Aim and expected outcome of the workshop

The aim of the workshop organized by the EU Innovation Action AVANT is to facilitate dialogue and consensus on specific themes pertinent to the future of antibiotic-free pork production. The involvement of significant partners such as SEGES, COOPERL and FVE, alongside other relevant national and international stakeholders, will offer a diverse array of perspectives and expertise crucial for addressing the multifaceted challenges and opportunities of this type of production in the years to come. One significant outcome could be the development of a position paper encompassing the collective insights, agreements, and recommendations arising from the discussions held during the workshop.

What is antibiotic-free pork production?

- Raising conventional pigs with minimal antibiotic use - same farms and pigs as in conventional production
- "Antibiotic-free" pigs are certified animals that did not receive antibiotics from birth or from another predefined age
- Approximately 60-90% of the pigs produced are "antibiotic-free"
- More labor intensive ► Bonus for farmers (0.02 EUR per Kg of carcass, ca. 1%)
- Sows can be treated and other medicines are allowed (e.g., anti-inflammatory, antiparasitic drugs, etc.)

The workshop programme

Time	Session	Speaker, Affiliation
09:00-09:30	Welcome by the AVANT coordinator	Luca Guardabassi University of Copenhagen, DK
09:30-10:00	The French experience, upstream of the pig chain	Jean-Noël Sialelli COOPERL, FR*
10:00-10:30	The Danish experience	Jens Peter Nielsen University of Copenhagen, DK
10:30-11:00	The farmer's perspective	Stine Mikkelsen Klintebygaard veterinary practice, DK*
11:00-11:30	Coffee break	
11:30-12:00	The veterinarian's perspective	Andreas Palzer Federation of Veterinarians of Europe, BE
12:00-12:30	COOPERL's antibiotic-free pork production	Arnaud Buchet COOPERL, FR*
12:30-13:00	Economic sustainability of antibiotic-free pork production	Jonathan Rushton University of Liverpool, UK
13.00-14.00	Lunch break	
14:00-16:00	Plenary session	

* Online talk

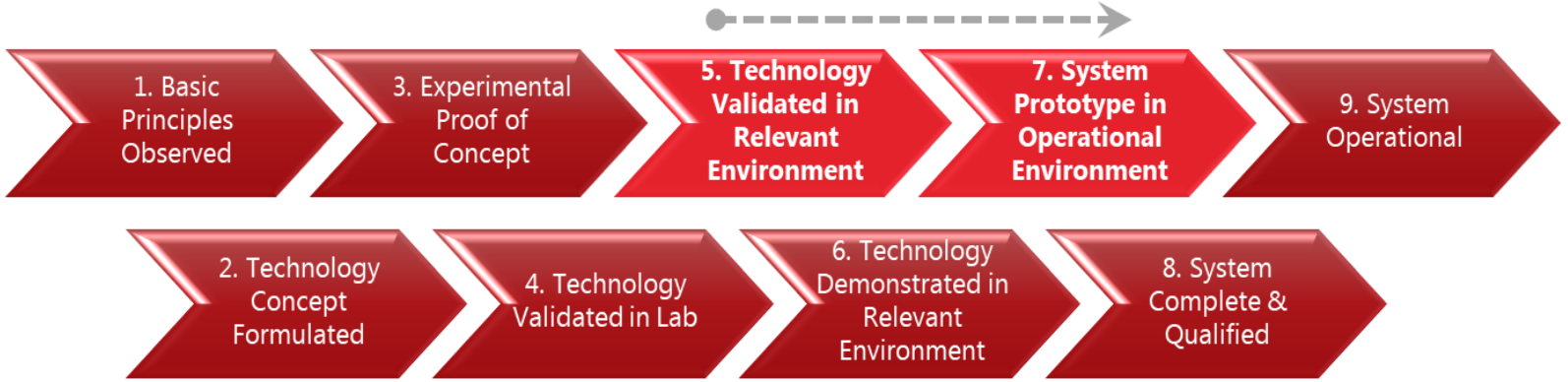
Technical issues & rules before kick-off…

