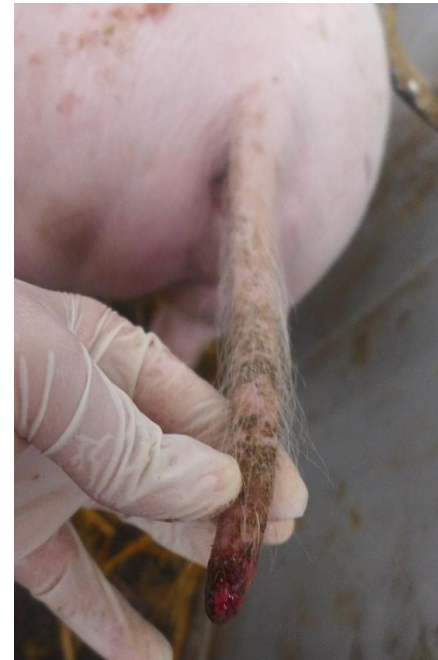
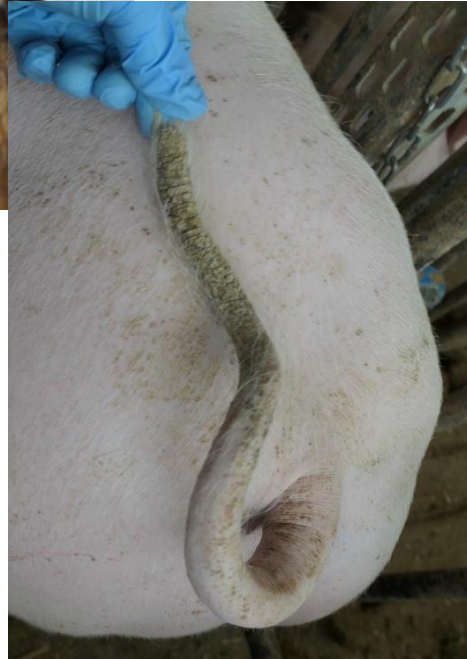




**Tail tip necrosis in wild boars:
Screening Mayer-Wild Bad Wörrishofen**





Undocked tails =
300 % more risk for tail biting
& tail necrosis
Inflammation & infection
Pain & suffering

Average prevalence in the slaughter batches: 37.7 %

Quelle Prof. Dr. Nathues
Switzerland



- Unaffected 60.7 %
- Grade 1 / old 3.9 %
- Grade 1 / fresh 5.6 %
- Grade 2 / old 25.0 %
- Grade 2 / fresh 3.1 %
- Grade 3 / old 2.7 %
- Grade 3 / fresh 0.3 %



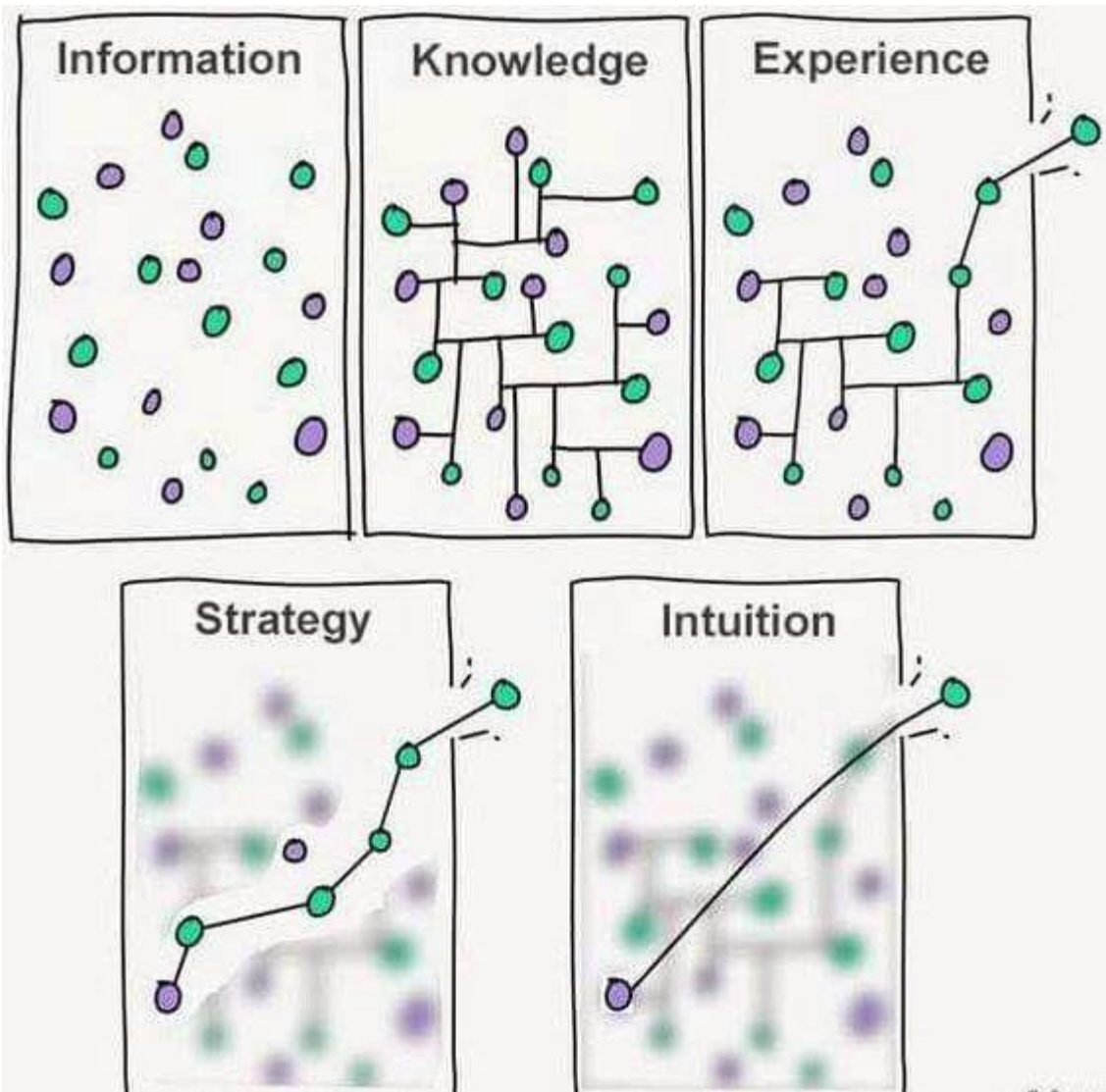
Datum: Mittwoch, 8. Februar 2017, 17:35:39

Datum: Dienstag, 17. März 2015, 18:52:02

.... When we started in 2011....







Do we understand what we see? Or do we see what we believe?





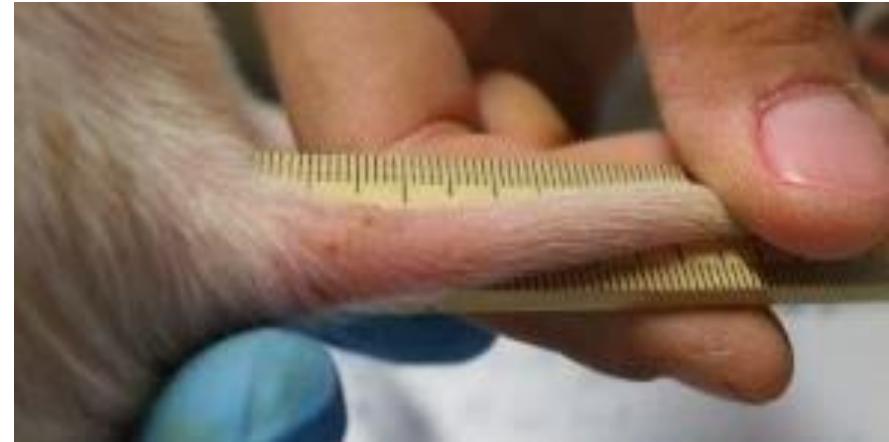
What is an inflammation?

