Pig - Perspectives Past & Present

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In the beginning was

50 years of (pig) research trends

1970-1990 **Export – supply**

1990-2010 **Food-safety**

2010-2025 **Sustainability**

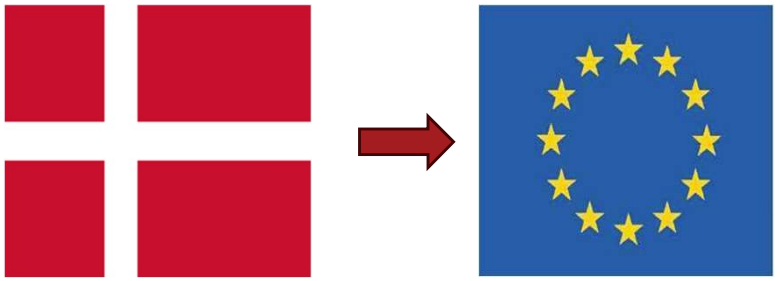
2025-???? **Ethicality ?**

Inspired by Pedersen, K.B. 2020

1970- 1990

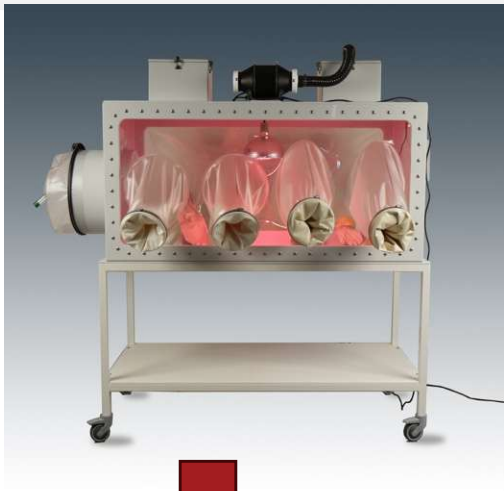
- In
- In
- Pr

1970s



- Cross-breeding (1970)
- SPF-system (1971)
- Biosecurity - closed herds
- Earlier weaning (8 -> 4 weeks)
- Antibiotics to farmers
- Herd trials
- Pig health diploma (1978)