- **The workshop is being recorded**
- **For speakers:**
  - Stick to the schedule (max 25 min)
  - Use the mouse or the zoom pointer to explain graphics/tables
- **For online attendees:**
  - Mute your microphone
  - Ask your question in the chat indicating your name and affiliation
  - Raise your hand in the plenary session in the afternoon
- **For on-site attendees**
  - Use the hand microphone to ask questions

Alternatives to Veterinary Antimicrobials (AVANT)

- **Type of project:** Innovation Action
- **Duration:** 5.5 years (Jan 2000 to Jun 2025)
- **Number of partners:** 16 from 9 countries
- **Goal:** To bring alternatives to antimicrobials closer to the market

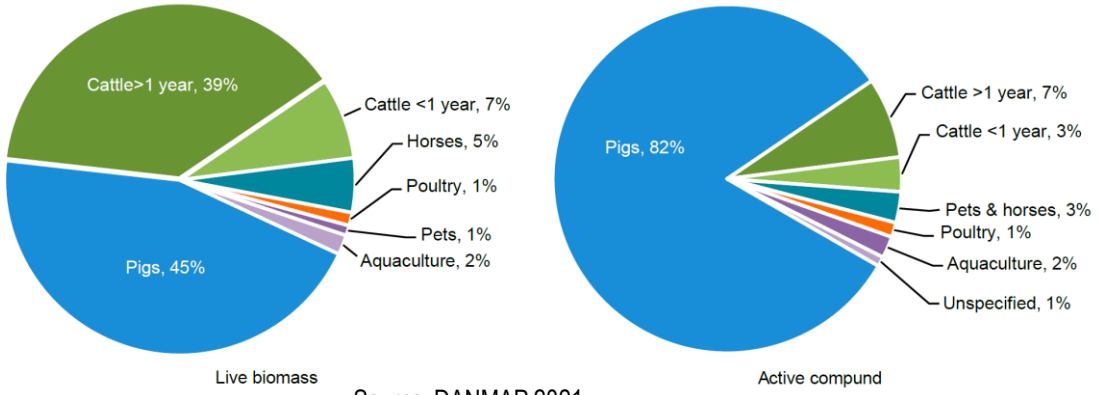
Technology **R**eadiness **L**evels **(TRL)** 5-6 to **TRL7**



AVANT is funded by European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 862829

Focus on post-weaning diarrhea in pigs

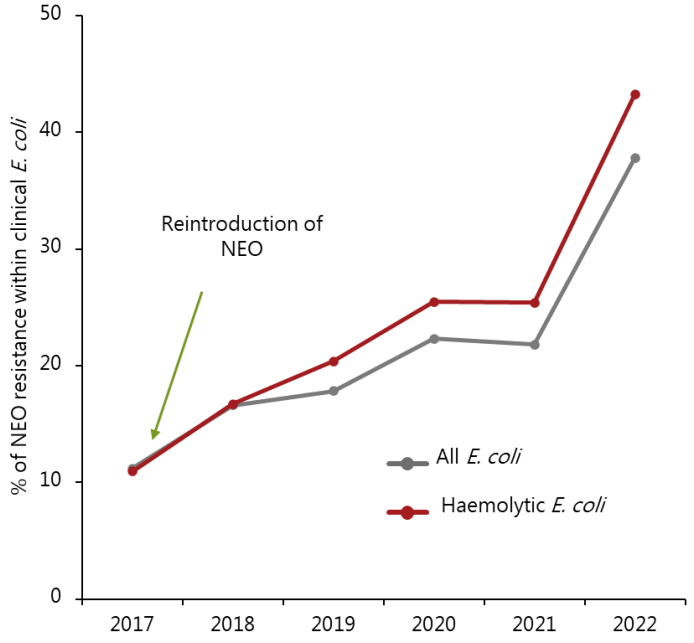
- **Pigs** account for more than 75% AMU
- **Post-weaning diarrhoea** as the main indication for antimicrobial use in pigs



