

TAFS Workshop:
**“Strengthening FMD control capacity
and enhance resilience”**
March 3-4, 2026, Cape Town, South Africa

Understanding the risks - Epidemiological risk assessment and why it matters for preparedness

Dirk U. Pfeiffer

Emeritus Professor, Royal Veterinary College, University of London, United Kingdom

Adjunct Professor, City University of Hong Kong, Hong Kong SAR, China

TAFS Forum Board Member

#1

[QS] World University
Rankings 2025
Veterinary Science



#63

[QS] World University
Rankings 2026



Animal Disease Control and Prevention



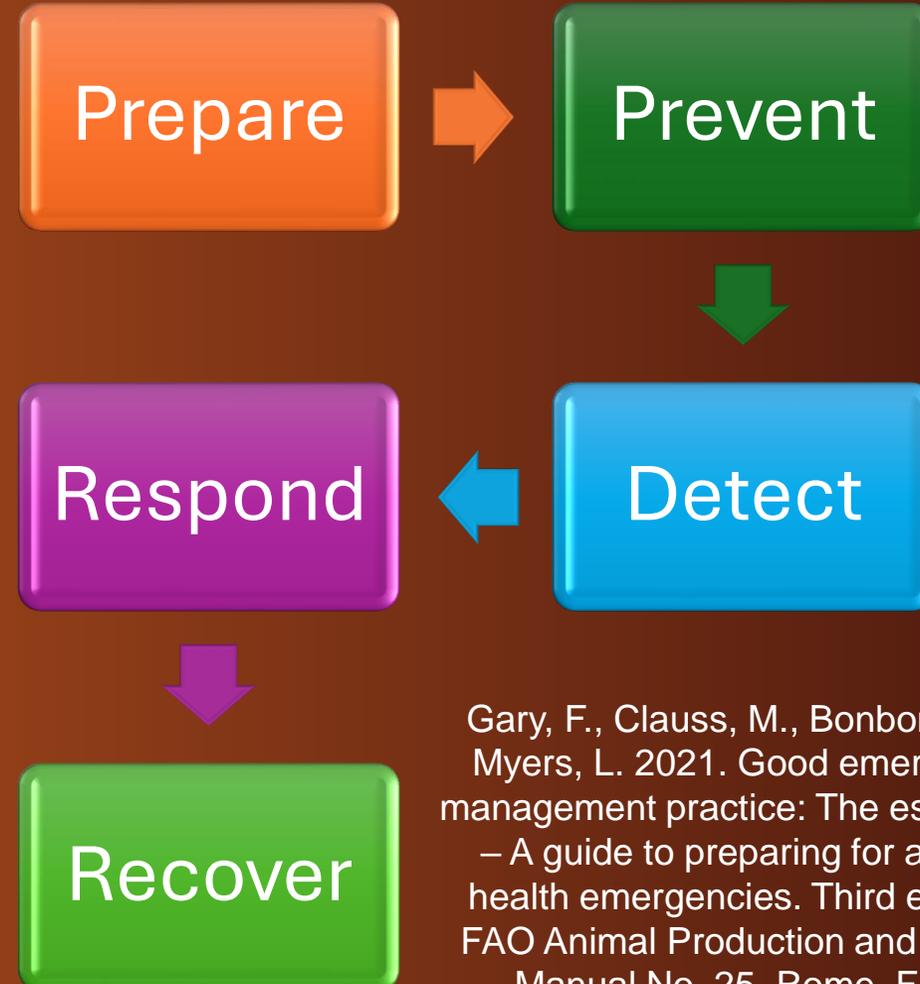
Good emergency management practice: The essentials

A guide to preparing for animal health emergencies
Third edition

FAO ANIMAL PRODUCTION AND HEALTH / **MANUAL 25**



Good Emergency Management Practice (GEMP)