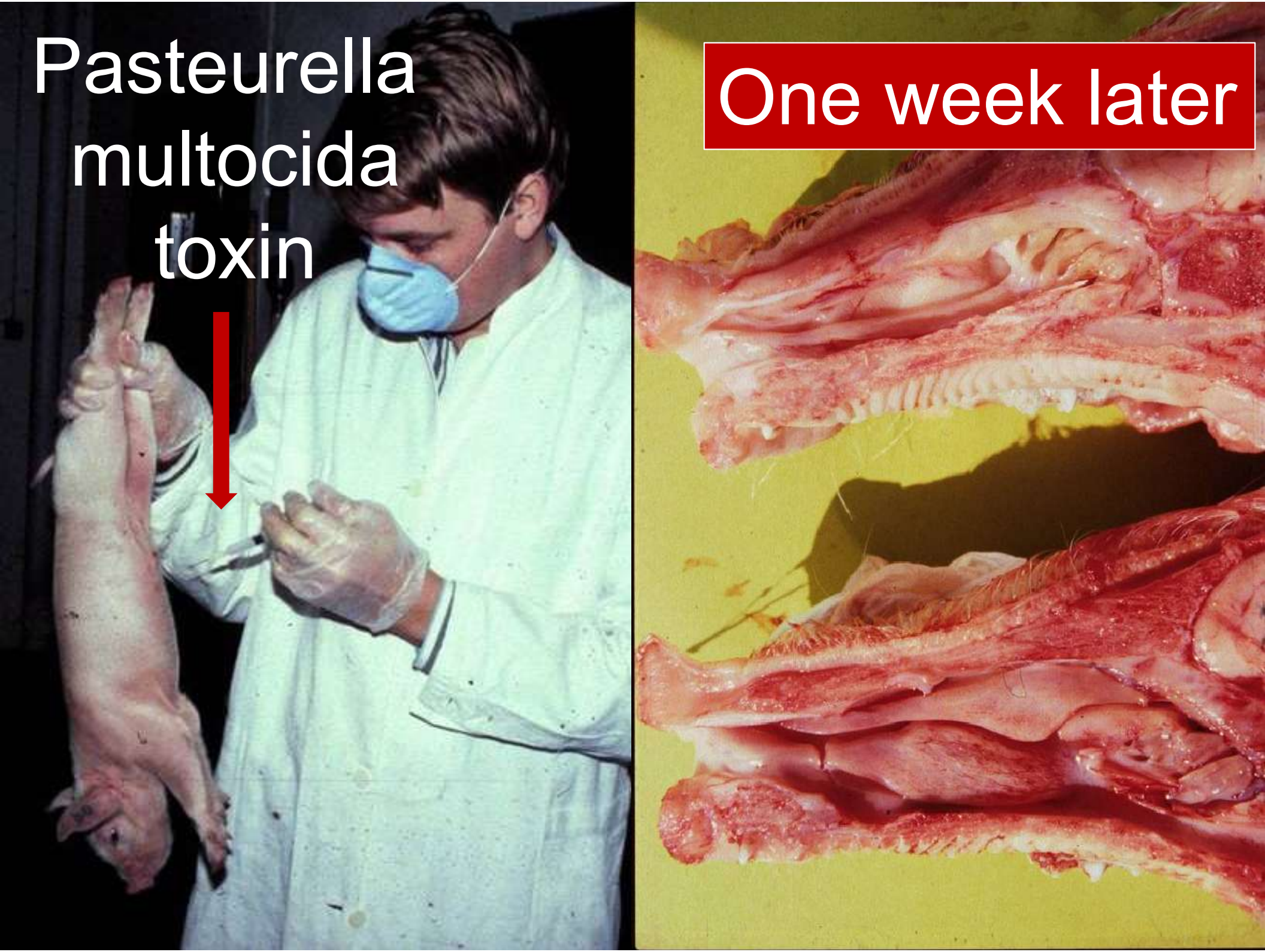
SPF version 1970



- Clinical monitoring
  - laboratory diagnosis ?

