Effects of different nutritional strategies on the prevalence of tail biting in weaned piglet with intact tails

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Introduction

Study context

Tail biting

- Behavioral problem in pig farming
- Economic losses
- Degradation of animal health

Tail docking

- Cutting the piglets' tails
- Does not always prevent tail biting

Regulation

- Directive 2008/120/CE
- Routine tail docking prohibited
- Derogations

Project

- Improved animal welfare → Formal ban on tail docking

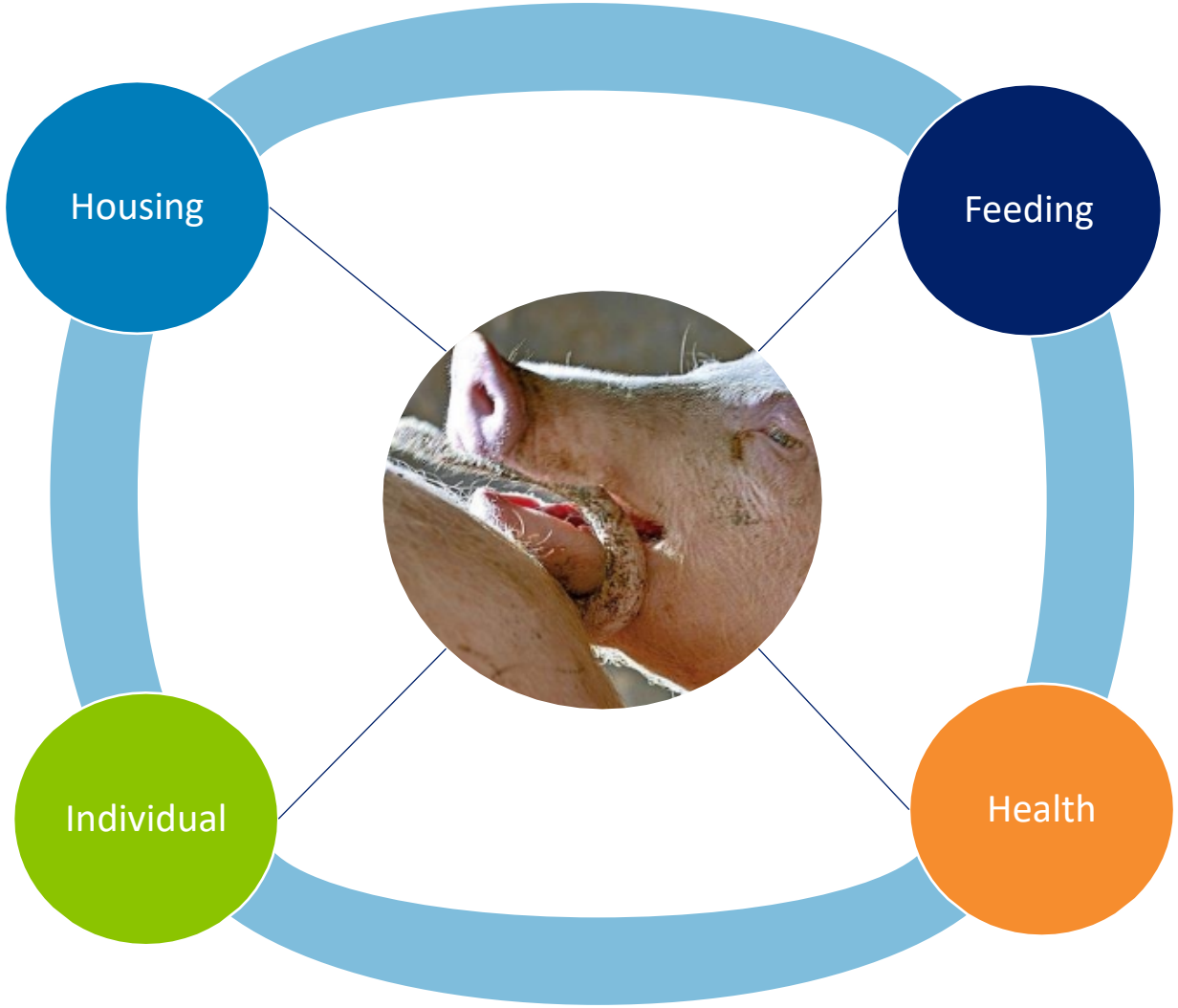
Solution?