Source: DANMAP 2021

A truly One Health problem

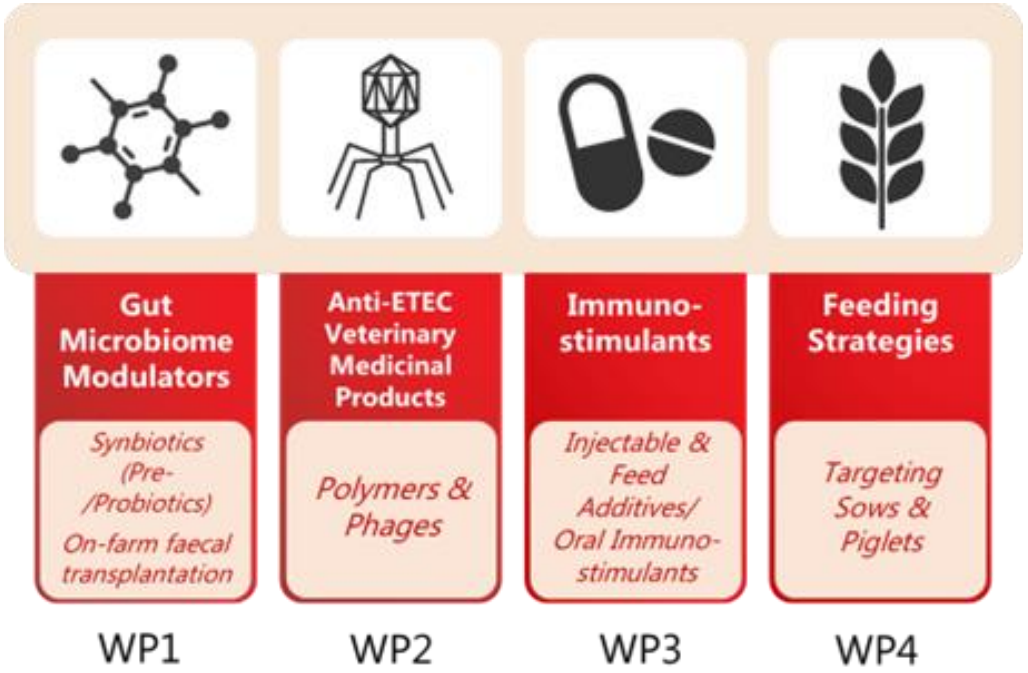
- Effective drugs have been banned (zinc oxide) or restricted (colistin) to prevent AMR transmission to man
- The causative bacteria (ETEC) are truly multidrug-resistant



