

# Health contributions for the sustainability of food production systems

## PIG PRODUCTION

28/05/2024



# Animal health contributes to all three pillars of sustainability



- optimal health for better welfare
- safe meat, fish, milk and eggs for our meals
- prevented spread of animal diseases

**Sustained** ✓  
**Societal Contribution**



- less illness and fatalities
- reduced losses and waste of milk or foods
- more sustainable, efficient and better quality production

**Improved** ✓  
**Economic Impact**



- less feed, water, energy needed to produce meat, fish, milk and eggs
- reduced output of manure
- decreased emissions per food

**Reduced** ✓  
**Environmental Impact**



## SOCIAL

Aside from the clear animal health benefits, one of the major benefits for animals is *improved animal welfare*.



New technology replacing conventional needle vaccination, ensures **smooth and painless** intramuscular injections, **improving the vaccination experience** for both the pig and the farmer.



New administration **techniques for oral vaccines using environmental enrichment technologies** with a sprayer mean that indoor-raised pigs can self-apply the vaccine, with **100% efficacy** in eliciting a serologic response to a Salmonella vaccine.



New sound monitoring technology for indoor pig farms help pig farmers to **detect and respond** to respiratory disease up to **five days earlier** than conventional methods, reducing the need for antibiotic treatment.



In indoor pig and poultry farms environmental sensors linked to automatic control systems can monitor and adjust environmental conditions appropriately, ensuring **optimal conditions at all times** and **reducing stress** factors.



New single injection vaccines against Oedema disease in pigs, also known as enterotoxemic colibacillosis **reduces disease occurrence**, thereby reducing the need to use antibiotic treatment.



A unique single dose antibiotic formulation against swine respiratory disease ensures pigs receive the **complete treatment** with no need to monitor for additional infection and **preventing the spread** of disease to healthy pigs on the farm, thereby reducing the need for antibiotic treatment.



Use of vaccination to reduce 'boar taint' in the meat obtained from male pigs shows **reduced aggressive behaviour** and improved animal welfare.



The use of 3D camera technology, coupled with 'machine vision' algorithms can detect warning tail posture signs with **75% accuracy** in the pig pen, alerting the farmer to stop potential outbreaks of tail biting.

In addition to animal health and welfare benefits, today's animal health care offerings also mean *better health for people* through reduced incidence of illness, supply of safe food and a reduced use of antibiotics in farming.

# Supporting better animal health and welfare also makes financial sense in the long-term

## Swine

### Classical swine fever<sup>b</sup>

Swine vesicular disease

### Porcine reproductive and respiratory syndrome

African swine fever

Aujeszky's disease

Echinococcosis

Porcine cysticercosis

Leptospirosis

Foot and mouth disease

Bovine tuberculosis

Top 10 global diseases for various livestock species, ranked by the number of livestock units lost annually (WOAH)



## ECONOMIC

According to WOA  
around 20% of animal  
production losses are  
linked to animal diseases

### Classical Swine Fever (1997-1998)

1 year

=

- ❖ 429 farms infected
- ❖ 11 million animals slaughtered
- ❖ Total cost: 2.1 billion Euros

Source: National Institute for Public Health and Environment (Netherlands)



On pig finishing farms a 3% increase both in the feed conversion rate and daily weight gain is enough to balance the additional costs of **biosecurity measures**.

Source: Kees de Roest et al., Costs And Benefits of the Improvement of Biosecurity on Pig and Broiler Farms



# ENVIRONMENTAL


In the latest report from FAO: *The role of animal health in national climate commitments*  
Six regional mitigation case studies with animal health included as a mitigation measure estimated significant emission reduction potentials from:

**10% to 41%**

## Better livestock health means lower emissions

Reducing global livestock disease levels by **10** percentage points...

Could lead to a drop of more than  
**↓800** million tonnes  
of GHG emissions

Equivalent to the average annual emissions of  
**117** million Europeans   
based on EU estimates of 6.8 tonnes of CO2 per person.



