

Tail biting

Feedback & discussion

Regional meeting North
03. December 2020

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1. Risk factors

- Multifactorial problem
- The risks for tail biting are listed in COM REC 336
 - Enrichment materials
 - Cleanliness
 - Thermal comfort & air quality
 - Health status
 - Competition
 - Diet

Check out the EURCAW-Pigs website for information on the risk factors (incl. indicator factsheets)



Tail biting <

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[Transport: Climate & space](#)



Dossier: Tail biting and tail docking

This dossier aims to help Competent Authorities and other stakeholders with issues related to tail docking and tail biting of pigs.

Routine tail docking, although banned in the EU, is persistent in conventional pig farming as it reduces the risk of tail biting. Tail biting is an abnormal behaviour of pigs related to suboptimal housing and/or management involving stress and reduced welfare. It is associated with an inability to perform species-specific behaviours related to exploration (enrichment) and searching for food (rooting).

This is a dossier on welfare of pigs on the farm, regarding Directives 98/58/EC and 2008/120/EC.



Search the Knowledge base



How to prevent tail biting? Six key factors



Adequate enrichment



Comfortable climate



Good health status



Limit competition



Balanced diet



Pen structure/cleanliness

1. Risk factors

Enrichment material

- Suitable enrichment material pre-weaning
- Organic material, esp. straw
- Availability

Access to water

- Availability, cleanliness, functioning

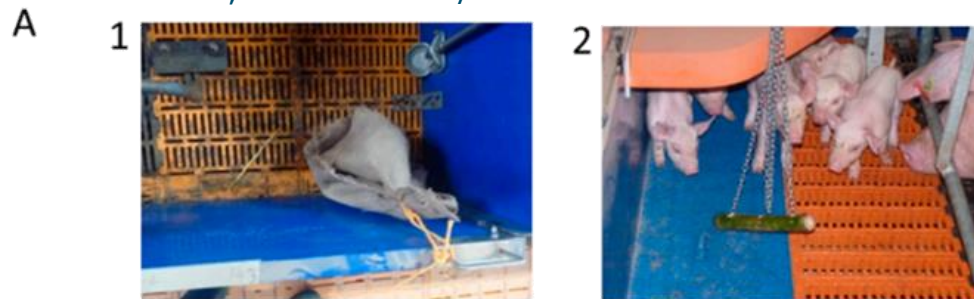


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1. Risk factors: Enrichment in the farrowing unit

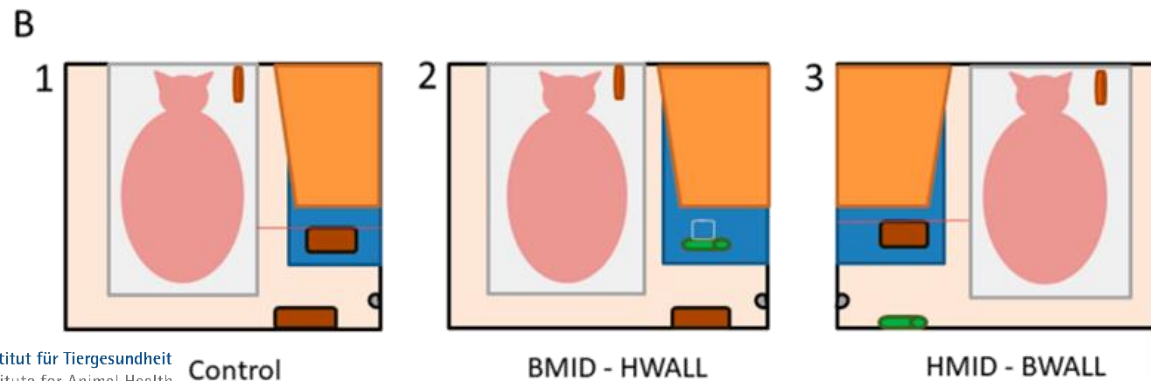
Schmitt O, Poidevin A, O'Driscoll K (2020)

