



REDUCTION OF ANTIBIOTIC USE IN THE NETHERLANDS:

A SHIFT FROM CURE TO PREVENTION IN MODERN LIVESTOCK FARMING

Karien Koenders

Veterinarian in practice & president Dutch veterinary practitioners collective



18.000.000 people

11.500.000 swine



1.800.000 people

320.000 swine

AGENDA

- Introduction
- What is happening in the Netherlands ?
 - Farmers protests
 - Dutch swine production
- The process & results of antibiotic reduction in the Netherlands
- Practical actions on the farms
- Discussion

KARIEN KOENDERS – VAN GOG

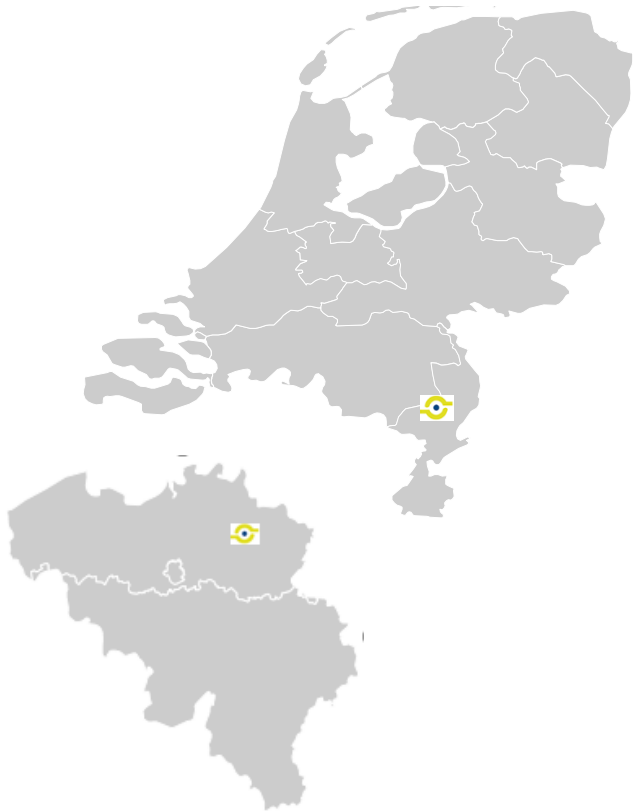


CV	
2001	Graduated as veterinarian in Ghent (B) University (magna cum laude)
2001-2002	Researcher at Ghent University (Belgian Fund for Scientific Research FWO), Immunology Department, subject: F18 + E.coli
2002-2005	Practitioner in mixed veterinary practice (DAP De Peelkant, Netherlands): cattle, swine
2005-2015	Practitioner in specialised swine practice (Lintjeshof veterinary practice, Netherlands)
2010-2016	board member of Swine Health Group (Royal Dutch Veterinarian Association KNMVD)
2015-2017	Technical service manager Benelux (IDT Biologika)
2016 – now	President of Veterinary Practitioners Collective CPD
2017-2020	Veterinarian at Topigs Norsvin Netherlands: development and implementation of Health plan for multiplier herds
2020 – now	Swine veterinarian & advisor health programs at Lintjeshof veterinary practice (LH vet group, Netherlands)



LH Vet Group

 **LINTJESHOF**
Farm health solutions



 **AGRO-VET**
Farm health solutions

 **TPB BLUMBERG**
Farm health solutions



 **MEREFELT**
Livestock diagnostics



WHAT IS HAPPENING IN THE NETHERLANDS IN 2022 ?



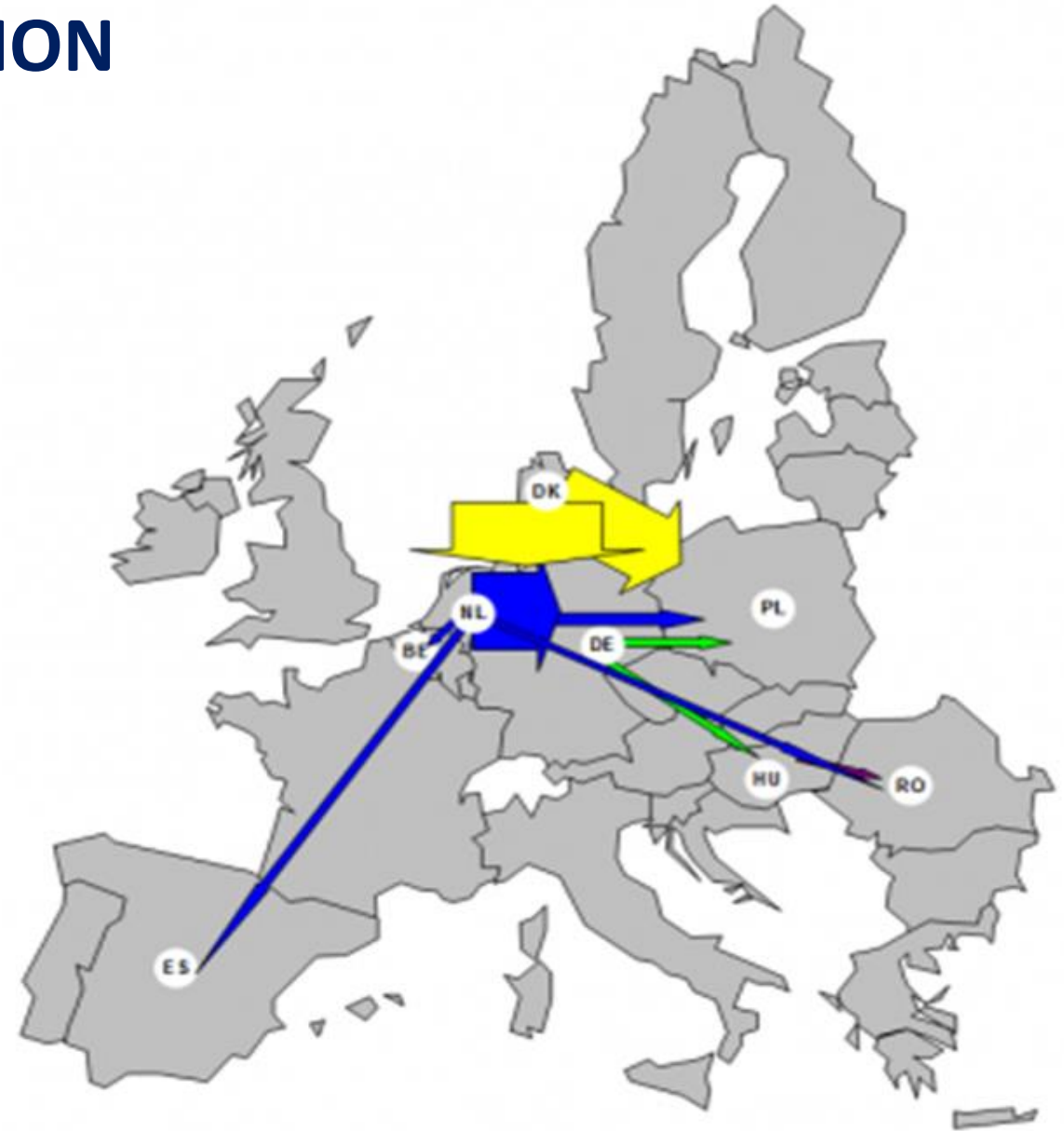
FARMERS PROTEST IN THE NETHERLANDS 2022



Farmers gather with their vehicles next to a Germany/Netherlands border sign during a protest on the A1 highway, near Rijssen, Netherlands, June 29, 2022. /CFP

DUTCH SWINE PRODUCTION

- ± 800.000 sows
- 2021:
 - 1500 sow farms
 - 3000 finishing farms
- Export of piglets
- Farm size
 - ± -500-1000-2000- sows
- Organic farms ±1 %



The Netherlands has fewer pig farms but each one has more pigs

Business     September 29, 2021




Pigs on a factory farm. Photo: Depositphotos.com

The number of pig farmers in the Netherlands may have halved since 2011 but the number of animals per farm has doubled in that time, national statistics agency CBS [figures](#) show..

ECONOMICAL SITUATION

Economy

Read this article in:  Language ▾

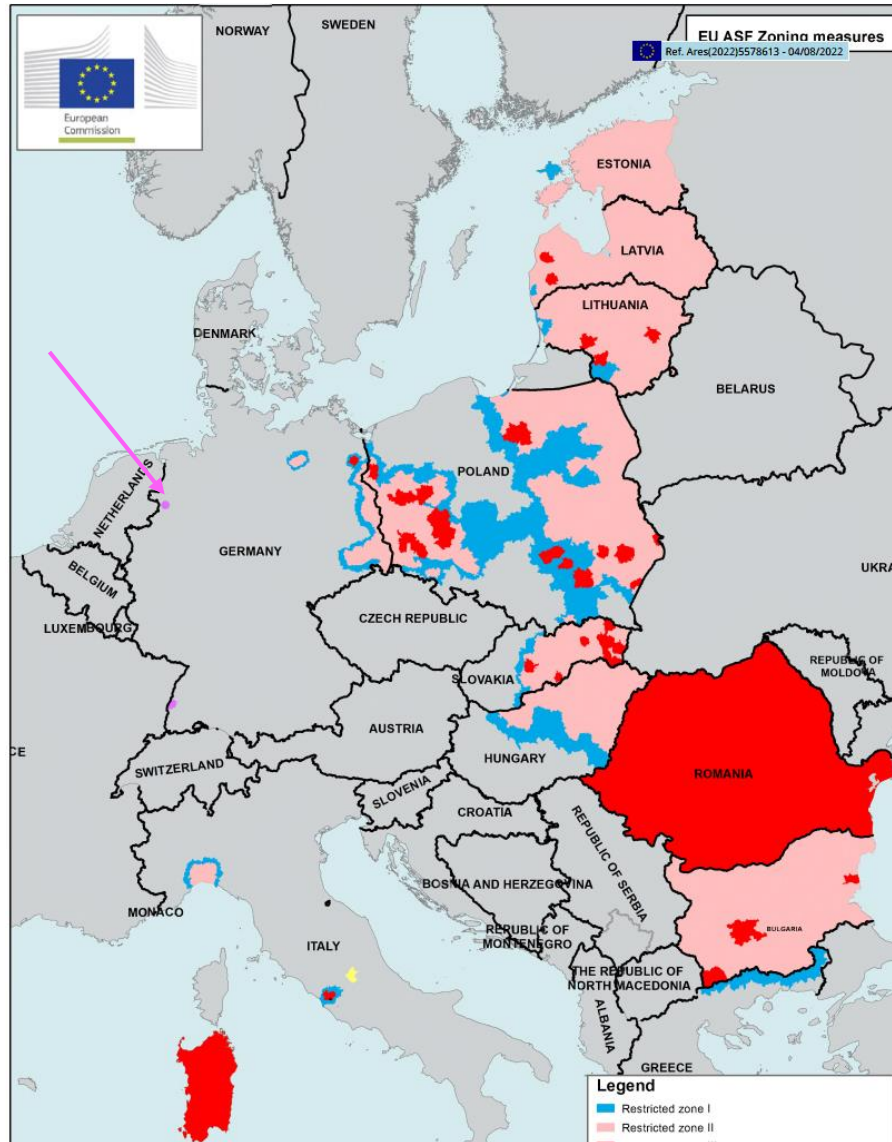
Netherlands: Producers won't break even this year, says Rabobank

With rising costs, there is little chance that the piglet price in the Netherlands will reach break-even levels in 2022, according to Rabobank.

20 June 2022

According to Rabobank, **piglet prices** in the Netherlands would need to reach EUR 68 per piglet in order for sow farmers to break even due to the **rising cost of feed and energy**. At the beginning of the second quarter, the average piglet price increased to EUR 60 per piglet, however that price level was not maintained. After the peak in week 13, the price gradually dropped to EUR 39/kg piglet in week 20. Piglet prices around the current break-even level were seen in the summer of 2019 and from the end of 2019 through the first half of 2020. However, the demand situation was very different from that of today as China's pork imports had hit a record high at the time. Rabobank says *there is little chance that the piglet price will reach break-even levels in 2022*, while supply is expected to contract across Europe.