Inflamed reaction, Inflammatio, description as the response of tissue to an injury/irritation

The basic clinical signs are:

1. **Reddened and**
2. **Swelling** (increased blood flow)
3. **Pain** (visible – animal behaviour!)
4. **Overheating** (heat accumulation in tissue)
5. **Loss of function/dying of tissue** (response to decreased blood flow)

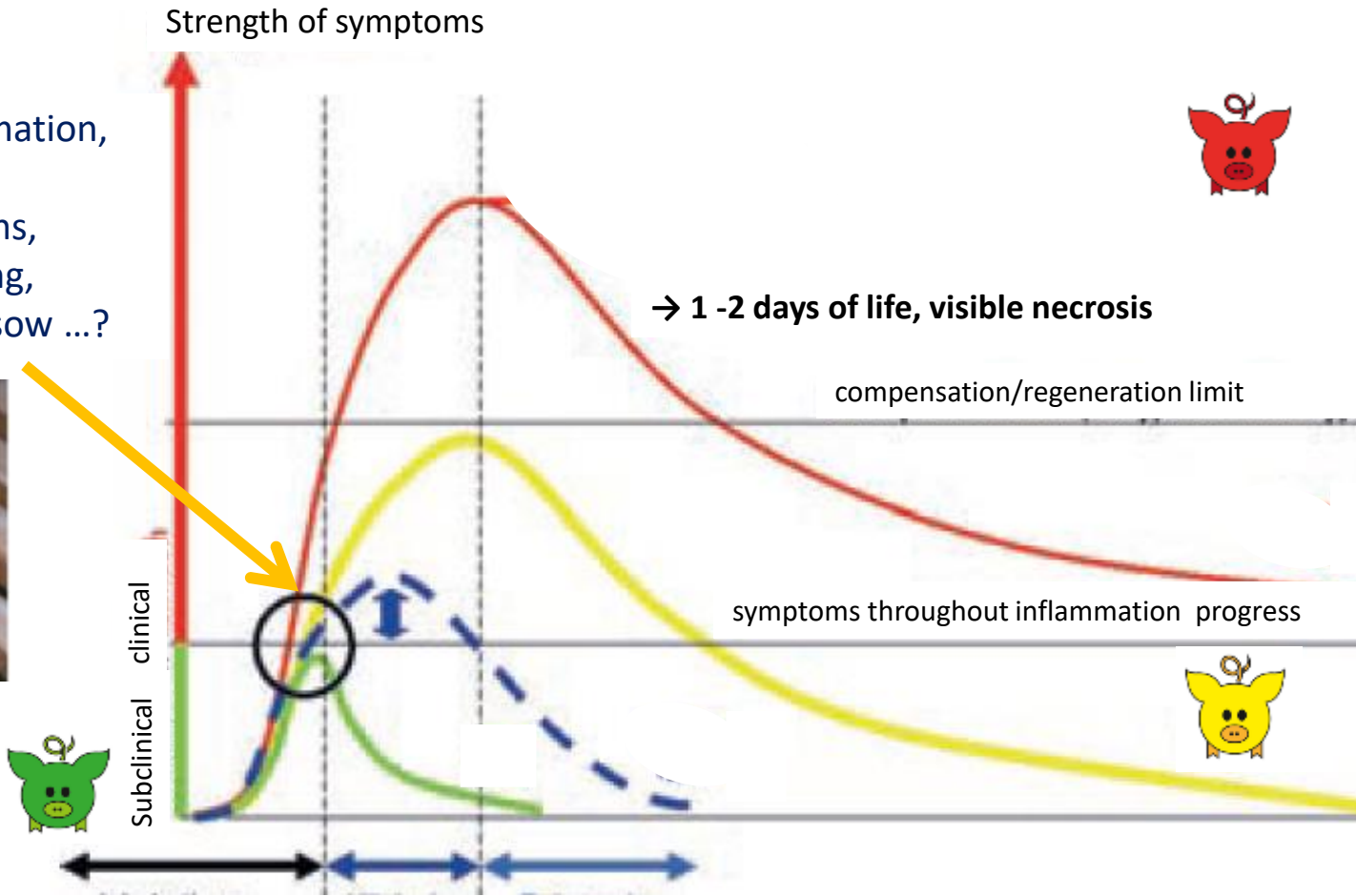
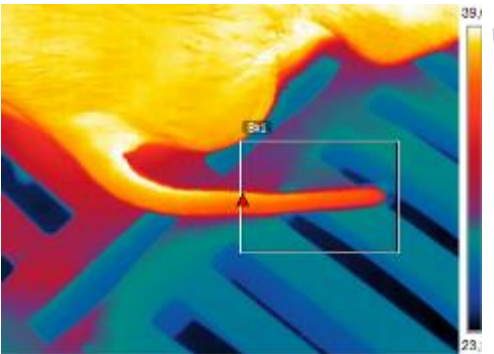
Causes for an **inflammatory local accumulation of fluid, plasma proteins and white blood cells** (leukocytes) may be:
Exotoxins and endotoxins of bacteria (bacterial toxins),
Viruses (viral infection), cholesterol- and uric acid deposits (cholesterol, uric acid, arteriosclerosis, gout), certain antigen-antibody reactions, autoimmune diseases, tissue necrosis, sun, friction, (...)



Progress of inflammatory damage and necrosis in piglet tail necrosis

Template: Schematischer Verlauf von Entzündungen entnommen aus Allgemeine Pathologie für die Tiermedizin, Baumgärtner und Gruber, Enke 2011

Possibility to catch inflammation, observe:
behaviour, vocalisations,
temperature, breathing,
birth/delivery progress in sow ...?



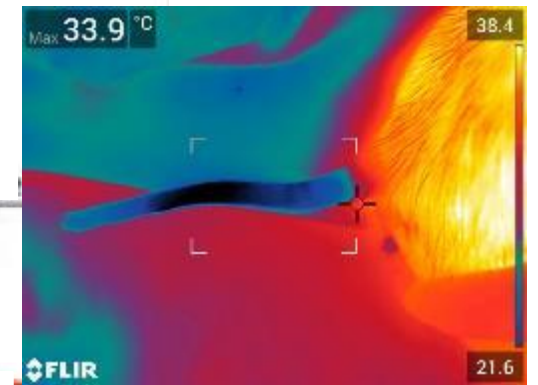
→ 1 -2 days of life, visible necrosis

compensation/regeneration limit

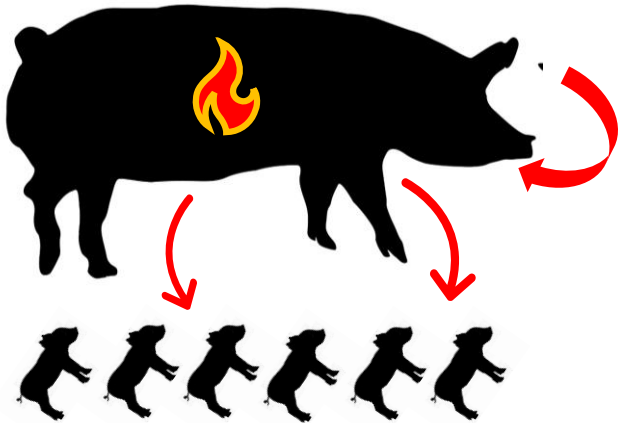
symptoms throughout inflammation progress

strain of milk induced with endo-/mycotoxins

-> wave of inflammation: increased by stress, mechanical stimuli, infections, reduce of water intake, already prior damage in uterus?



In utero programming:
Toxins can pass the utero barriere.
Signals are obious at birth -> day 5.



Piglets can show lesions bevor birth
– and after birth due to colostrum
condamination with endo-
mykotoxins:

Piglets signals give information
about sow health!



Neugeborene SINS+ Ferkel M. Lechner 2018
Newborn SINS+ Piglets Mirjam Lechner 2018



Neugeboren links und nach 1 Stunde Abtrocknen rechts
Newborn (left) and after 1 hour drying (right)



Prevalence of an inflammation and necrosis syndrome in suckling piglets

G. Reiner^{1†}, M. Lechner², A. Eisenack³, K. Kallenbach⁴, K. Rau⁴, S. Müller⁴ and J. Fink-Gremmels⁵

¹Department of Veterinary Clinical Sciences, University of Giessen, Frankfurter Strasse 112, 35392 Giessen, Germany; ²UEG Höhenlohe-Franken, Kraussenklinge 1, 97996 Adolzhausen-Niederstetten, Germany; ³Veterinary Practitioner, Antoniusstr 38, 53909 Zülpich, Germany; ⁴Thuringian State Institute of Agriculture, Naumburger Str. 98, 07743 Jena, Germany; ⁵Faculty of Veterinary Medicine, Utrecht University, IRAS, Yalelaan 104, 3584 CM Utrecht, The Netherlands

(Received 4 April 2018; Accepted 19 November 2018)

Table 4 Least square mean and standard error for the effects of sows' and boars' genetics on the percentage of piglets in litters, affected by clinical signs of inflammation (350 litters)

Clinical signs	Sows' genetics				Boars' genetics	
	G1	G2	G3	G4	Pietrain	Duroc
Tail necrosis	6.8 ± 2.6 ^{a†}	7.3 ± 1.4 ^a	17.7 ± 1.6 ^b	10.6 ± 2.0 ^a	13.5 ± 1.1 ^a	5.9 ± 1.2 ^b
Coronary band inflammation	53.4 ± 4.5 ^a	51.0 ± 2.4 ^a	55.0 ± 2.7 ^a	67.9 ± 3.4 ^b	55.4 ± 1.9	53.8 ± 2.0
Heel inflammation	90.5 ± 3.2 ^a	69.6 ± 1.8 ^b	60.4 ± 2.0 ^c	96.6 ± 2.5 ^a	77.5 ± 1.3 ^a	71.0 ± 1.5 ^b
Facial injuries	28.3 ± 3.4 ^a	14.8 ± 1.8 ^b	10.8 ± 2.0 ^c	14.5 ± 2.6 ^{bc}	18.3 ± 1.4	15.1 ± 1.5
Teat inflammation	6.1 ± 1.5 ^b	3.6 ± 0.8 ^a	3.3 ± 0.9 ^a	7.3 ± 1.2 ^b	6.5 ± 0.6 ^a	0.8 ± 0.7 ^b
Umbilical inflammation	0.0 ± 1.6 ^a	12.8 ± 0.9 ^b	0 ± 1.0 ^a	0 ± 1.2 ^a	1.0 ± 0.7 ^a	8.6 ± 0.7 ^b
Ear base inflammation	0.0 ± 0.5 ^a	0.0 ± 0.3 ^a	0.3 ± 0.33 ^a	3.7 ± 0.41 ^b	0.8 ± 0.2 ^a	0.0 ± 0.2 ^b

G1 to G4 = four different genetic lines of sows, representing typical production lines of various breeding companies.