The use of immunocastration in pigs dramatically reduces the carbon footprint of pig farming, with **8-12% less feed** and a **28kg reduction of CO2 emissions** for every vaccinated male pig produced.

## Vaccination reduces livestock emissions

Vaccination is one of the primary methods for preventing disease and reducing emissions in livestock production.

A recent study found controlling disease in livestock systems could reduce GHG emissions by as much as:



**-22.5%** when controlling PRRS in swine

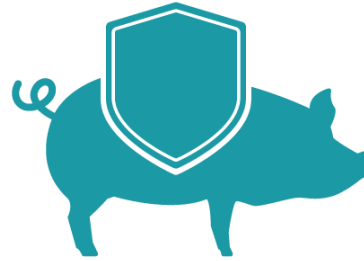
Vaccinating pigs against classical swine fever (CSF) allows them to **reach slaughter weight 8-9 days earlier** than those suffering from the disease. This means less use of feed and water.



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- ✓ Herd health management plans
  - ✓ Biosecurity protocols
  - ✓ Disease prevention tools
  - ✓ Regular veterinary care and advice
  - ✓ Proper/targeted diagnosis
  - ✓ Data collection and analysis for informed/data-driven decisions

- X Cure instead of prevention
- X Irresponsible use of medicines - treatment before/without accurate diagnosis; no respect for treatment durations, frequency, dosages, etc
- X “Blind” management/ uninformed/ unsubstantiated decisions

## Healthy animals



- + Production (meat, milk, eggs and other inputs)
- Time to achieve the adult/desired size
- + Weight gain and conversion
- + Animal welfare
- + Income for farmers
- + Farmers mental health
- + Preservation of ecosystems
- + Biodiversity

- Supply of safer food
- + Efficient nutrient cycling
- Food and resources loss



Same amount of food (and other outputs)

## Diseased animals



- Predictability
- + Use of natural resources (land, water, feed, bedding,...)
- + Production costs
- + Carbon emissions
- Environmental stewardship
- + Potential for disease transfer

- + Food and resources loss
- + Morbidity and mortality

# Circular economy and efficient nutrient cycling



**Circular resource efficiency**  
Livestock makes efficient use of crop by-products with 86% of feed made up of materials inedible by people.



# Challenges

- Emerging and re-emerging diseases
- Antimicrobial resistance
- Climate change impacts on diseases
- Integrate multiple levels of complexity (pathogens, host(s), territory...),
- Need for coordinated action accross different disciplines



# Solutions



**Connected Health Platform:** DIVA VACCINES, DNA, mRNA, new administration methods (less stress, improved animal welfare)

**Filling research gaps:** DISCONTTOOLS, Star Idaz, pre-competitive topics list, R&D, research uptake



# New vaccine development

For major livestock species:

- ❖ 5-10 years of research and development to gain a marketing authorisation
  - ❖ Costs around 20 million EUROS
- (Both are increasing)

## New animal health solutions approved by the EMA in 2022

In 2022 the European Medicines Agency approved 10 new animal health products for use