- Urgency to find solutions to avoid tail biting

Sources image : terra.bzh / biomin.net

Tail biting: risk factors

- High density
- Absence of straw
- Slatted floor over the entire surface of the pen
- Bad atmosphere
- No enrichment or uninteresting



- Proteins
- Amino acids → tryptophan
- Minerals → sodium
- Competition to the feeder

- Genetics
- Sex
- Age
- Husbandry practices

- Cause and consequence of health problems
- Stress
- Change in nutritional needs

→ How dietary manipulations and feed additives can reduce the occurrence of tail biting?

Material & Methods

Experimental design

- ✓ 1 treatment = 1 room
- ✓ 35 or 36 piglets per room → same density (0,306 m²/piglet)
- ✓ Identical conditions (ventilation, floor…)
  - Close to rearing conditions
- ✓ Gender parity in room
- ✓ Intact tails

Phase 1 (d21-d42)	Phase 2 (d42-d69): **No more feed additives**
Control **(CON)**	Control **(CON)**
Control + Feed additives **(ADD)**	Control **(CON)** + Magnesium oxide, Valerian, phytogenic flora extracts, Lavender flavor
Optimized nutrients + Feed additives **(ADD+NUT)**	Optimized nutrients: ↗ Protein and tryptophan, ↗ Sodium, ↗ Fibres, ↘ NE, ↘ Glycemic index (RAG)





+ Enrichment with a lick block if more than 10% of the pigs have tail lesions (score ≥ 1)

d21 — d42 — d69

Evaluation of tail biting and performance

- **Tail scoring**
  - Individual and daily tail scoring

Source : IFIP

Exclusion of the piglet from the trial if:

→ Score 2 for 3 consecutive days
→ Score 3

  - Lick block if more than 10% of the pigs have tail lesions (score ≥ 1)

- **Performance**
  - Weight and ADG individually
  - ADFI and FCR: only one data per treatment → no statistical analysis

- **Statistical analysis**
  - Comparison of **tail score numbers** per treatment with a **Chi²** test (Fisher test when numbers were too low)
  - Piglet weight and ADG analyzed by ANOVA:
    - Y = Wd21 + TRT
    - Tukey's test if $P < 0.05$

