



**From farm to fork:**

Moritz van Vuuren  
Emeritus Professor:  
Microbiology

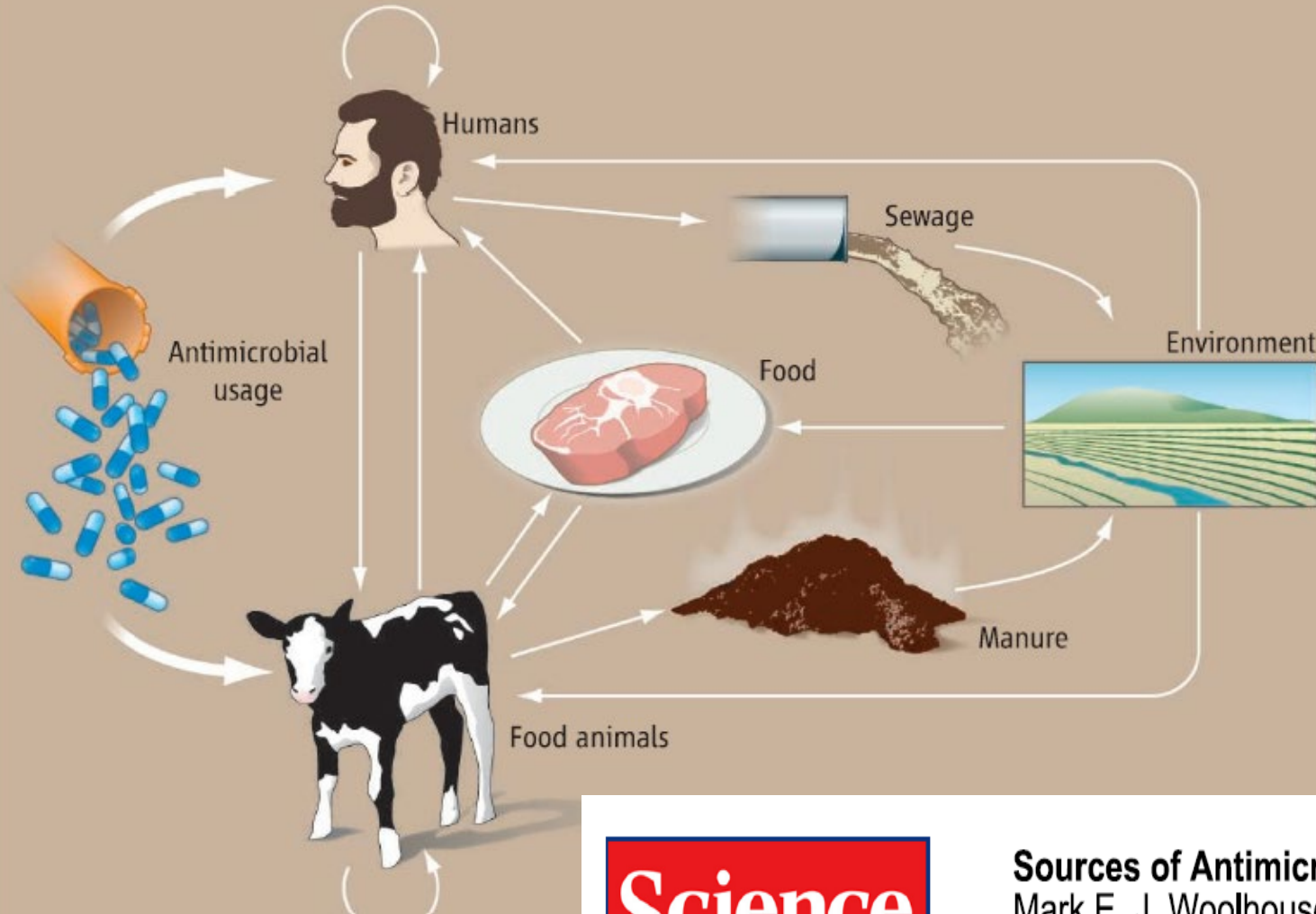
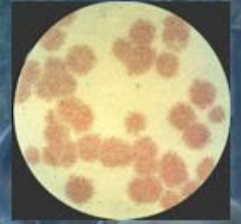
**How do we reduce the  
need for antibiotics in  
food-producing  
animals?**