Data represent least square means of the percentage of affected piglets per litter.

^{a,b,c} Between groups, means with different superscript letters differ significantly at $P < 0.05$.



**Running pigs with intact tails: Do we start the right action in right place & right time?
Check the pig signal!**



Grain quality / field:
1,5 Jahre before



In utero programming

pregnancy

Birth



3 day



lactation



28 day



weaners

sold



2 – 4 week



fatteners



Risikoanalyse - Haltung & Schweinegesundheit: Anpassungsfähigkeit des Tieres überfordert?
Für Ringelschwanz „best practice“ in Mananagement & Haltung & Gesundheit notwendig!

Sow genetic:
**1,5 years
Breeding?**

Boar genetic:
insemination
7 - 8 month

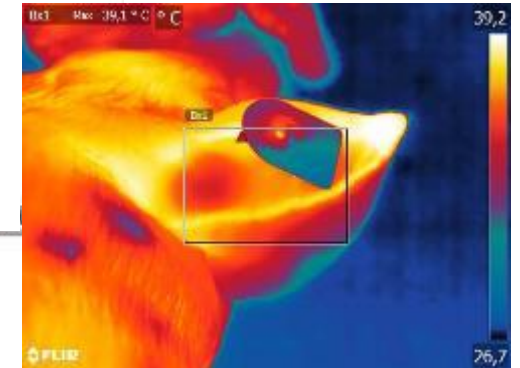
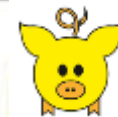
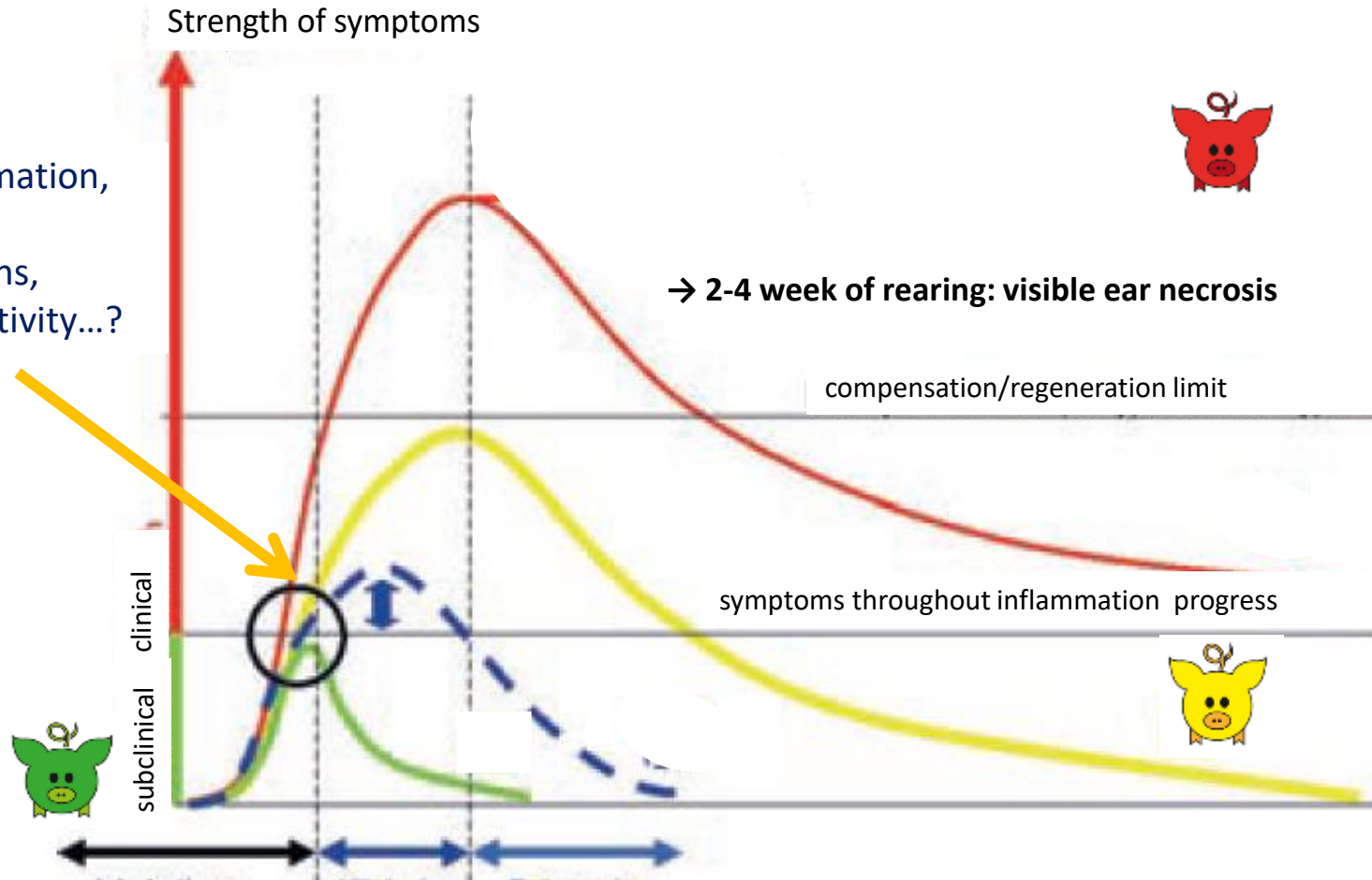
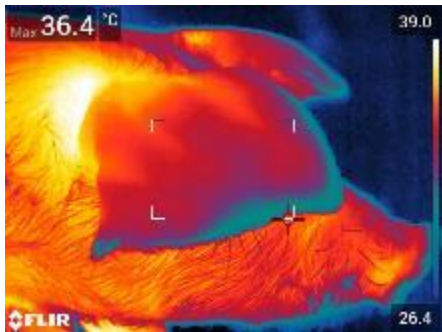
**Are the farms „fit for purpose?“
Do we know enough?**

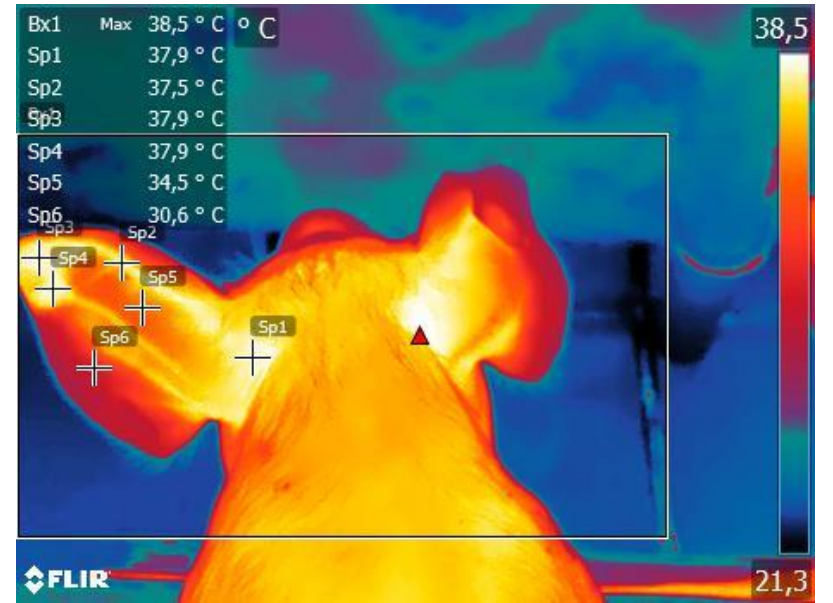
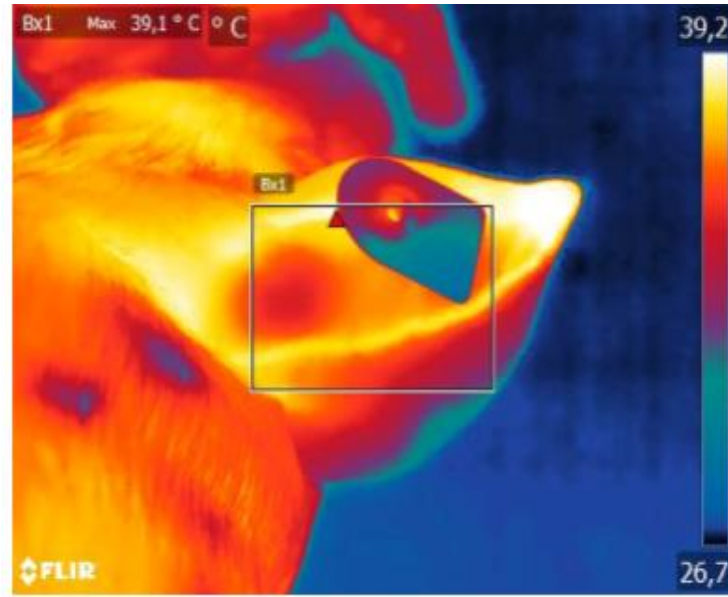
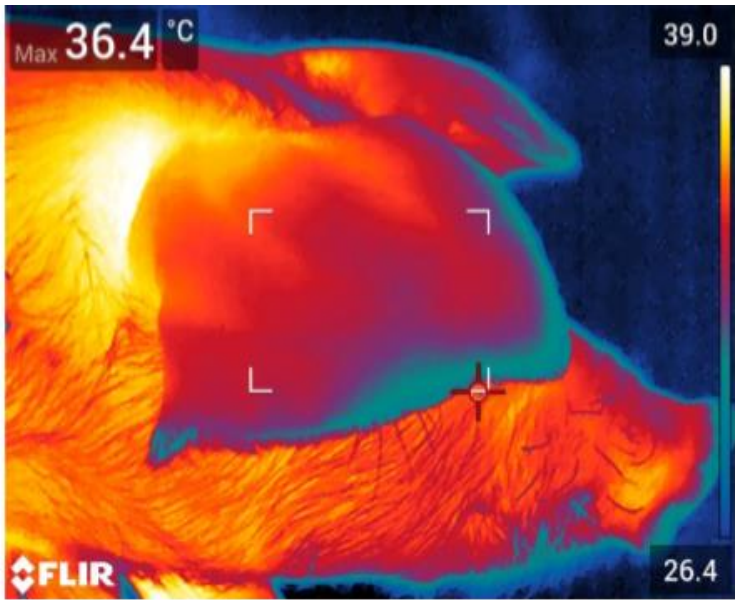