Source: SEGES

AVANT

One disease, many interventions



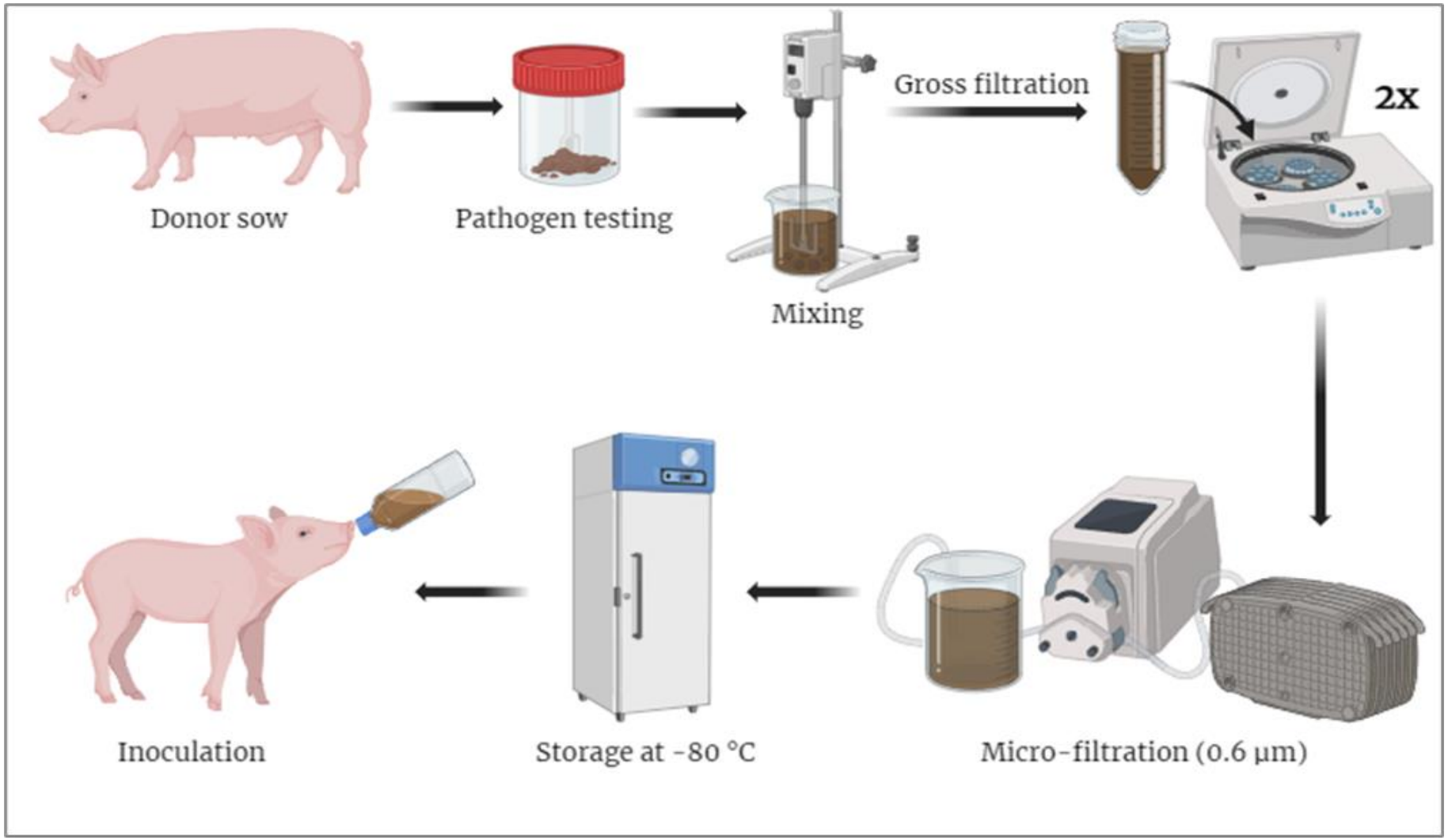
- Each intervention was tested in pre-clinical studies (WP1-WP4) in 2020-2023
- The two most promising interventions are being tested by farm trials in 2024

Status of the project

- **Two interventions** were selected based on the outcomes of the pre-clinical studies and regulatory requirements:
  - **Faecal filtrate transplantation (FFT)**
  - **Fibre-rich diet based on alfa-alfa**
- The trials are conducted in the Netherlands (completed), Denmark (ongoing) and France (ongoing) to assess clinical efficacy and effect on AMU
- The use of FFT on farms was not approved in Denmark and France because the current EU legislation prohibits oral administration of any faecal derivatives to animals intended for human consumption
- WP6 will use the data from these trial to estimate the economic sustainability and the potential effects on antimicrobial use in the EU