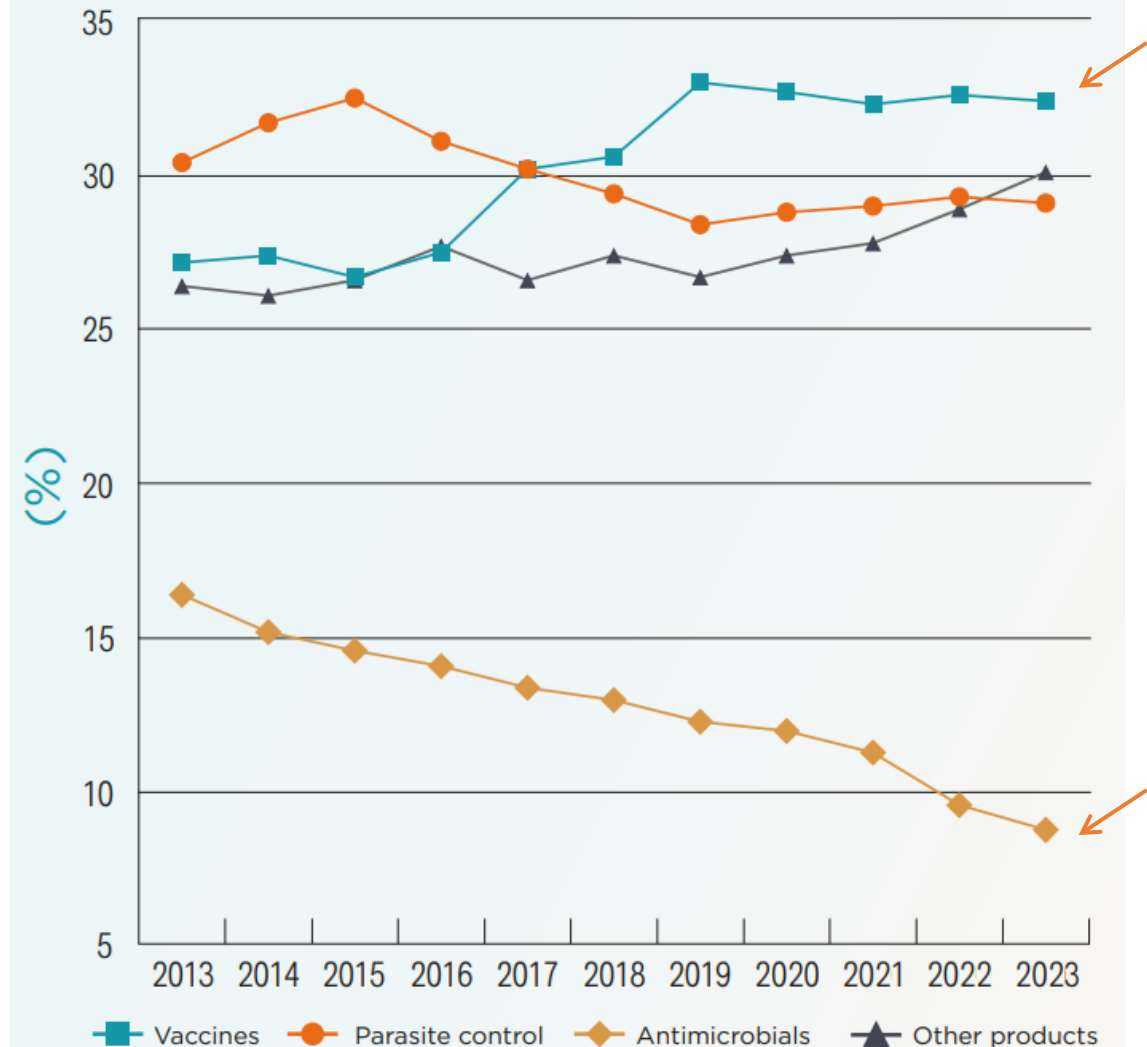
## Animal health authorisations in 2022

Of the 10 approvals by EMA



A further 119 authorisations passed through decentralised procedures for approval

## Sales per product category in Europe (%) (2013–2023)



# The case of African Swine Fever (ASF)

7 years (2017-2023) = 2.3 million pigs lost in Europe

“Although it is harmless to humans, it can be deadly for pigs and has serious socioeconomic consequences for affected countries. As no vaccine exists yet in Europe, early detection, prevention and reporting are key to curbing this deadly disease. We all should take this seriously.” FVE



According to WOAHP “mortality rates for pigs that contract the virus can be up to 100%”