Progress of inflammatory damage & ear necrosis in the course of rearing „Welle“

Vorlage: Schematischer Verlauf von Entzündungen entnommen aus Allgemeine Pathologie für die Tiermedizin, Baumgärtner und Gruber, Enke 2011

Possibility to catch inflammation, observe:
behaviour, vocalisations, temperature, breathing, activity...?





Problemdevelopment for the animal



Symptoms



Focus on behaviour



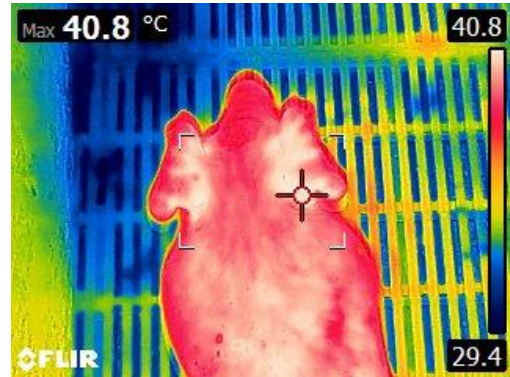
Managementquality

Wärme- und Temperaturleitfähigkeit verschiedener Baustoffe		
Baustoff	Wärmeleitfähigkeit λ (W/mK)	Temperaturleitfähigkeit a (10 \cdot 6m 2 /s)
Guss	50	12
Beton	1,0	0,54
Kunststoffe	ca. 0,2	ca. 0,1

Farm architecture

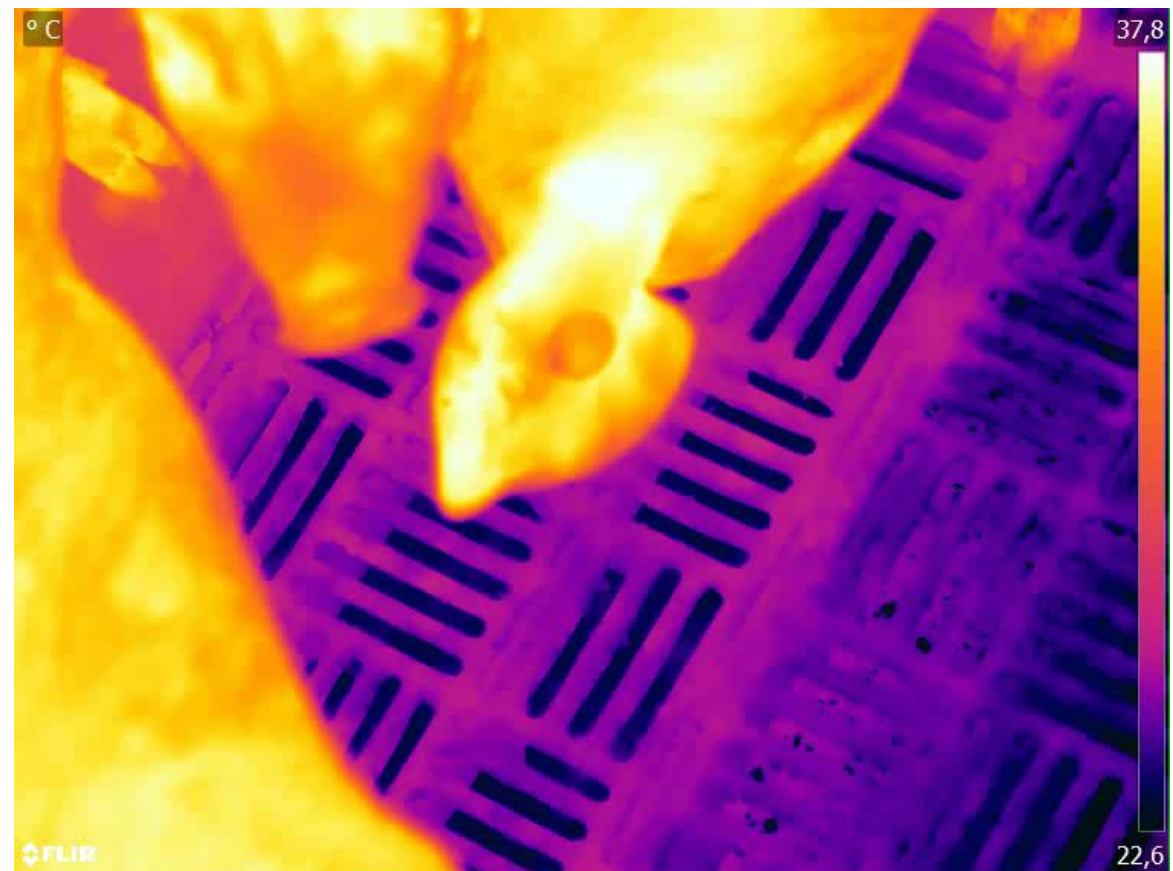


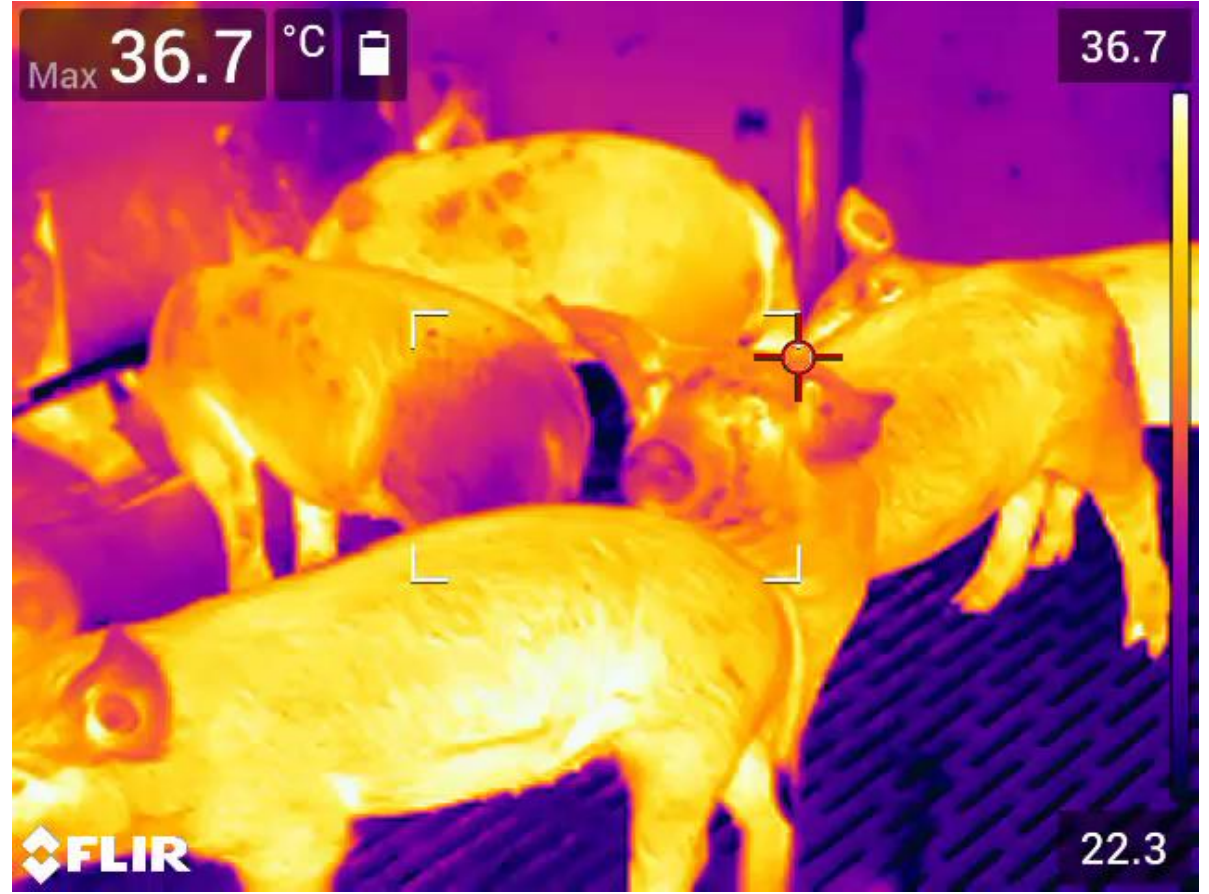
Look for the origin of the problem











... necrosis OR behaviour?

