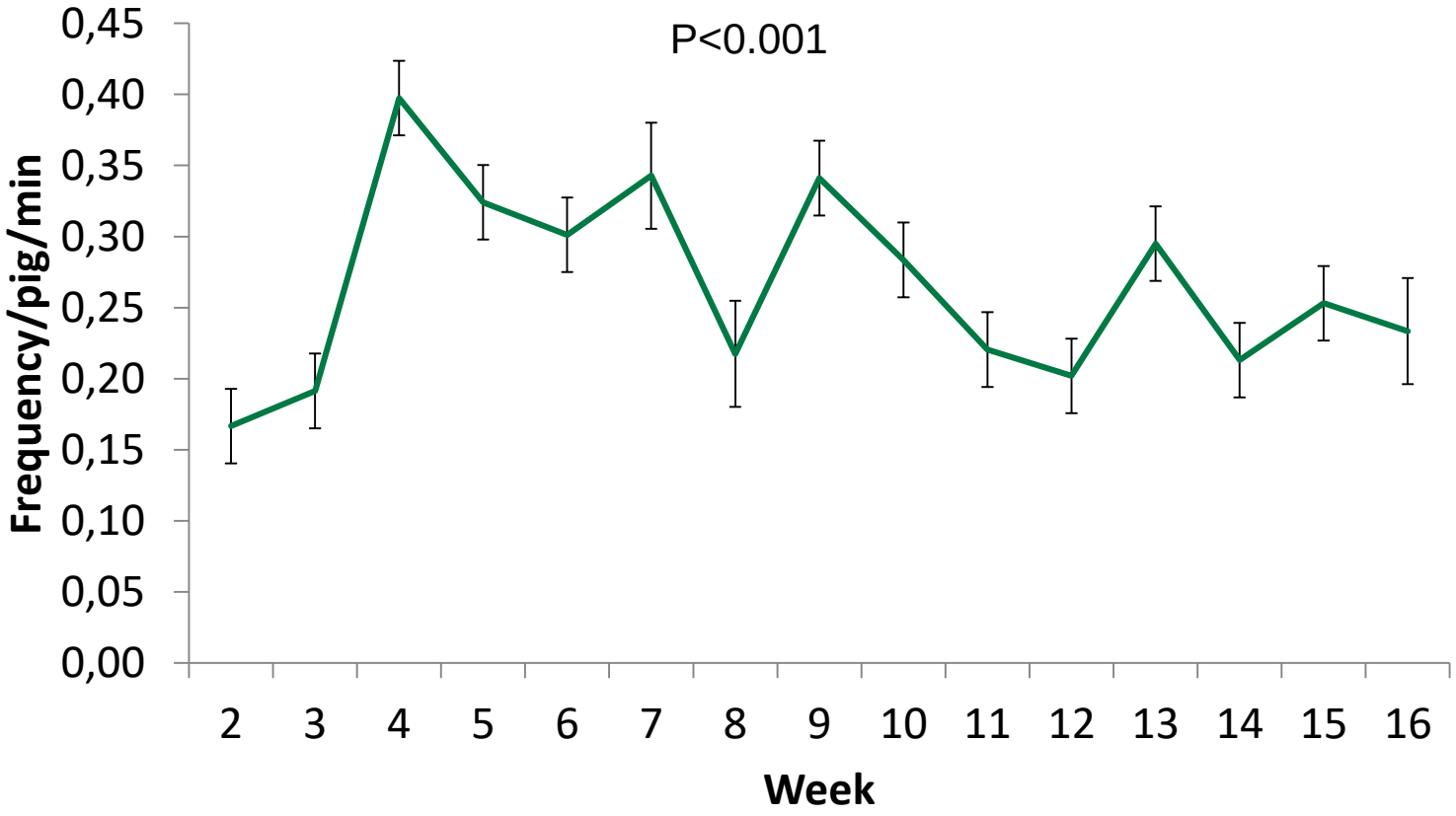
Loose materials (rack) consumed