Re-infection (1985)
Atrophic rhinitis

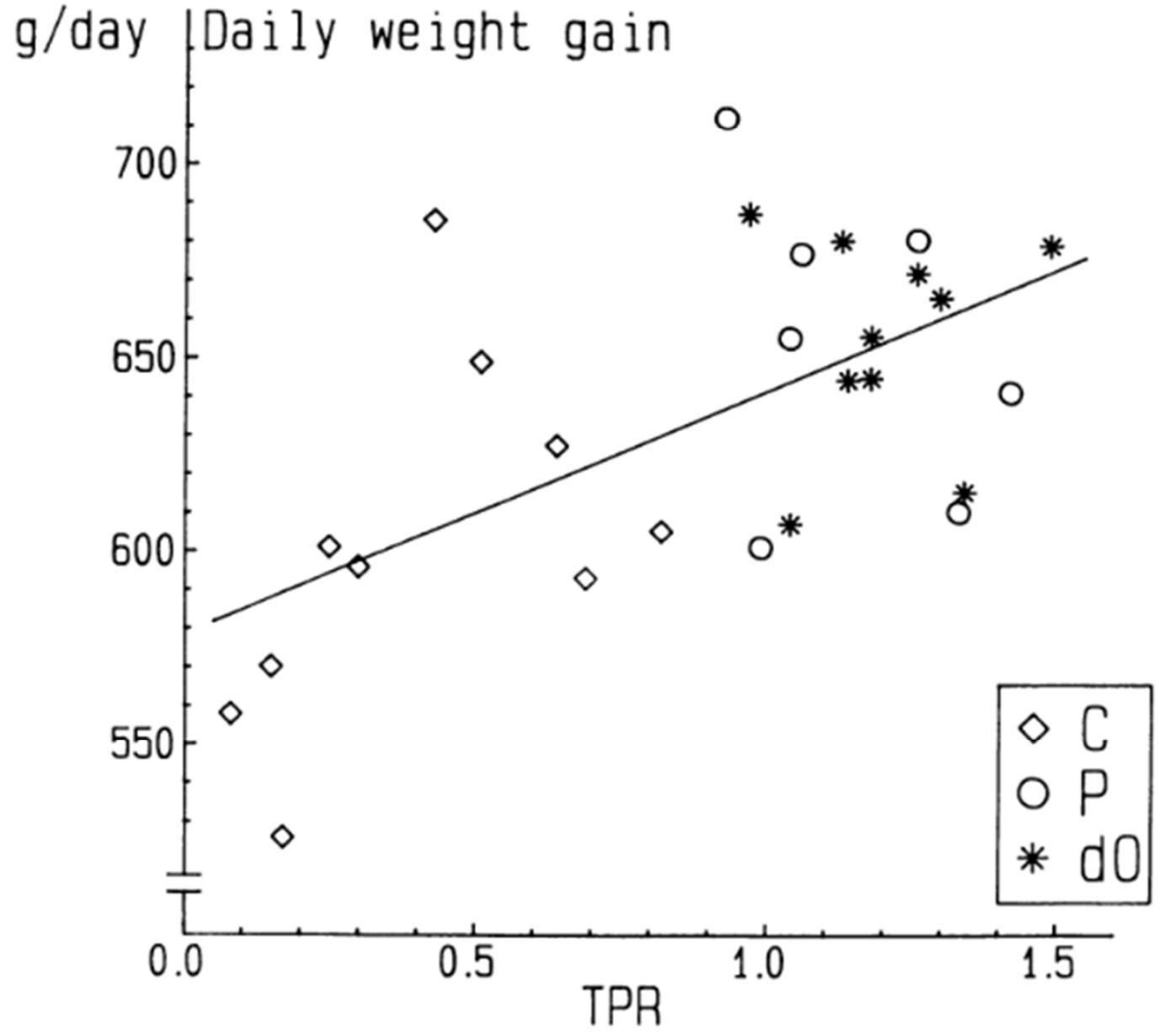
Atrophic Rhinitis

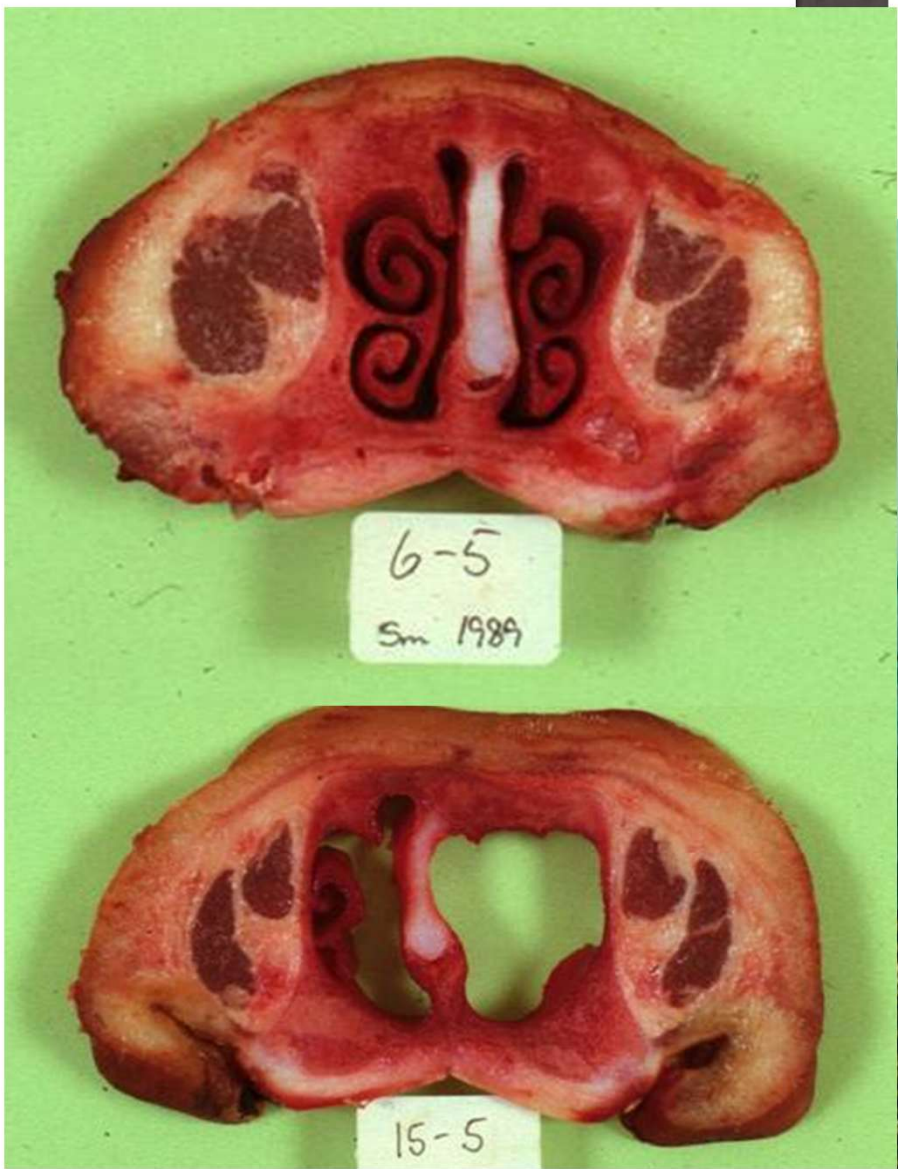

Pasteurella multocida toxin
One week later

Vaccination against Progressive Atrophic Rhinitis with a Recombinant *Pasteurella multocida* Toxin Derivative

Jens P. Nielsen, Niels T. Foged, Vibeke Sørensen, Kristen Barfod, Anne Bording and Svend K. Petersen