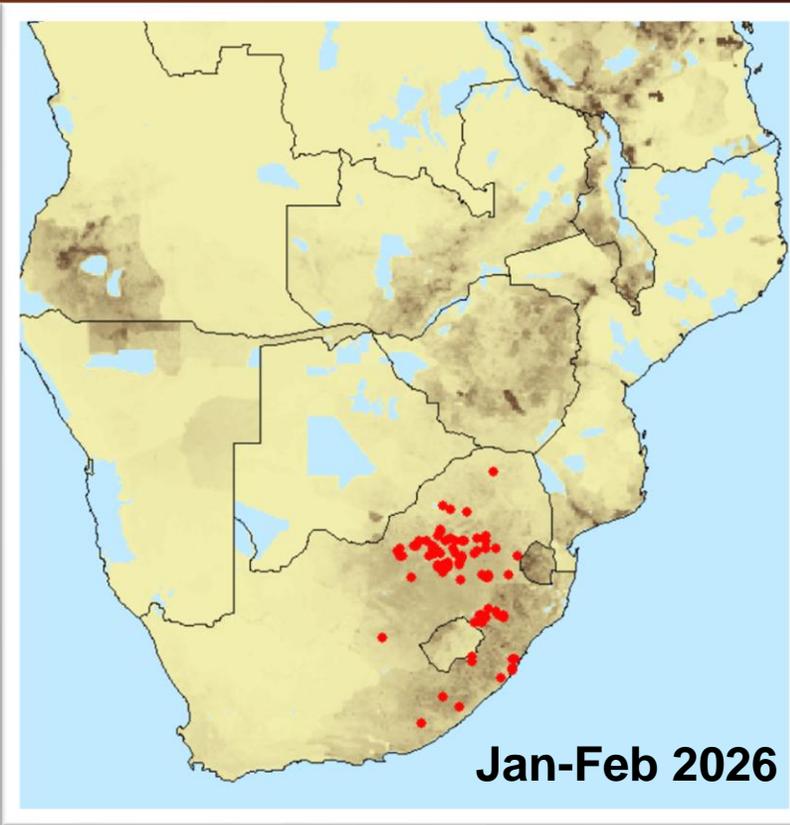
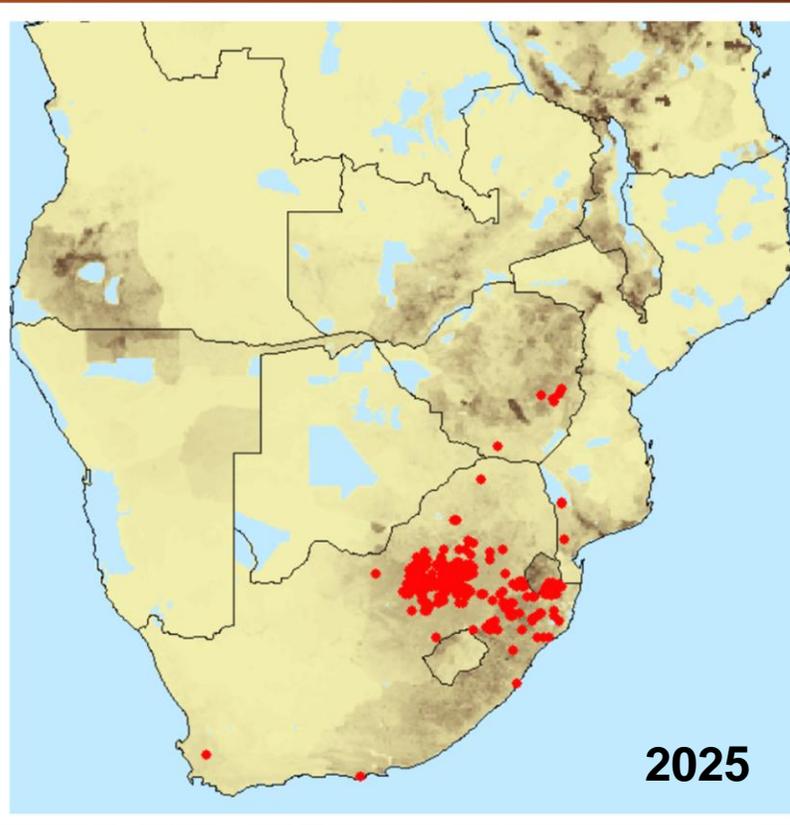
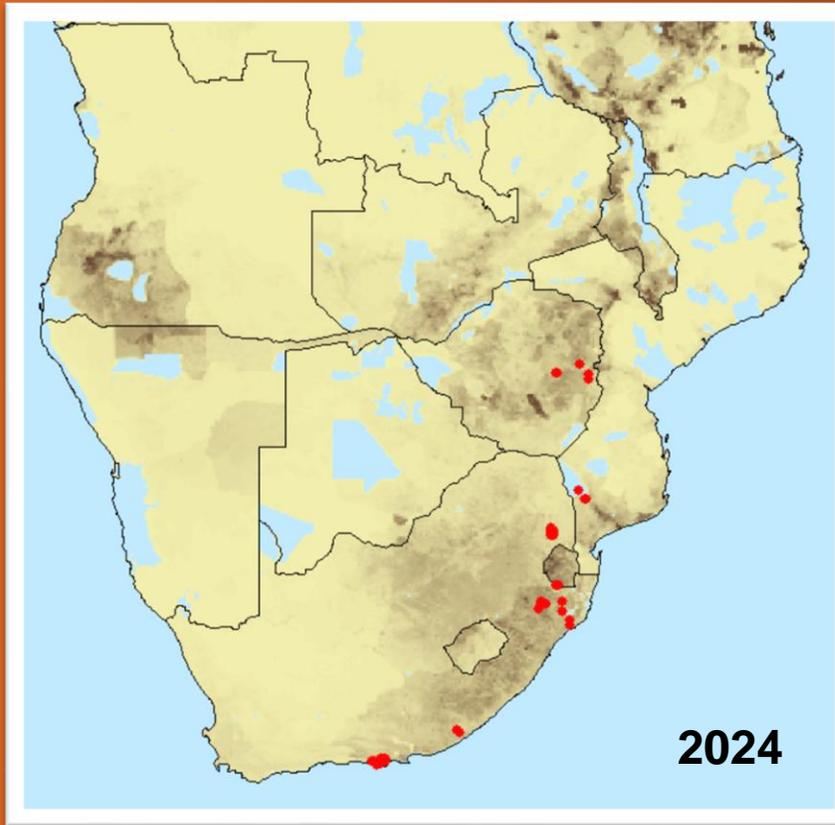
Gary, F., Clauss, M., Bonbon, E. & Myers, L. 2021. Good emergency management practice: The essentials – A guide to preparing for animal health emergencies. Third edition. FAO Animal Production and Health Manual No. 25. Rome, FAO.