Remember:

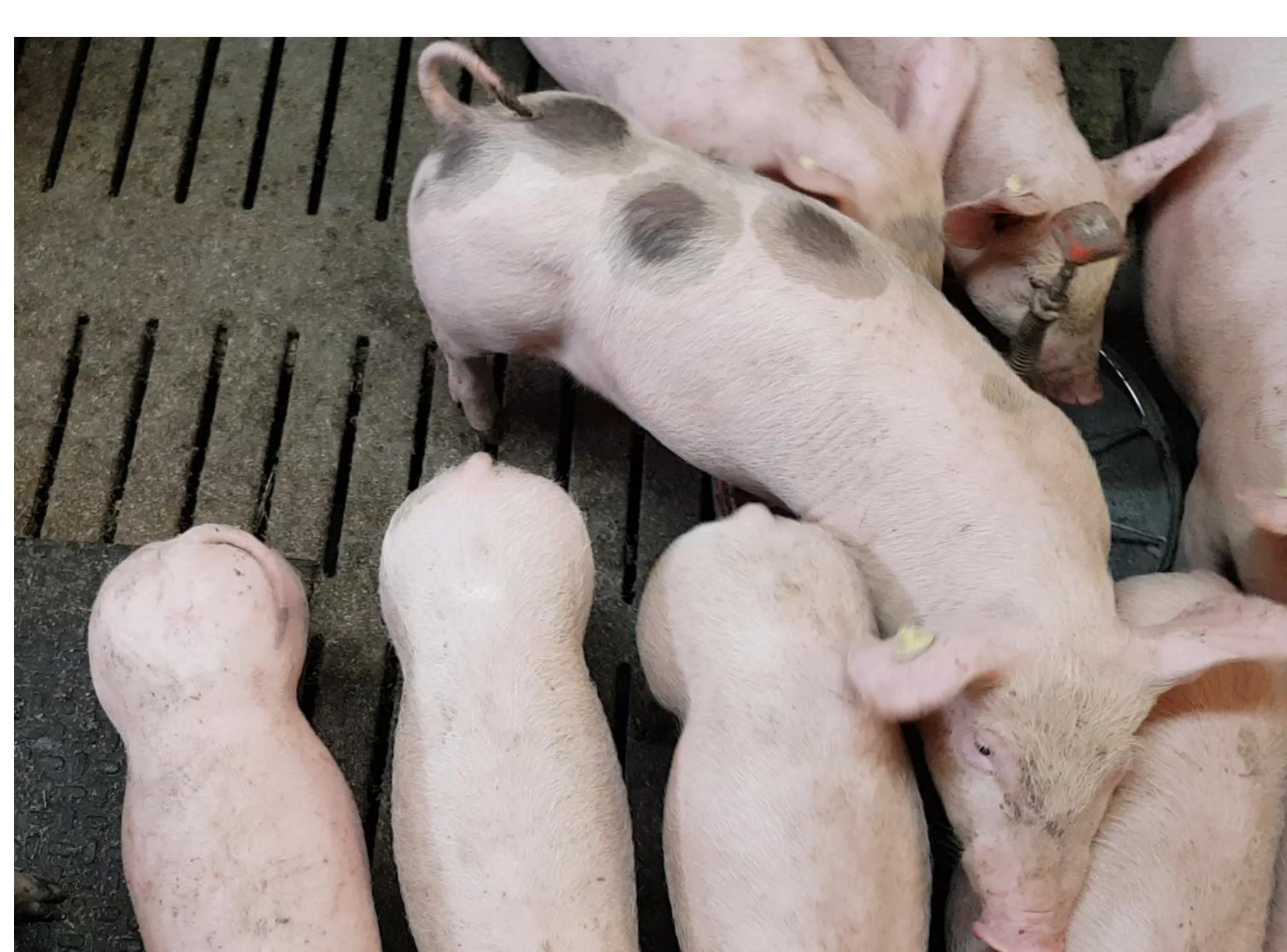
Systemic inflammation starts in the brain FIRST

Systemic means: All blood vessel show a inflammatory reaction – there are blood vessels in the brain to!

Inflammation is always connected with pain!

Pain lowers the impuls control, it makes aggression!

Preventing inflammation = preventing tail biting!





SINS Score Schweine Signale in der Aufzucht EiP Coachingsystem





Contents lists available at ScienceDirect

Physiology & Behavior

journal homepage: www.elsevier.com/locate/physbeh

Review

Influence of the microbiota-gut-brain axis on behavior and welfare in farm animals: A review

Narjis Kraimi^a, Marian Dawkins^b, Sabine G. Gebhardt-Henrich^c, Philippe Velge^d, Ivan Rychlik^e, Jiří Volf^e, Pauline Creach^f, Adrian Smith^b, Frances Colles^b, Christine Leterrier^{a,*}

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^d ISP, INRA, Université de Tours, UMR 1282, Centre Val de Loire, 37380 Nouzilly, France

^e Veterinary Research Institute, Brno 62100, Czech Republic

^f ITAVI, 41 rue Beaucemaine, 22440 Ploufragan, France

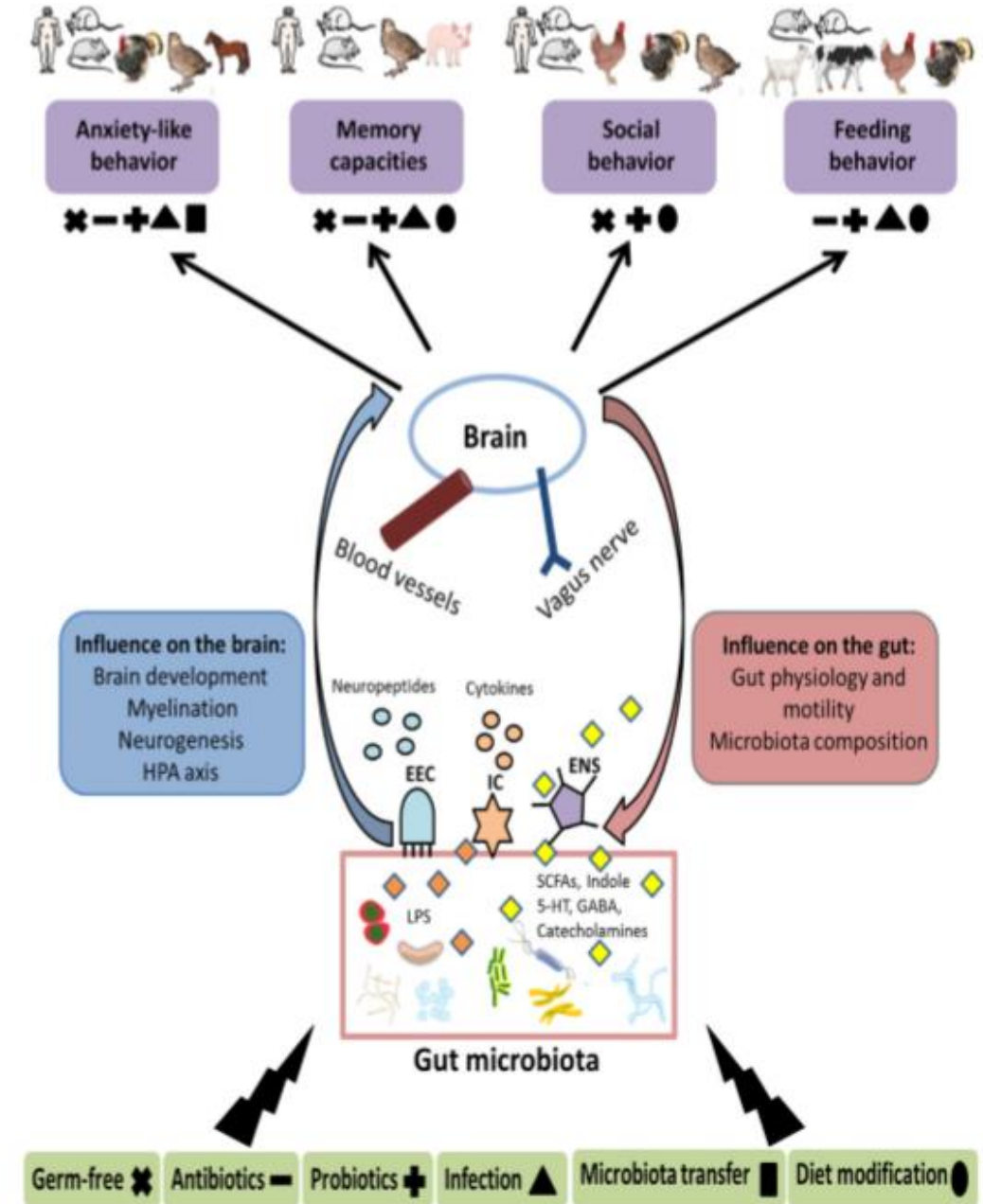
Forschung von...

