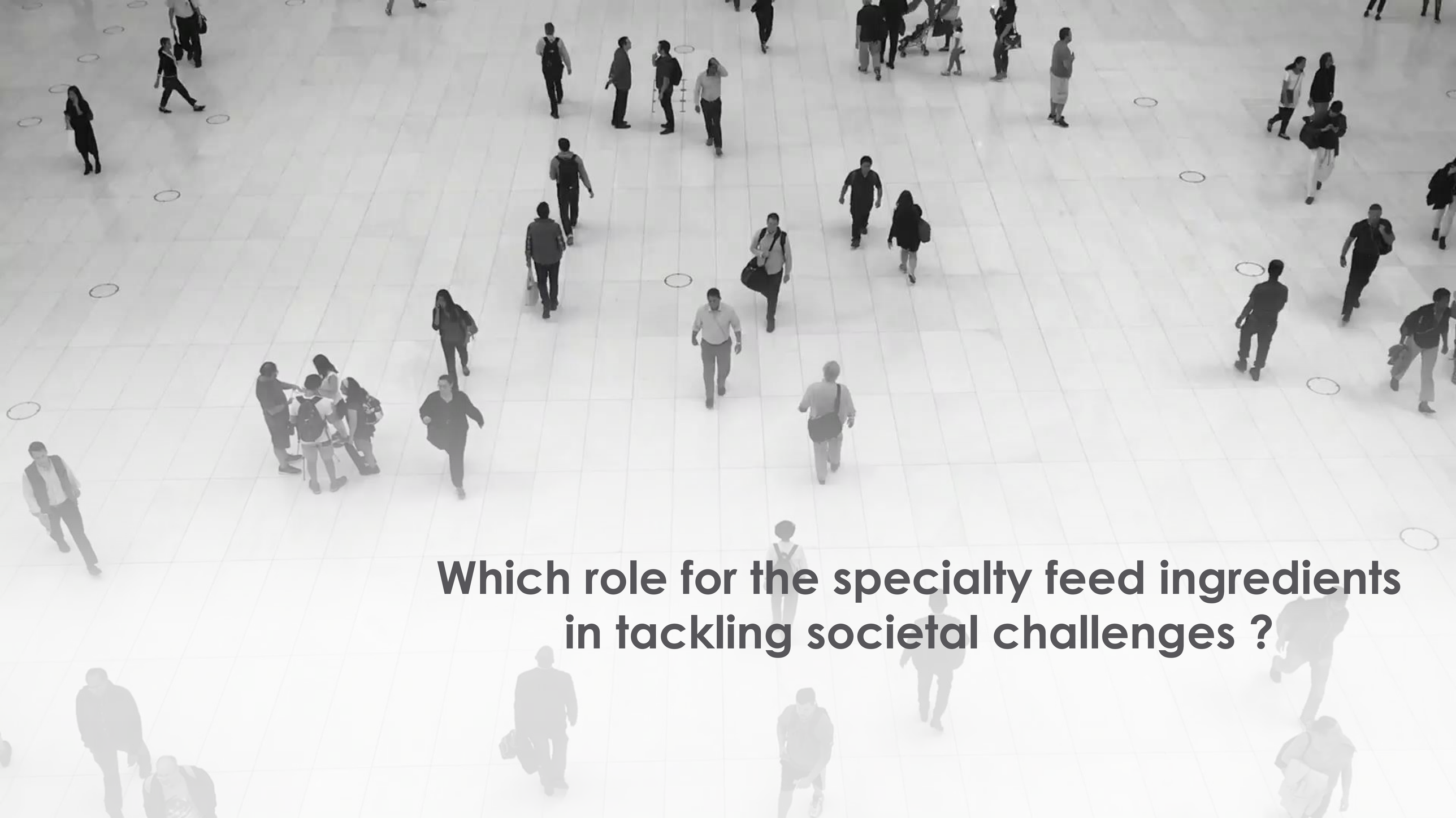

Which role for the specialty feed ingredients in tackling societal challenges ?

The Authors

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Market Access Director

ADISSEO
A Bluestar Company

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Health by Nutrition Global Category Director