AFRICAN SWINE FEVER



← 2 July 2022: ASF outbreak in a swine farm
In Germany close to Dutch border

ANTIBIOTIC REDUCTION

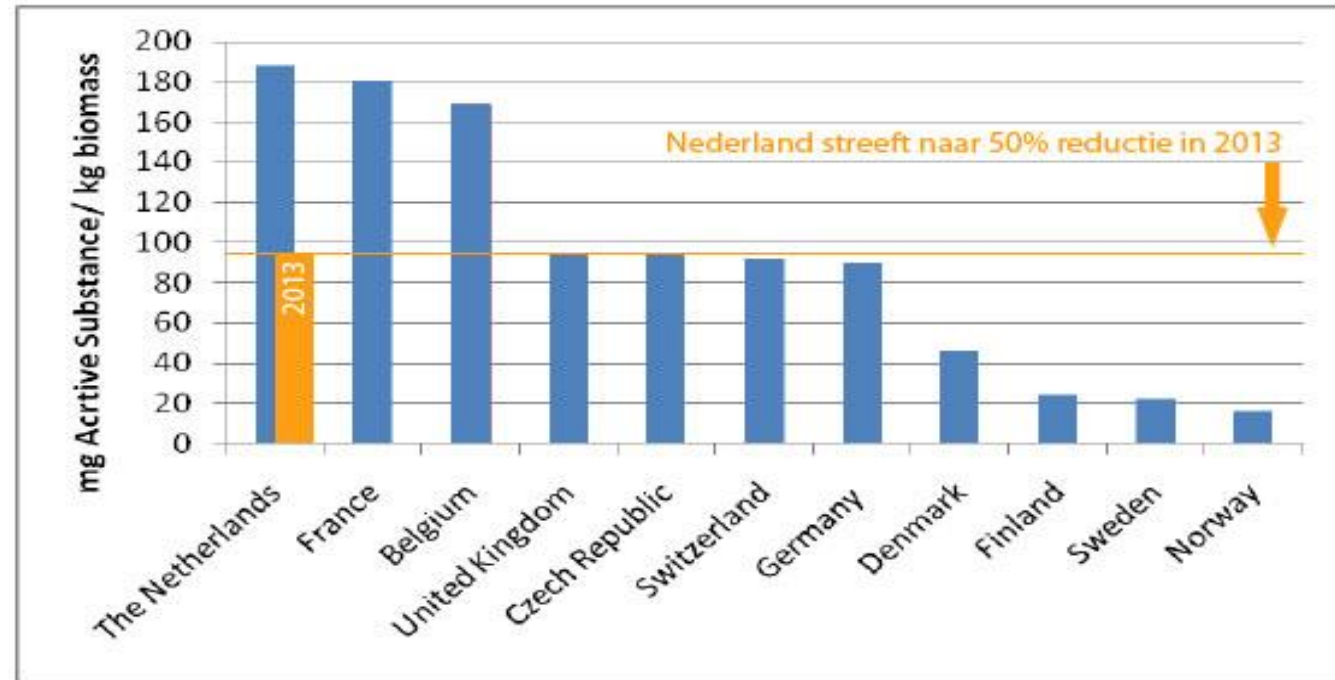


Figure 7. Comparison of mg active substance per kg biomass of Belgium with 10 other European Countries for 2007 according to Grave et al. (2010).

Political targets:

50 % decrease 2013

70 % decrease 2015

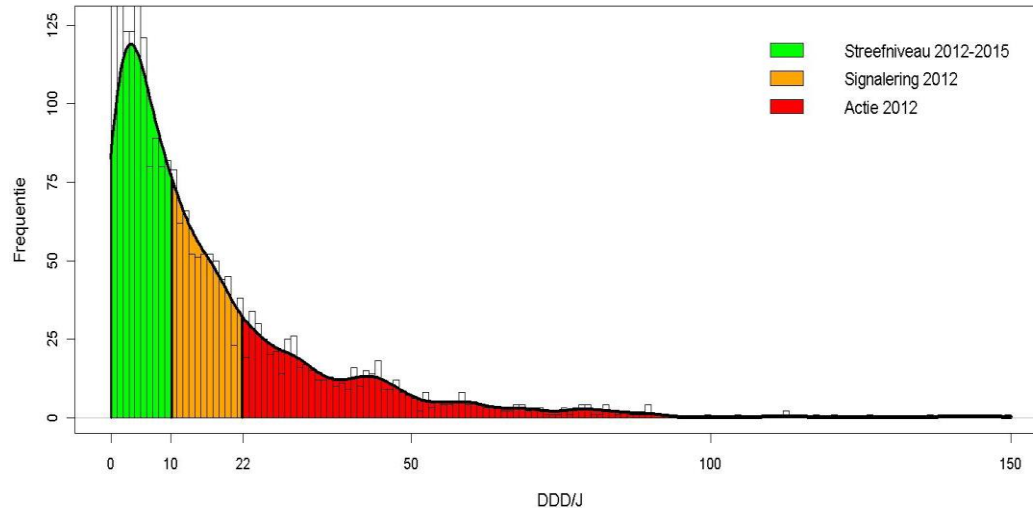
ANTIBIOTICS

“As little as possible – as much as necessary”

- **Focus**
 - general reduction of antibiotic use on farms
- **Challenge**
 - animal health and welfare
- **Purpose**
 - lower antibiotic resistance
- **Few market concepts**
 - “animals that were never in their life treated with AB”
 - digital registration of individual animals is needed

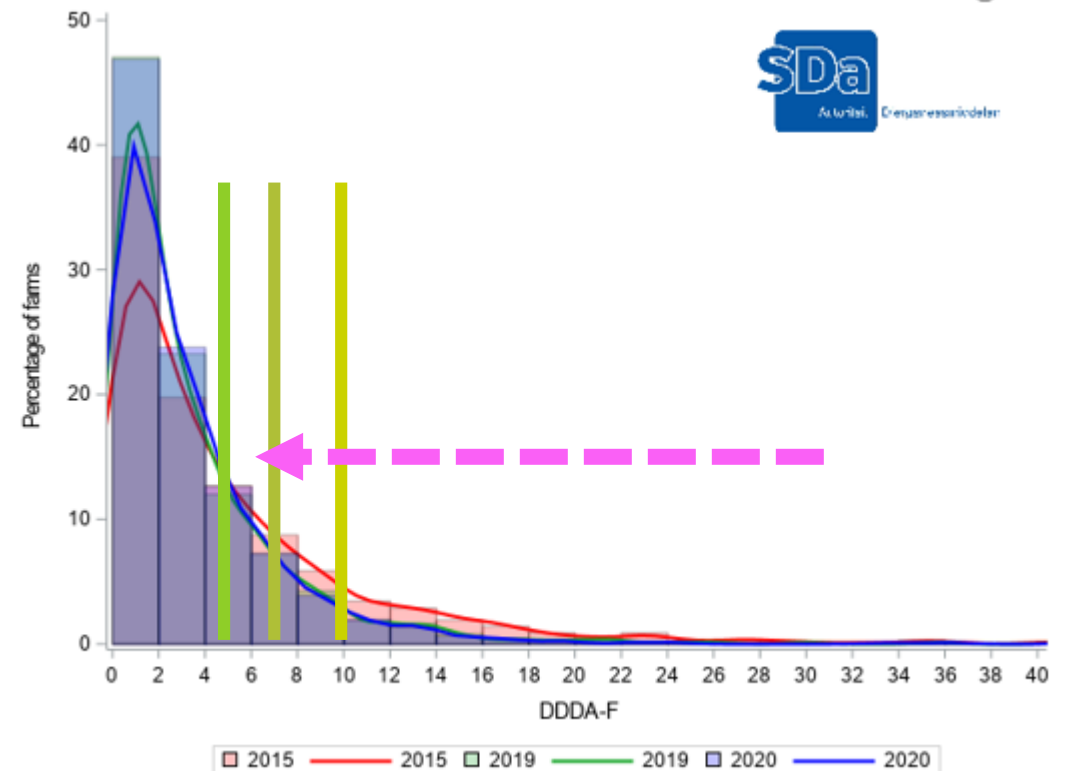
THE PROCESS OF ANTIBIOTIC REDUCTION

- The Netherlands veterinary medicines institute (2010)
- National database the Netherlands
 - Monitored sectors: cattle, calves, swine, poultry (chickens), turkeys, goats, rabbits
 - Future years: (EU) companion animals, horses, sheep
 - Defined Daily Dose/ year: per farm and per animal category
- Veterinarian benchmark



THE PROCESS OF ANTIBIOTIC REDUCTION

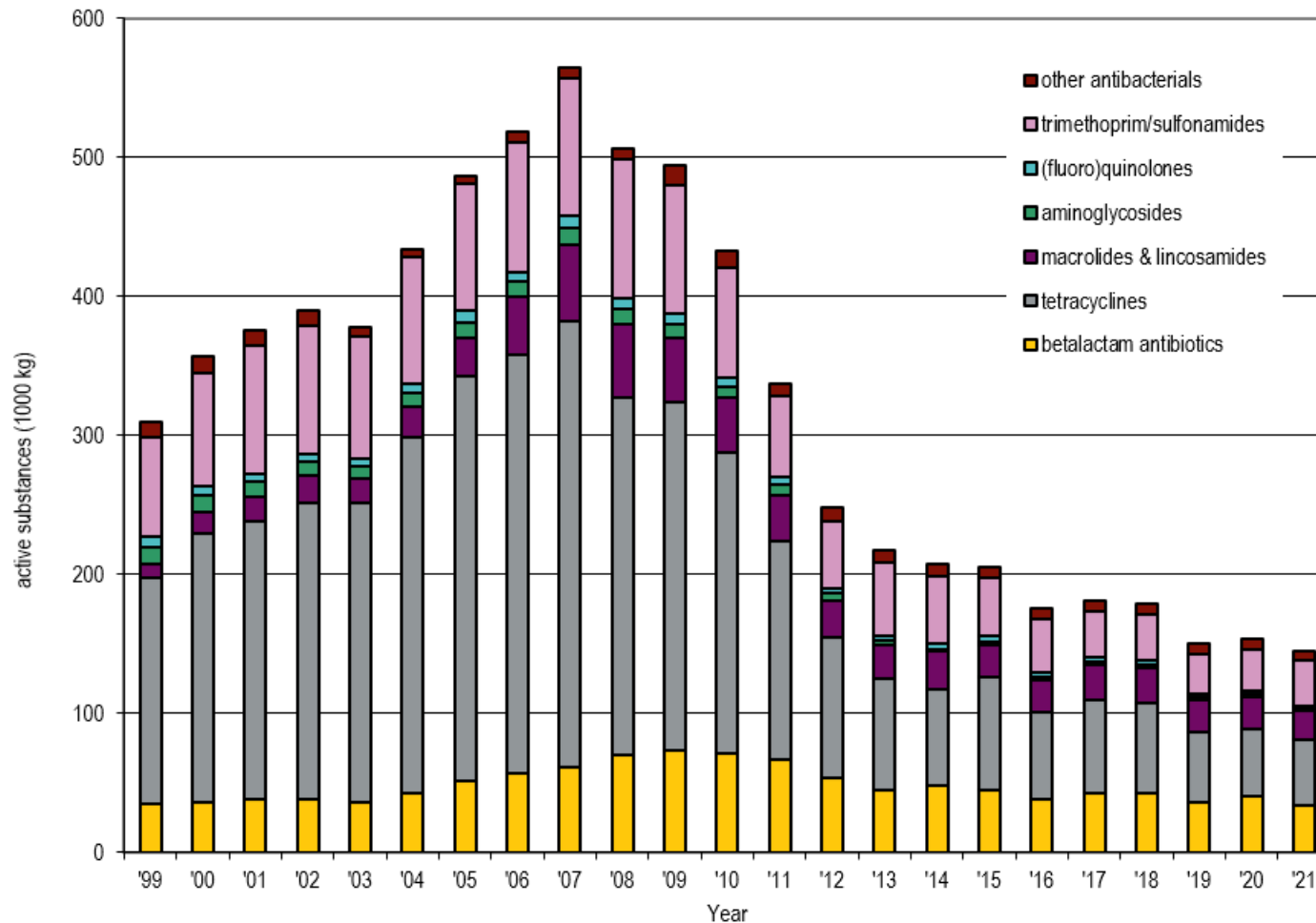
- Swine - categories:
 1. Sows incl. suckling piglets
 2. Finishers
 3. Weaned piglets
- Moving targets →
- Sows & finishers:
 - target for several years fixed
- Weaners:
 - still a moving target