2019

Neuer Erkenntnisse
Europa & Amerika!



N. Kraimi, et al.



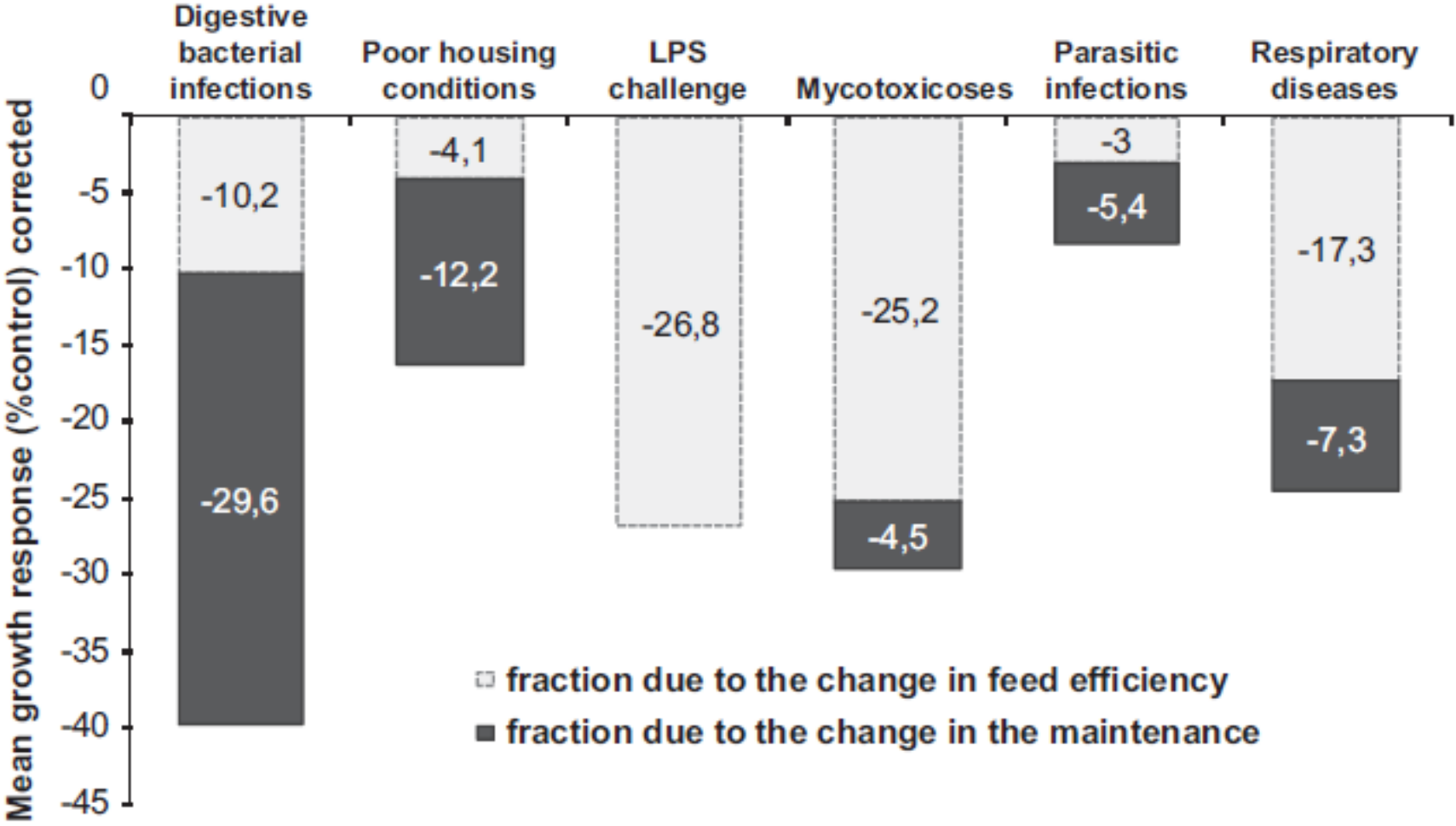








Response of feed intake and growth to a sanitary challenge



From: Pastorelli 2011 et.al.

New machines „cleaning“ grain after storage before feeding to lower dust & mykotoxin load



... what we learned about food & curled tails:

- Most recipes are not tested with undocked pigs
- Gut health is a main key for behaviour
- If pigs chew, are seeking, licking: A sign of desperate need/leakage and disturbed gut health!
- Offering clays & fibre could cool down leaky gut.

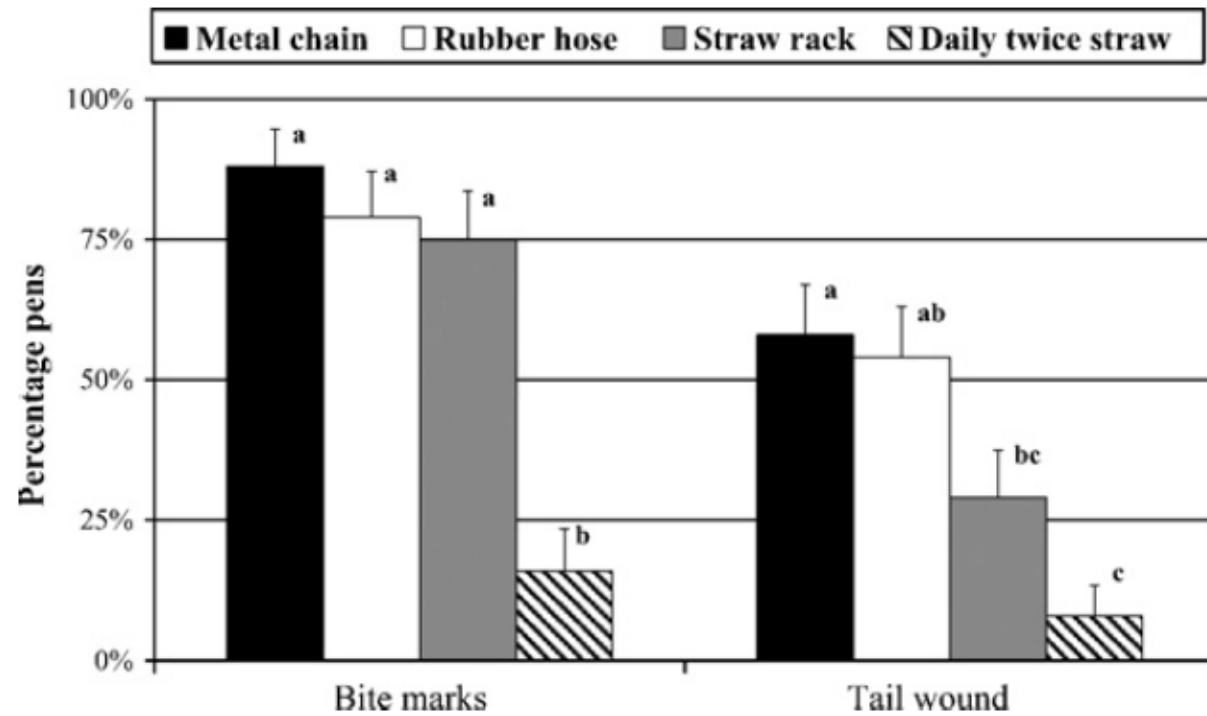
- Mykotoxin (EU limit) recommendations are not working for long tails. Take 25 % -> limit!
- Wheat/product contain ingredients with inflammatory potential: Reduce wheat < 30 %, esp. Weaners
- Close eye on feed structure & gastric ulcer: It causes pain, inflammatory & allergic reactions in pigs
- The reaction level to food & ingredients is linked to genetic (inflammatory process of immunsystem)
- Relieve of metabolism (reduce protein % - focus on quality, reduce starch (weaners) is important
- Roughage could be fibre products, too. Have a close eye on mycotoxin-load. Offer edible „good“ fibre“!
- Roughage like alfalfa/lucern straw is working best against inflammations & for