Results

Post-weaning

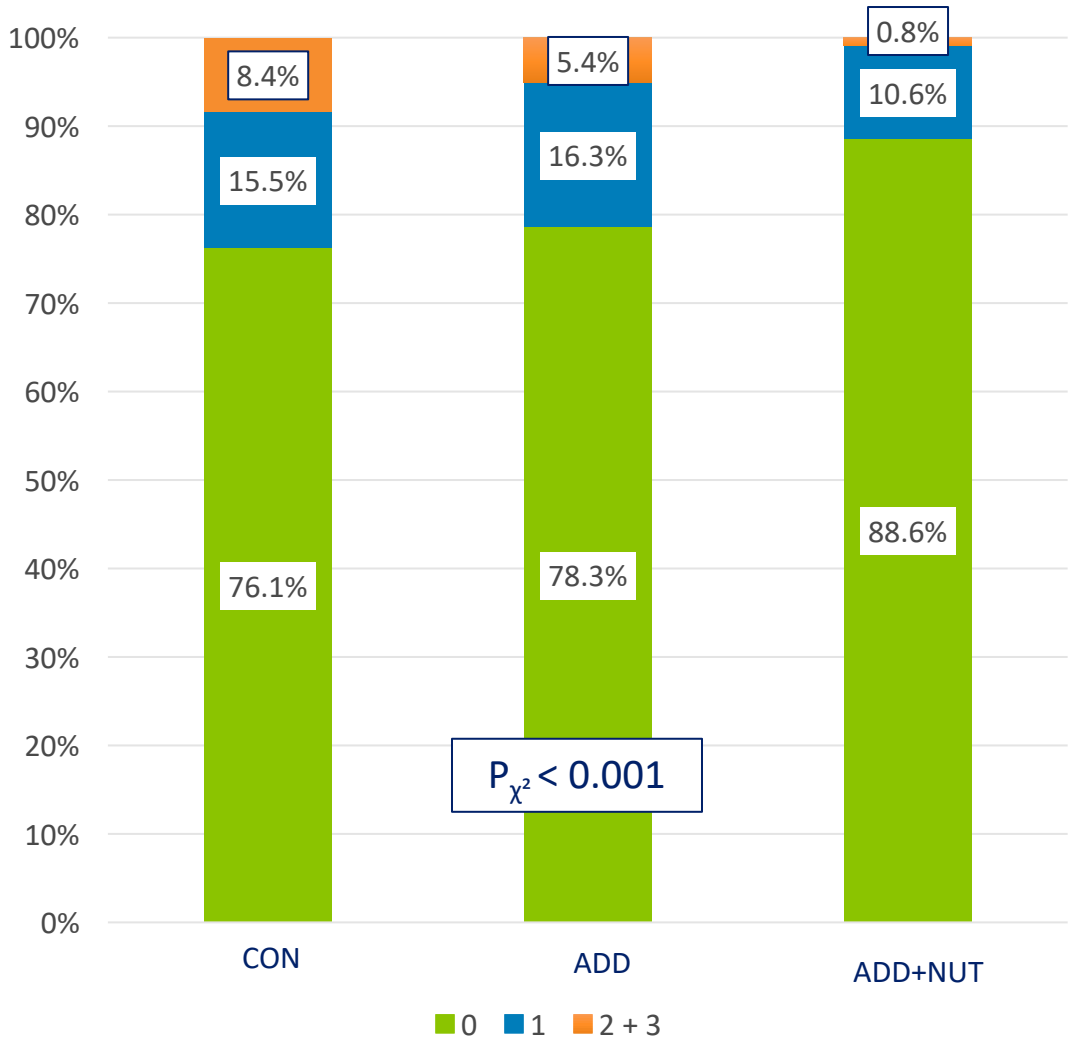
Tail scoring (overall)

- Treatment effect
  - ADD *vs* CON: - 36% severe lesions
  - ADD+NUT *vs* CON: - 90% severe lesions

- Proportion of severe lesions slightly underestimated due to the exclusion of some piglets

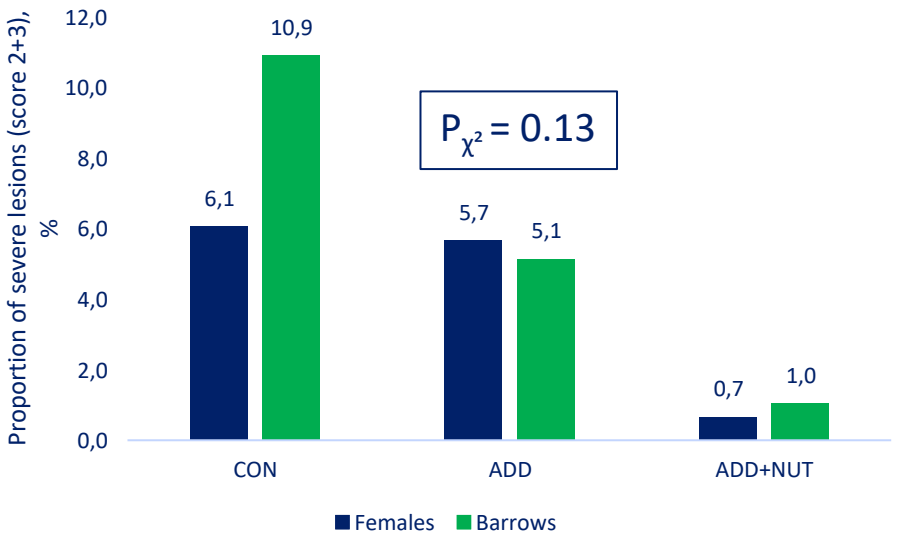
	CON	ADD	ADD+NUT
Piglets at the beginning, no.	35	36	35
Dead, no.	1 (2.9%)	0	0
Excluded due to severe lesions, no.	**8 (22.9%)**	**3 (8.3%)**	**0**