ADISSEO
A Bluestar Company

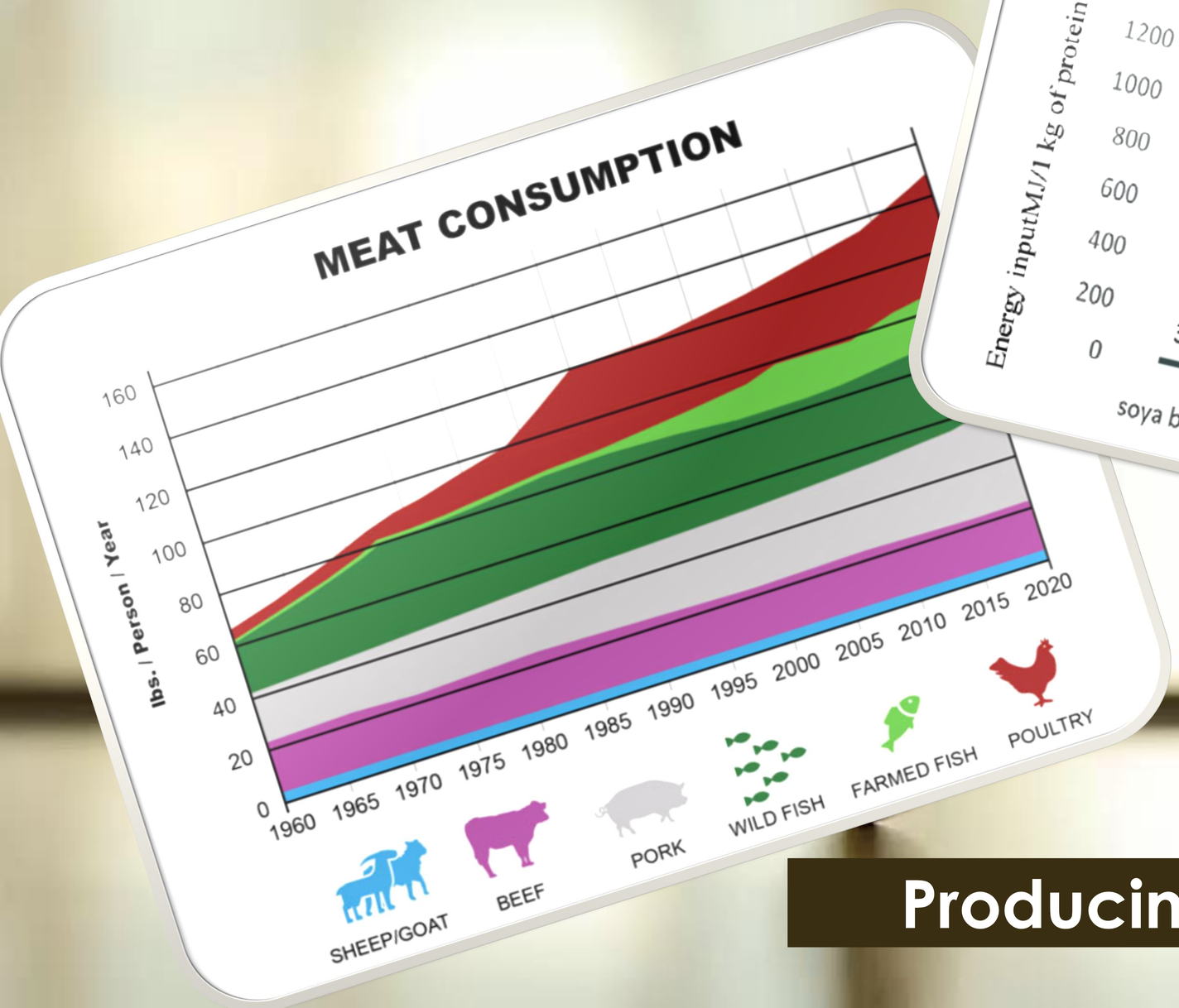
Societal Challenges:
Population Growth

Societal Challenges: Climate Change

Societal Challenges: Resources Scarcity

Which is the role of Livestock Industry in this situation?

A challenged role



Producing more with less

Producing more with less under private and public stakeolders pressure

Animal Welfare

"Veggy Trend"

"Alternative Proteins"

"Alternative Meats"

Less Antibiotics

A moving environment

Why the use of AB in the livestock farms?

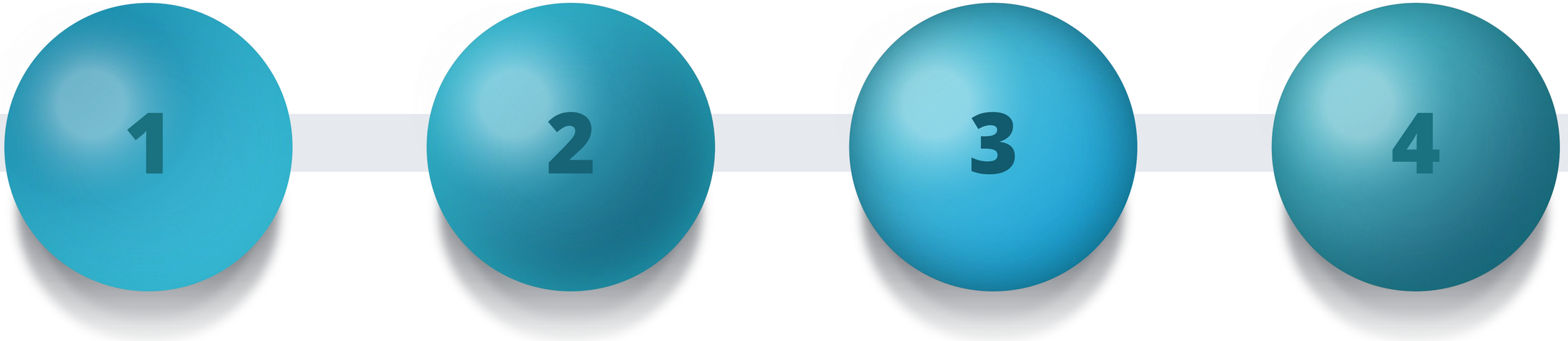
Firstly introduced in the early ’50s to reduce bacterial diseases diffusion