Does diversity matter? Behavioural differences between piglets given divers or similar forms of enrichment pre-weaning. *Animals* 10:1837, doi: 10.3390/ani10101837



Hessian

Bamboo



1. Risk factors: Enrichment in the farrowing unit

Schmitt et al. 2020

Table 2. Mean \pm S.E. number of behaviours performed during the 3-min observations pre-weaning (D07, D11, D14, D18 and D20) and post-weaning (D28, D32, D34, D40). The enrichment given to piglets was: two pieces of hessian fabrics (one suspended in the middle of the pen and one attached to the pen wall) for the control group; a bamboo stick suspended in the middle of the pen and a hessian bag attached to the pen wall for the BMID-HWALL group; a hessian bag suspended in the middle of the pen and a bamboo stick attached to the pen wall for the HMID-BWALL group. Different superscript letters (a, b) indicate significant differences between the treatment groups ($p < 0.05$).

	Control Treatment	Diversity Treatments		Treatment Effect (all)		Treatment Effect (Control vs. Diversity)	
		BMID-HWALL	HMID-BWALL	F-Value	p-Value	F-Value	p-Value
Pre-Weaning							
Bite	0.9 \pm 0.09	0.6 \pm 0.09	0.6 \pm 0.09	F _{2, 44.8} = 2.04	0.14	F _{1, 45.3} = 4.06	0.05
Play	2.6 \pm 0.29	2.6 \pm 0.28	2.7 \pm 0.29	F _{2, 28.4} = 0.11	0.90	F _{1, 28.4} = 0.02	0.88
Play-fight	0.9 \pm 0.09	0.7 \pm 0.09	0.7 \pm 0.09	F _{2, 30.5} = 1.39	0.26	F _{1, 30.6} = 2.47	0.13
Suckling	2.4 \pm 0.34	2.6 \pm 0.34	2.5 \pm 0.35	F _{2, 29.8} = 0.06	0.95	F _{1, 29.9} = 0.07	0.79
Udder massage	3.3 \pm 0.31	3.0 \pm 0.30	3.4 \pm 0.31	F _{2, 29.2} = 0.52	0.60	F _{1, 29.3} = 0.2	0.65
Sleep	8.4 \pm 0.27	8.1 \pm 0.27	8.5 \pm 0.27	F _{2, 30.6} = 0.55	0.58	F _{1, 30.8} = 0.16	0.69
Object interactions	1.25 \pm 0.13	1.34 \pm 0.12	1.12 \pm 0.13	F _{2, 51.1} = 0.85	0.43	F _{1, 51} = 0.01	0.92
Post-Weaning							
Bite	5.2 \pm 0.52 ^a	3.1 \pm 0.55 ^b	3.8 \pm 0.55	F _{2, 26.2} = 4.06	0.03	F _{1, 26.2} = 7.22	0.01
Play	4.8 \pm 0.62	5.7 \pm 0.64	4.6 \pm 0.63	F _{2, 28} = 1.63	0.21	F _{1, 28} = 0.49	0.49
Play-fight	1.5 \pm 0.23	1.5 \pm 0.24	1.3 \pm 0.24	F _{2, 32.8} = 0.34	0.71	F _{1, 32.9} = 0.22	0.64
Sleep	4.4 \pm 0.32	5.0 \pm 0.34	4.9 \pm 0.33	F _{2, 25.2} = 0.87	0.43	F _{1, 25.3} = 1.65	0.21
Object interactions	8.6 \pm 0.78	8.9 \pm 0.82	7.1 \pm 0.81	F _{2, 35} = 1.42	0.26	F _{1, 35.3} = 0.38	0.54