Distribution of tail scores according to treatment



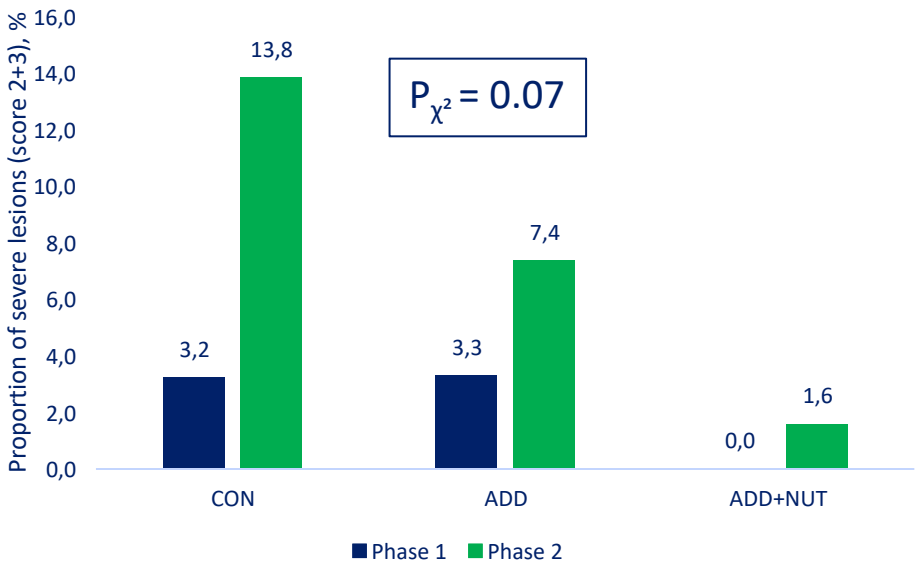
Tail scoring (in details)

- Sex effect



- Generally, males are more bitten than females
  - Not statistically confirmed here