Can J Vet Res 1991; 55: 128-138





1990-2010
Food-safety

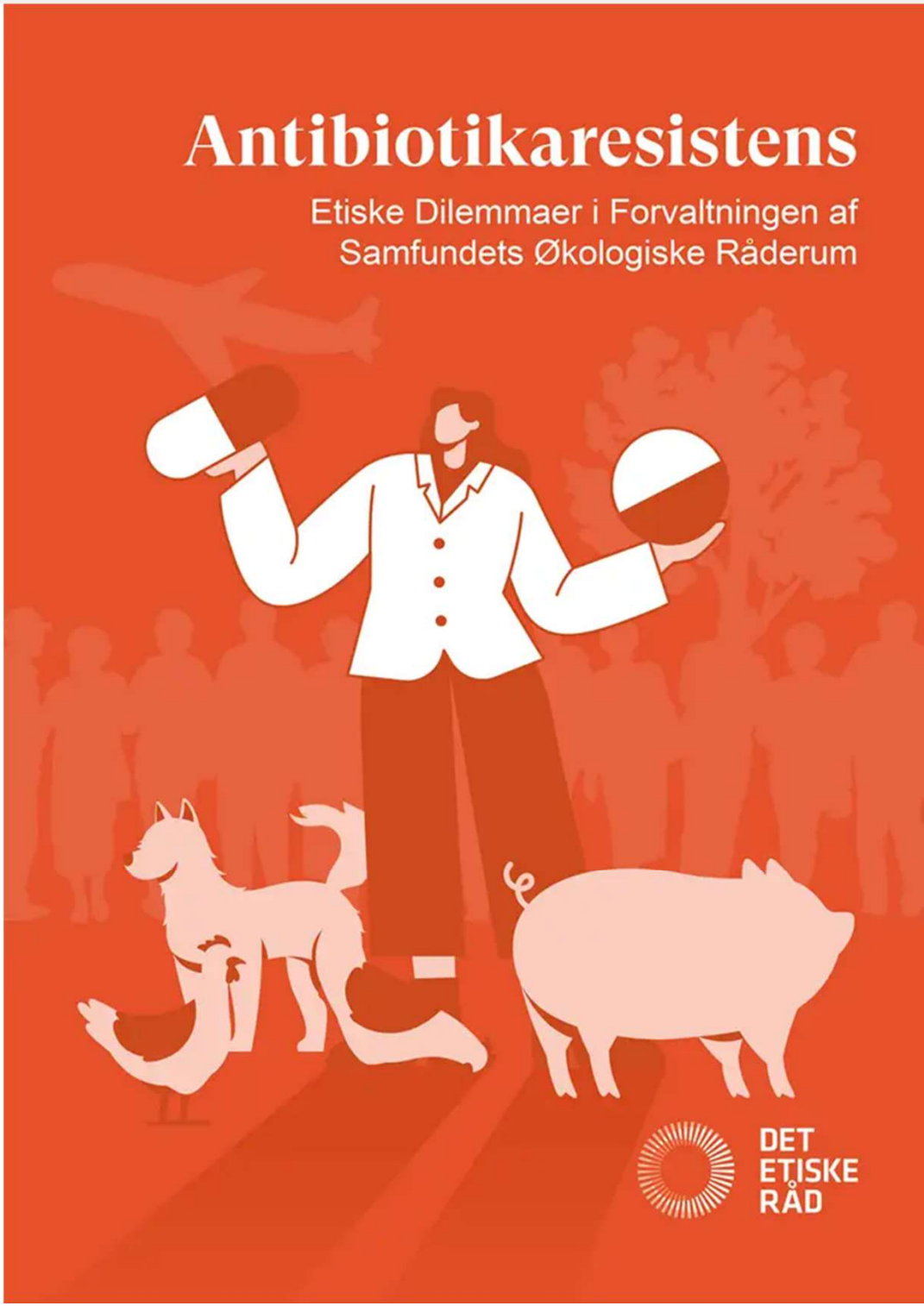
- Salmonella/zoonosis
- Antimicrobial resistance
- Toxins, pesticides