1. Risk factors: Enrichment in the farrowing unit

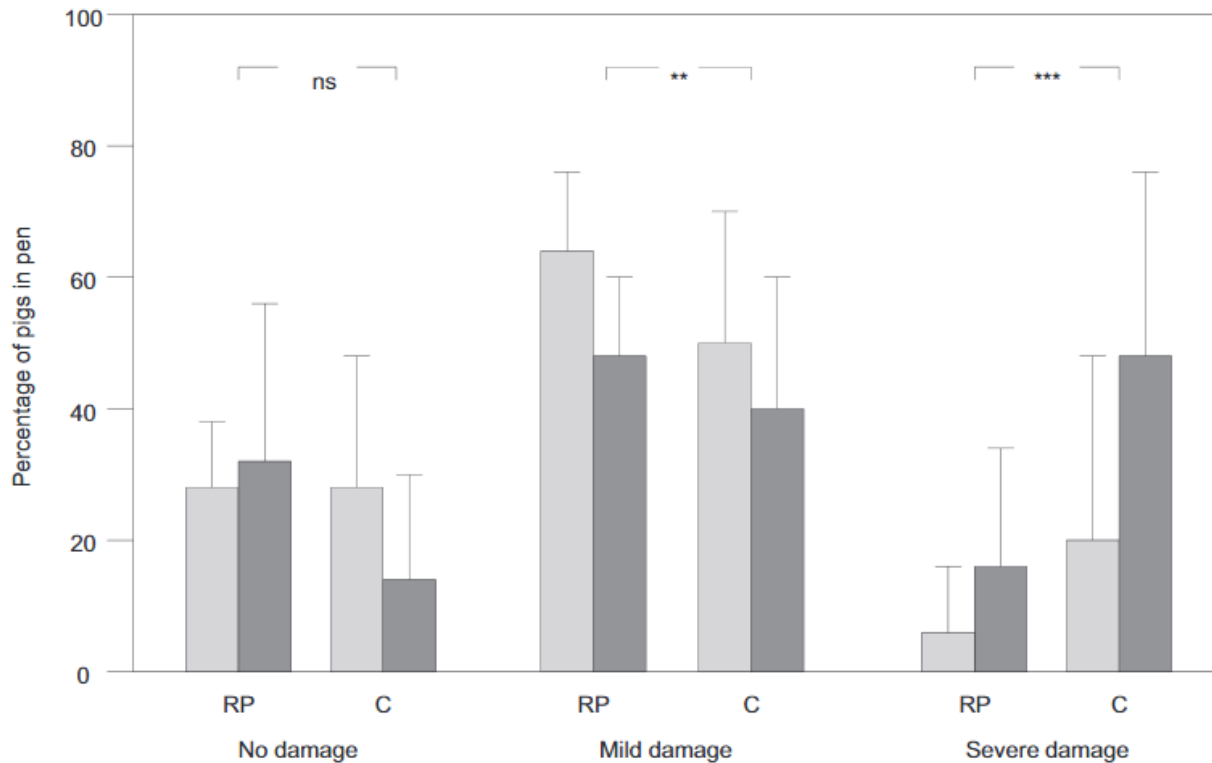
Telkänranta H, Swan K, Hirvonen H, Valros A (2014)

Chewable materials before weaning reduce tail biting in growing pigs. *Applied Animal Behaviour Science* 157, 14-22.



Fig. 1. Rope-and-paper treatment. From birth to weaning, each pen had ten pieces of sisal ropes and a plastic ball suspended on the wall. Newspaper and wood shavings were given twice a day. In the control treatment, the pens were otherwise identical but had no ropes or paper.

1. Risk factors: Enrichment in the farrowing unit



Telkänranta et al. 2014

Fig. 4. Tail damage (mean with SD) during week 9 of life, after 5 weeks in identical post-weaning environments. RP refers to the group with pre-weaning experience of ropes and paper, and C refers to the control group. The shades refer to the two batches: with normally functioning feeders (light) and with accidental feeder malfunctions (dark). Mild damage was defined as healed or mild lesions, or wounds without swelling or infection. Severe damage was defined as wounds with swelling and infection or a partial or total loss of the tail. Asterisks indicate significances in differences between the treatments: ** $P < 0.01$, *** $P < 0.001$.