Sows and suckling piglets. Farm distribution

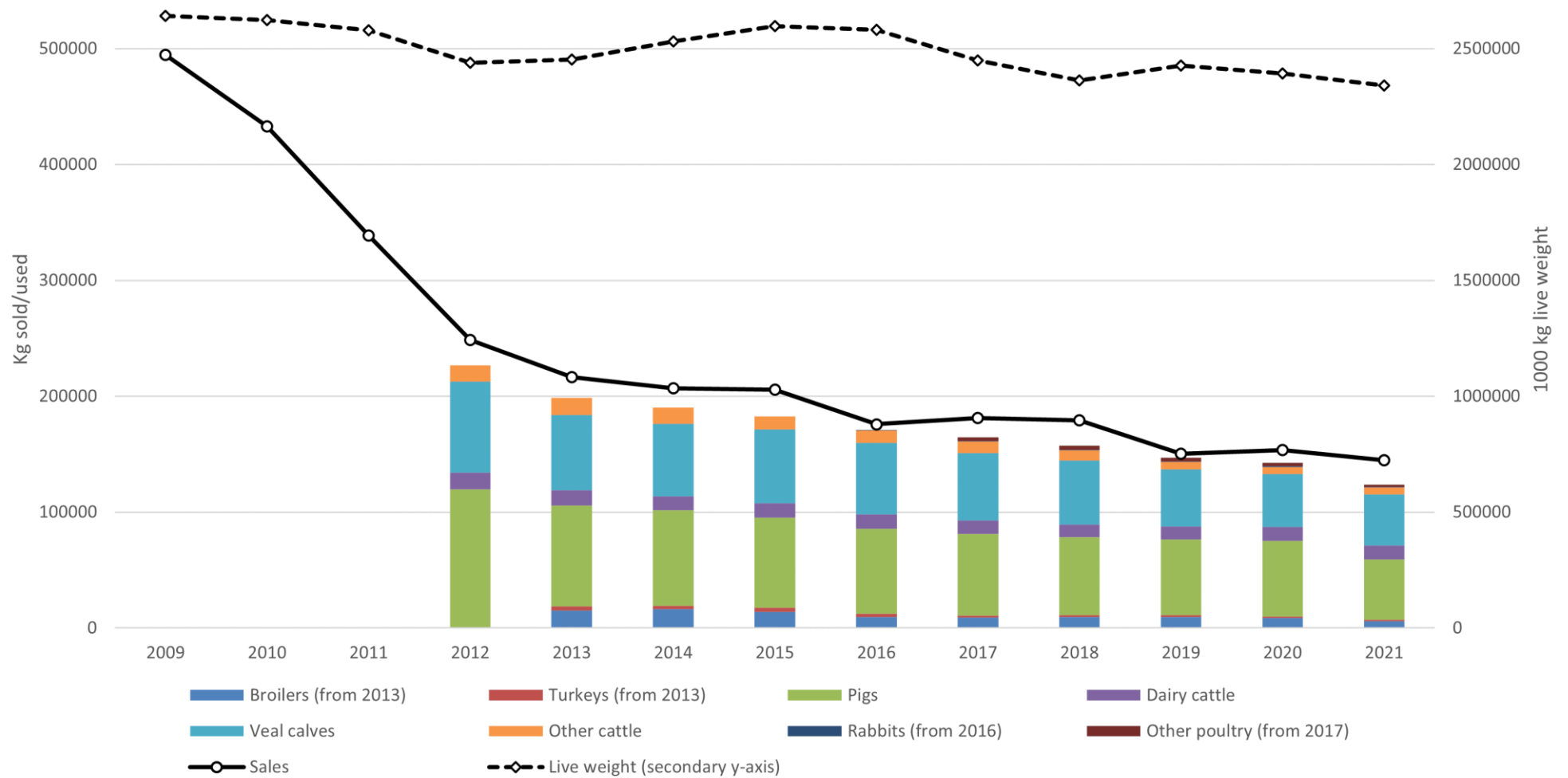
RESULTS THE NETHERLANDS

Total sales Antibiotics 2021



- **70,8 % decrease 2009 → 2021**
- 2006
 - Stop growth promoters in feed
- 2011
 - Stop all in feed antibiotics
- Decrease in veterinary antimicrobial use
- Decrease in antimicrobial resistance

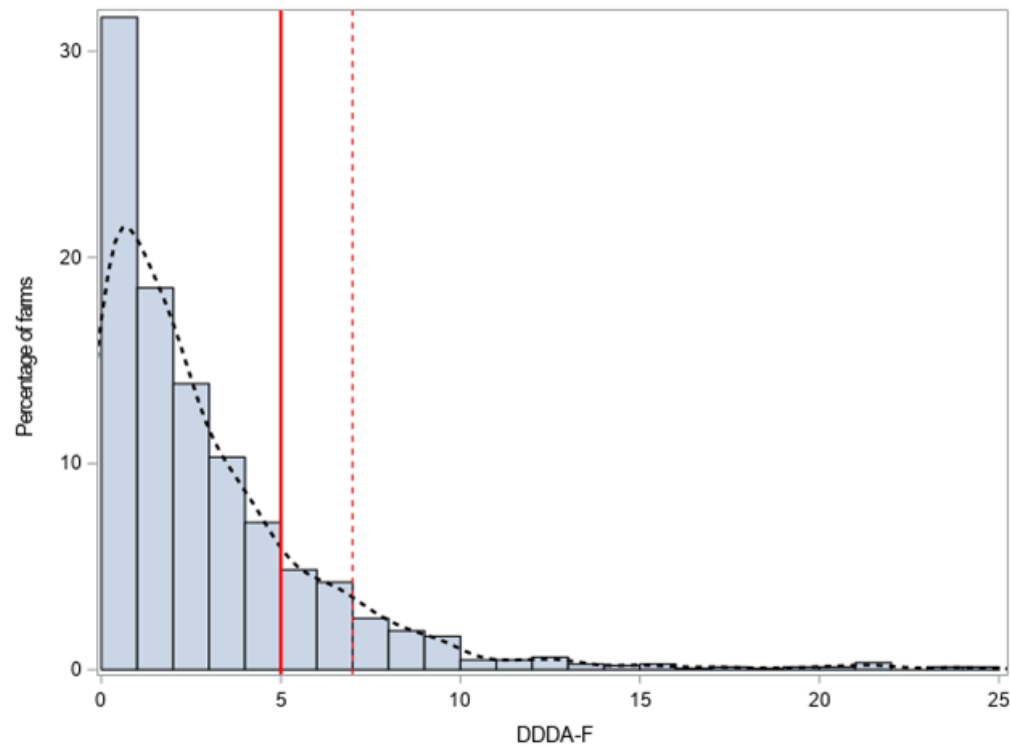
RESULTS THE NETHERLANDS



RESULTS SWINE – DISTRIBUTION FARMS 2021

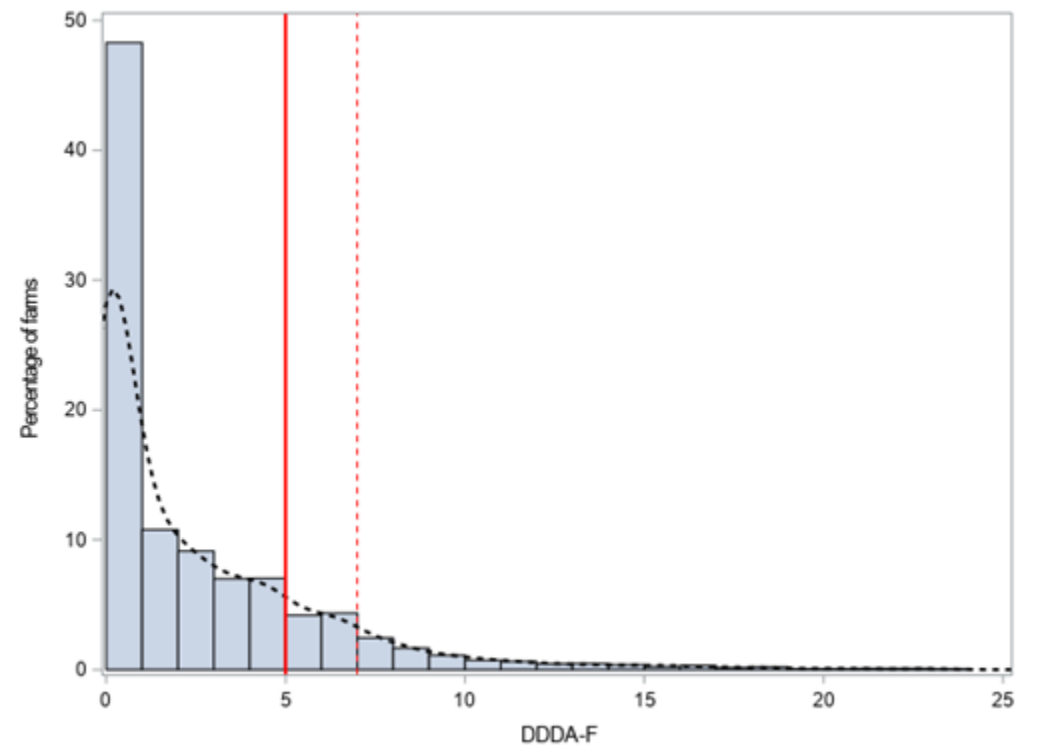
Sows incl suckling piglets

2015: 2.109 farms / 2021: 1.498 farms



Finishers

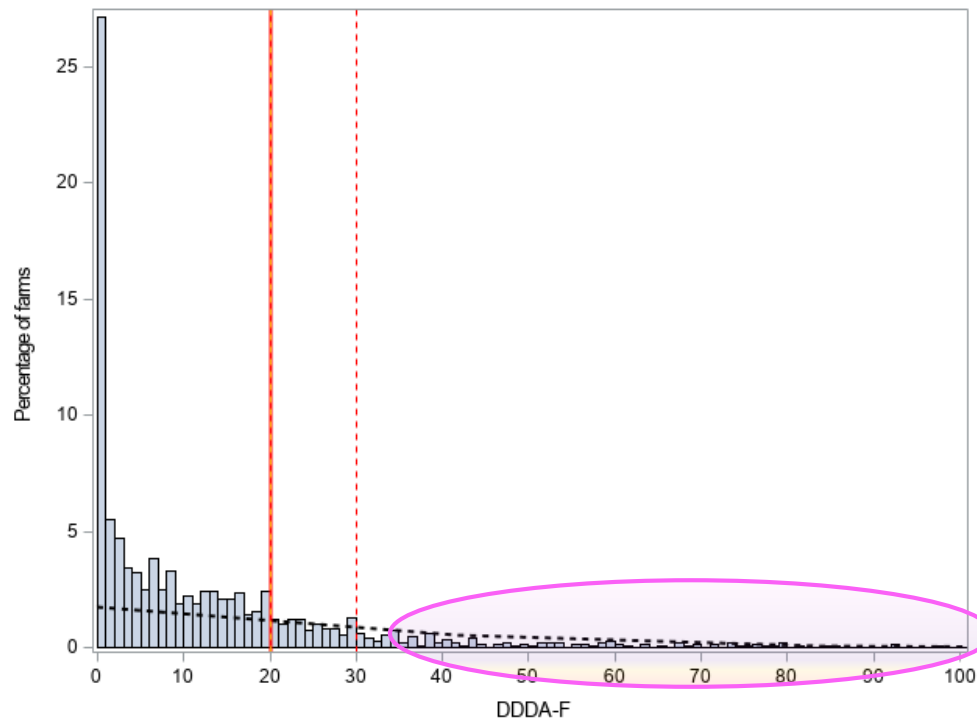
2015: 5.072 farms / 2021: 3.142 farms



RESULTS SWINE – DISTRIBUTION FARMS 2021

Weaned piglets

2015: 2.276 farms / 2021: 1.668 farms



Long tail of farms with high AB use

Focus on these farms

ACTIONS

- **Private quality systems for farms & vets:**
 - obliged to make a farm specific plan for reduction
- **General governmental regulations (for all farms)**
 - Antibiotic use only by vet, except:
 - 1 –on-1 contract vet- farmer & health plans
 - Regular veterinary visits (2 or 4 weekly)
 - Limited stock of medicine at the farm for use by farmer
 - Group treatments after vet visit & report
 - Farm specific treatment and prevention plans
 - Precise administration on treatment of animals



Karien Koenders over vervolgstappen varkenshouderij

Aanpak ‘rode’ bedrijven gaat hele sector helpen

Bevlogen, vasthoudend en toekomstgeoriënteerd is ze. Dierenarts Karien Koenders (43) toont het dagelijks als ze stallen bezoekt of bestuurswerk verricht voor het Collectief Praktiserende Dierenartsen (CPD). Ze maakt zich hard voor een gezond varken en een werkbare praktijk voor dierenartsen. Koenders: „Met de ondernemers werken aan een gezonde varkenshouderij.”