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Faculty of Veterinary Science

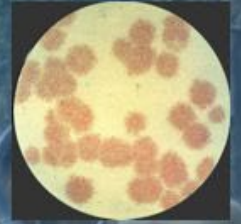
**World Antibiotic Awareness Week  
18-24 November 2022**

# Sources of antimicrobial resistance



**Sources of Antimicrobial Resistance**  
Mark E. J. Woolhouse and Melissa J. Ward  
*Science* **341**, 1460 (2013);  
DOI: 10.1126/science.1243444

# The natural selection process for resistance is exacerbated by anthropogenic factors



Excessive or inappropriate use of antibiotics

Poor hygiene conditions and practices

In human and animal health care settings

In the food chain that facilitates the transmission of resistant micro-organisms or resistance genes

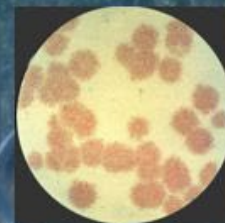
Both these drivers of resistance can be controlled



# COMBATING ANTIBIOTIC RESISTANCE

A Policy Roadmap to Reduce Use of  
Medically Important Antibiotics in Livestock

*Expert Commission on Addressing the Contribution of Livestock to the Antibiotic Resistance Crisis 2017*



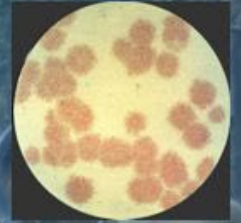
Set targets for  
reducing antibiotic  
use

Phase out  
programmed or  
routine antibiotic use

Prioritize the use of  
antibiotics other than  
“critically important”



# FAO's RENOFAM INITIATIVE

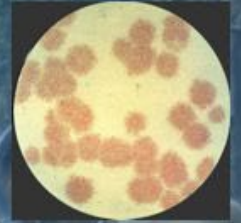


Reduce the Need for Antimicrobials on Farms Initiative

Global initiative to translate guidelines and policies on AMR in agriculture into ground level action.



# How do you reduce the need for antibiotics in animal husbandry?



By adopting non-antibiotic best practices to improve animal health

## Improving hygiene practices

Access to clean water and food

Appropriate stocking density to maintain health and welfare

## Biosecurity (disease prevention)

Visitor control

Fencing

Disinfection practices

Optimize vaccination programmes

## Applying antibiotic best practices

Selection of the right antibiotic

Correct administration

Selection of patients in need of antibiotics

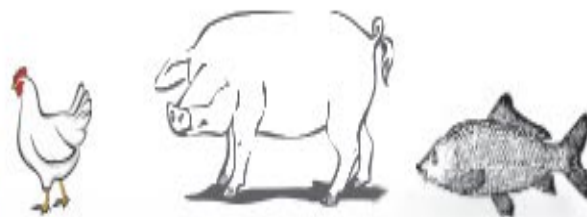
Strategic use of metaphylaxis



The OIE convened two *ad hoc* Groups to provide guidance on **prioritisation of diseases for which the use of vaccines could reduce antimicrobial use in animals:**

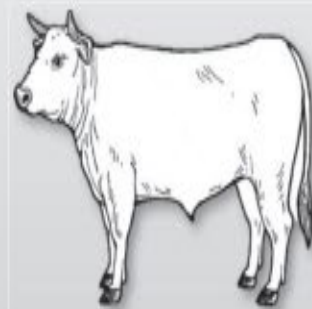
- **Pigs, chickens and farmed fish** (April 2015)