And to improve intensive animal protein production

Before the arrival of the vaccines & implementation of biosecurity rules

Last, but not least, these AB solutions delivered a good quality/price ratio

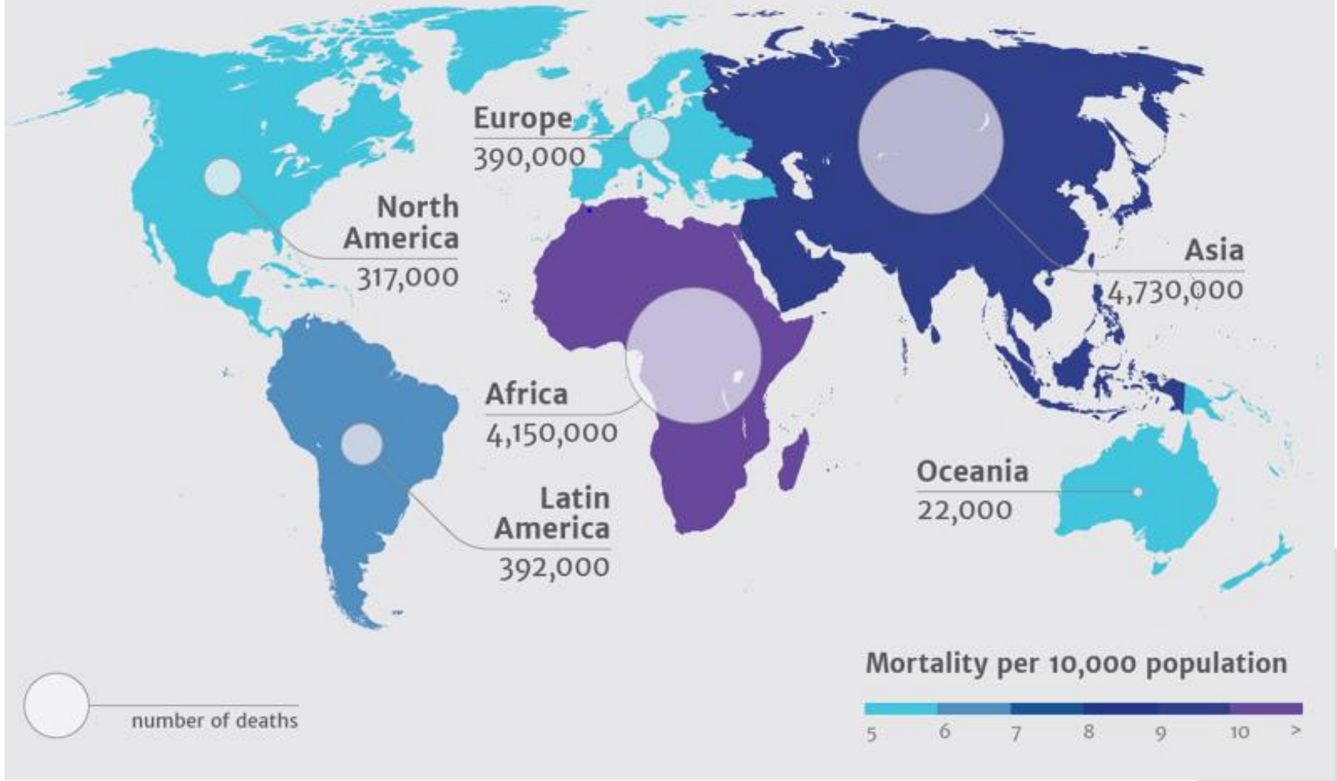
In the livestock market, there are 4 kind of antibiotics (AB)



1. AB Growth Promoters (only oral use)
2. Ionophores (Poultry) (only oral use)
3. AB to control bact. diseases (mainly oral use)
4. AB to treat bact. diseases (oral & inj use)

How this use deals today with the “Resistance” issue?

Source: U.K. Prime Minister review on AMR – Dec14



ANTIMICROBIAL RESISTANCE

Antibiotics for human use	Criteria	
	C1	C2
Critically Important	YES	YES
Highly Important	At least one of the two criteria	
Important	NO	NO

C1: *An antimicrobial agent which is the sole, or one of limited available therapy, to treat serious human diseases*

C2: *Antimicrobial agent is used to treat diseases caused by either:*

(1) organisms that may be transmitted to humans from non-human sources

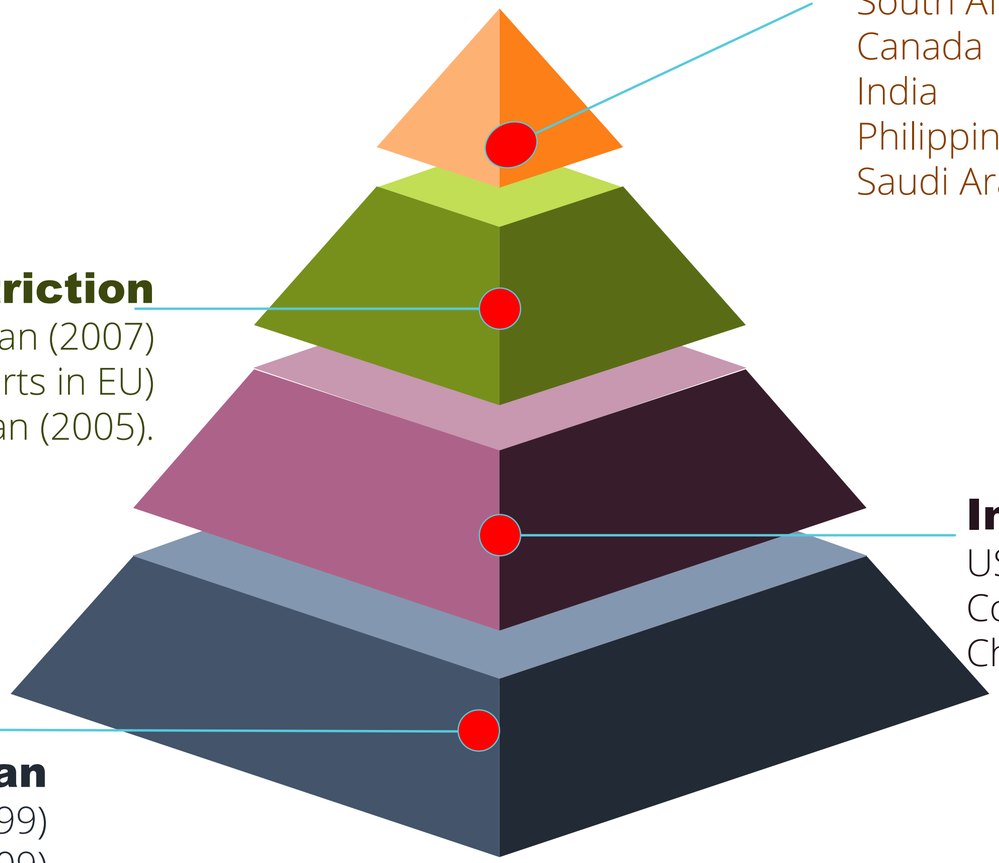
(2) human diseases caused by organisms that may acquire resistance genes from non-human sources.