AVANT

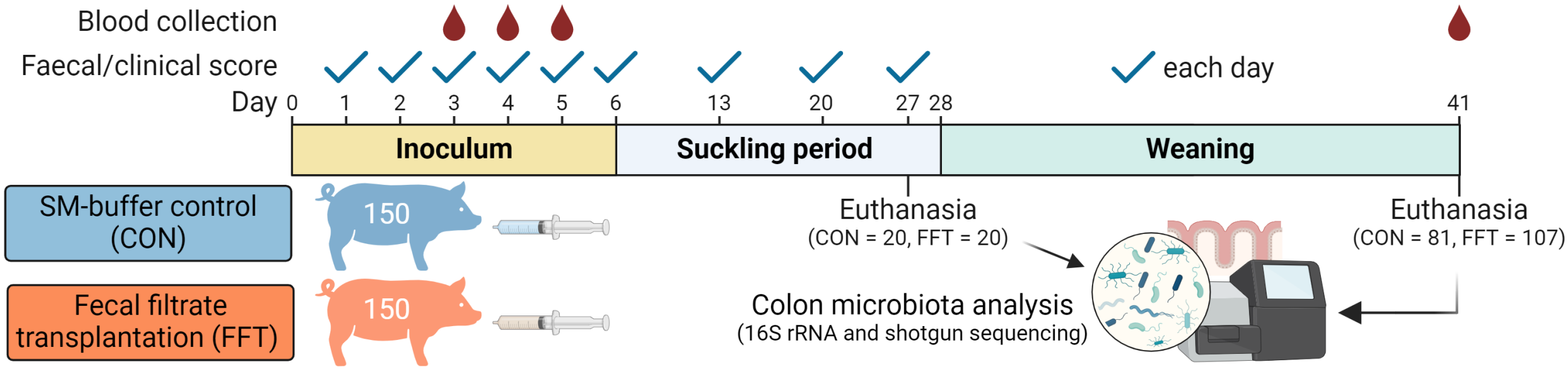
On-farm FFT preparation protocol



AVANT

Experimental farm study in Denmark

Study design



DANMARKS FRIE FORSKNINGSFOND

SEGES INNOVATION

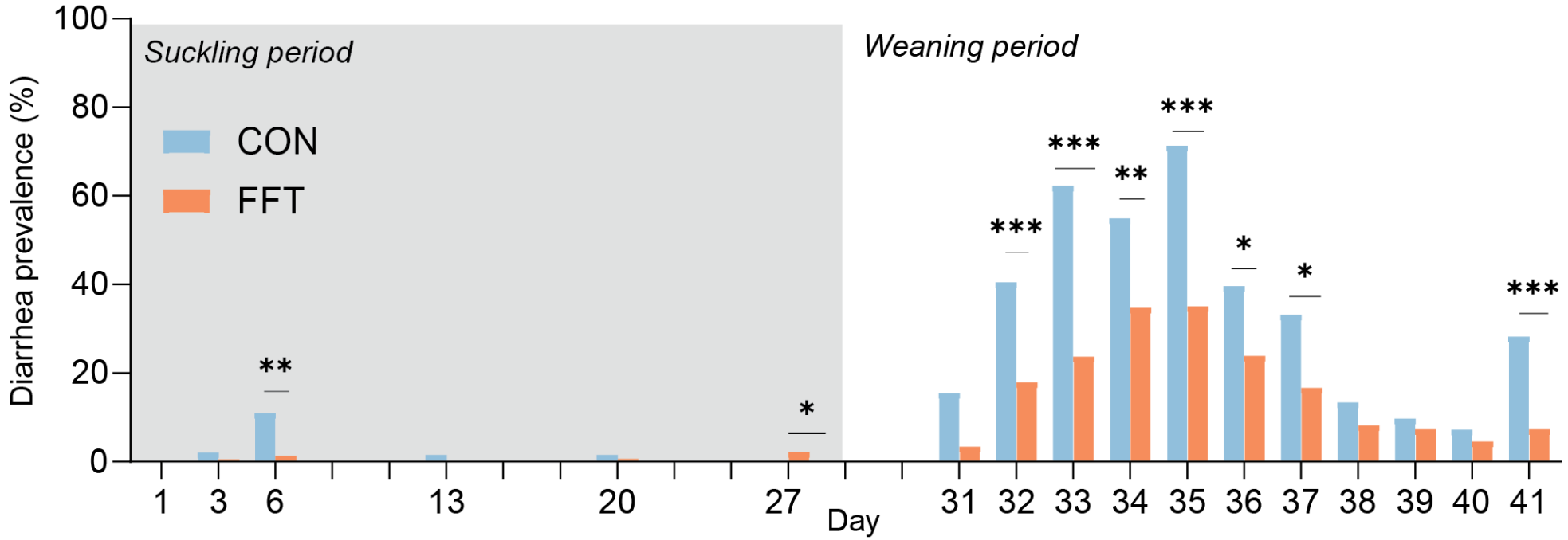
Larsen et al. (manuscript in preparation)

AVANT

Experimental farm study in Denmark

Results (diarrhea prevalence)

The percentage of piglets displaying symptoms of post-weaning diarrhoea was significantly reduced in the treatment (FFT) group compared to the control (CON) group



*p < 0.05; **, p < 0.01; ***, p < 0.001

Larsen et al. (manuscript in preparation)