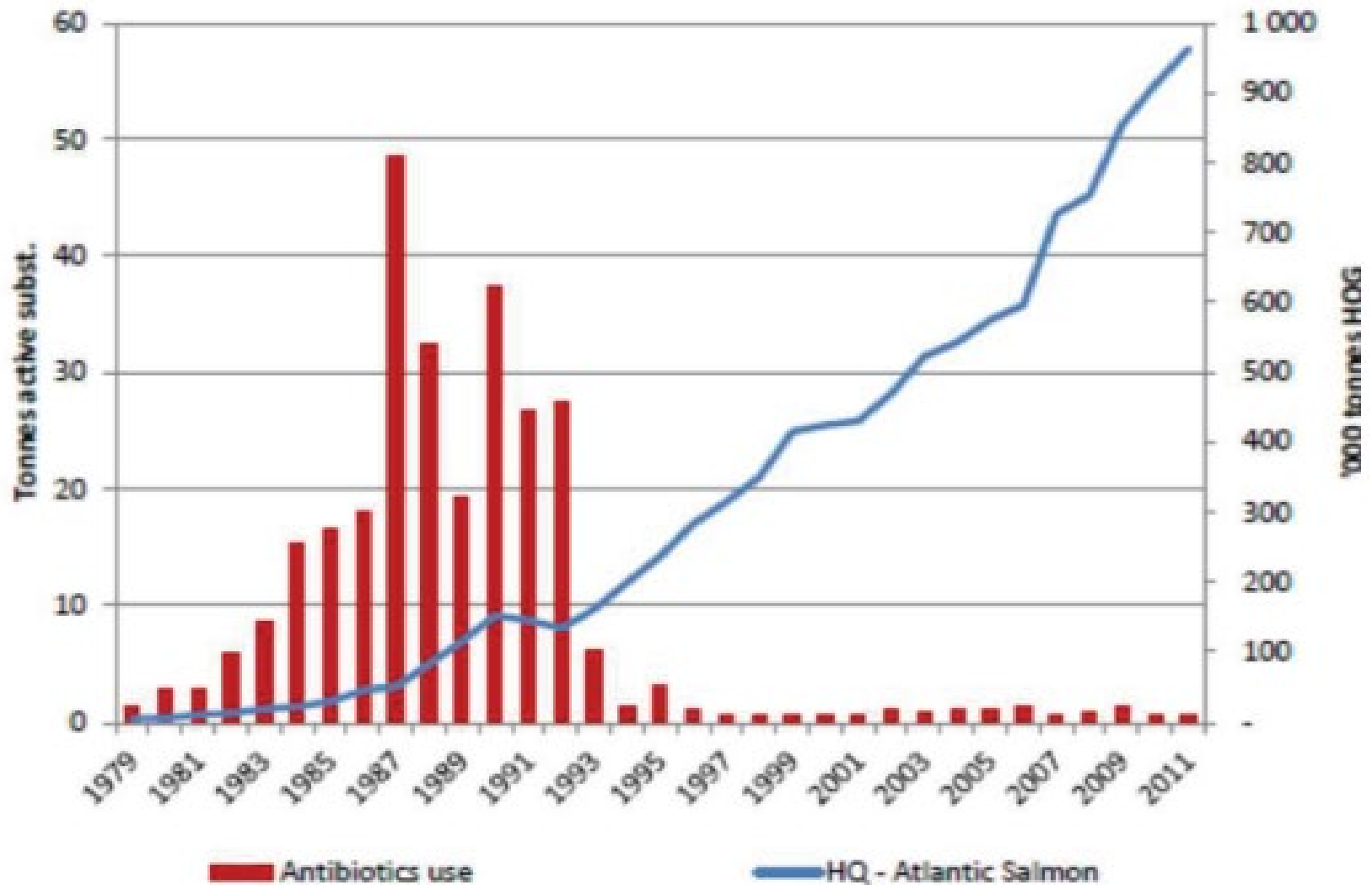
<http://www.oie.int/en/standard-setting/specialists-commissions-working-groups/scientific-commission-reports/ad-hoc-groups-reports/>



- **Cattle, sheep and goats** (May 2018)

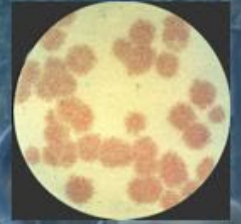
<http://www.oie.int/standard-setting/specialists-commissions-working-groups/scientific-commission-reports/ad-hoc-groups-reports/>







# Inadequate biosecurity and management



On many farms the increased production has not been accompanied by improvements in biosecurity and management

Veterinarians and animal producers must make behaviour changes with respect to the prescription and use/dispensing of antibiotics