World Health Organization

Antibiotics for human use	Criteria		Ab for Vet use	a) Traditional Use in Vet Medicine b) Future Use
	C1	C2		
Critically Important	YES	YES	Penicillins, Amoxicillines, 3rd Gen Cephalosporines, Fluoroquinolones, Macrolides, Colistine	a.Very strong use b.Very limited use (in many EU Countries already banned)

World Health Organization

But AGPs were the first to get banned…



No restriction
Russia
South Africa
Canada
India
Philippines
Saudi Arabia

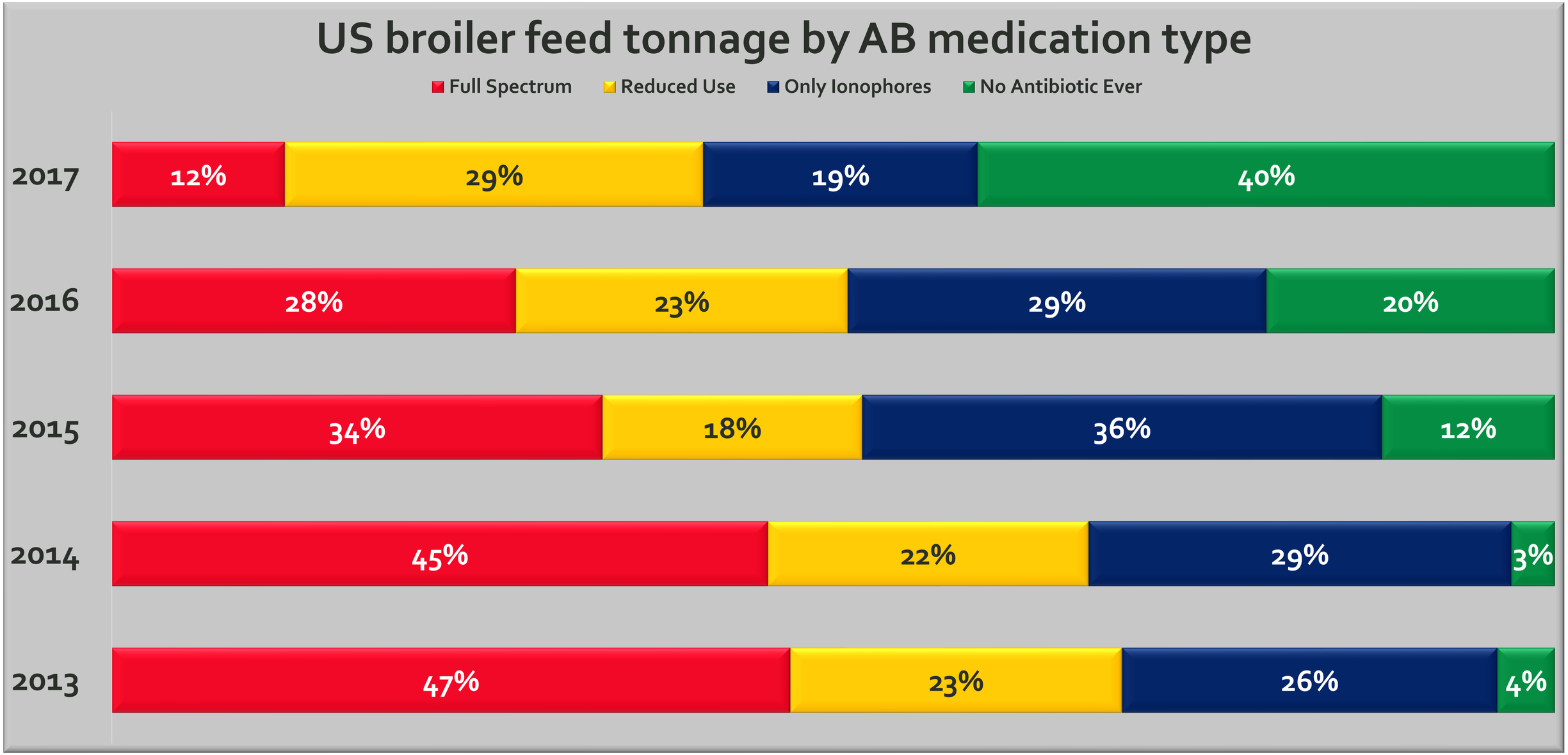
Partial Restriction
Mexico partial ban (2007)
Brazil (for exports in EU)
Taiwan (2005).

Increasing Restrictions
USA: VFD (2017)
Colombia (2018)
China (go to full ban in 2020)

Existing Ban
New Zealand (1999)
EU-27 (2009)
South Korea (2011)
Thailand (2016)
Indonesia (2018)
Vietnam (2018)

Source: Rennier May18

And in USA, the VFD is driving the NAE…



…what about EU?

Category	Examples	EU Situation
Antibiotic Growth Promoters	Salinomicin, virginiamycin, avoparcin, …	Banned
Antibiotic Ionophores (coccidiostatics)	Lasalocid, Robenidine, Maduramicin, Decoquinate…..	No impact on C.I.A. so, for the moment, no interest from the EU Authorities, but EFSA registration process become « more challenging » in the last 12 months
Antibiotic to prevent bacterial diseases (included metaphylaxis)	Beta-lactamines Tetracyclines Fluoroquinolones, Macrolides, Colistin	“Options should be reviewed to phase out most preventive use of antimicrobials and to reduce and refine metaphylaxis by applying recognised alternative measures”
Antibiotic to treat bacterial diseases		The use of this Category will remain under the Veterinary responsibility

…what about EU?