- Feed change

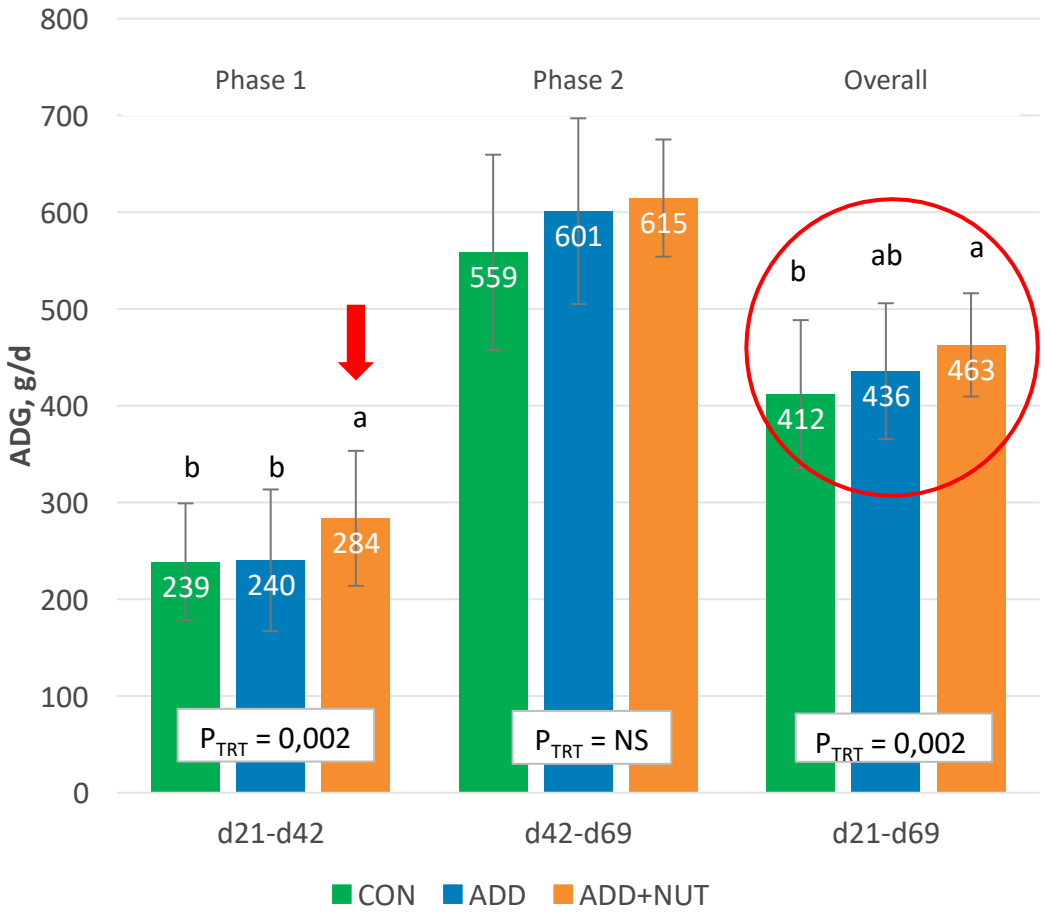


- Proportion of severe lesions tended to increase after the change of feed (no feed transition) → **Importance of the transition period**