2010 – 2025
Sustainability

- Animal Welfare
- Environment
- Organic production
- Carbon footprint

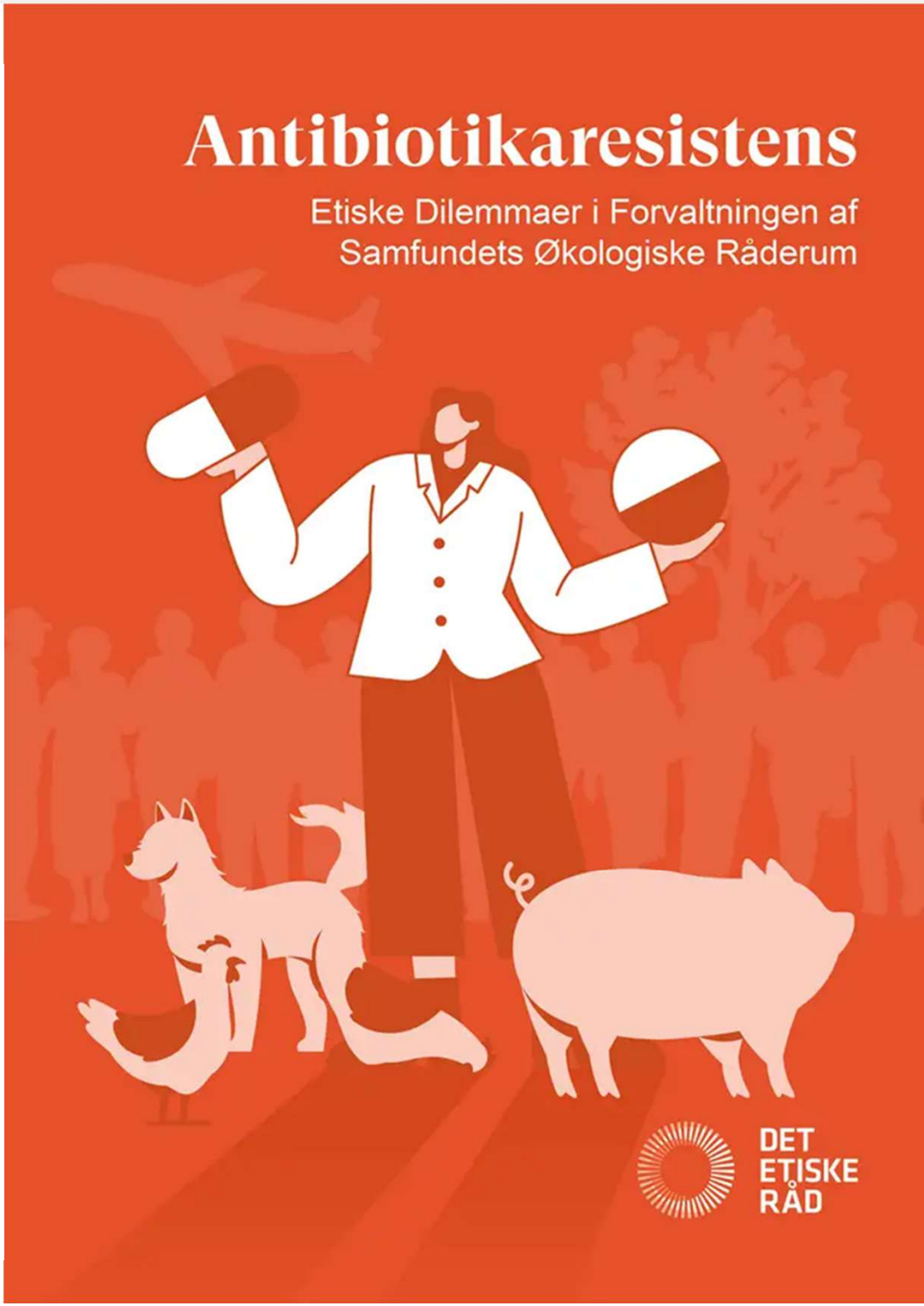
2025 – 20?? Ethicality

- Ethics
- Holistic view
- Diversication



The Ethical Council recommends:

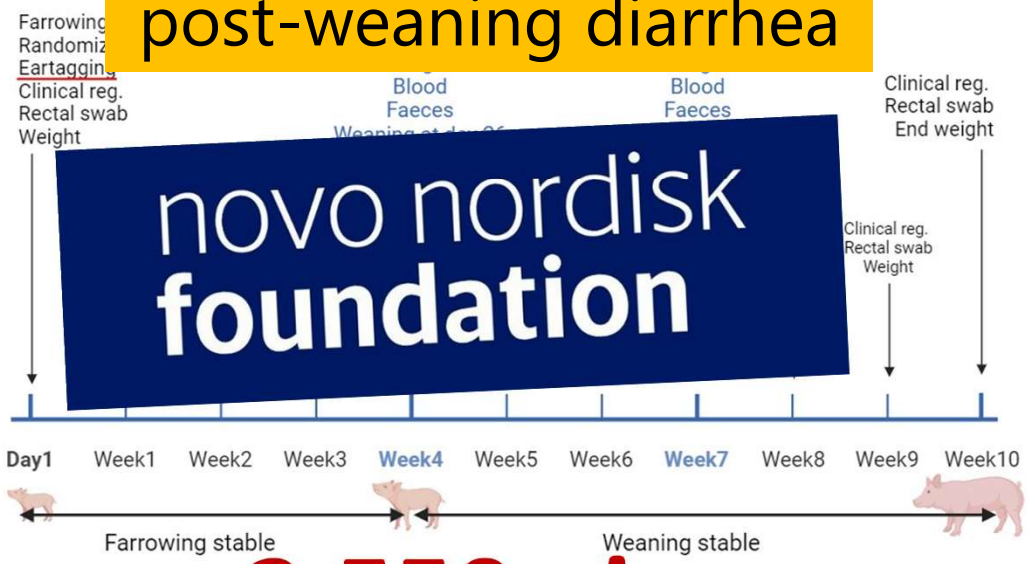
"a fundamental restructuring of the intensive animal production system, which in itself contributes to an unnecessarily high demand for antibiotics"



PIG-PARADIGM

Cohort study
Merete Fredholm

Gut-health
post-weaning diarrhea



novo nordisk foundation

2.550 pigs

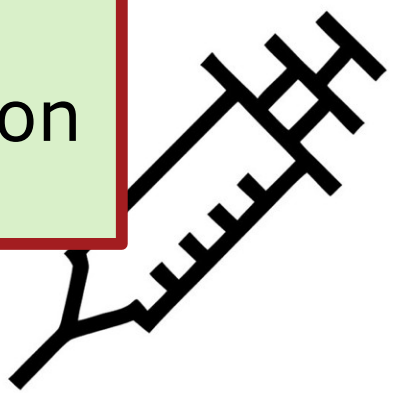
Birth – week 10

"Intensive production system" with 1.800 sows

Single animal treatment only

DIARRHEA TREATMENT CRITERIA:

Clinical affection
Depression/Unthriftiness/dehydration

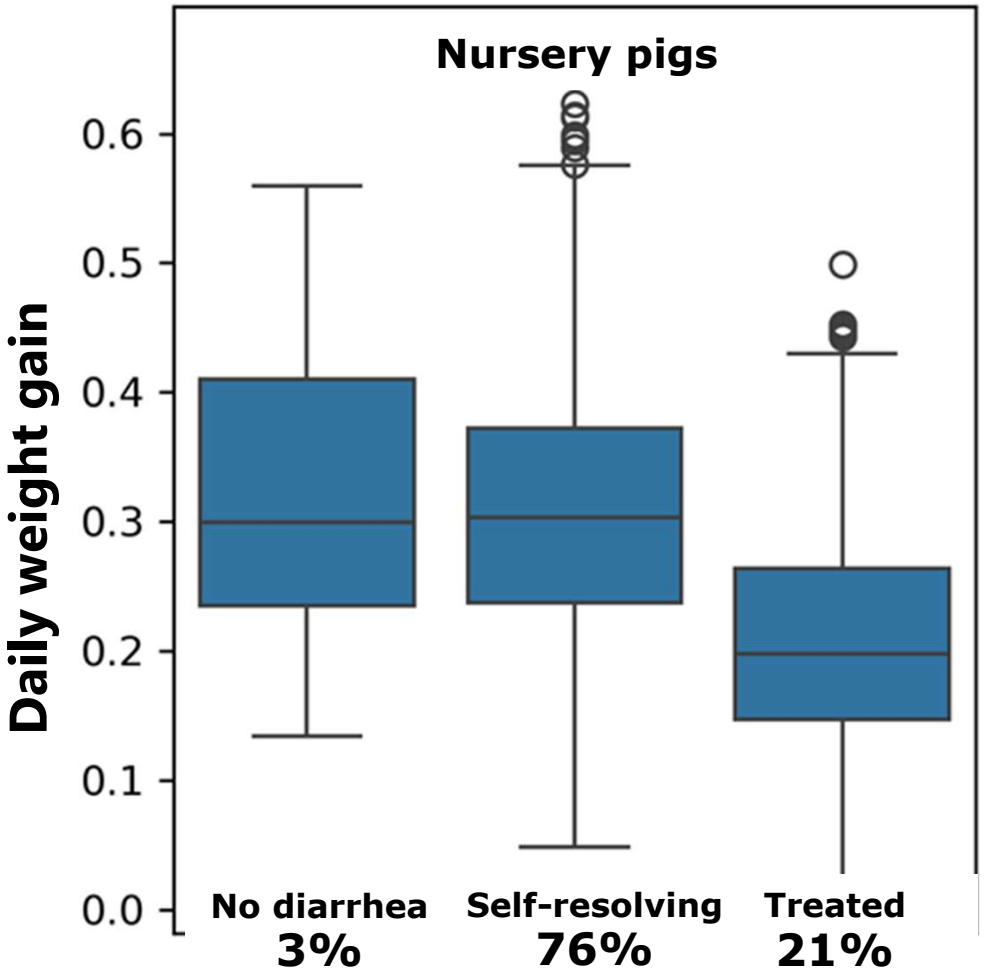


+

Diarrhea
back-part staining

Daily weight gain according to diarrhea status (1.861 pigs)

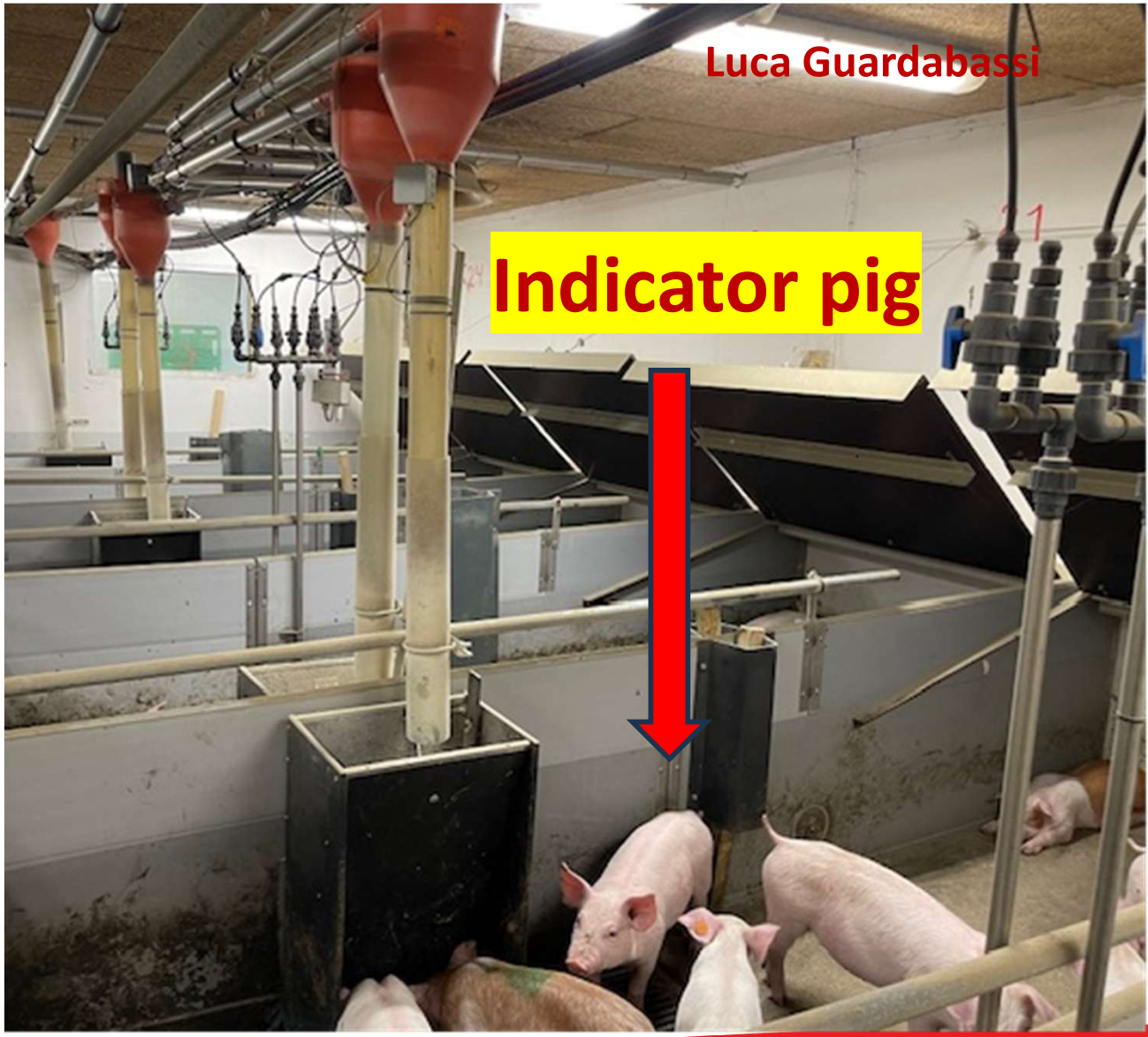
79 % reduction of antibiotic use compared to batch treatment