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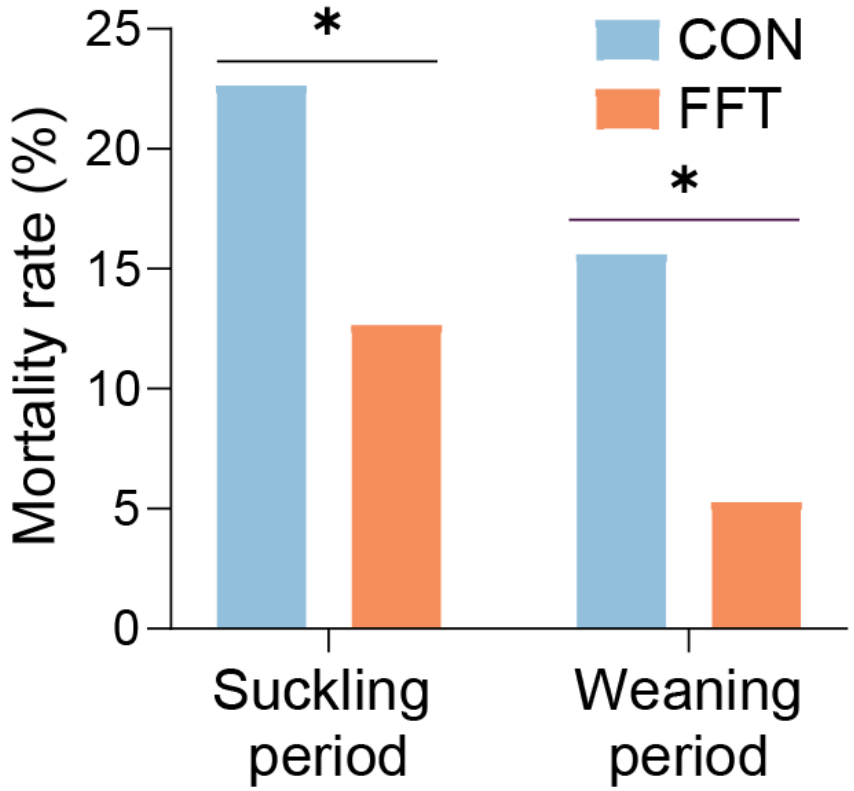
Experimental farm study in Denmark

Results (mortality rate)



Mortality rate was reduced by 75% in the treatment group (FFT, 4%) compared to the control (CON, 16%)

N.B. Mortality rates include piglets that were euthanized for displaying severe illness. No antibiotics were administered during the study.

DANMARKS FRIE FORSKNINGSFOND

SEGES INNOVATION

*p < 0.05; **, p < 0.01; ***, p < 0.001

Larsen et al. (manuscript in preparation)

Other outcomes of AVANT

- The positive effect FFT on AMU was milder in the farm trial in the Netherlands
- Diverse dietary interventions have shown to decrease of AMU from 13% to 5% of piglets
- Although such dietary interventions negatively affect growth performance at weaning, this negative effect is compensated in the following productions stages
- Traditional solutions such as vaccines and biosecurity measures are more favorably accepted by farmers and veterinarians compared innovative solutions such as FMT and phage therapy
- Ca. 70% consumers stated that they would pay 10% or more to buy food products from animals that are not treated with antibiotics

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Consumer preferences for reduced antibiotic use in Danish pig production