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Antibiotic to prevent bacterial diseases (included metaphylaxis)	Beta-lactamines Tetracyclines Fluoroquinolones, Macrolides, Colistin	FUTURE BAN IN 2022
Antibiotic to treat bacterial diseases		The use of this Category will remain under the Veterinary responsibility

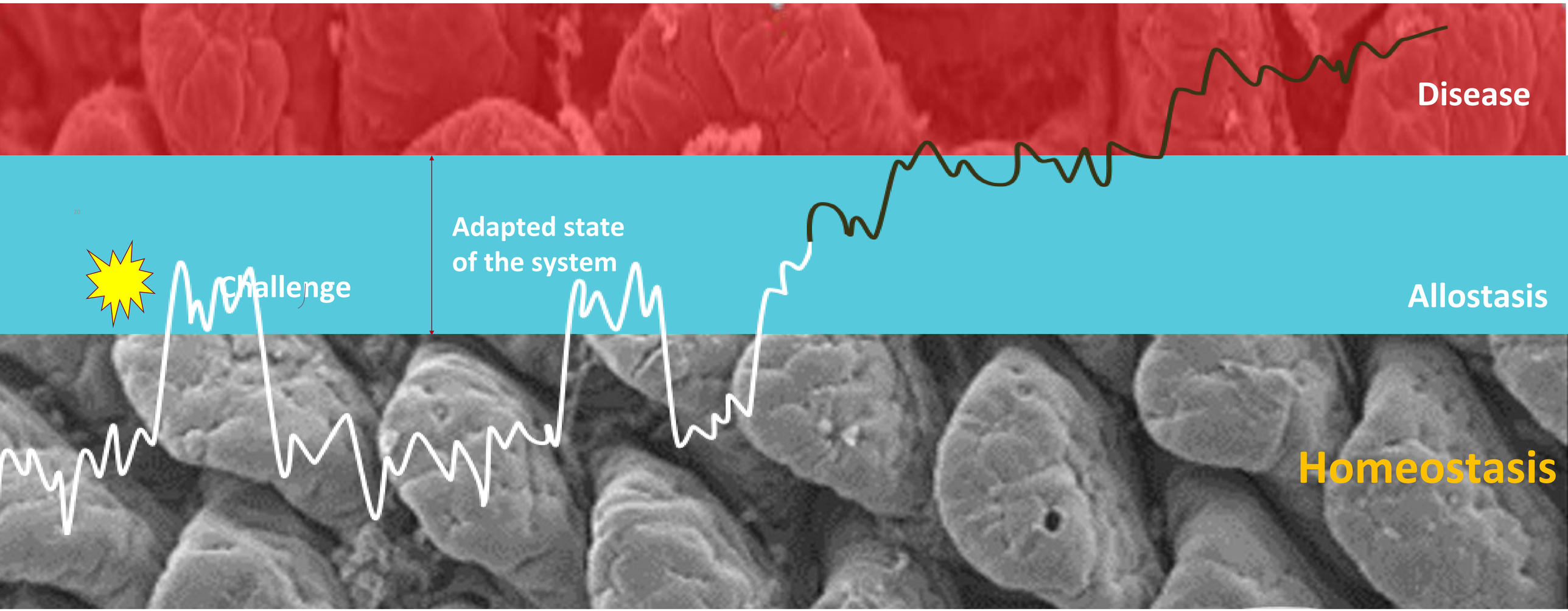

“Do more with less”
is possible when we speak
about the reduction of AB use.
Actually, we can
“Do more with less in a safe
and sustainable way”.

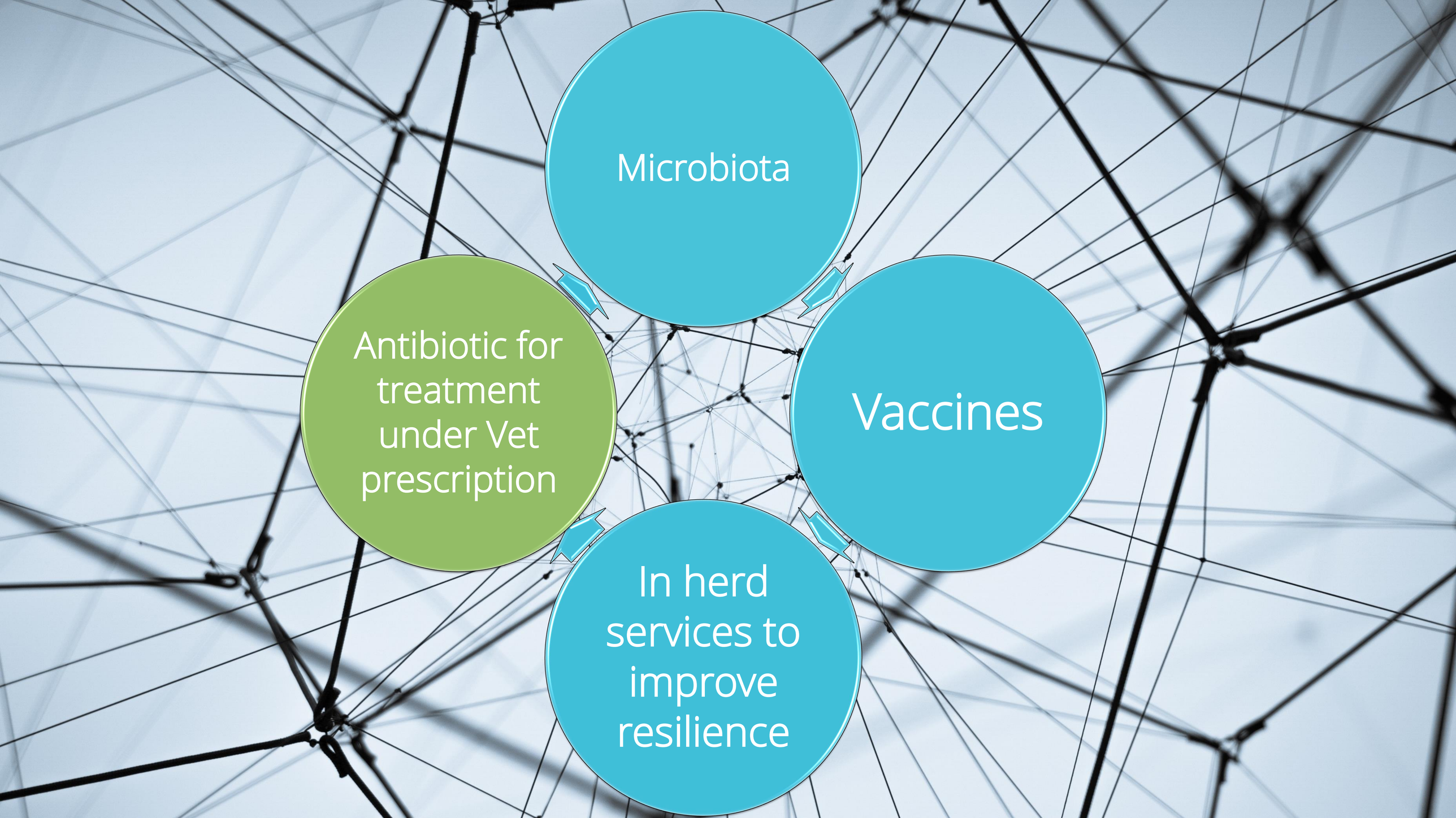

Which actions should be implemented to get this new road at global level?