De eerste uitdaging die Karien Koenders ziet is het nóg verder terugdringen van het antibioticagebruik. „Het generiek terugdringen van het gebruik is goed gelukt; sinds 2009 hebben we bijna 70 procent gereduceerd en daar krijgt de sector complimenten voor. De aanpak op de meeste bedrijven heeft goed gewerkt. Nu focussen we op die bedrijven waar de aanpak onvoldoende resultaat opleverde. Dus de structureel ‘rode bedrijven’ met een (te) hoog antibioticagebruik. Vaak bedrijven met een complexe problematiek die een brede geïntegreerde aanpak eist. Denk aan een lastige gebouwsituatie, onderliggende infecties of ziekten en ja, soms ook de onwil of onkunde van de ondernemer.”

Antibiotica verder omlaag

Om deze bedrijven verder te helpen wordt de aanpak, in samenwerking met POV, dierenartsen en Nevedi, aangescherpt. „Alleen het advies van de dierenarts werkte blijkbaar onvoldoende”, stelt Koenders. In 2021 wordt voor deze bedrijven een adviesteam ingesteld waarin naast de dierenarts en voeradviseur ook andere betrokkenen

krijgen voor de afzet van de varkens. Dan wordt het wel een acuut probleem, ook voor die ondernemers die het tot nu toe, bewust of onbewust, lieten doorsudderen en die teveel antibiotica per dier nodig hebben”, geeft Koenders de consequenties weer. „Ik wil als dierenarts, samen met de ondernemer, doelen realiseren. Hij mag er niet alleen voor staan. De ondernemer moet natuurlijk wel gemotiveerd zijn om mee te doen.” Met deze aanpak denkt Koenders ook deze bedrijven op weg te helpen naar een varkenshouderij met zo minimaal mogelijke inzet van antibiotica. „En ja, soms zal het stoppen van een bedrijf de beste oplossing kunnen zijn. Dat wordt in deze aanpak uiteindelijk ook helder.”

EU-beleid diergeneesmiddelen

Wat Koenders dwarszit is dat in Europa geen sprake is van *level playing field* (gelijk speelveld) wat betreft het gebruik van diergeneesmiddelen zoals antibiotica. „Het is van de zotte dat in Nederland een bepaald middel tweede keuze is, en dus onder een strenger regime valt, terwijl in sommige gevallen 10 kilometer verder net over de grens van België of

om het voor alle indicaties of aangepaste dosering te registreren, terwijl iedereen weet dat het middel ergens perfect tegen werkt en dit ook wetenschappelijk onderbouwd is. „Het moeilijke is dat we als dierenarts volgens de wet niet mogen afwijken van de bijsluiter. Terwijl dat soms nodig is om een dier goed te kunnen behandelen! Zo kom je als dierenarts, en ook als varkenshouder, in de knel. Dat werkt frustrerend en gaat voorbij aan de kennis, kunde en ervaring van dierenarts en varkenshouder. Vanuit het CPD maken we ons hard voor een veel meer op de praktijk gerichte insteek. Veel meer de diergezondheid voorop en waar nodig in de zin van de wet in plaats van exact naar de letter. Ook dan werk je aan het terugdringen van het gebruik omdat je veel specifiekere, meer toegesne-

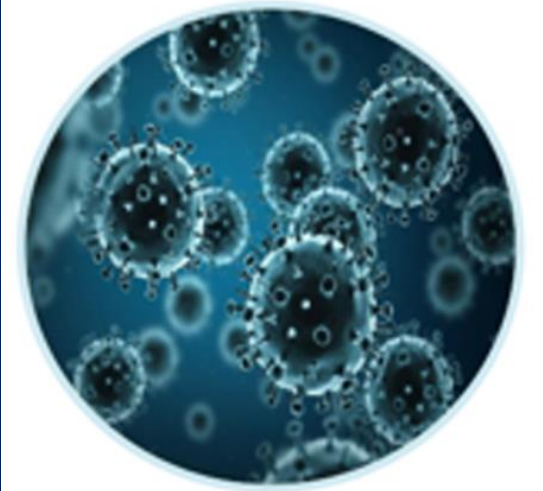
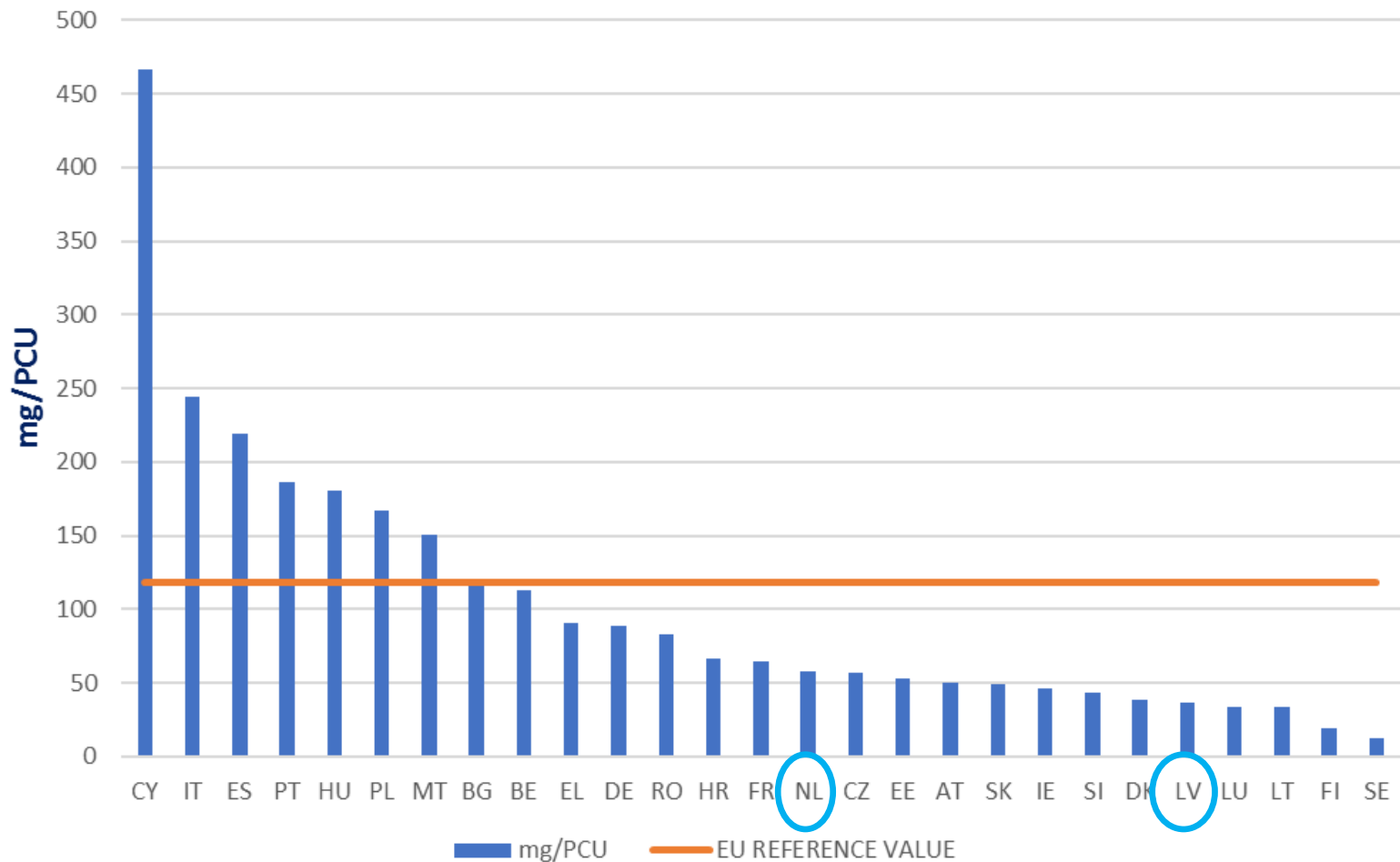
“
Minder gebruik antibiotica door specifieke aanpak

FOCUS ON PROBLEM FARMS: RED FOR 3 YEARS

- Program in private quality systems
- 2021:
 - Obligated to form “advisory teams”:
 - Farmer + vet + feed advisor
- 2022:
 - Farm stil **RED**:
 - Obligated to add an external expert to the team
- 2023:
 - Farm still **RED**:
 - Possible consequences in private quality system



FARM TO FORK STRATEGY EU - "GREEN DEAL" - 2030



Reduce sales of antimicrobials for farmed animals and in aquaculture by 50%



WHAT DID FARMERS DO ?