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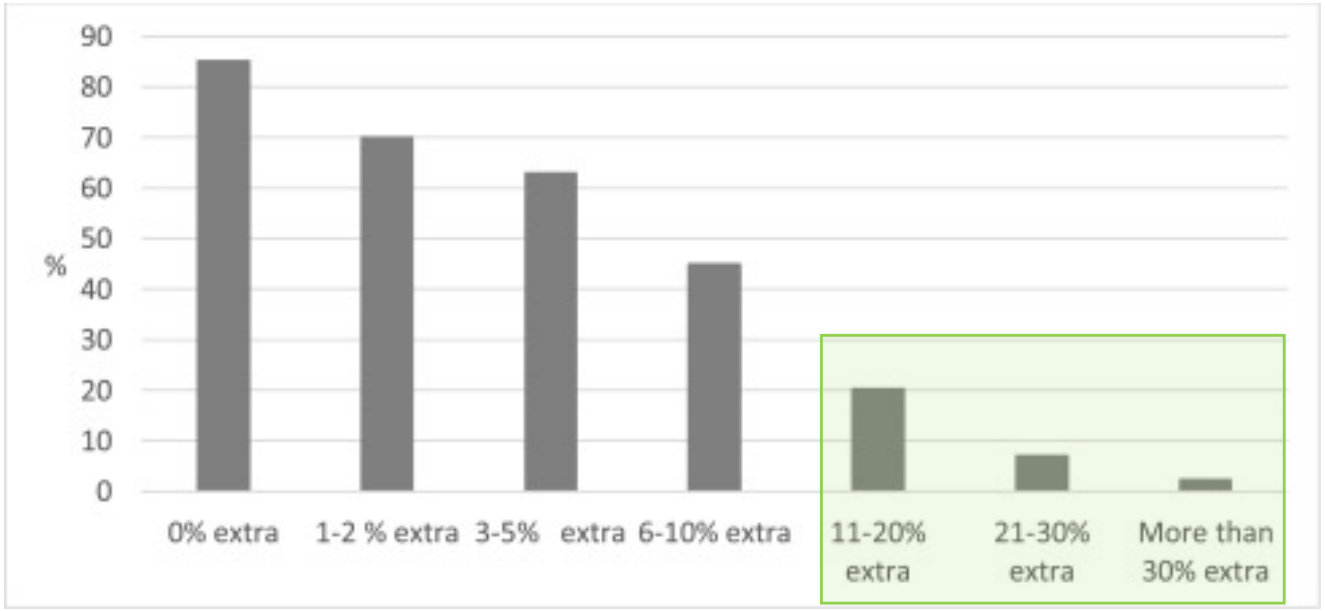
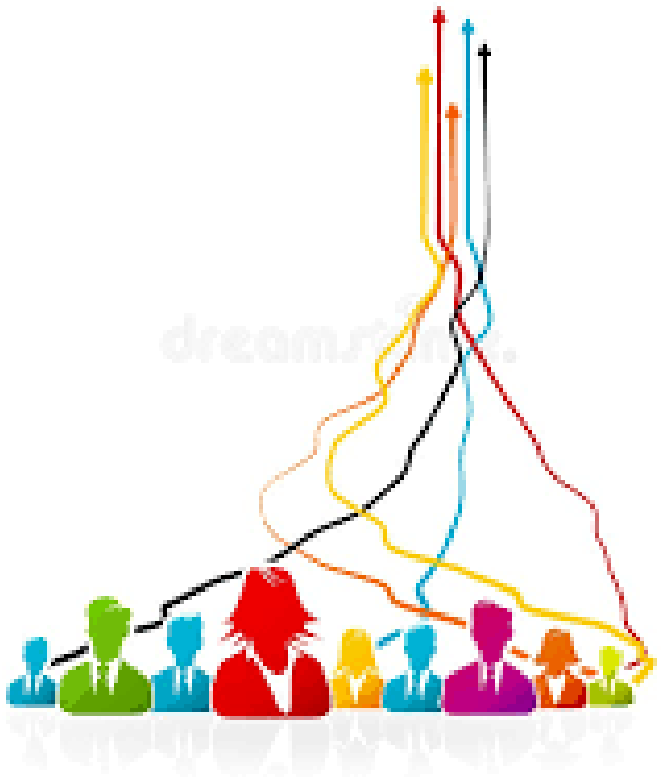


Only 1 out of 5 consumers stated to pay more than 10% for pork produced with 20% less antibiotics

More consumers (70%) were willing to pay the same for antibiotic-free products in the AVANT survey ☺

Insights gained by this project

- Regulatory gaps and cultural barriers must be overcome to bring innovative alternatives to antibiotics to the market
- The most effective alternatives can be used to reduce the use of antibiotics but they seem unable to eliminate reliance on antibiotics for disease control
- Minimizing AMU in pig production without impacting animal health and welfare requires a holistic approach to reduce disease burden by improving farm and animal management



Possible questions for discussion in this workshop

- Is antibiotic-free farming a viable strategy to minimize antibiotic use to a minimum?
- What are the keys to success?
- Is the strategy economically sustainable?
- What are the negative aspects of this production system?
- How to favour acceptance by all the end-users, especially consumers?