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1. Risk factors: Optimized housing & management



(German) consortial project to prevent tail docking in pigs

- To give farmers recommendations for **farm specific optimizations** that allow them to keep pigs with intact tails, i.e. to cease tail docking (rearing and fattening pigs).
- **Economy**: costs of optimized pens & associated amount of labour
- Development/evaluation of **early detection** methods

Status: data collection ongoing



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1. Risk factors: Optimized housing & management

- **Space allowance**

Rearing pigs: $\geq 0.5\text{m}^2/\text{pig}$ (total), $\geq 0.2\text{m}^2/\text{pig}$ (lying area)

Fattening pigs: $\geq 1.1\text{m}^2/\text{pig}$ (total), $\geq 0.6\text{m}^2/\text{pig}$ (lying area)

- **Flooring lying area**

Rearing pigs: max. 5% slats

Fattening pigs: max. 10% slats

- **Functional areas:** covered lying area, flooring, climate zones

- **Organic enrichment material (day 7), rooting area**

- **Water cooling**



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1. Risk factors: Optimized housing & management

- Low **drinker**/animal ratio (< 1:12) & drinker with open water surfaces
- Low **feeder**/animal ratio (rearing pigs, 1:1-1:2)
- **Early socialization**
- **Stable groups**

& surveillance animal health, climate (°C, humidity, NH₃, CO₂)

→ Tail lesion scoring (every 4 weeks): detailed assessment

→ Inspection of tails (daily): detection of fresh injuries



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1. Risk factors: Optimized housing & management

Gefördert durch:



Bundesministerium
für Ernährung
und Landwirtschaft

ptble

Projekträger Bundesanstalt
für Landwirtschaft und Ernährung

aufgrund eines Beschlusses
des Deutschen Bundestages

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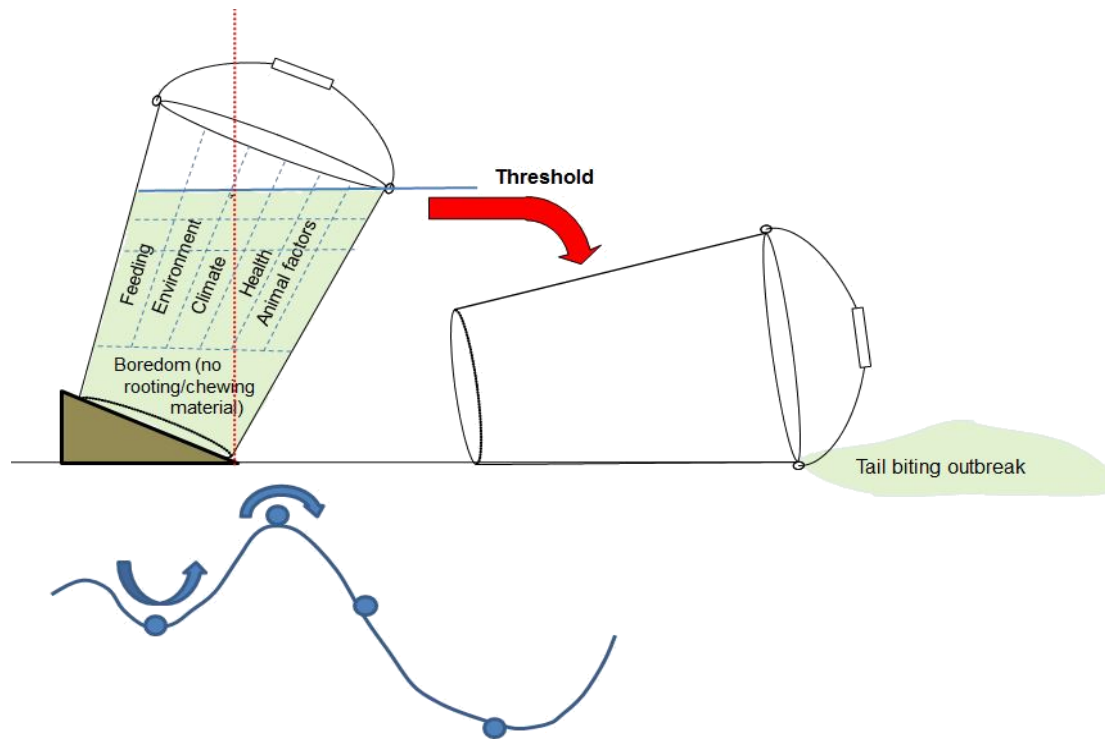
Bundesforschungsinstitut für Tiergesundheit
Federal Research Institute for Animal Health