- We mostly still have conventional health farms (PRRS +, Mycoplasma +, APP +)
- Trend towards SPF ±

- **More individual treatments – less group treatments**
- **More attention for management:**
 - The right feed at the right time
 - Personnel
 - Weaning age
 - Hygiene, biosecurity, climate
- **More attention for prevention:**
 - Monitoring, diagnostics
 - Vaccinations
 - Circo, PRRS, mycoplasma, APP, PIA,
 - Alternatives
 - Genetics



DASHBOARD TECHNICAL DATA

VACCINATION

MONITORING

FARM HEALTH COACH

CAMERAS

MANAGEMENT SUPPORT

WELFARE CHECK

DIAGNOSTICS

BIOSECURITY

DATA

ALTERNATIVES

SLAUGHTERHOUSE CHECK

HEALTHY CLIMATE MONITOR

S.I.N.S. SCORES PIGLETS

DECISION MAKING TOOL PRRS PROGRAM

VETERINARY CARE & DIAGNOSTICS



Laboratory analysis

- ▶ Necropsy
- ▶ Microbiology
- ▶ Serological analysis
- ▶ PCR
- ▶ Biochemistry

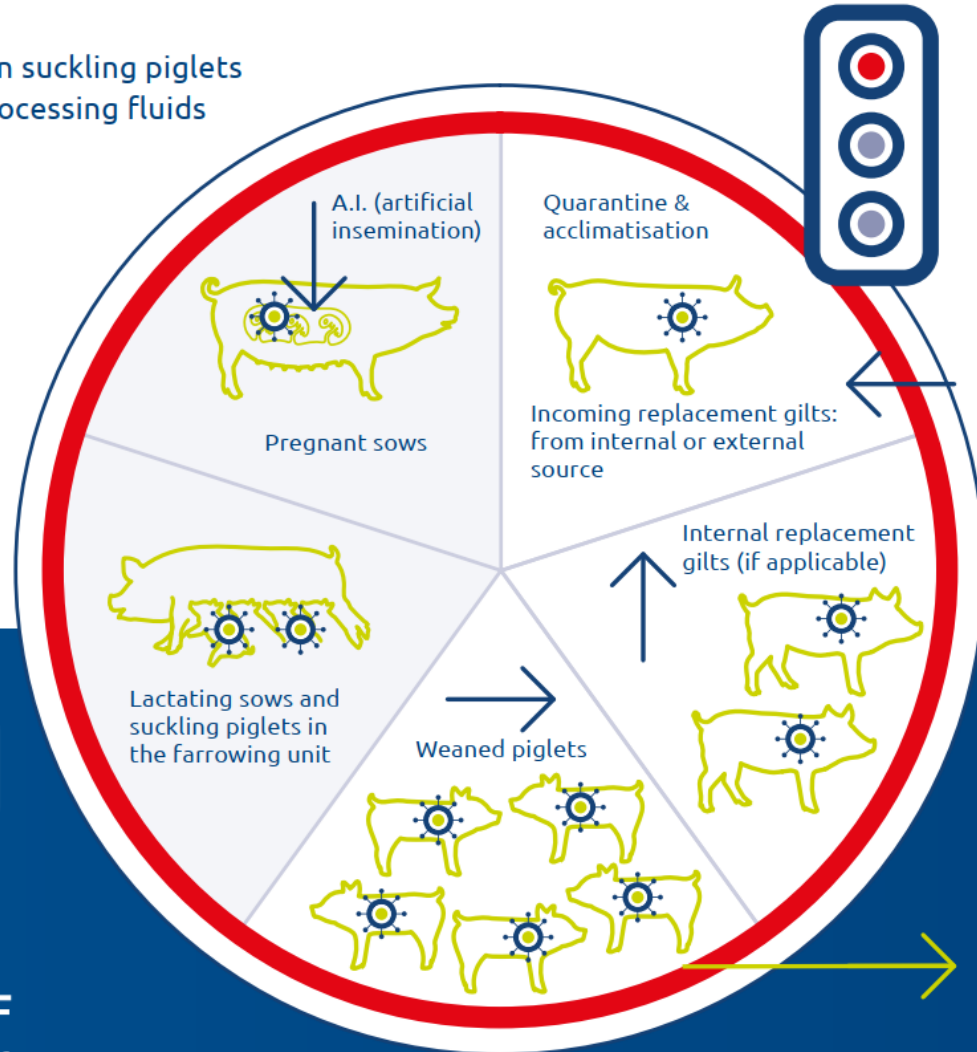


PRRS PROGRAM

PCR monitoring and decision making tools

Instable farm

PRRS field strain is found in suckling piglets in the farrowing unit (in processing fluids and/or serum)



Checklist of focus points concerning internal biosecurity and management

“Instable farm” (virus in the farrowing unit):

- Work on stabilisation
- Immunity in sows and replacement gilts
- Incoming replacement gilts:
 - (vaccination - acclimatisation - cool down) in quarantine
- Sperm
- Prevention of spreading of the virus between animals groups: make sure to protect pregnant sows and gilts from field strain PRRS
- Biosecurity in the farrowing unit
 - Hygiene, all-in-all-out, mingling/mixing of piglets in and between litters
- Mingling of litters at weaning
- Consider a vaccination plan

B.I. EUROPEAN PRRS RESEARCH AWARD



"First field evaluation of an innovative tool for systematic PRRSV control - including a modified Holtkamp system - on farms under Western European circumstances"

Karien Koenders, Eric van Esch - Lintjeshof and Merefelt
Livestock Diagnostics, the Netherlands

10 farms – 20.000 sows in total – 1 year

- 1. Monitoring by PRRS scan program**
- 2. Biosecurity check by Farm Health Coach**
- 3. Plan and follow up by vet**

EXAMPLE FARM IN PRRS PROGRAM

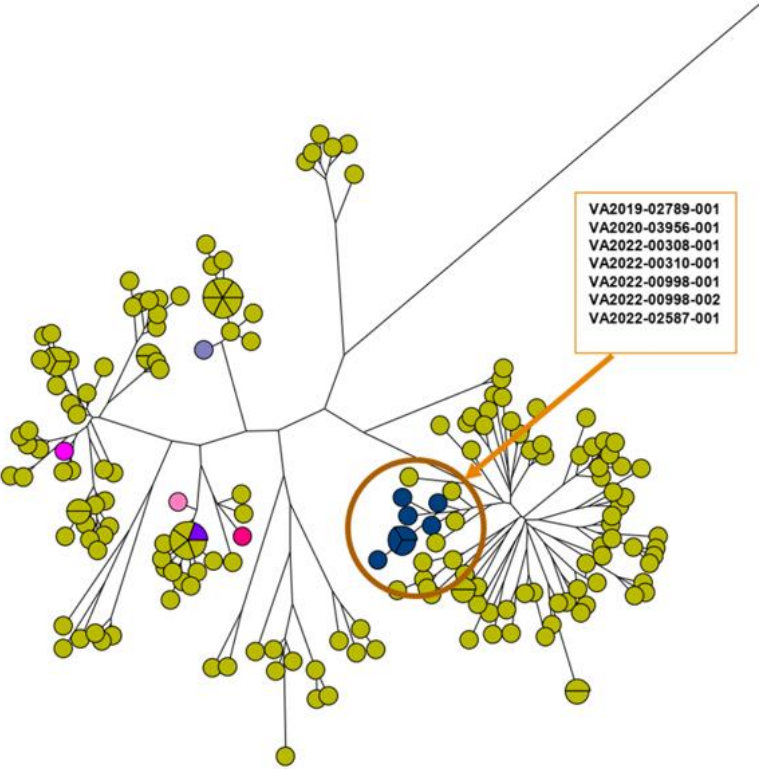
PRRS monitoring report

PRRS sequencing → internal biosecurity

MEREFELT
veterinary diagnostics

Report: [redacted]
Date: [redacted]
Remarks: [redacted]
Reference: [redacted]

Sample	Sample ID	Sample Type	Sample Location	Sample Date	Sample Status	Sample Result	Sample Action	Sample Comment	Sample Reference	Sample ID	Sample Type	Sample Location	Sample Date	Sample Status	Sample Result	Sample Action	Sample Comment	Sample Reference
VA2019-02789-001	VA2019-02789-001	PRRS	PRRS	2019-02-27	PRRS	PRRS	PRRS	PRRS	PRRS	VA2020-03956-001	PRRS	PRRS	2020-03-27	PRRS	PRRS	PRRS	PRRS	PRRS
VA2020-03956-001	VA2020-03956-001	PRRS	PRRS	2020-03-27	PRRS	PRRS	PRRS	PRRS	PRRS	VA2022-00308-001	PRRS	PRRS	2022-00-30	PRRS	PRRS	PRRS	PRRS	PRRS
VA2022-00308-001	VA2022-00308-001	PRRS	PRRS	2022-00-30	PRRS	PRRS	PRRS	PRRS	PRRS	VA2022-00310-001	PRRS	PRRS	2022-00-31	PRRS	PRRS	PRRS	PRRS	PRRS
VA2022-00310-001	VA2022-00310-001	PRRS	PRRS	2022-00-31	PRRS	PRRS	PRRS	PRRS	PRRS	VA2022-00998-001	PRRS	PRRS	2022-00-99	PRRS	PRRS	PRRS	PRRS	PRRS
VA2022-00998-001	VA2022-00998-001	PRRS	PRRS	2022-00-99	PRRS	PRRS	PRRS	PRRS	PRRS	VA2022-00998-002	PRRS	PRRS	2022-00-99	PRRS	PRRS	PRRS	PRRS	PRRS
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VA2022-02567-001	VA2022-02567-001	PRRS	PRRS	2022-02-25	PRRS	PRRS	PRRS	PRRS	PRRS									



EXAMPLE FARM IN PRRS PROGRAM

ACTIONS

- Improved organisation of **gilt development unit**
 - Vaccinations
 - Housing
 - Acclimatization & cool-down
- **Piglet vaccination**
- **Biosecurity**
 - Separate material and clothes between animal groups
 - Better hygiene after transport
 - Farrowing house management
 - Use of needles per litter
 - Climate check
 - Limited mixing of litters at weaning

→ **step by step improvement of health management**

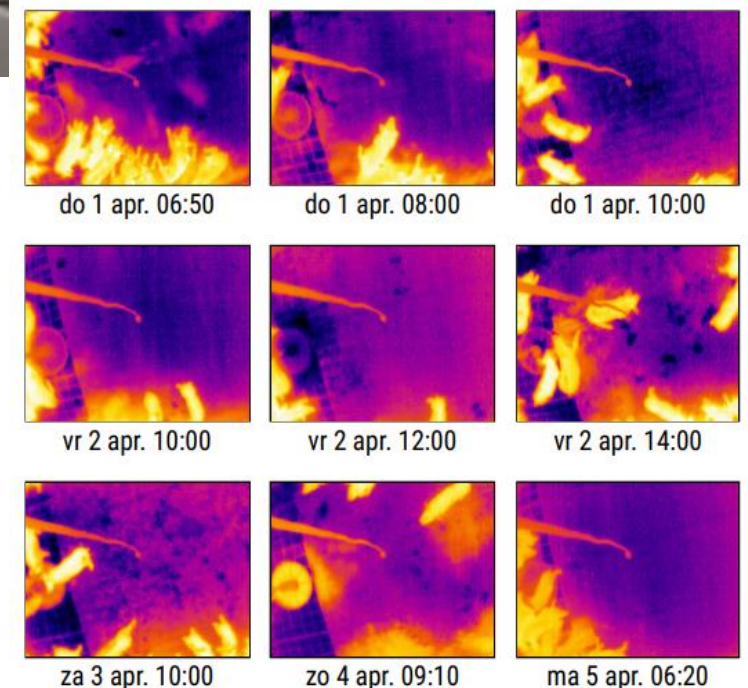
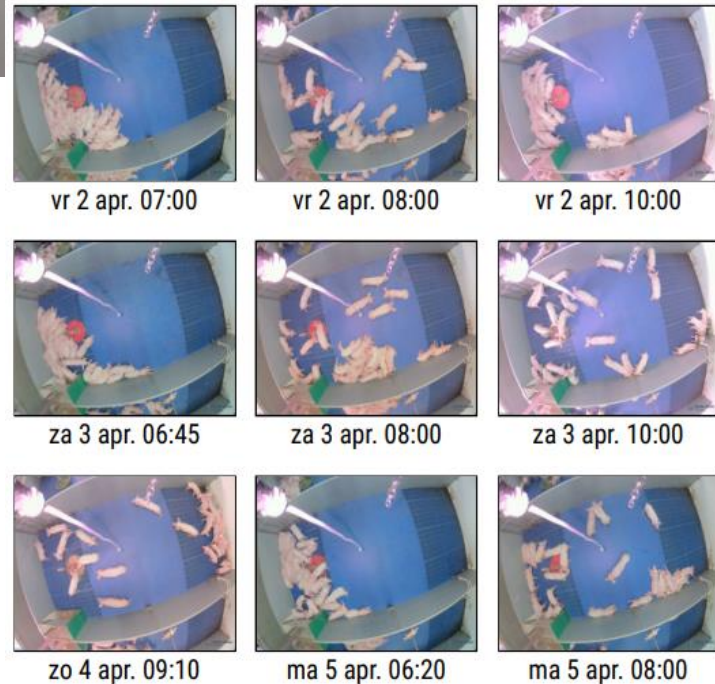
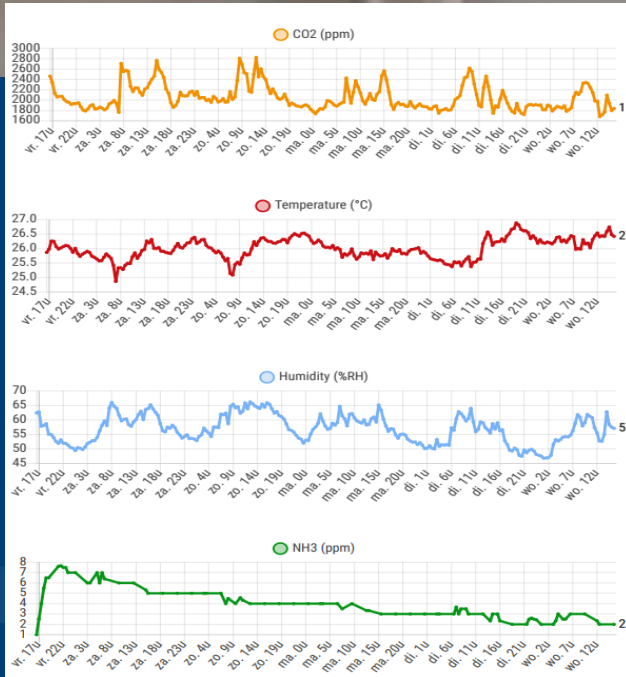
BIOSECURITY