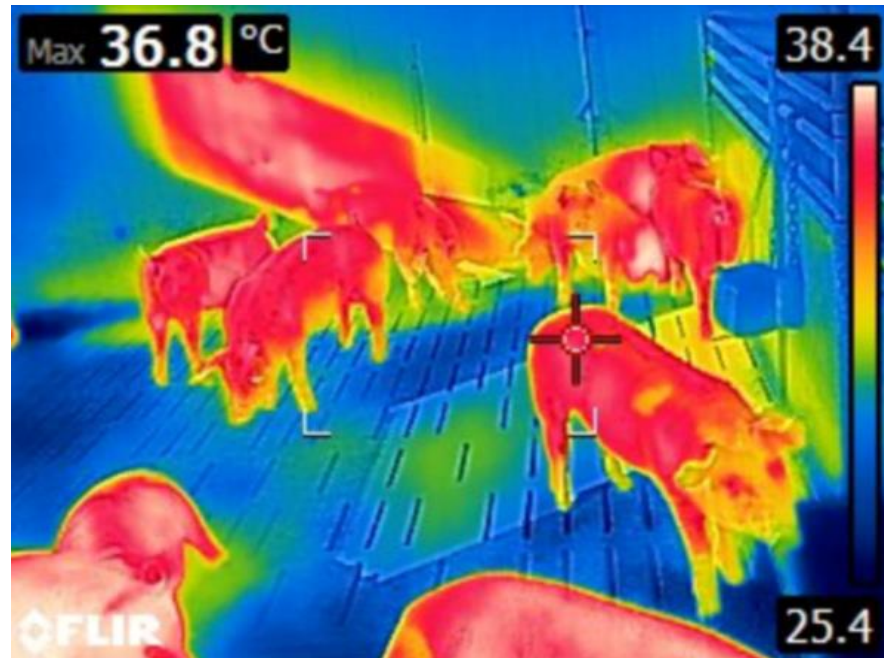
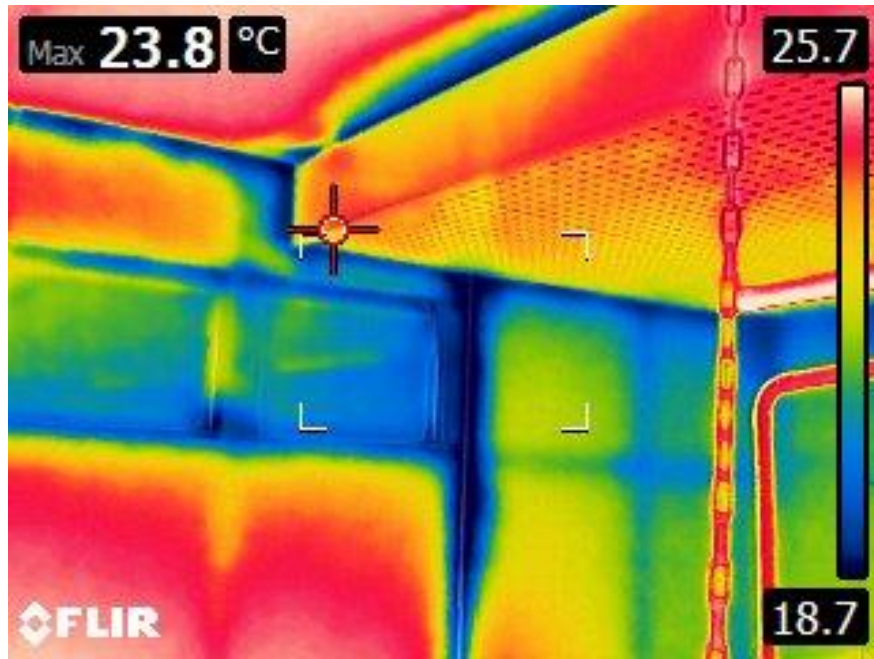
EU Reg. Organic pigs

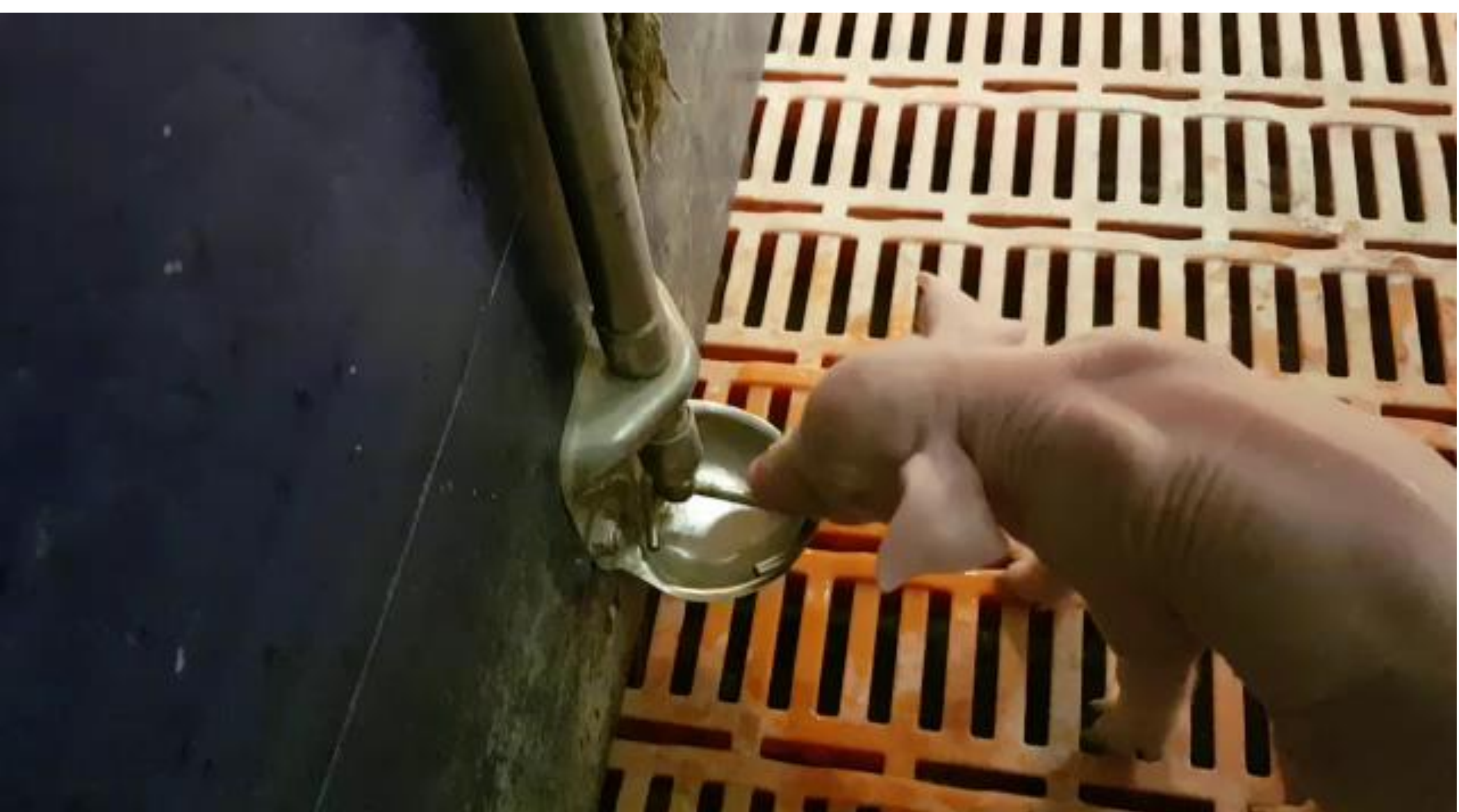
Roughage = silage, fibre like alfalfa cobs, too!

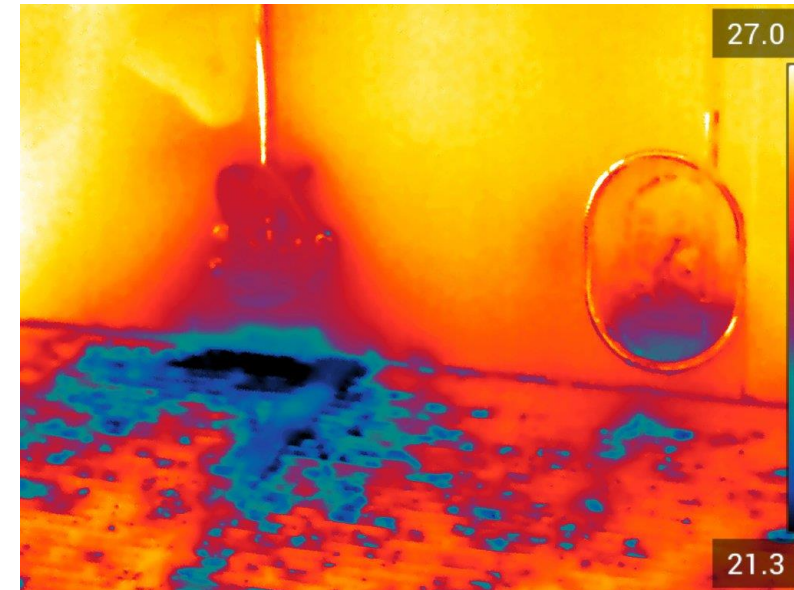
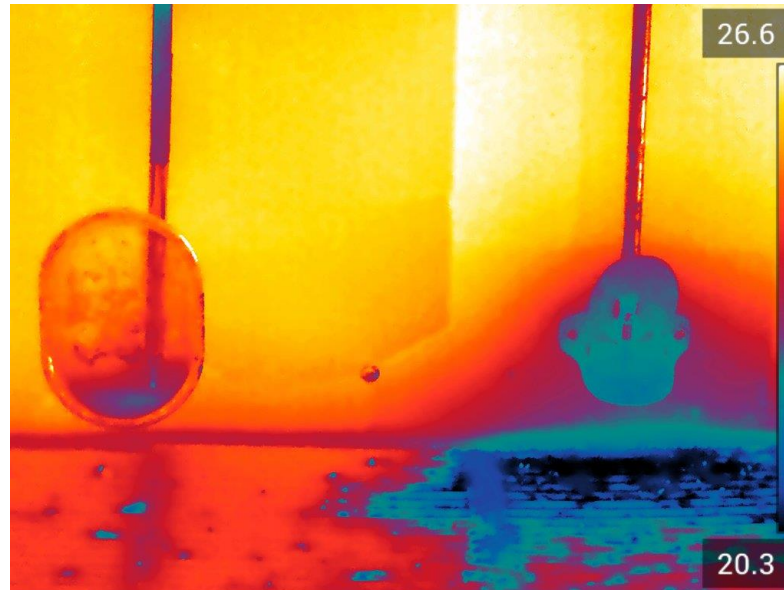
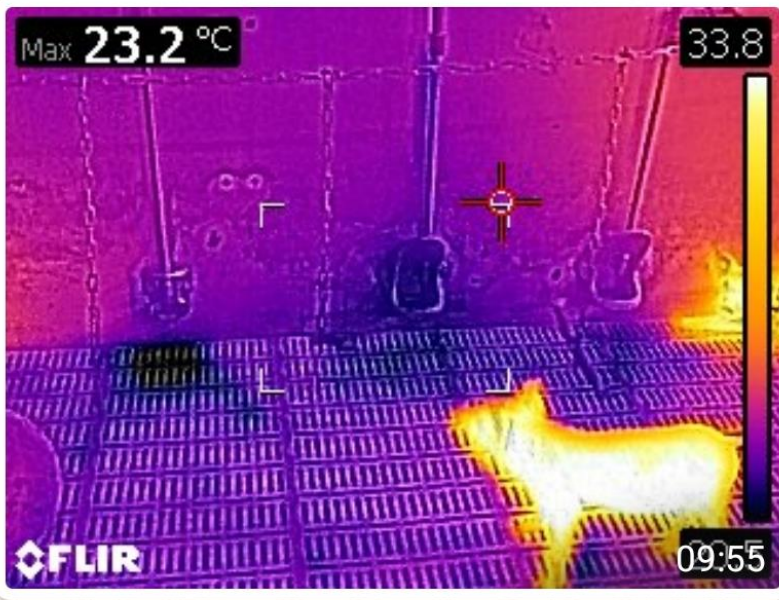
-> use small cutted „calve straw“ or alfalfa hay („Hartog“), Cobs



