

# SURVEILLANCE OF ANTIMICROBIAL RESISTANCE IN FISH FARMING IN FRANCE

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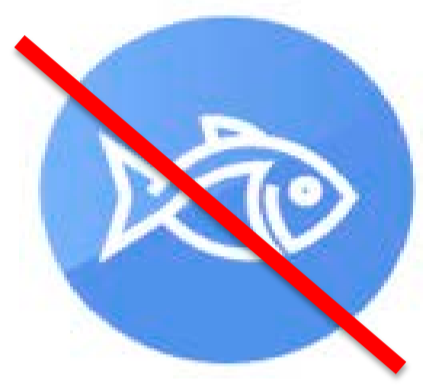
## Surveillance of antimicrobial resistance in animals in France

### EUROPEAN SURVEILLANCE PLAN OF ANTIMICROBIAL RESISTANCE: (2013/652/UE)

- *E. coli* & *E. coli* ESBL, AmpC/Carba
- & *Salmonella* :



- *Campylobacter jejuni*

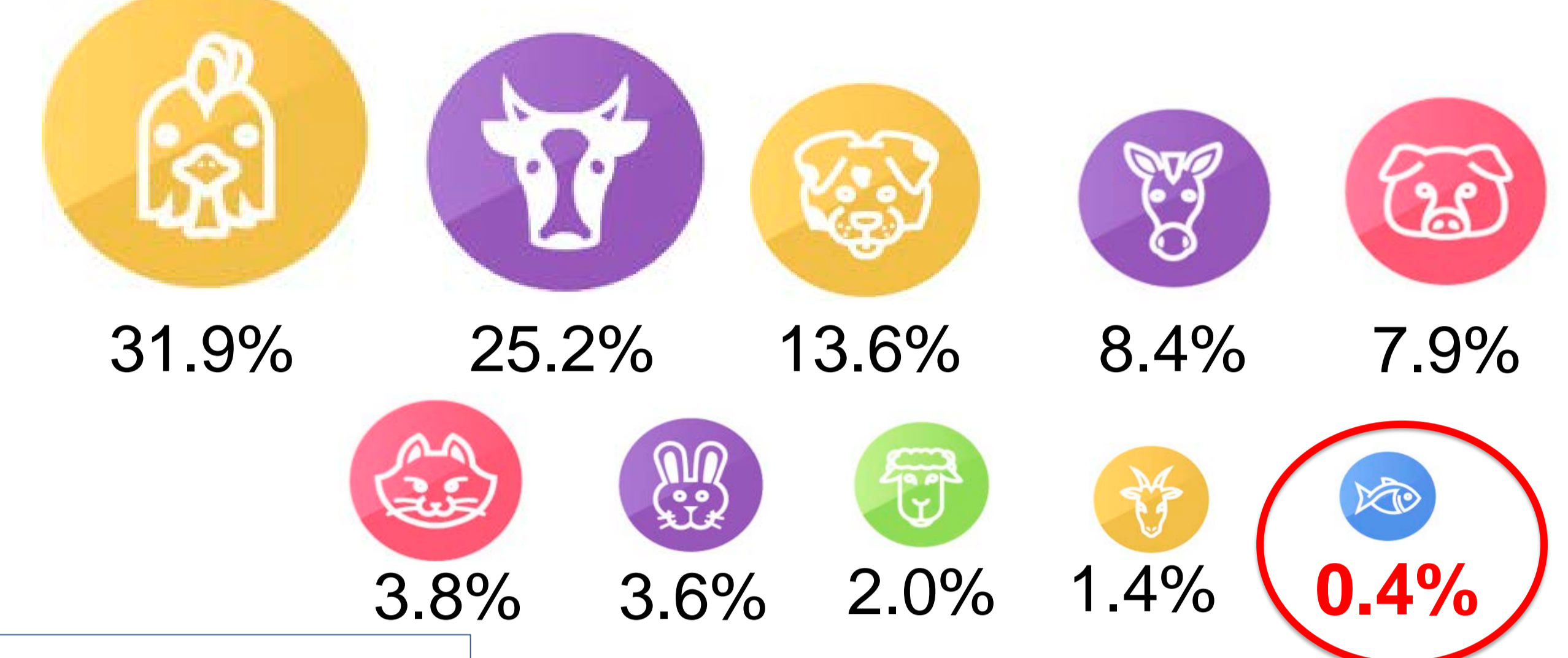


Zoonotic or commensal bacteria

Pathogenic bacteria

### NATIONAL NETWORK: RESAPATH

Annual collection of antibiograms data from a network of labs  
In 2015, **41 298 Antibiograms** collected



**No data on antimicrobial resistance in fish farming**

### 1<sup>st</sup> step: To make an assessment of antibiogram practices in fish farming

- An epidemiological survey conducted in 2016 : Who does it? How many? How? Which species?
  - Exhaustive panel of French vets & veterinary labs with activities linked to aquatic farming (≥5 antibiograms/year)
  - Three forms adapted for vet, vet with analytical activities or labs
  - A unique investigator (PhD vet student)
  - Interview in face to face of 2 hours
  - Retranscription, horizontal and vertical analysis of the data



- ↪ 9 vets (5 exclusive practitioner, 3 with analytical activities, 1 non response) and 3 veterinary labs
- ↪ ≈ 800 antibiograms per year performed by vets and/or labs ⇔ only 200 collected by Resapath
- ↪ Diversity of bacteria, fish species and living environments
- ↪ No harmonization of the methodology:
  - Isolation step: swab or organ
  - Antibiogram analysis: conditions of incubation, inoculum size, interpretative criteria...
- ↪ Wish of standard methods.

### 2<sup>nd</sup> step: Towards standardization of bacteriological methods

- Bacteriological study (in progress)
  - Focus on two bacteria: *Aeromonas salmonicida salmonicida* & *Yersinia ruckeri*
  - Constitution of collection of pathogenic strains provided by French vets & labs
  - Re-identification of isolates by Maldi-Tof with upgraded data base
- ↪ Monocentric determination of antimicrobial susceptibility with two methods: broth dilution & agar diffusion - following CLSI guidelines Vet03A, Vet04-A2
- ↪ Correlation between MIC values and inhibition diameters

### In future: Toward a monitoring system

- Constitution of larger collections: number, origin of isolates, inclusion of other species (*Vibrio* ...)
- Determination of Epidemiological Cut Off Values

## NO SURVEILLANCE SYSTEM WITHOUT STANDARDIZED METHODS

Acknowledgement to all the veterinarians and labs who are participating to the study