Veterinarian & Farm Health coach:

- Signaling, raising awareness
- Measuring
 - Hygiene checks
 - Biosecurity checks
- Training of workers



HEALTHY CLIMATE MONITOR



Measurement of NH3, CO2, humidity, temperature & camera & movement

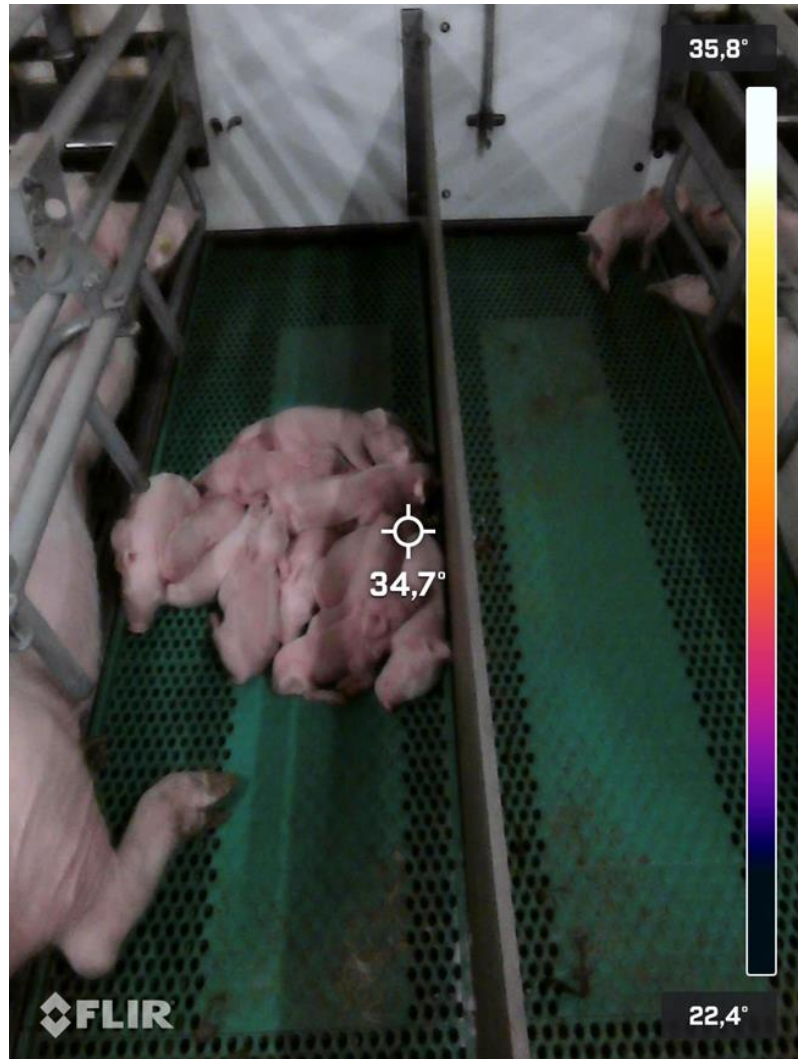
HEALTHY CLIMATE MONITOR



HEALTHY CLIMATE MONITOR



MANAGEMENT & HOUSING



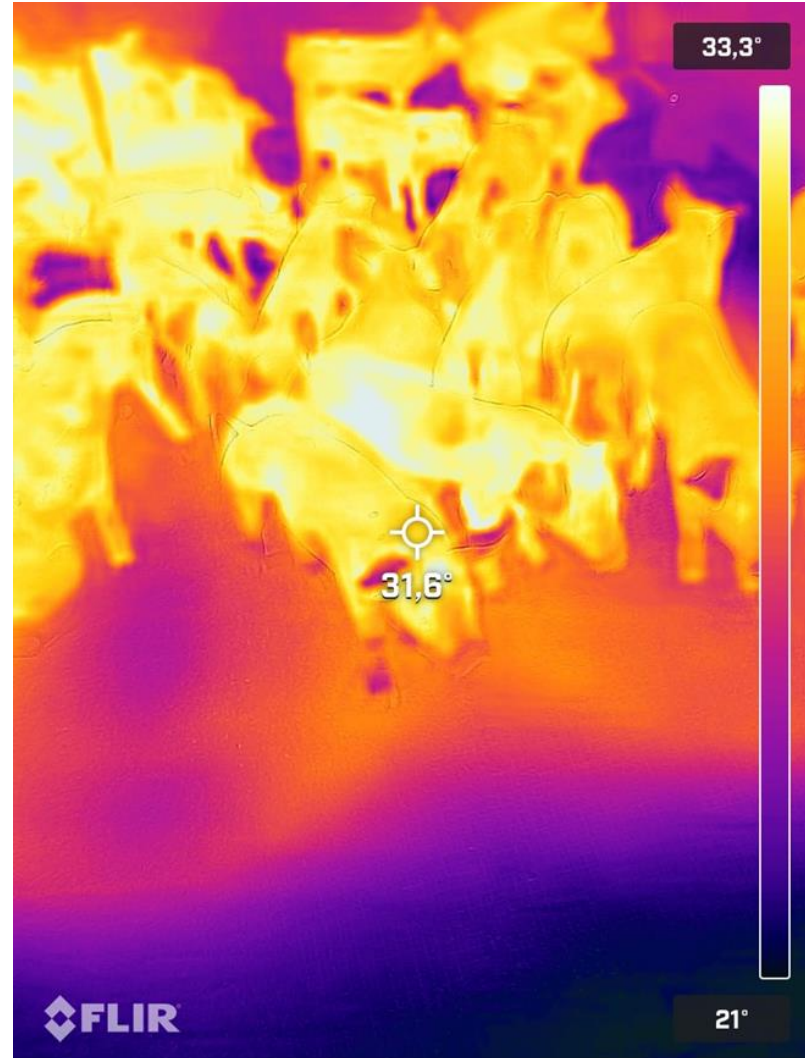
Nest too cold → piglets more sensitive too diarrhea & diseases

DETECTING HEALTH ISSUES EARLIER

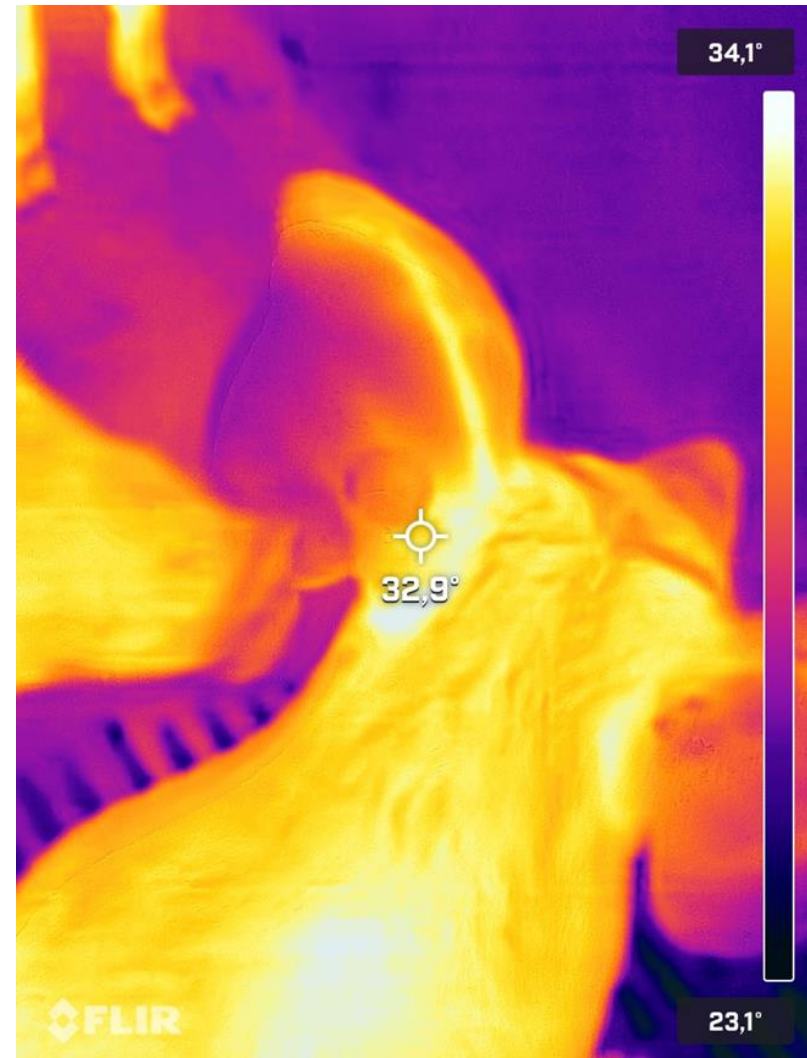
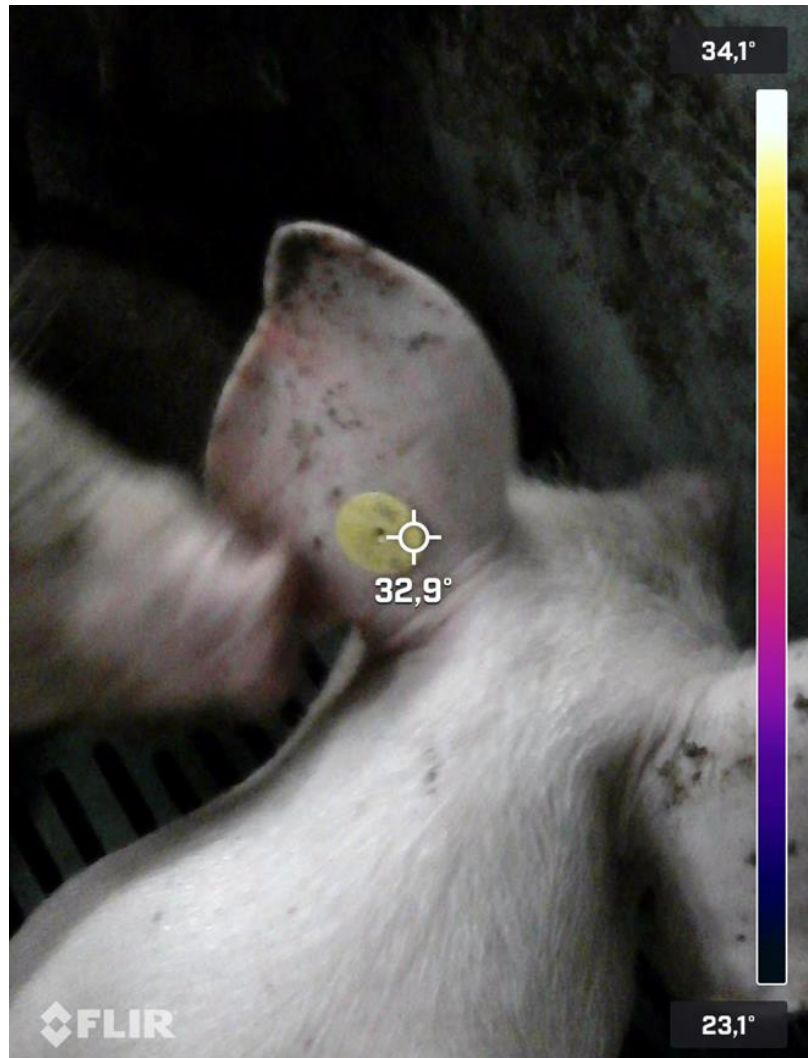


