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## Promoting animal health and welfare via pathogen control

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# ➤ Promoting animal health and welfare via pathogen control

Christian Ducrot

Senior Researcher INRAE



The title of my talk was provided by the organizing committee of the webinar

Opportunity to address that question that is not as simple as it seems

**Point of view of a non-specialist of these issues, but with a strong interest in them**



## > My background

From veterinary practice to research in the field of epidemiology

### - Veterinarian practitioner

Short experience as practitioner and veterinary advisor

Dairy cattle, beef cattle, sheep

Work on extension programs for farmers and advisors

### - Research in the field of epidemiology

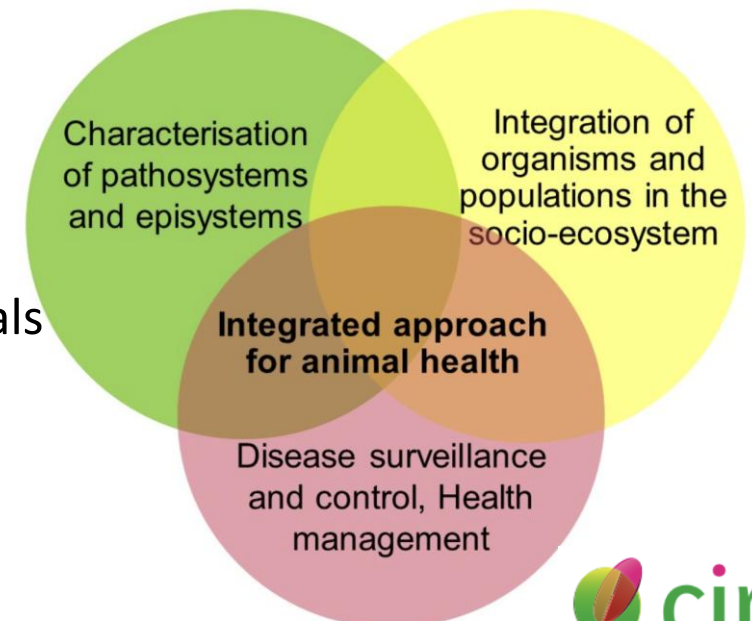
Studies on scrapie, BSE, avian influenza, blue tongue

Collaboration with sociologists on decreased use of antimicrobials

Senior researcher in the **ASTRE Research Unit CIRAD INRAE**

Based in Montpellier, South of France

At INRAE, in charge of a program on animal health and welfare



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## ➤ SANBA

**SANBA, and interdisciplinary research program at INRAE  
regarding animal health and welfare of farm animals**

**Goal : To generate knowledge that will enable changes to livestock practices and production systems, so as to guarantee the health and welfare of animals throughout their lives, from birth to slaughter**

Various studies considering animal health and welfare jointly  
at various scales : animal, farm, animal sector, link to the society  
involving veterinary and animal sciences as well as Human sciences

5 year program started in 2020

Funding resources for INRAE research teams based on calls





## ➤ Impact of pathogen control on health and welfare

Does pathogen control have a positive impact on health and welfare ?

Veterinary and animal sciences point of view

Human and social sciences point of view

## ➤ Veterinary and animal sciences point of view

### Old and traditional approach

**Preserving animals from pathogens improves animal health and is done frequently to preserve Human health**

- Animals kept indoor, in cages, on slatted floor to control various environmental infectious and parasitic diseases

*Example control of avian tuberculosis and various parasites*

*Return of chicken red mites with outdoor access*

- Biosecurity measures to prevent contact with infectious threats

*Example highly pathogen avian flu - zoonotic – indoor*

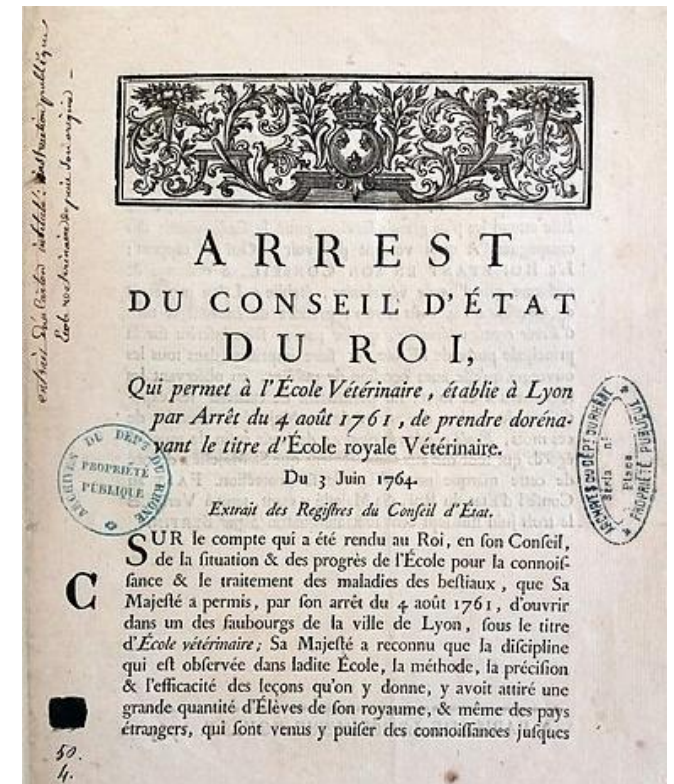
- Vaccination and eradication plans to control specific infectious diseases