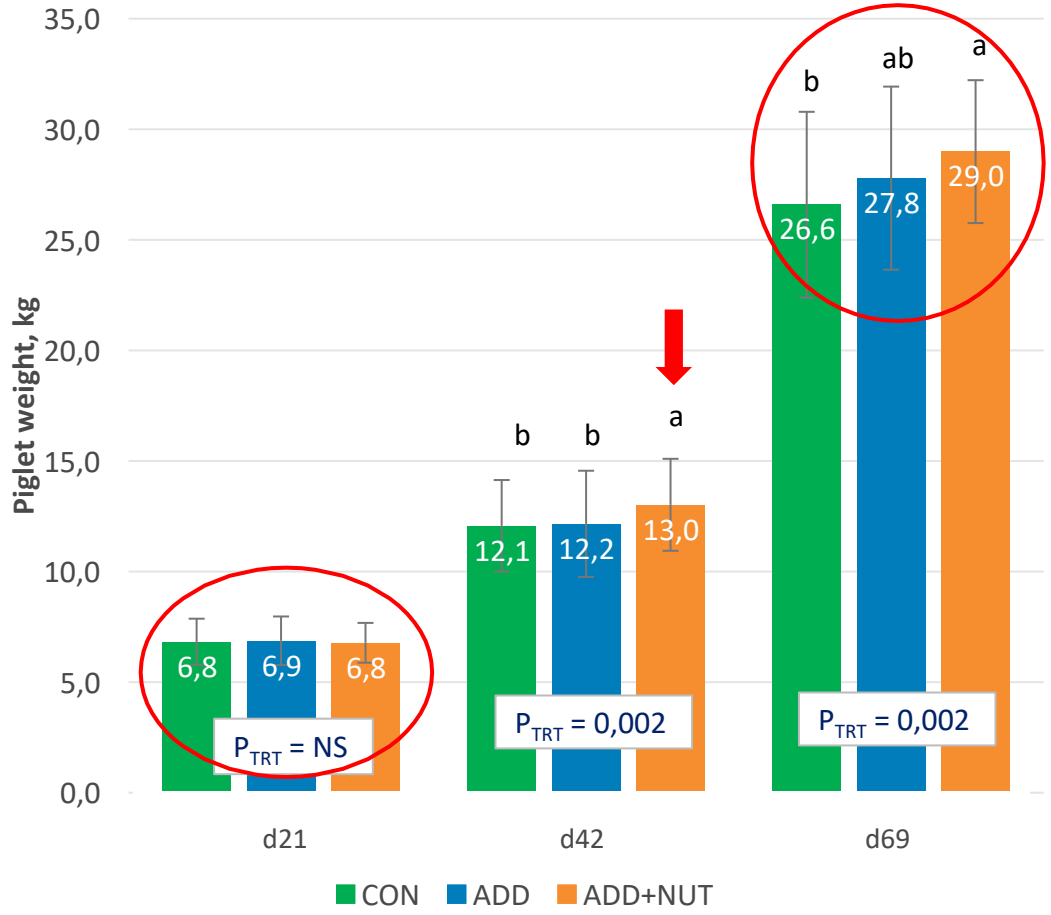
Growth performance

Statistic model: *Y = Wd21 + TRT*

Piglet growth rate



Evolution of piglet weight

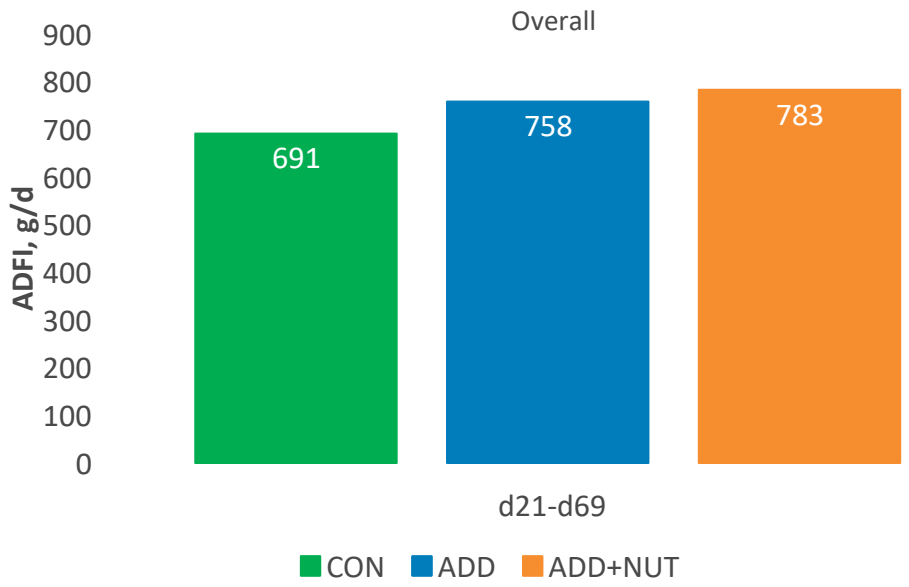


Treatment the most efficient followed by treatment and finally by treatment

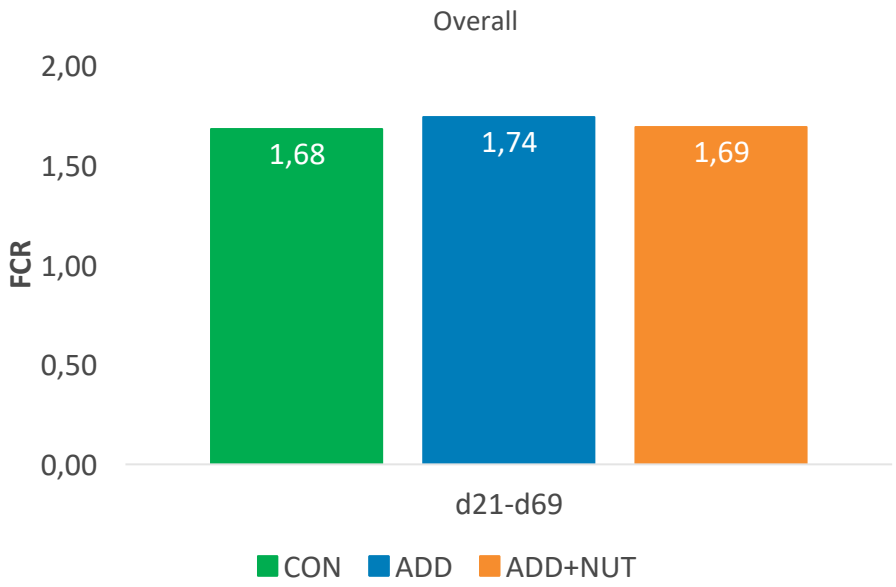
Feed intake

No statistical analysis

Piglets feed intake



Feed conversion ratio



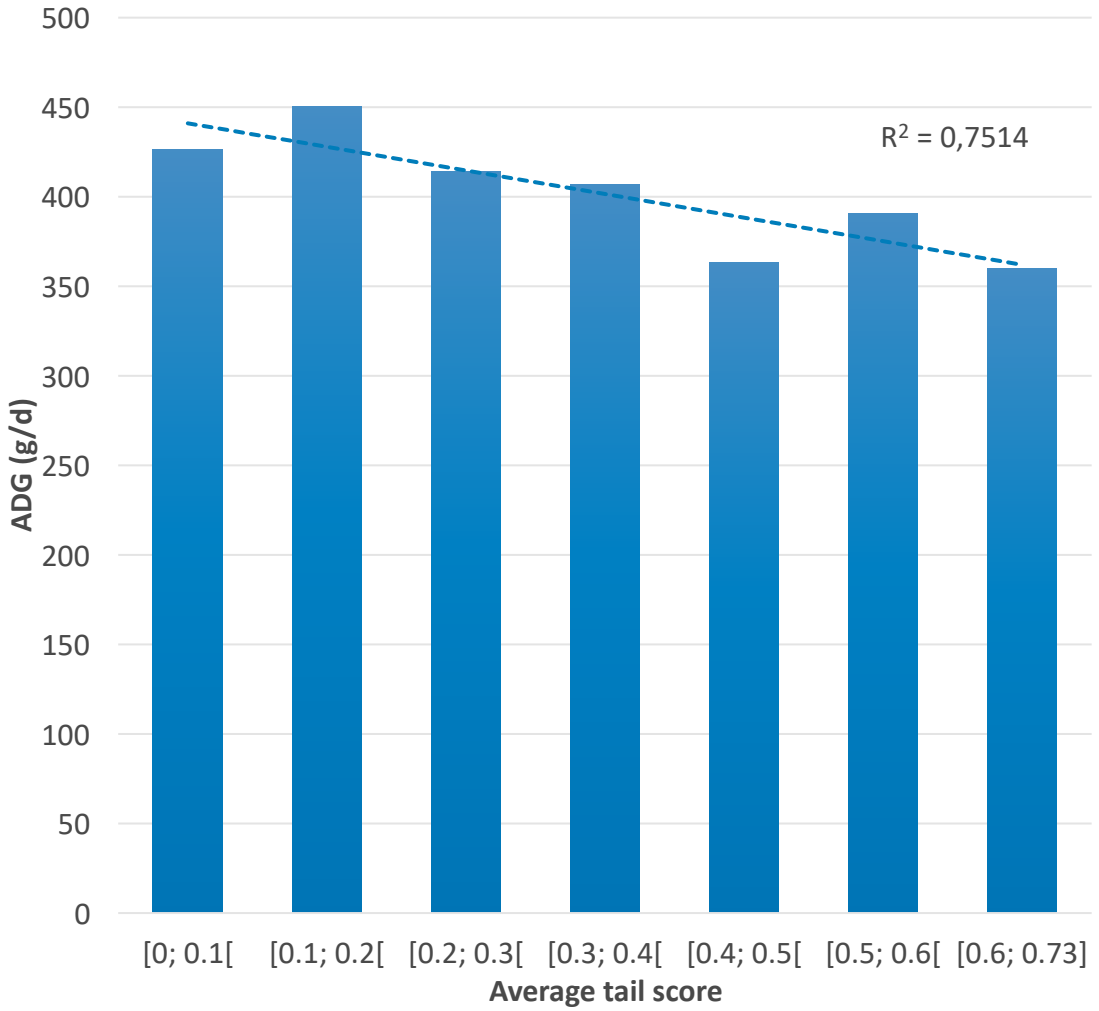
Consumption of lick block:

- : 2 blocks distributed → ADFI block: 6.7 g/d
- : 3 blocks distributed → ADFI block: 11.7 g/d

Destruction of the blocks by piglets!

Relationship between tail score and growth performance

Growth performance by average tail score



- Tail biting impacts growth performance
- Loss of data for victim pigs due to exclusions
- What about biting pigs?

Conclusion and perspectives

Conclusion and perspectives

	CON	ADD	ADD+NUT
Tail biting	++	+	-
Growth performance	-	+	++
Limit scoring, death	++	+	-
Treatment efficiency	**-**	**+**	**++**

- Feed additives reduced the occurrence of severe tail lesions
- Better efficiency with **optimized** feed (importance of nutritional solutions)
- Need to manage the feed transition between Phase 1 and Phase 2
  - Feed additives required all over the post weaning phase?
- Need to **respect** other recommendations (e.g., density, atmosphere, etc.)

Source : bioactualites.ch

Thank You