<https://www.fao.org/documents/card/en/c/cb3833en>

Regional FMD Pattern

Regional Pattern of Reported FMD Outbreaks from 2024 to Jan-Feb 2026 (Source: FAO-Empres-I)

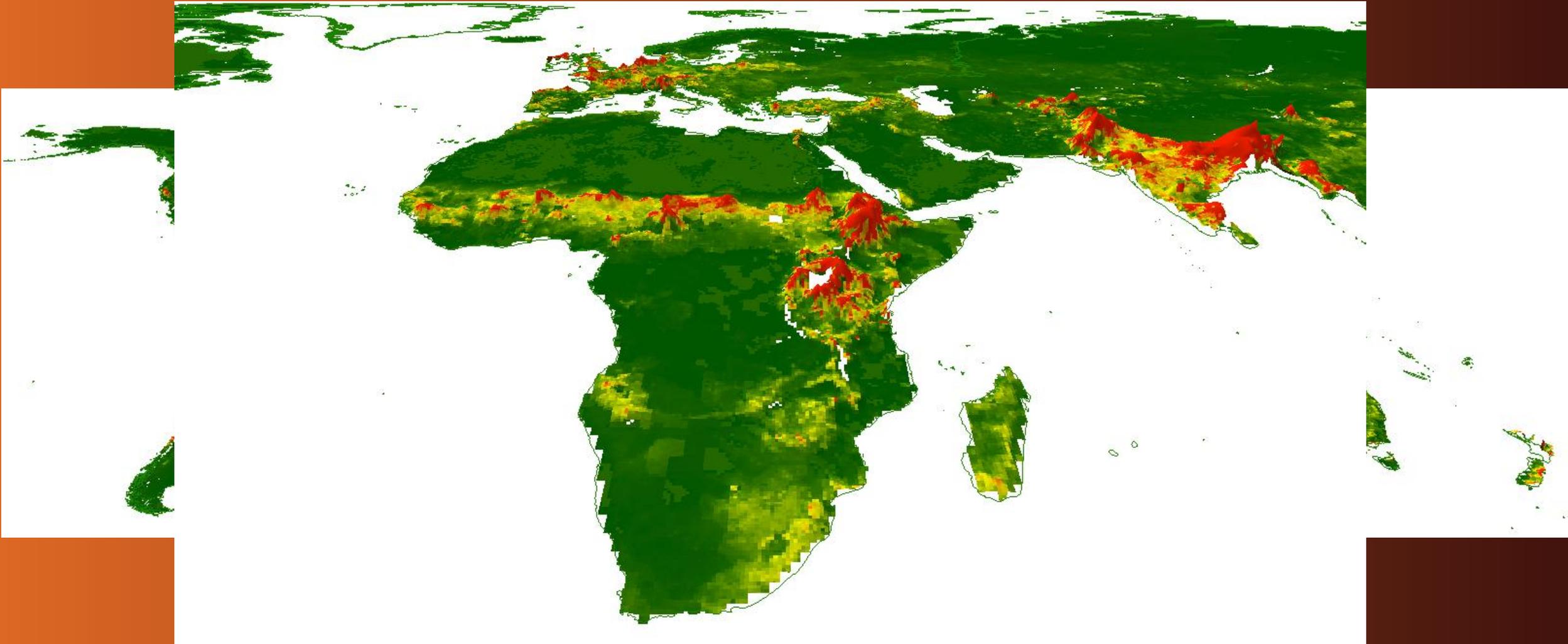


Beef Cattle Production Systems

Diverse Beef Production Systems



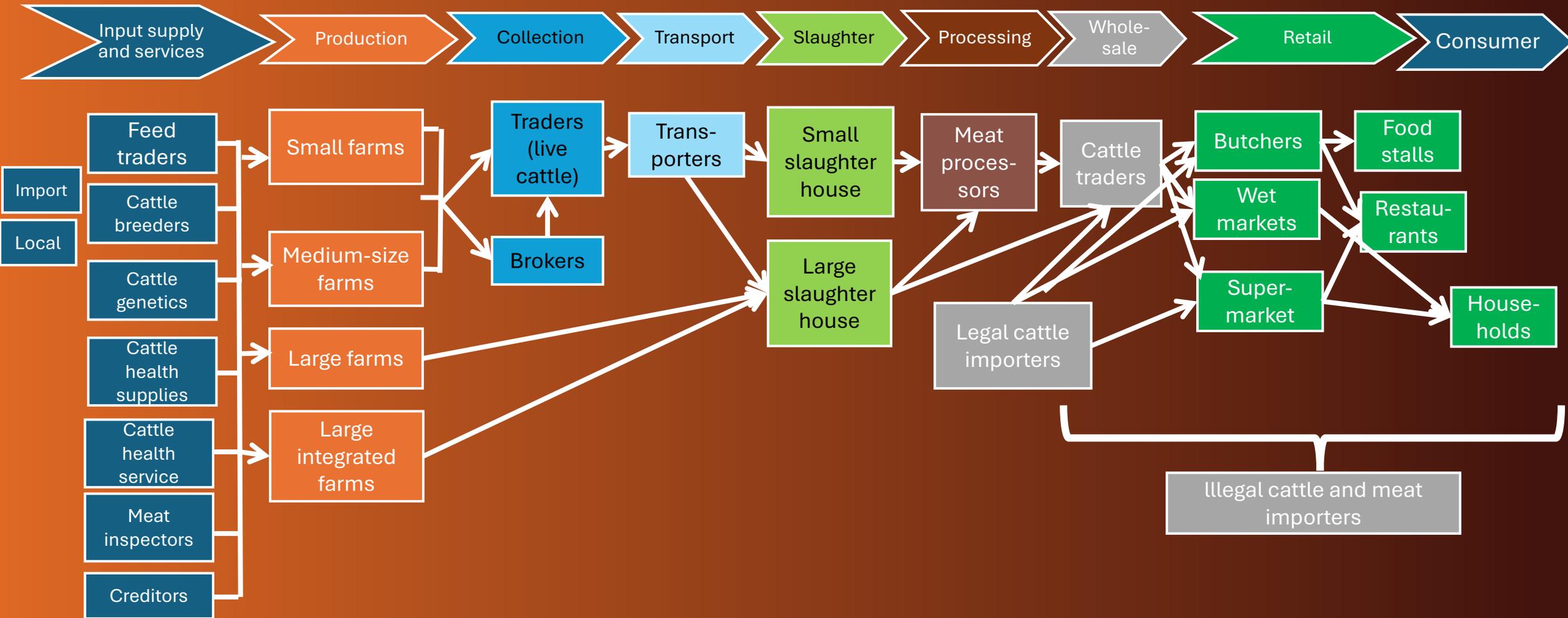
Global Pattern of Cattle Density in 2020