Zonderland et al.
(2008)







Ferkel trinken zum Teil nach fünf Tagen fast nur aus der Tränke aus der Abferkelung





Motivation



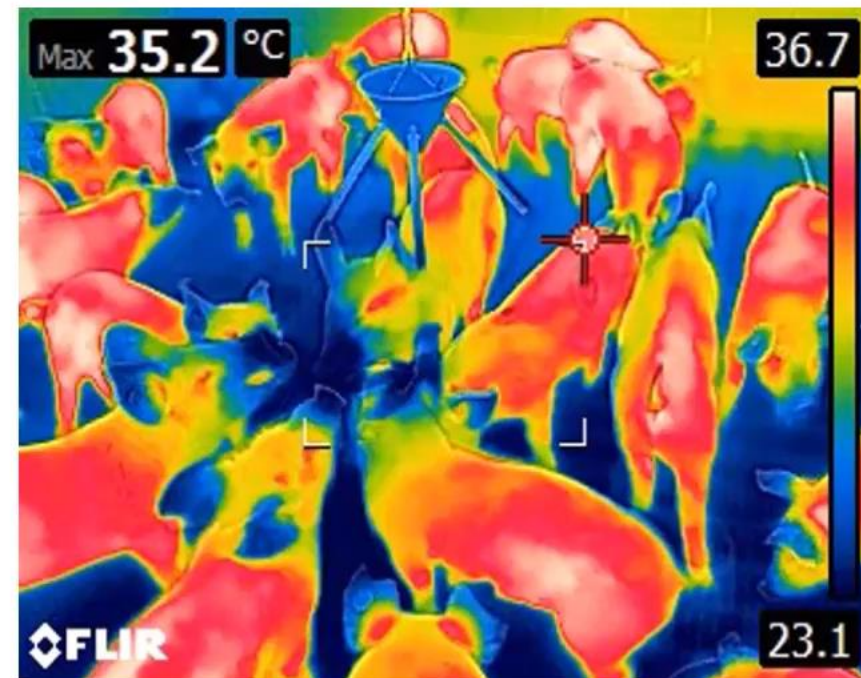




Stall Aktiv

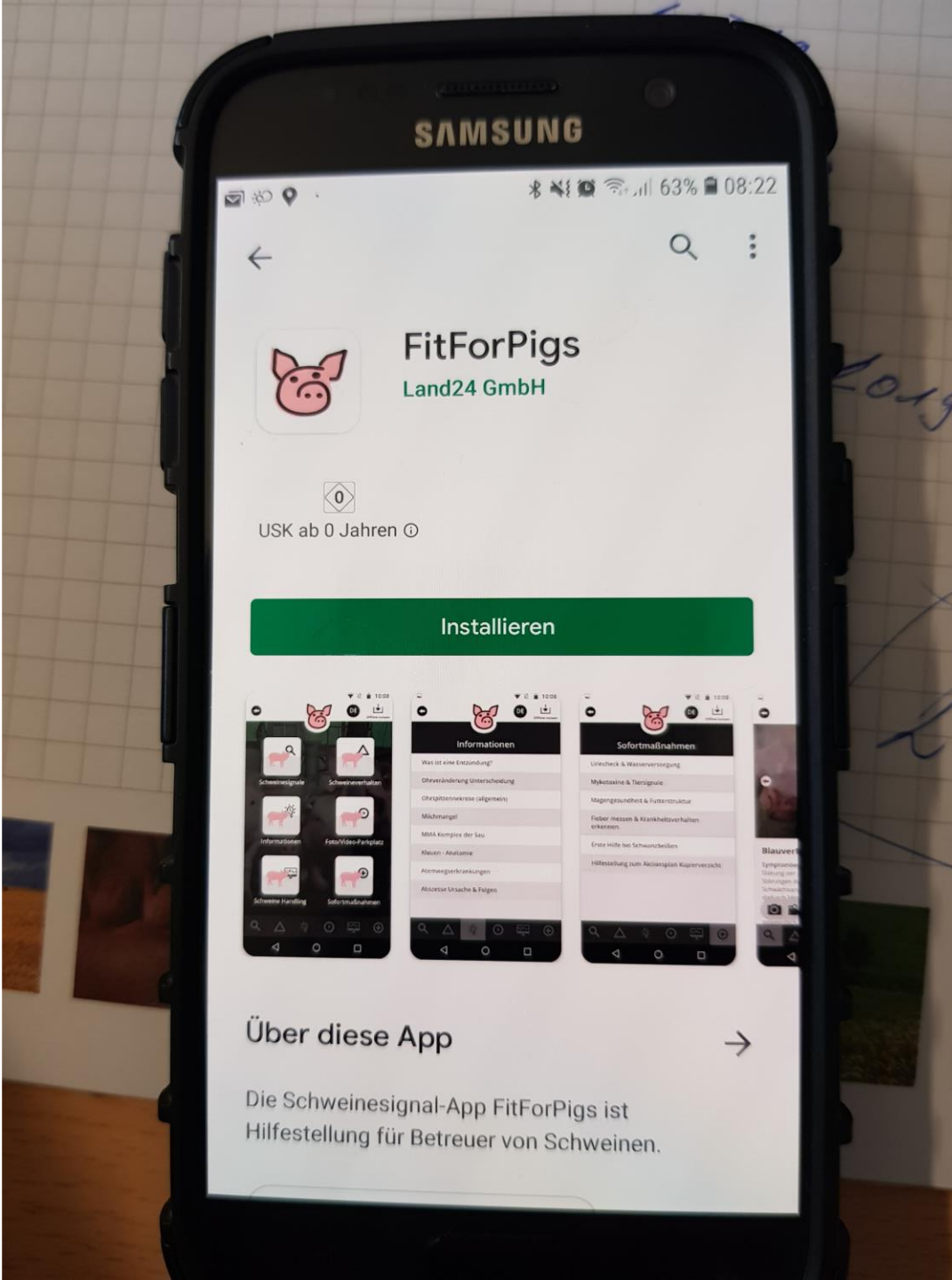
aktiv im Stall

Mikrosuhle zum Kühlen & Buchtenstrukturieren / cooling solution



Entwicklung Mikrosuhle: Andre Angenendt.
<https://www.stallklima.de/Nachrichten/die-mikrosuhle-als-beschaeftigung.html>

Official release: September 2020



Take-aways:

- Rearing pigs with long tails is mainly a matter of health: Physic & psychic health.
- Pigs don't lie! Behaviour is just the try to survive & to cope with environment
- Enrichement means that the pig can choose the best for themselves, they try to keep themselves healthy & balanced by their own. The need of every pig is individual.
- Space is a matter of space quality: Enrichement means proper options to balance health & metabolism
- Gut health is not only a matter of food: Heat stress & water leakage a big risks!
- Leaky gut & change in gut microbiom will change behaviour immediately
- Animals/pigs have the ability/instinct for self-medikation. Roughage works against gut problems.
- Play stuff could only direct activity, but is not solving internal problems of inflammation
- Genetic is not only determining growth. It has impact on reaction levels (impuls control) AND how to cope with inflammatory triggers (virus, bacterias, toxins).



There is a lot of work to do...

Keep going on!