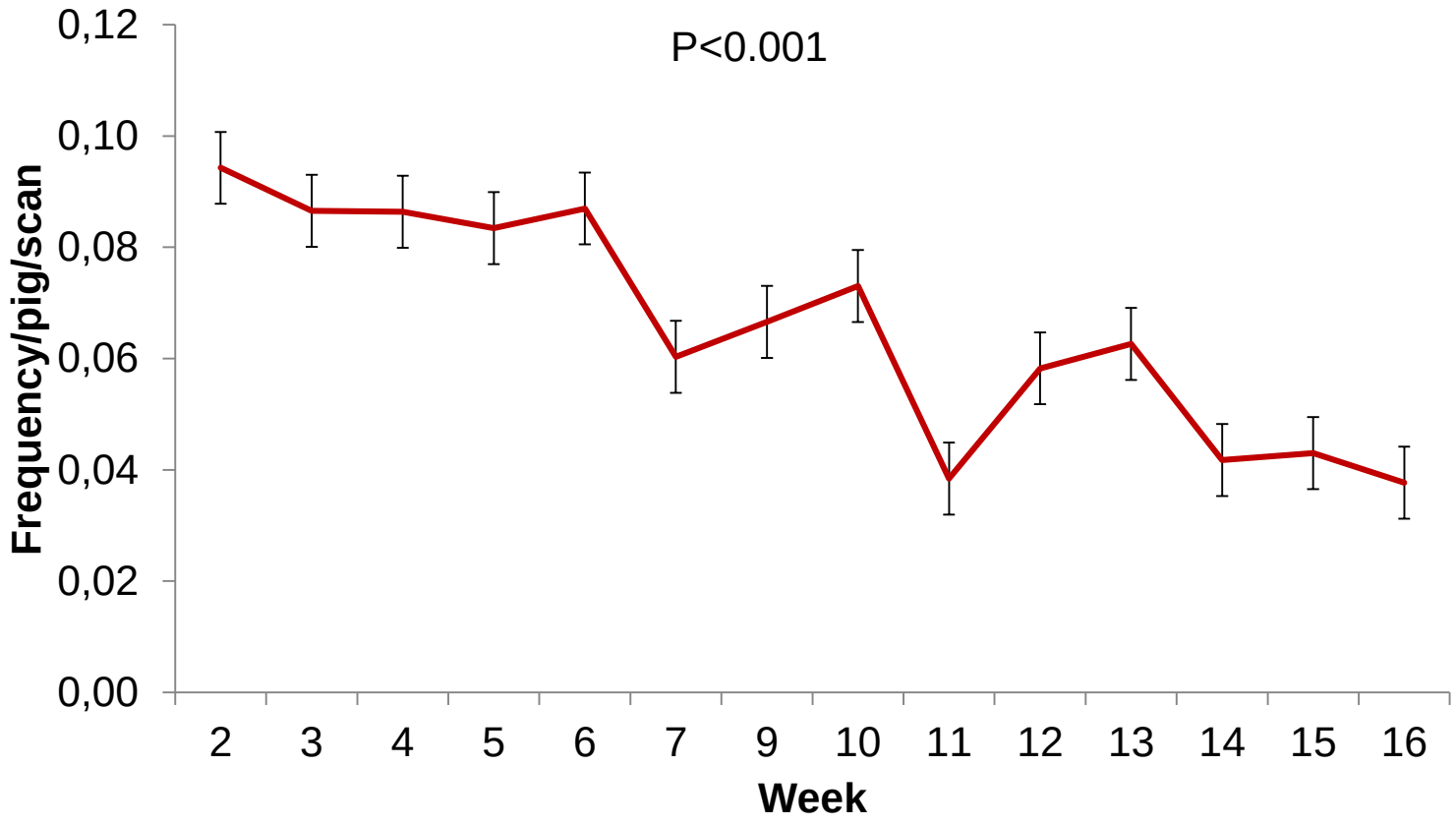
Overall interaction with loose material (rack) by video