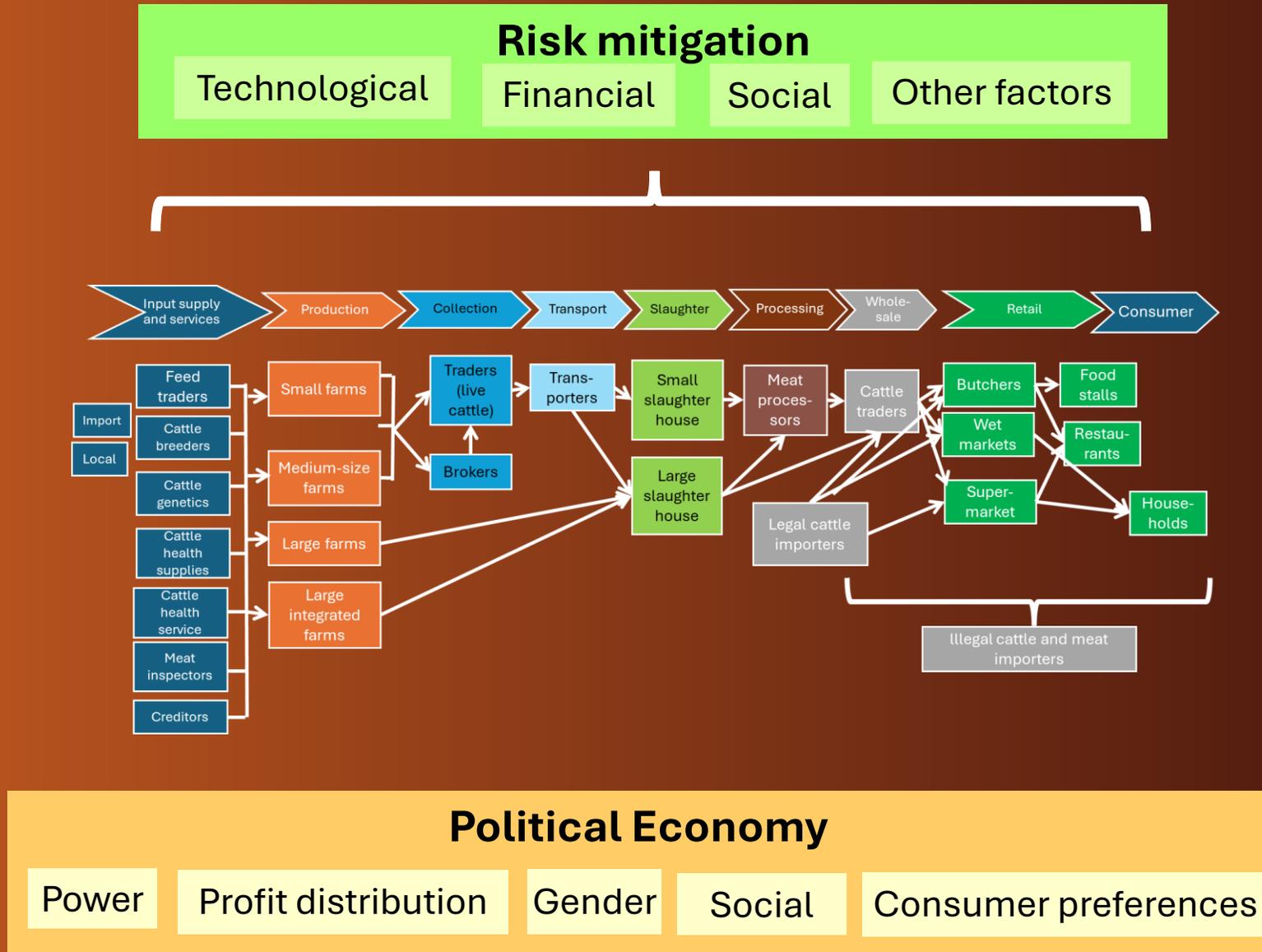
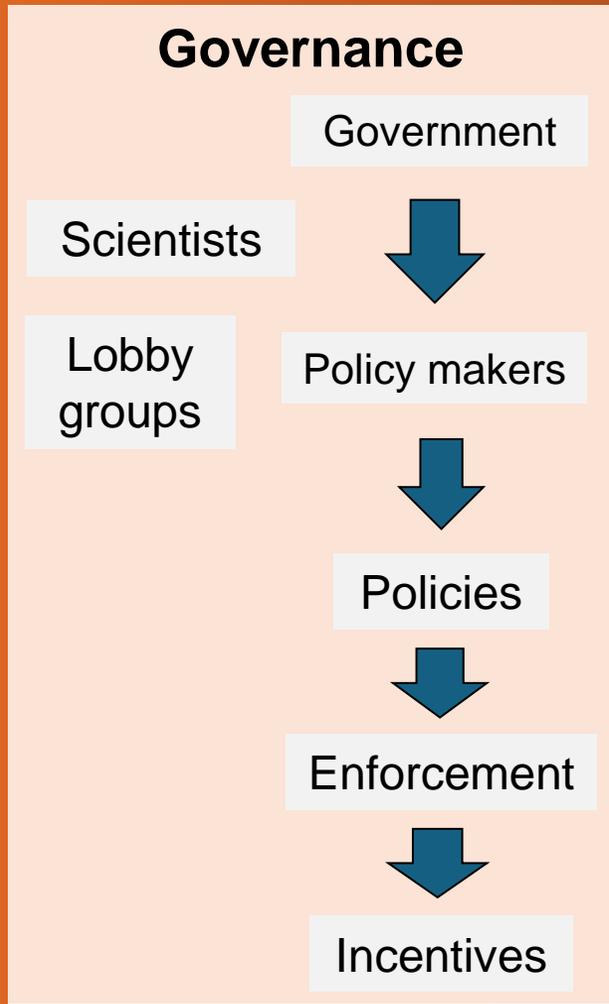
From: [Gridded livestock density \(Global - 2020 - 10 km\) - GLW4 - Datasets - "FAO catalog"](#)