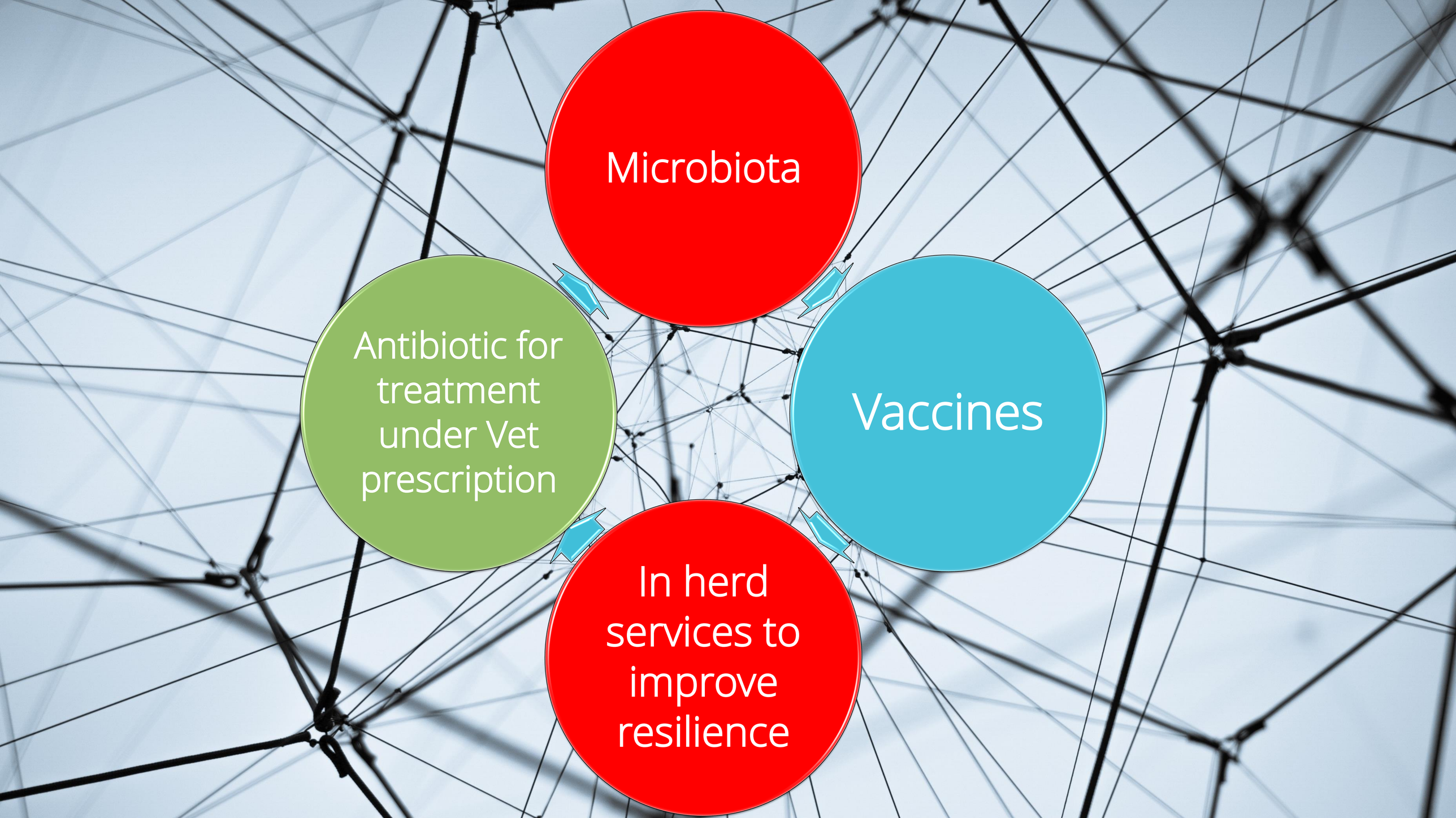
Source: Van Der Greef, J. – (2013)