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1. Risk factors: Risk assessment



Modified by: Bracke MBM, Vermeer H, Bokma M, Van der Peet C, Bolhuis L, Leeijen, J (2012)
Checklist aanpak staartbijten bij (biologische) varkens. [Checklist dealing with tail biting in (organic) pigs]
Flyer. Available: <http://edepot.wur.nl/220045>.



1. Risk factors: Risk assessment

Commission Recommendation EU 336/2016 recommends in Art 2A-2:

Member States should ensure that farmers carry out a risk assessment of the incidence of tail-biting based on animal and non-animal based indicators

- Not legally binding, but carry “legal weight”
- Recommendation was agreed by MS and pig sector



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1. Risk factors: Risk assessment

Risk assessments are increasingly becoming an integral part of quality assurance programmes in one country

→ allows CA to inspect more strictly



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1. Risk factors: Importance of the farmer

- Farmer is essential part in the equation
- What are some farmers doing that other cannot do?
- “Daring to try”
- Important investment: spending **time** in the barn
 - understanding what pigs need
 - acting quickly on what is observed



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2. Tail lesions

- What is an intact tail?
- How to inspect it?



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2. Tail lesions: on farm

- Hair at tail tip
- Flat tip



<https://www.animalwelfare-science.com/>

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2. Tail lesions: on farm

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2. Tail lesions: at the abattoir

- No routinely usable scheme/method available yet
- Opportunity: conducting risk based farm inspections
→ use of quality assurance schemes
- Automatic detection?
- Example from scientific study: Intact tails as a welfare indicator in finishing pigs? Scoring of tail lesions and defining intact tails in undocked pigs at the abattoir (Valros et al. 2020)
→ link tail lesions scores to meat inspection data
→ suggest a definition for an intact tail



2. Tail lesions: at the abattoir

Valros A, Välimäki E, Nordgren H, Vugts J, Fàbrega E, Heinonen M (2020)

Intact tails as a welfare indicator in finishing pigs? Scoring of tail lesions and defining intact tails in undocked pigs at the abattoir. *Front. Vet. Sci.* 7:405, doi: 10.3389/fvets.2020.00405.

Scoring points

- just after bleeding
- after scalding

→ Tail length [cm]

→ Tail lesions: FareWellDock & EU pig subgroup (differ between scoring points)

Pathology (Validation of scoring system)

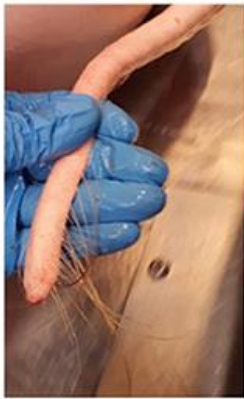
Link scoring with meat inspection findings

2. Tail lesions: at the abattoir

→ scoring after scalding (example pictures)

Valros et al. 2020

A) Intact



C) Healed tail



E) Minor acute wounds of different severity



F) Major acute wounds of different severity



D) Healed tails with bite marks or bruises



B) Broken tail



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2. Tail lesions: at the abattoir

→ Results

Valros et al. 2020

Tail length (intact tails):

- just after bleeding: 31.6 cm (\pm 2.8)
- after scalding: 31.5 cm (\pm 2.5)

Pathology (gross & histopathology):

- in 90% of tails results agreed

Meat inspection data:

- more severe lesions
 - shorter length
- } = increased risk

	Scoring point A, % (n)	Scoring point B, % (n)
Tail lesion score		
Intact, total*	58.7% (8471)	49.2% (7080)
<i>Intact + Bite marks or bruises*¹</i>	NA* ³	11.4% (1639)
Healed lesion, total	22.6% (3264)	36.7% (5281)
<i>Healed lesion + Bite marks or bruises</i>	NA* ³	9.1% (1309)
Acute, total (not including Bite marks or bruises)	18.7% (2694)	14.1% (2021)
<i>Dry scab</i> * ²	9.2% (1329)	NA* ³
<i>Minor wound (>0 to <2 cm)</i>	6.5% (942)	11.6% (1664)
<i>Major wound (\geq2 cm)</i>	2.8% (407)	2.5% (357)
Tail length class		
> 24 cm		81.7% (11 756)
17-24 cm		15.0% (2152)
9-16 cm		2.6% (379)
< 9 cm		0.06% (94)

Scores in italics are subsets of the overall tail score classes (Intact, Healed, Acute).

*Includes Broken tails (point B): the tip of the tail lost due to carcass processing.

*¹Bite marks or bruises were only scored at point B.

*²Dry scabs were only scored at point A.

*³NA, not applicable.

2. Tail lesions: at the abattoir

→ Discussion

Valros et al. 2020

What is an intact enough tail?

- At least 75% of the average fully intact tail length
(in the specific population)
- No signs of biting lesions
- In Practice: intact tail = compromise
 - physical palpation
 - varying tail length

2. Tail lesions: pig welfare

e.g.

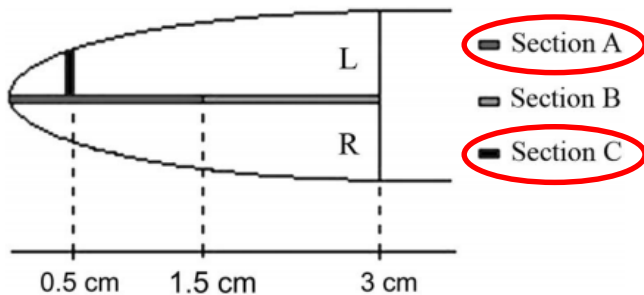


Figure 1 Schematic drawing illustrating the sampling of tissue specimens for histology from the tails of pigs. The tail is viewed from the dorsal aspect with a right (R) and left (L) aspects. Sections A and B, both with a length of 1.5 cm, are from the midline, whereas Section C is a cross-section sampled 0.5 cm from the tail tip.

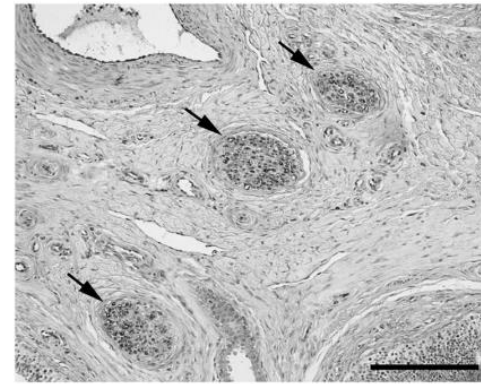


Figure 2 Cross-section of a normal, non-docked tail tip from a pig slaughtered at 22 weeks of age. The section represents Section C from the lateral part of the left side (see Figure 1). The normal nerves (→) were outlined immunohistochemically by staining the ensheathing Schwann cells by S-100. Scale bar = 200 μm.

Herskin MS, Thodberg K, Jensen HE (2015)

Effects of tail docking and docking length on neuroanatomical changes in healed tail tips of pigs. *Animal* 9, 677-681.

Peripheral nerves can be traced to the tip of the tail (Aδ & C nerve bundles)
→ Indicating that the entire tail is sensitive



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3. Outlook...

“Even if we lived in world of intact tails there will always be the risk of tail biting and the question how to prevent it.”

→ Never ending effort...