Systems Thinking

Value Chain of Beef Cattle Food System

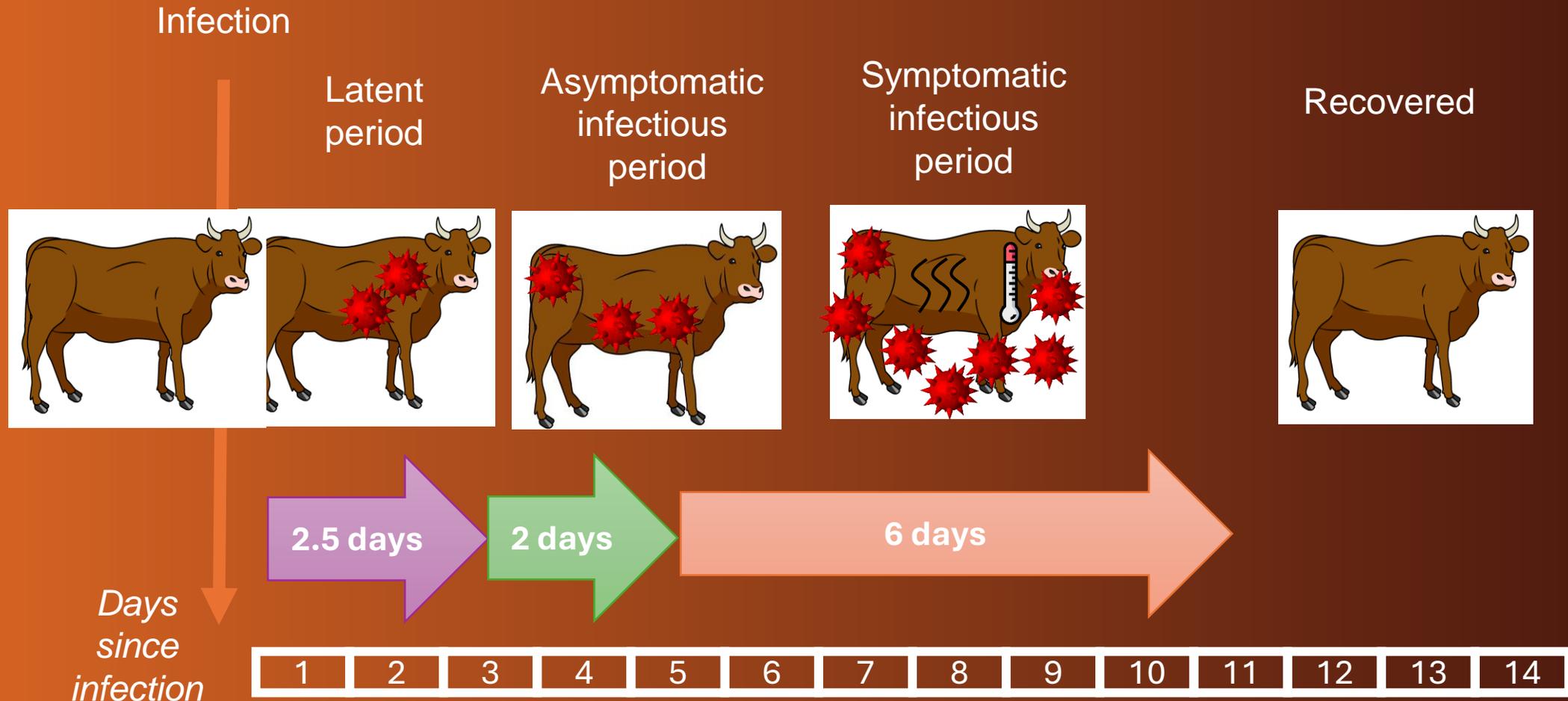


Complex Systems Perspective on Beef Cattle Value Chain