Health promotion
Focus on animal resilience

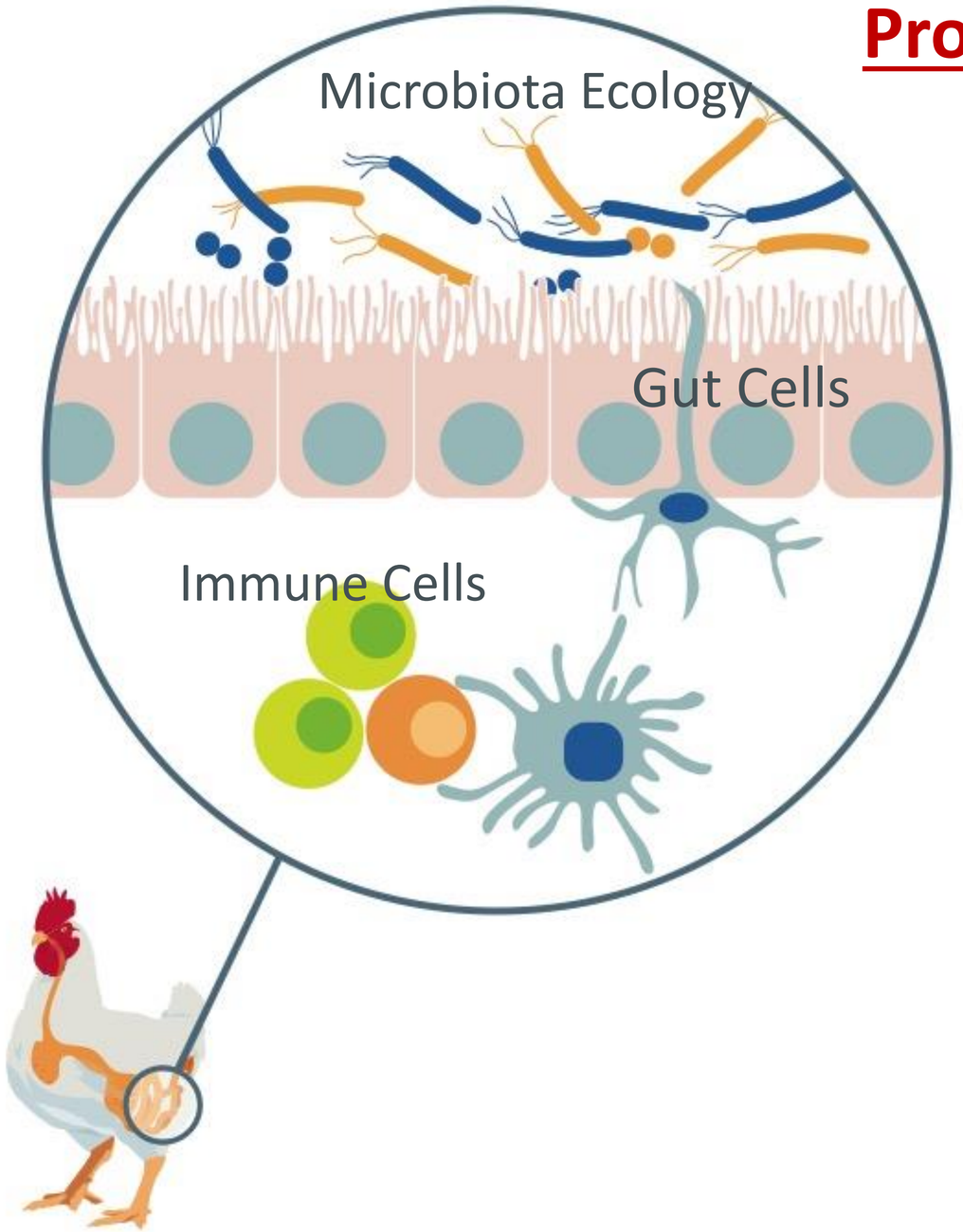
Disease management
Focus on animal symptoms




Microbiota
Vaccines
In herd services to improve resilience
Antibiotic for treatment under Vet prescription


Microbiota
Vaccines
In herd services to improve resilience
Antibiotic for treatment under Vet prescription

Protect the animal by the 3 lines of defense



1st Line

RESILIENT MICROBIOME

- limit pathogens
- favor «good» bacteria and, so, right function
- Resist to challenges

2nd Line

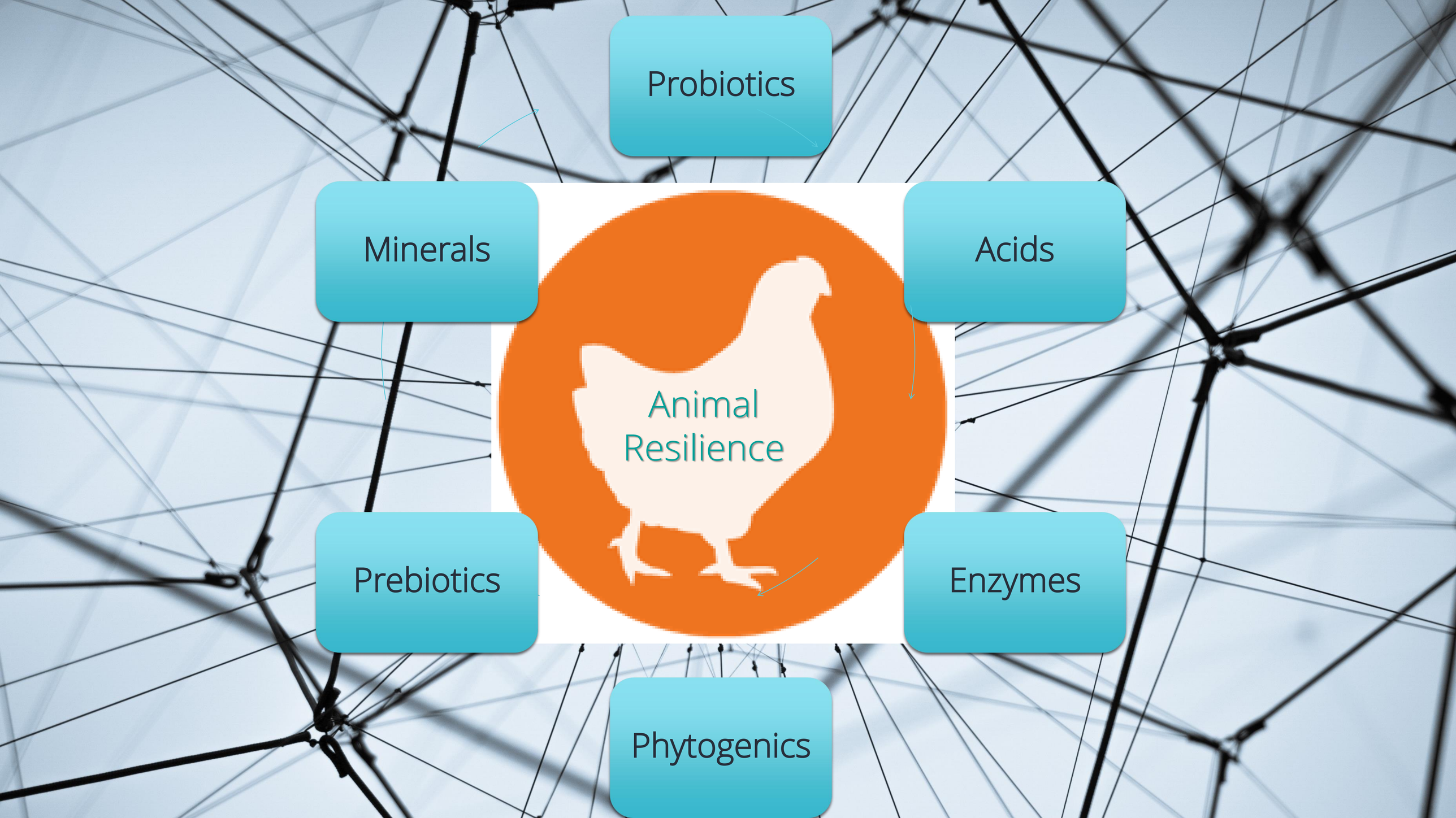
BARRIER FUNCTION, PRESERVE GUT INTEGRITY