2008 – 2024: 35 million EUR in projects to support the development of a vaccine



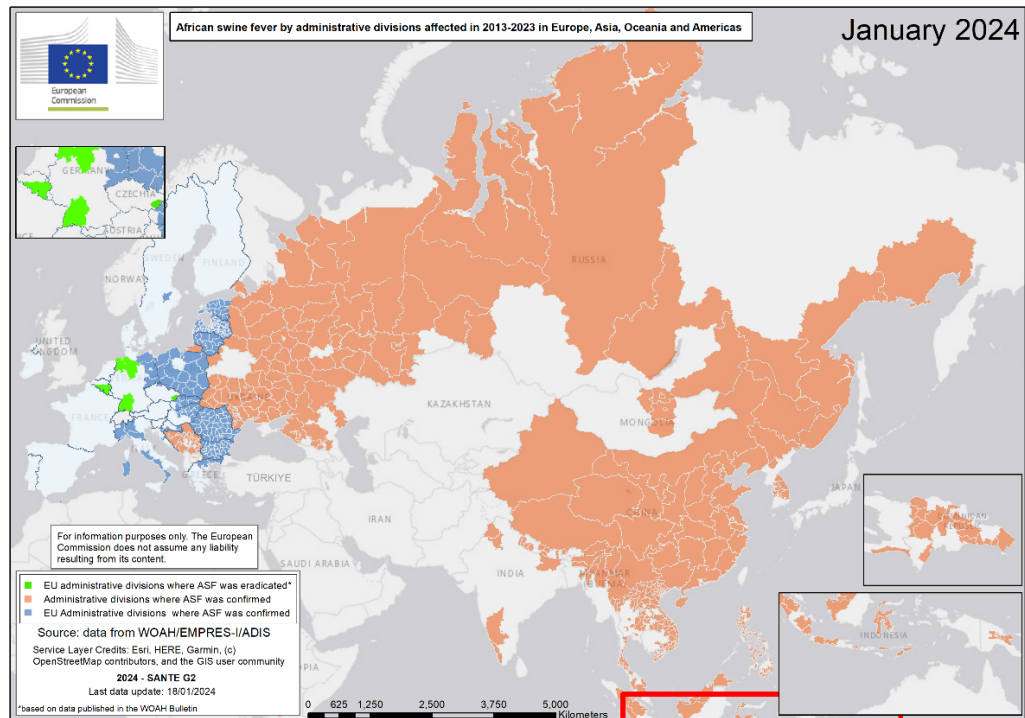
For domestic pigs, 2023 has been the year with the largest number of ASF outbreaks since ASF was introduced into the EU in 2014, with a total of 1929 outbreaks in the EU (mostly in Croatia and Romania) and 2528 outbreaks in non-EU countries and territories (mostly in Bosnia and Herzegovina and Serbia).



# The case of African Swine Fever (ASF)

## Efforts to find a vaccine

50 years of research by industry and academia



## Problems:

- Very large virus (the typical virus has 10-12 proteins, ASF has **over 150 proteins**)
- Very diverse virus - multiple genotypes (at least **24 different variants, or genotypes**, of the virus had been identified)
- Virus strategies to evade host immune system
- Both Humoral and Cellular immunity needed
- Difficulty to grow the virus *in-vitro*

## Questions that need to be answered:

- Vaccine for both **domestic** and **wild** pigs needed?
- Vaccine with a concomitant **DIVA** test?

# The One Health approach is much more than AMR, foodborne diseases and pandemics

## Our ask to the European Commission

An **operational platform** for coordination and collaboration in prevention, detection and control of animal diseases

**Vaccine banks** through the EU Civil Protection Mechanism



To complete the One Health benefits of today's animal health care offerings, better animal health also mean *a healthier planet* through reduced emissions from livestock, reduced use of natural resources, and reduced food losses.

# Thank you!





### Connected health Platform



### Our Sustainability Focus



### Animal welfare



### Manifesto 2024-2029



## References

**AnimalhealthEurope** - [How today's animal health care is benefiting people, animals and our planet](#)

**HealthforAnimals** - [How better animal health supports sustainable food systems](#)

**NOAH** - [The contribution animal health makes to One Health & Sustainability](#)