Morsing, Ibragimov, Nielsen et al, ESPHM 2024

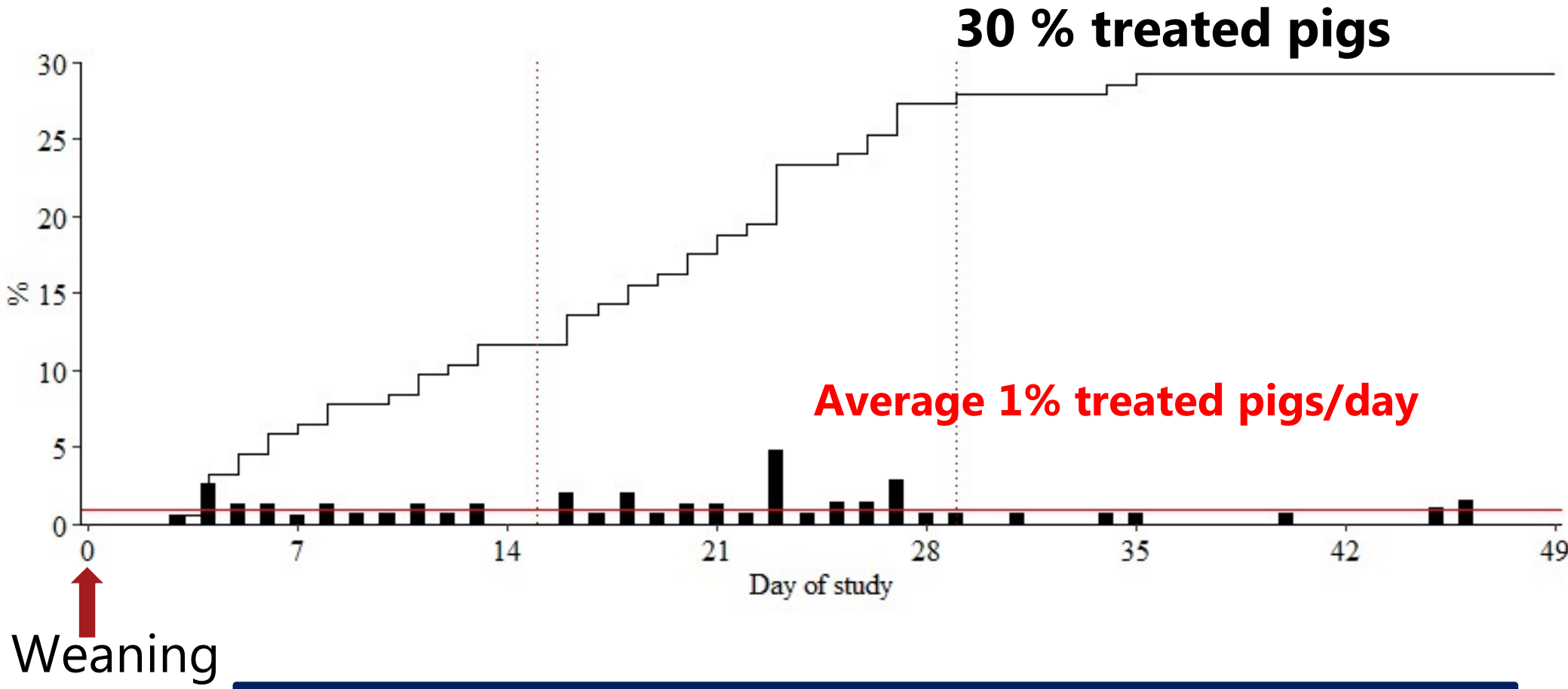
Weaning + 7 weeks

156 pens (1827 pigs)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862829.