- Protect against intruders from the outside
- Avoid leakage from the inside

3rd Line

REACTIVE IMMUNE SYSTEM

- Ability to quickly respond to intruders
- Avoid unwanted inflammations


Probiotics
Minerals
Acids
Animal Resilience
Prebiotics
Enzymes
Phytogenics

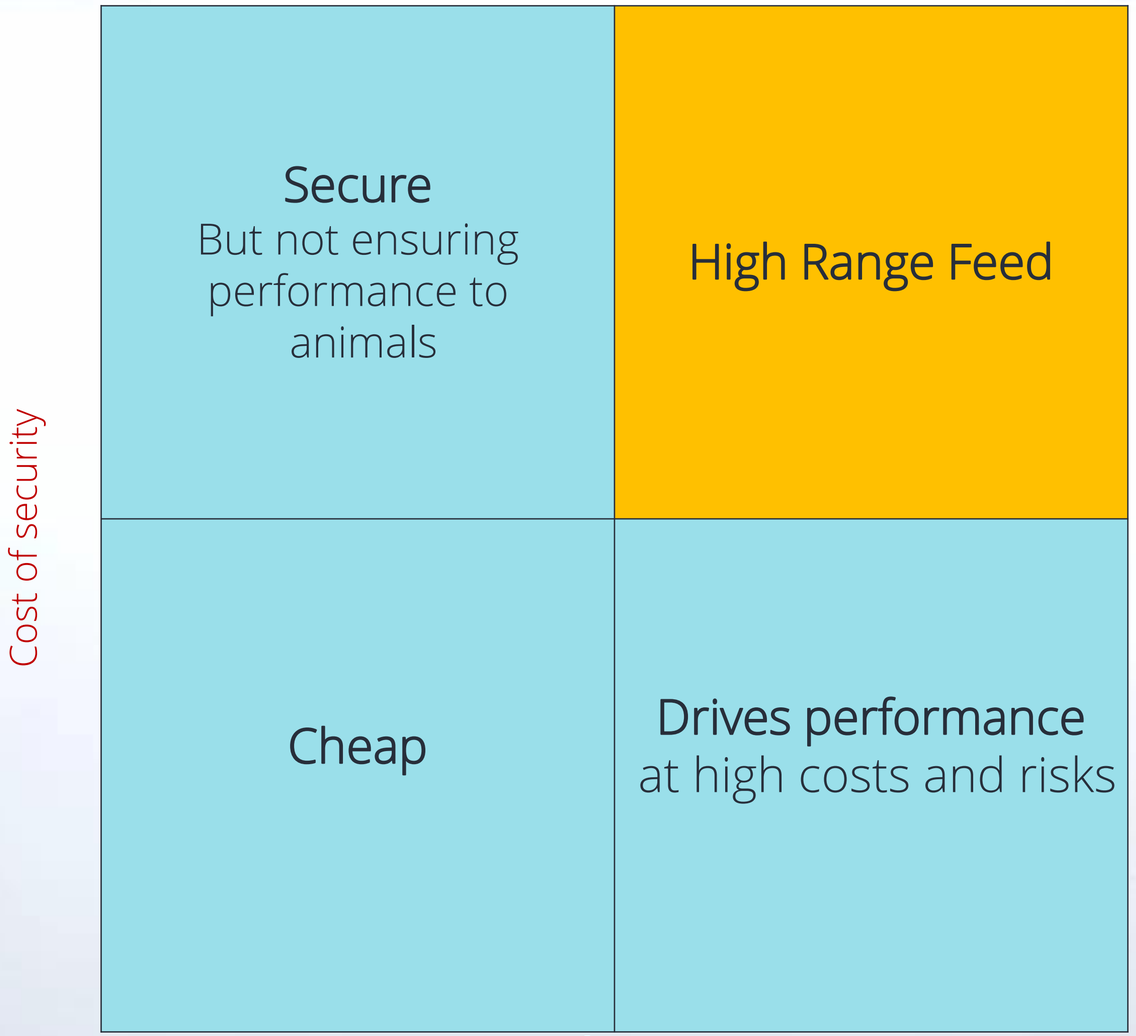
How do we need to deploy this effort with the Producers?

R&D INVESTMENTS TO DEVELOP NEW FEED ADDITIVES AND NEW "IN-HERD" SERVICES TO TACKLE ANIMAL CHALLENGES

FEED ADDITIVES ARE NOT ANTIBIOTICS

Reinforce Animal Resilience against intruders (including bacteria) to keep each animal as close as possible to its best production potential

INVEST IN SECURING SAFETY MARGIN



INVEST IN ENSURING NUTRIENT DENSITY

Take Home Message

Industry can offer animal resilience solutions to accelerate this transition to Responsible Use of Antibiotics

Feed Additives acting on gut microbiota can play a key role in this transition

In this milieu, the use of less antibiotics in animal protein production is, nowadays, a “clear global trend”

Consumers and Public Stakholders ask to produce animal protein in a safe and sustainable way