*Example vaccination and later eradication of Foot Mouth Disease in the EU*

*Stamping out of infected cattle to control bovine tuberculosis - zoonotic*

### Fight against Rinder pest

Creation in Lyon in 1762 of the first Veterinary School in the world 2.5 centuries ago



## Adapted to other topics

Applied recently to **decrease the need for antimicrobials:**

*Examples vaccination against colibacillosis for post-weaning piglets;*

*Autovaccines (Pasteurella for duck, Streptococcus suis for pig, Staphylococcus for rabbit ...);*

*Eradication plans of viral diseases to decrease bacterial complications (Porcine reproductive and respiratory syndrome PRRS)*

Control of pathogens is one of the main preventive means used by veterinarians to preserve health, at the farm level and national level (regulation)

Others are more focused on better environmental conditions, better nutrition to reinforce resistance to infections and immunity





## Pathogen control was never primarily done for welfare considerations

Current definition of 'animal welfare' by the World Organisation for Animal Health (WOAH):

*“Animal welfare means the physical and mental state of an animal in relation to the conditions in which it lives and dies.”*

**Good health is one of the components of welfare,** and any disease inducing pain, suffering, decreased physical skills has a negative impact on welfare

In that sense, we can state that **control of pathogens results in less diseases and better welfare**



## Components of welfare

If we come back to the **5 freedoms**, guiding principles for welfare (World Organisation for Animal Health):

*Freedom from hunger, malnutrition and thirst*

*Freedom from fear and distress*

*Freedom from heat stress or physical discomfort*

*Freedom from pain, injury, and disease*

*Freedom to express normal patterns of behaviour*

Conflicting aspects between pathogen control and welfare:

- **Most means of pathogen control decrease the freedom of animals to express normal behaviour** : outdoor exploring, foraging, normal behaviour with congeners,

*Ex Control of COVID-19 - Confinement, obligation to wear a mask, vaccination - these control means badly altered our lives*

- **Stamping out implies suffering and death of thousands of animals**

*Example of avian influenza – 1.3 million chicken in 4 months in 2022 in France*

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**How to balance positive and adverse effects of pathogens control ?  
For the benefit of who ?**

## Recent attention for welfare consideration by the veterinary profession, including health and welfare in their approach

*Example of the recent “antibiotic free” labels for poultry and pig*

*Tendency by some farmers to refuse antibiotic treatment for diseased animals, in order to keep the “antibiotic free” label, with bad health and welfare impact ...*



**Strong demand by veterinarians and part of the animal sector for health and welfare monitoring tools and indicators on farms, to better monitor the need and the use of antimicrobials**

The same could arise for parasitic control

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## ➤ Human and social sciences point of view

**Different perceptions about what is health, what is welfare, what are the most important aspects to preserve between health and welfare if we have to balance**

What i presented is the vision of the veterinarian,  
whose main goal is to keep animals in good health

But there are different other perceptions depending of stakeholders

Different perceptions even in the same profession, for example among farmers, between those who prioritize the maintenance of good health, and others that emphasize the well-being of their animals and their freedom to express their natural behaviour

Sociological studies point out psychological distress of farmers facing **contradictory injunctions**, notably controlling diseases and insuring well being and freedom to express natural behaviour

*current example of keeping poultry indoor to control avian influenza*



ARTICLES

**Highlight on the point of view of citizen and consumers**

huge impact on the future of farming animals

Based on a paper from the UK, by Clark et al.  
systematic review regarding public perceptions  
on production diseases and welfare

Key points regarding our question :

More concerned by welfare considerations : females, young generations, higher education

Holistic view of welfare and health (what is bad for animals is ultimately bad for Humans)

**Naturelness is central** in relation to animals' behaviours and living conditions :  
enough space, freedom to behave according to natural instincts, access outdoors

“Considering how central naturelness is in determining welfare,  
**efforts to protect health at the expense of naturelness are not supported** »

**A Systematic Review of Public Attitudes, Perceptions  
and Behaviours Towards Production Diseases  
Associated with Farm Animal Welfare**

**Beth Clark<sup>1</sup> · Gavin B. Stewart<sup>1</sup> · Luca A. Panzone<sup>1</sup> ·  
I. Kyriazakis<sup>1</sup> · Lynn J. Frewer<sup>1</sup>**

## > Conclusion

Answering the question « Does pathogen control have a positive impact on health and welfare ? » is not obvious

- Pathogen control has a positive impact on animal health, but also on Human health for zoonotic diseases ; it remains a major mean to control infectious diseases
- However, it implies constraints on animals that are prejudicial to their welfare , regarding the freedom to move and freedom to exhibit their natural behaviour
- Depending on stakeholders, pathogen control should not be preferred at any cost, and there is a balance than needs to be analysed, that may depend on dangerousness of the pathogens, zoonotic risk, binding aspect of the control measures
- Societal concern tends to favor naturelness to the detriment of animal health; need for justification/explanation/communication to implement strong disease control measures



## Definition of health

Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity" (Constitution of WHO, 2017).