Overall Interaction with all enrichment by direct observation

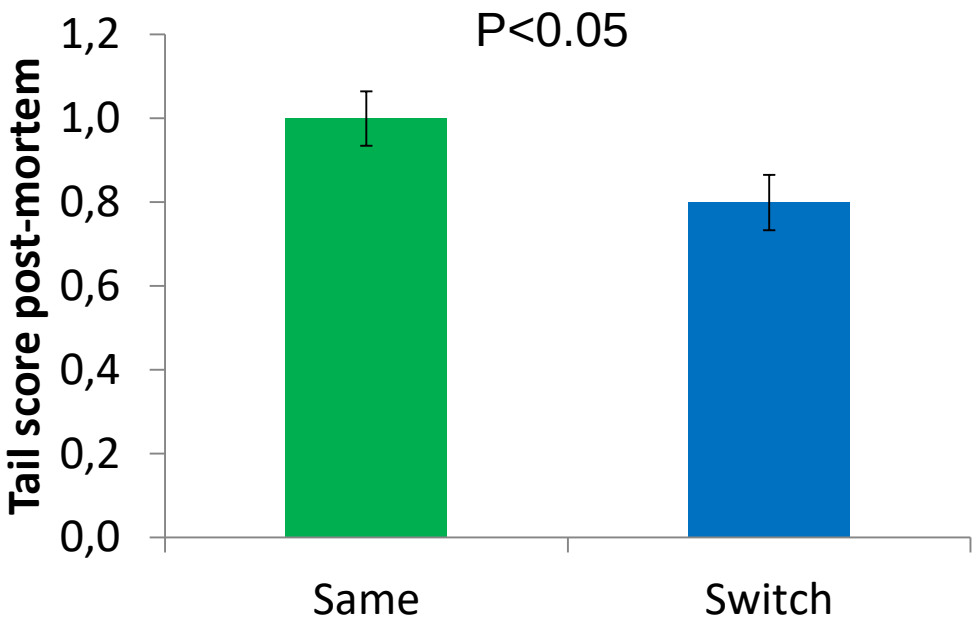


Overall Interaction with all enrichment by video scanning

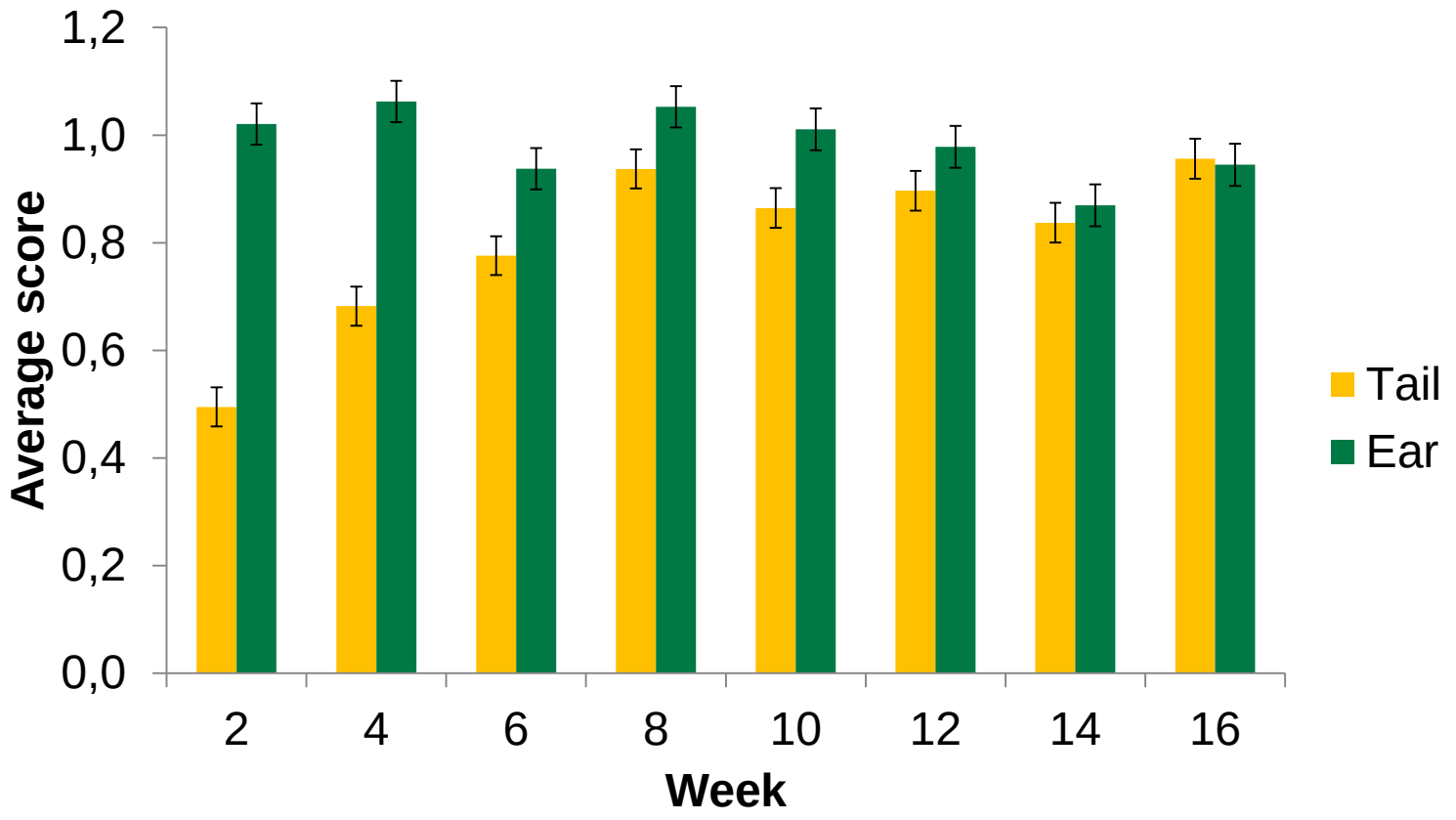


Physical measures

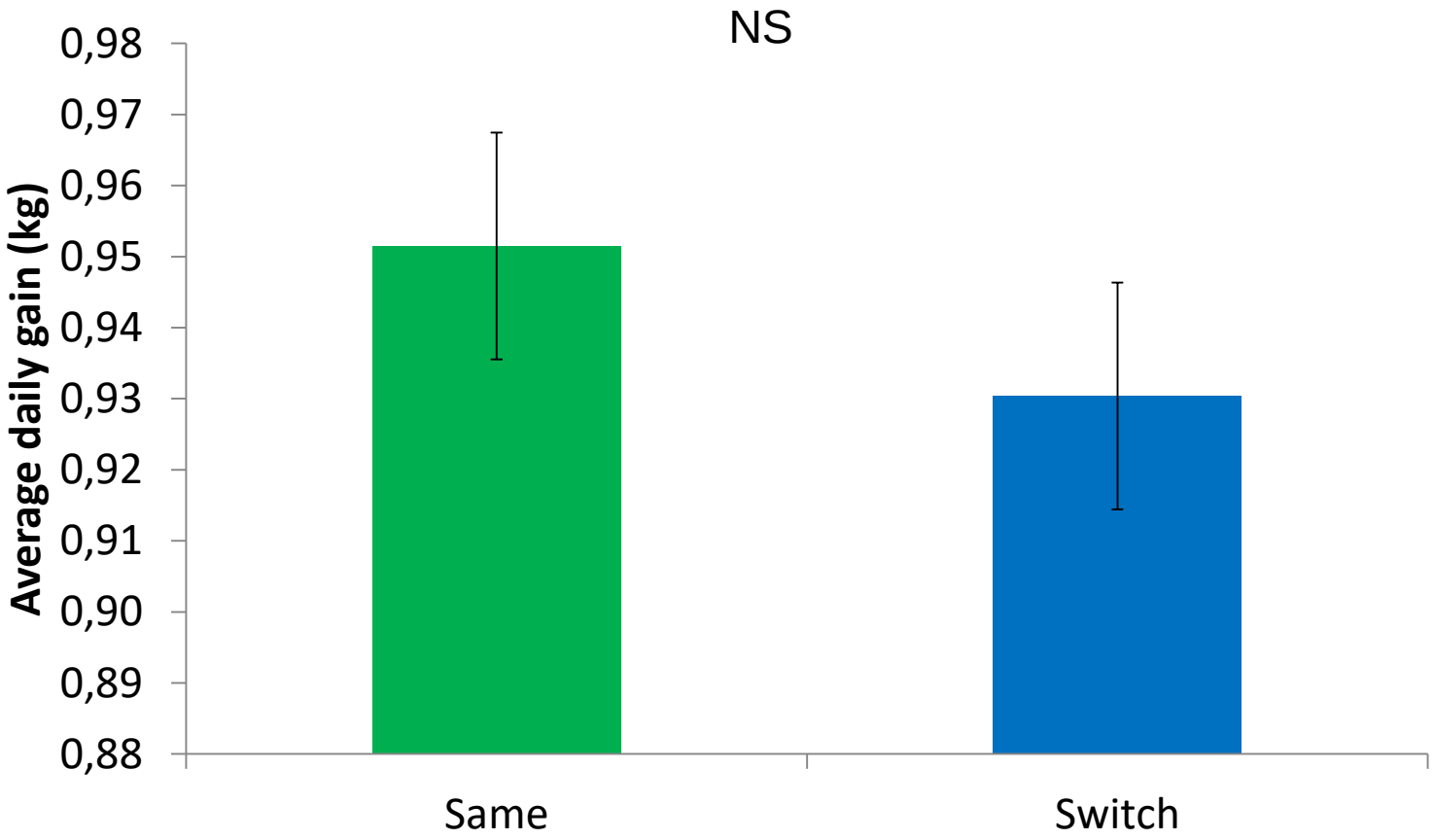
- Lesion
  - Tail lesion: Same > Switch (p=0.07 live; 0.84±0.03 v's 0.77±0.03)



Individual lesion score



Growth



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Production measures

- Feed conversion ratio no difference between same/switch groups
- 20 week reached slaughter weight (111.7± 1.1 kg)
- No visceral damage related to enrichment use

Summary

- Tail biting occurred but manageable
- Tail lesion: Same > Switch

- More interaction with loose materials
- Overall interaction with enrichment stay consistent over time

Thank you!

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