Percent diarrhea treated pigs per day



70 % reduction of antibiotic use compared to batch treatment

Raised without antibiotics

Ministeriet for Fødevarer,
Landbrug og Fiskeri

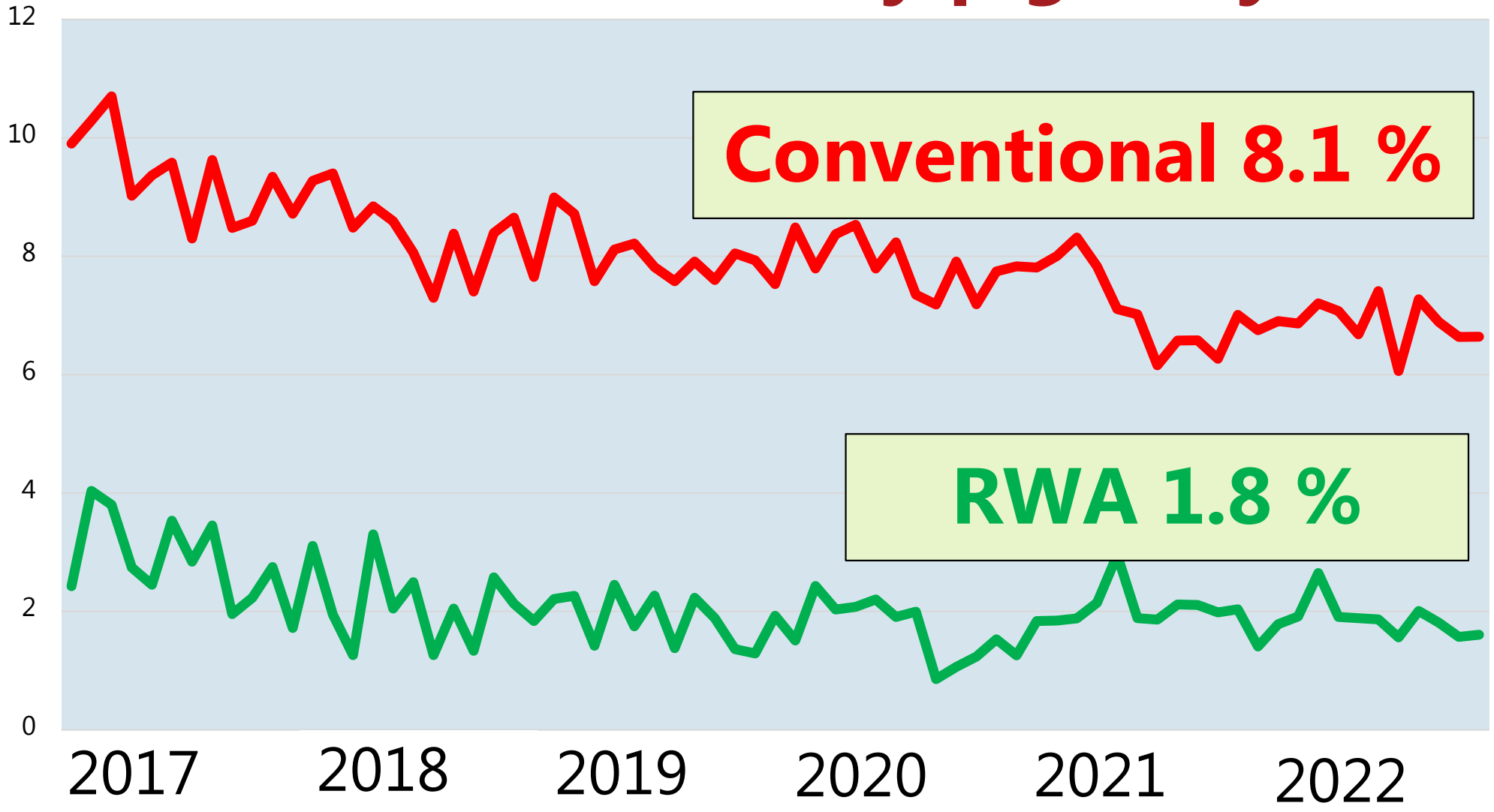
gudp

Danish Crown

PURE PORK

Raised without antibiotics

Percent treated nursery pigs/day



78 % reduction of antibiotic use

Thanks to
Jan Dahl, LF-G

The Ethical Council recommends:

"a fundamental restructuring of the intensive animal production system, which in itself contributes to an unnecessarily high demand for antibiotics"

Research based recommendations:

Changes in

- **treatment regimes**
- **management**

Genetic resistance to ETEC F4 PWD

Veterinary Microbiology 282 (2023) 109771

ELSEVIER

Complete assoc
Escherichia coli
challenge trial

Martin Peter Rydal
Jens Peter Nielsen

Department of Veterinary and An

www.nature.com/scientificreports

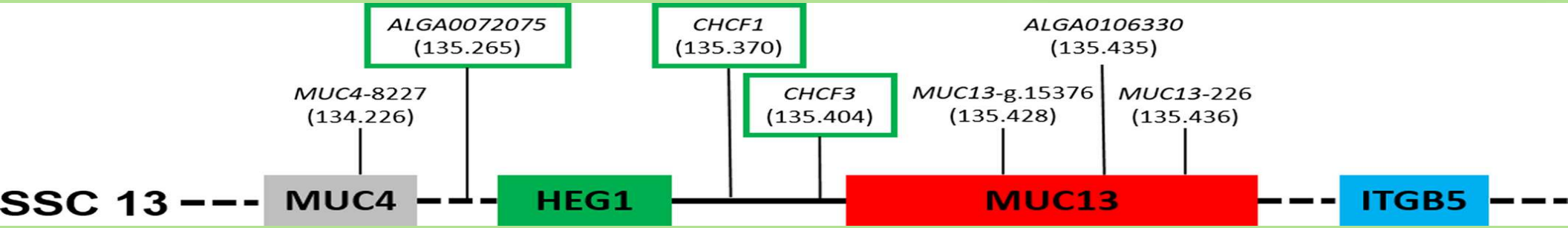
scientific reports

Check for updates

OPEN

Outbreaks of post-weaning diarrhea caused by ETEC F4 are strongly associated with CHCF1 genotype in Danish pigs

Martin Peter Rydal[1]✉, Kimmie Kyed Lyderik[1], Amanda Bastian Andersen[1], Claus Bøttcher Jørgensen[1], Peter Damborg[2] & Jens Peter Nielsen[1]



Conclusion on pig research trends

- Ethicality
- Sustainability
- Food-safety
- Export – supply

Thank you