Sound Talks

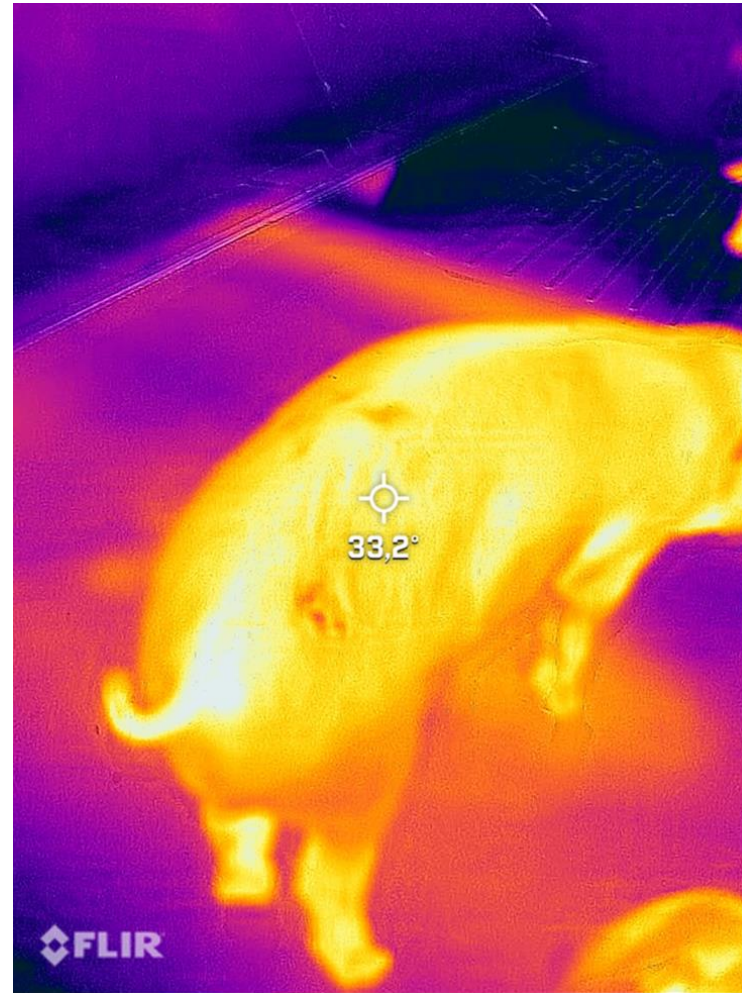
LONG TAILS IN 2030 ?



AS LONG AS WE HAVE EAR-NECROSIS IN PIGLETS ... →



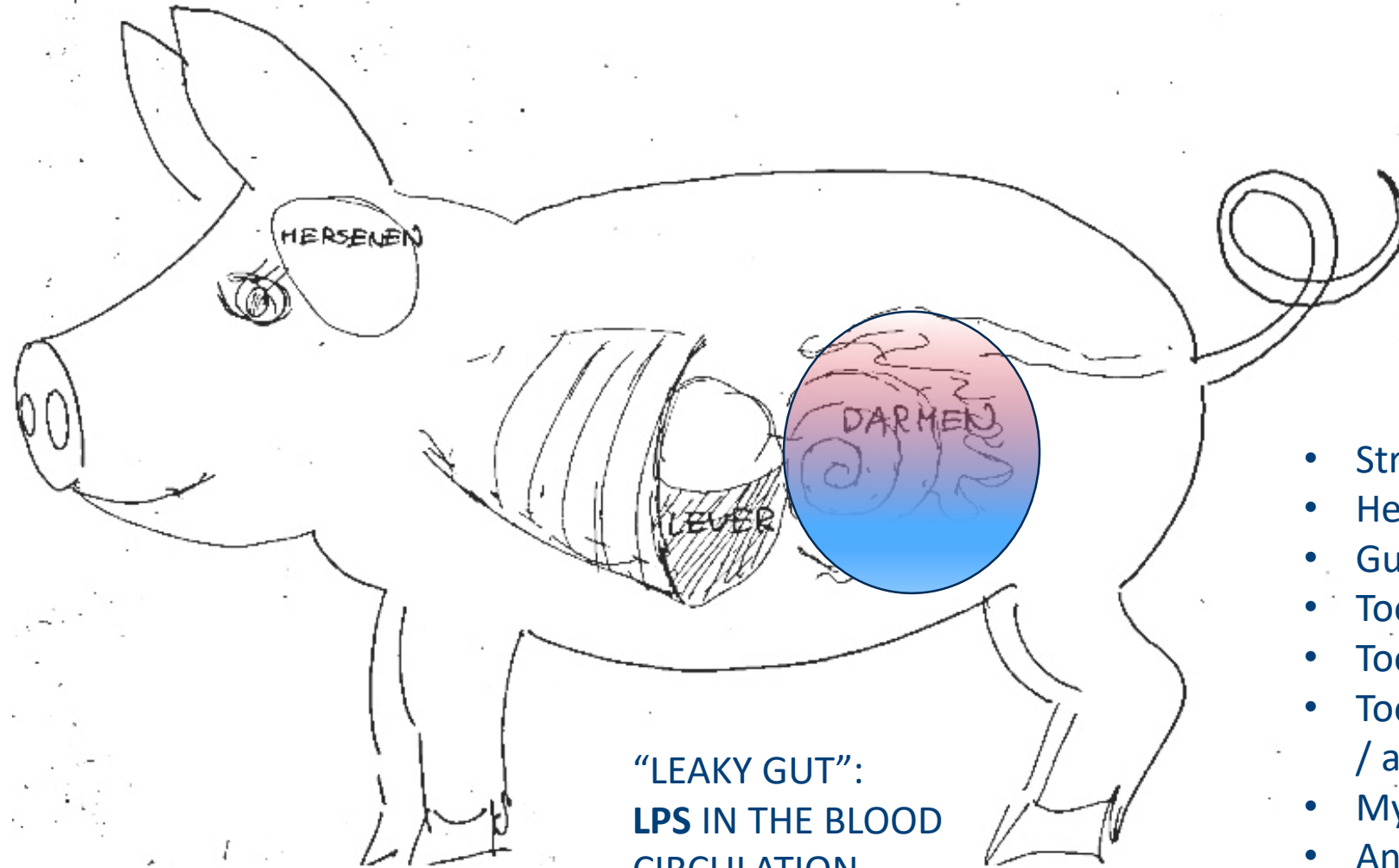
WE CAN NOT KEEP LONG TAILS



EAR-NECROSIS: NOT ONLY A LOCAL PROBLEM ...



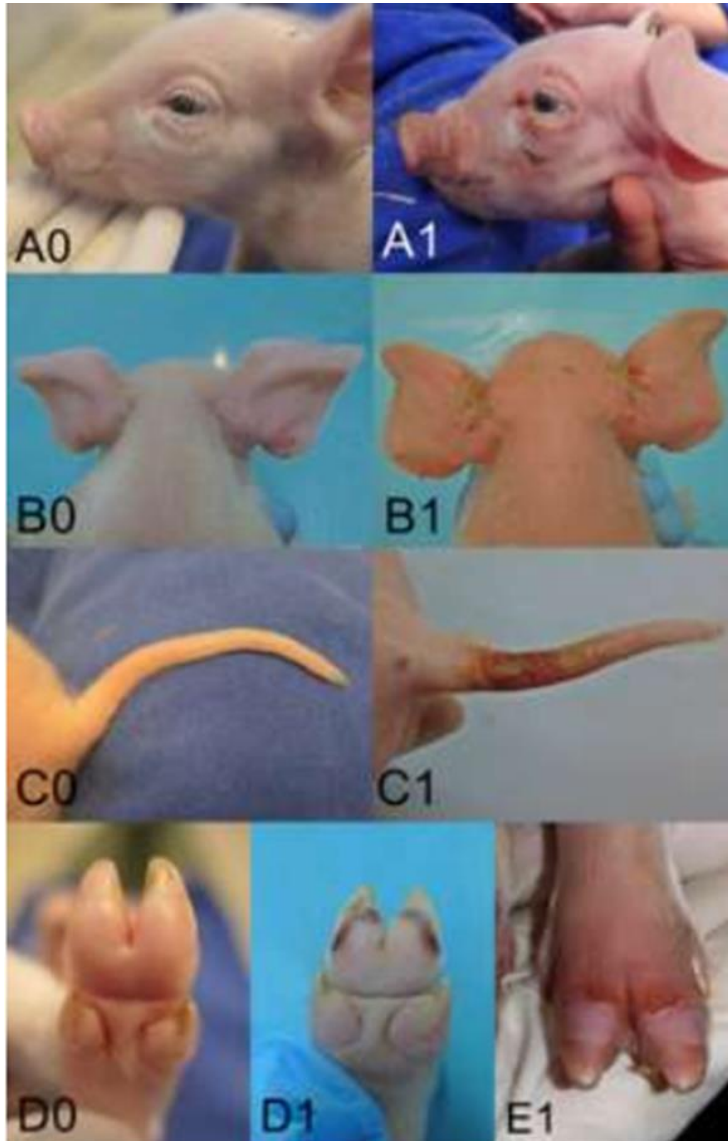
SWINE INFLAMMATION AND NECROSIS SYNDROM



“LEAKY GUT”:
LPS IN THE BLOOD
CIRCULATION

- Stress
- Heat stress
- Gut flora disrupted
- Too little roughage/ fibre
- Too little water availability
- Too little (or too much) protein / amino acids
- Mycotoxins
- Antinutritional factors feed

S.I.N.S. IS VISIBLE IN THE FIRST DAYS OF LIFE !



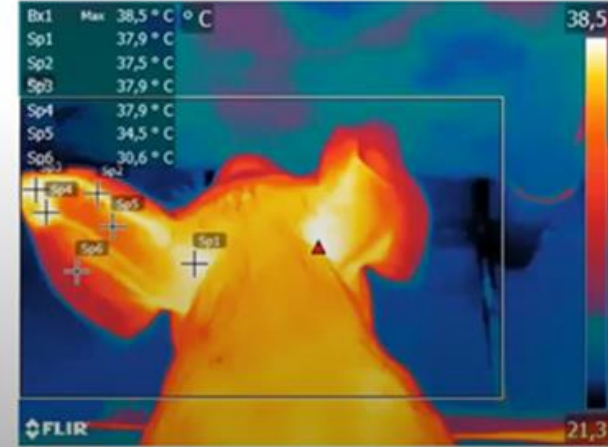
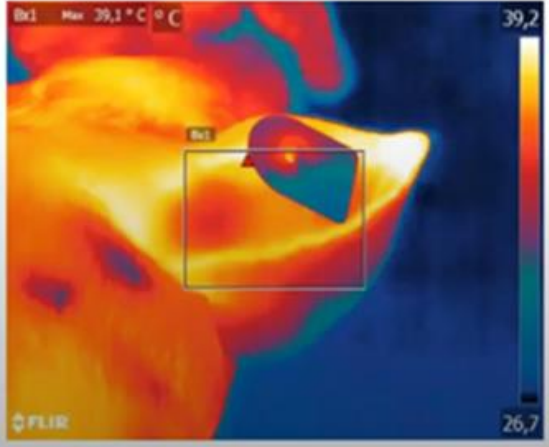
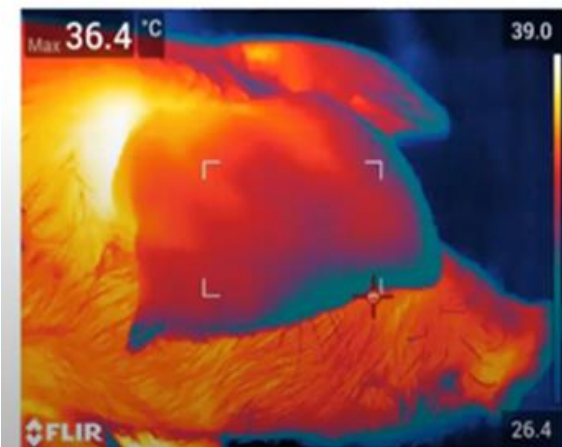
Score system

- Ears
- Face
- Nipples
- Umbilicus
- Vulva
- Ball of feet
- Coronary band feet
- Tail base & tip

→ Take actions !

→ Prevention !

EAR NECROSIS IN WEANED PIGLETS



Recommendation: [FitForPigs App](#) – Mirjam Lechner

PICTURES FROM PRACTICE

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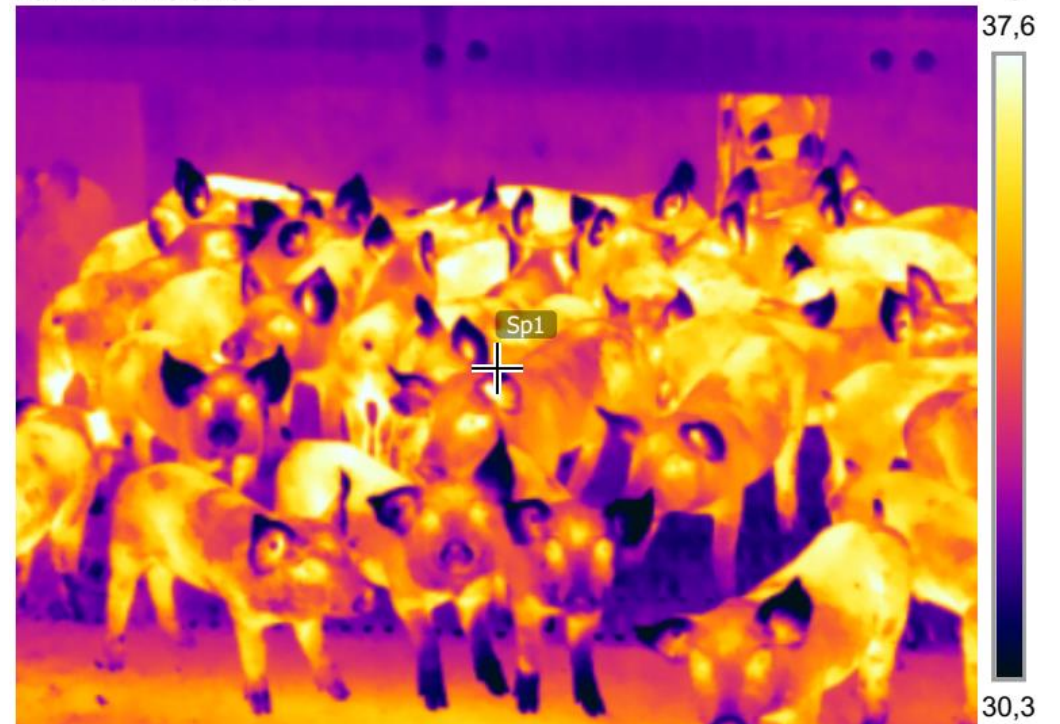


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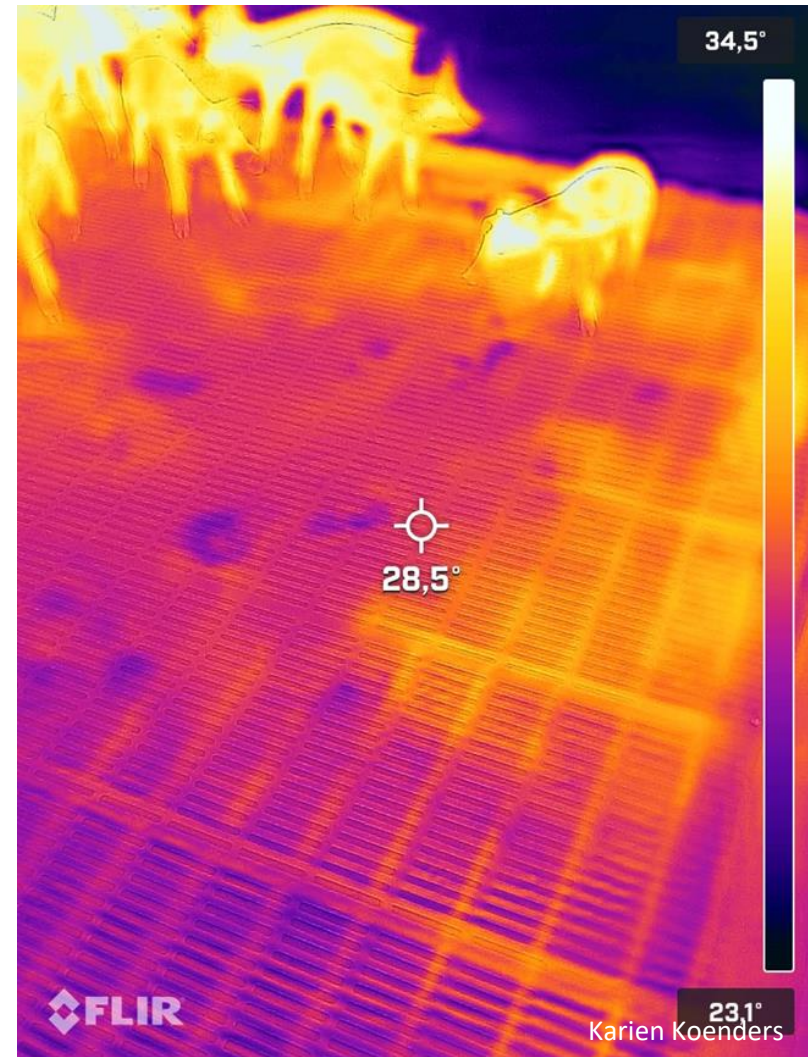
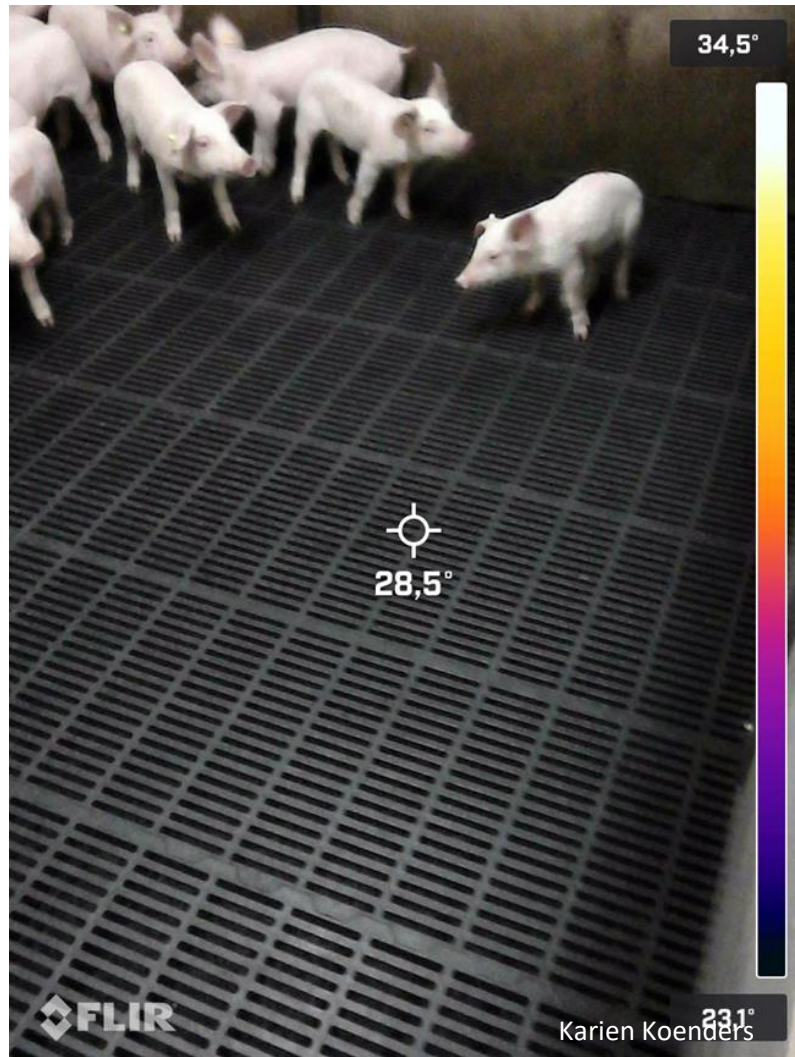


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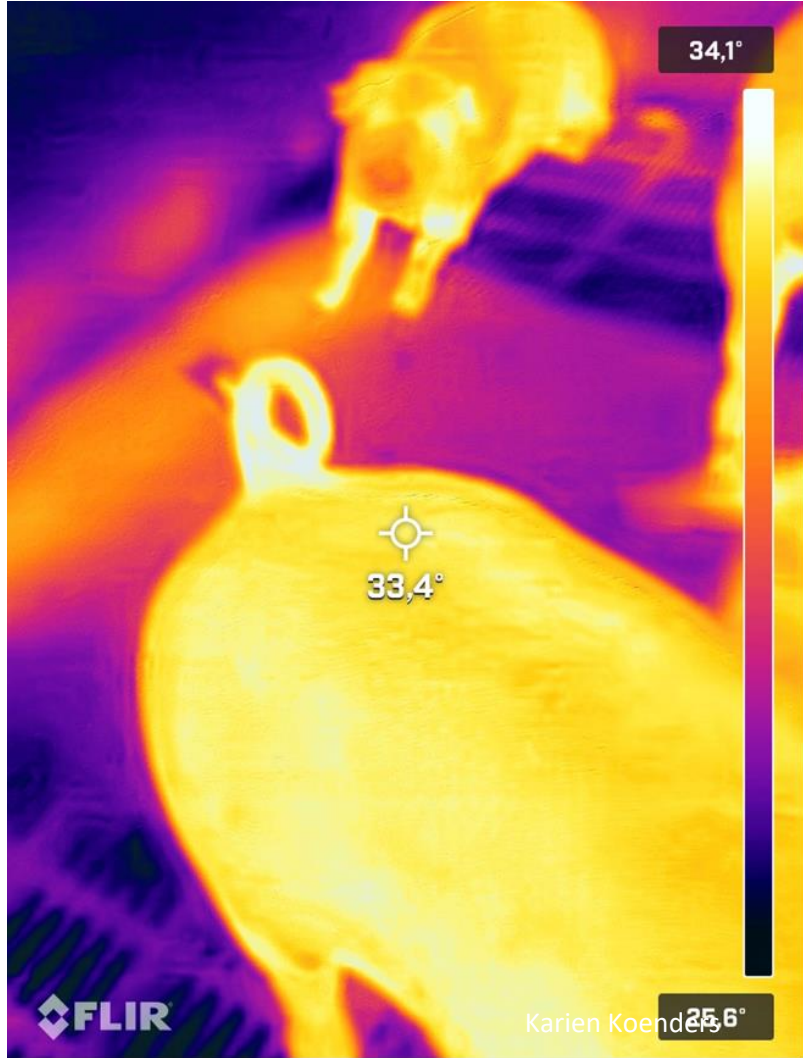
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PLASTIC FLOORS – HEAT STRESS



TAIL BITING IN GILTS



THE FUTURE .. IS NOW

- Even less antibiotics, prudent use
- More and more attention for welfare
- Challenges !
- Role for veterinarian as coach



THANK YOU FOR YOUR ATTENTION