Population Dynamics of FMD Virus

Mean Duration of Different Infection and Disease States for FMDV

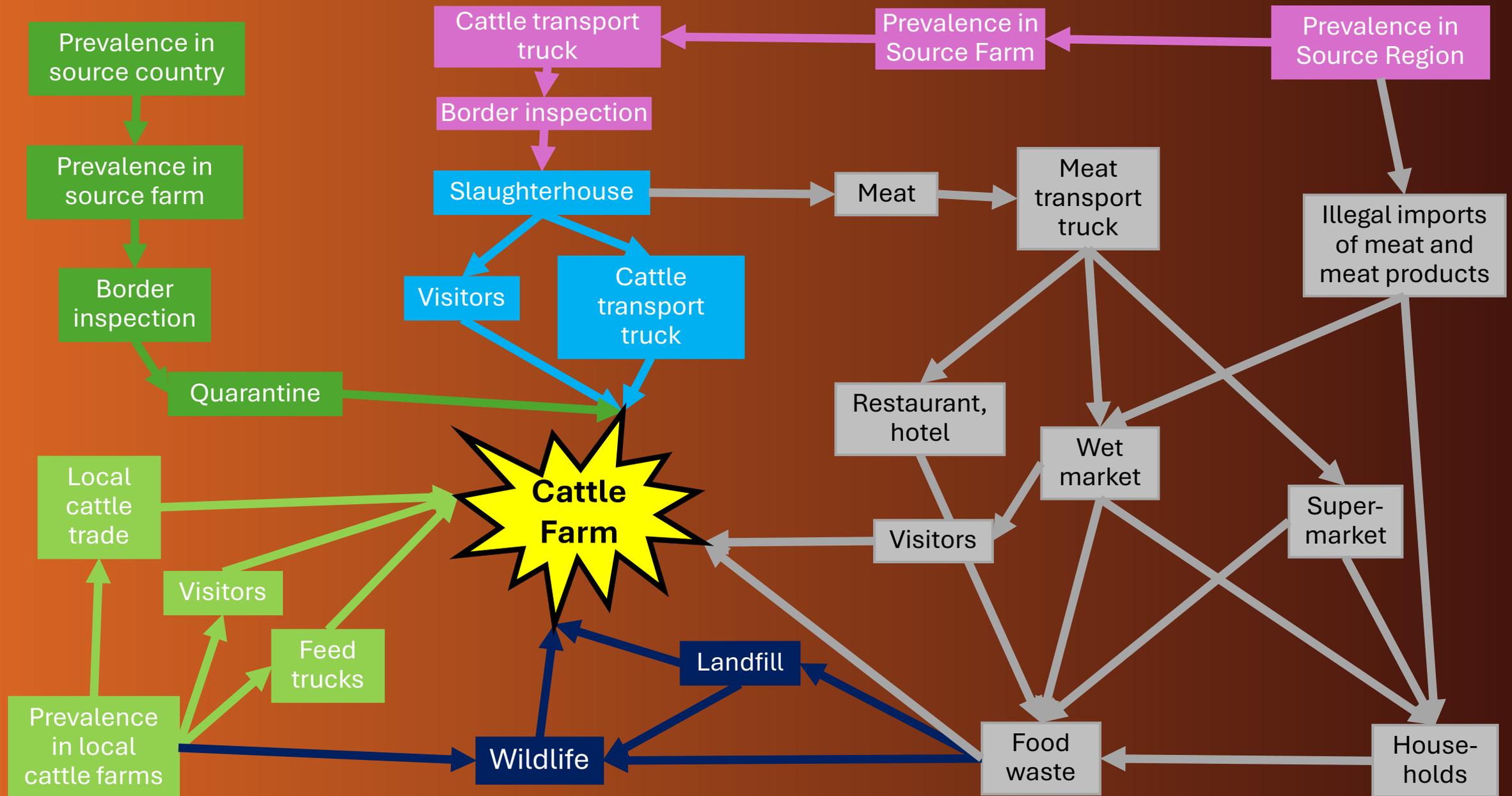


Risk Assessment

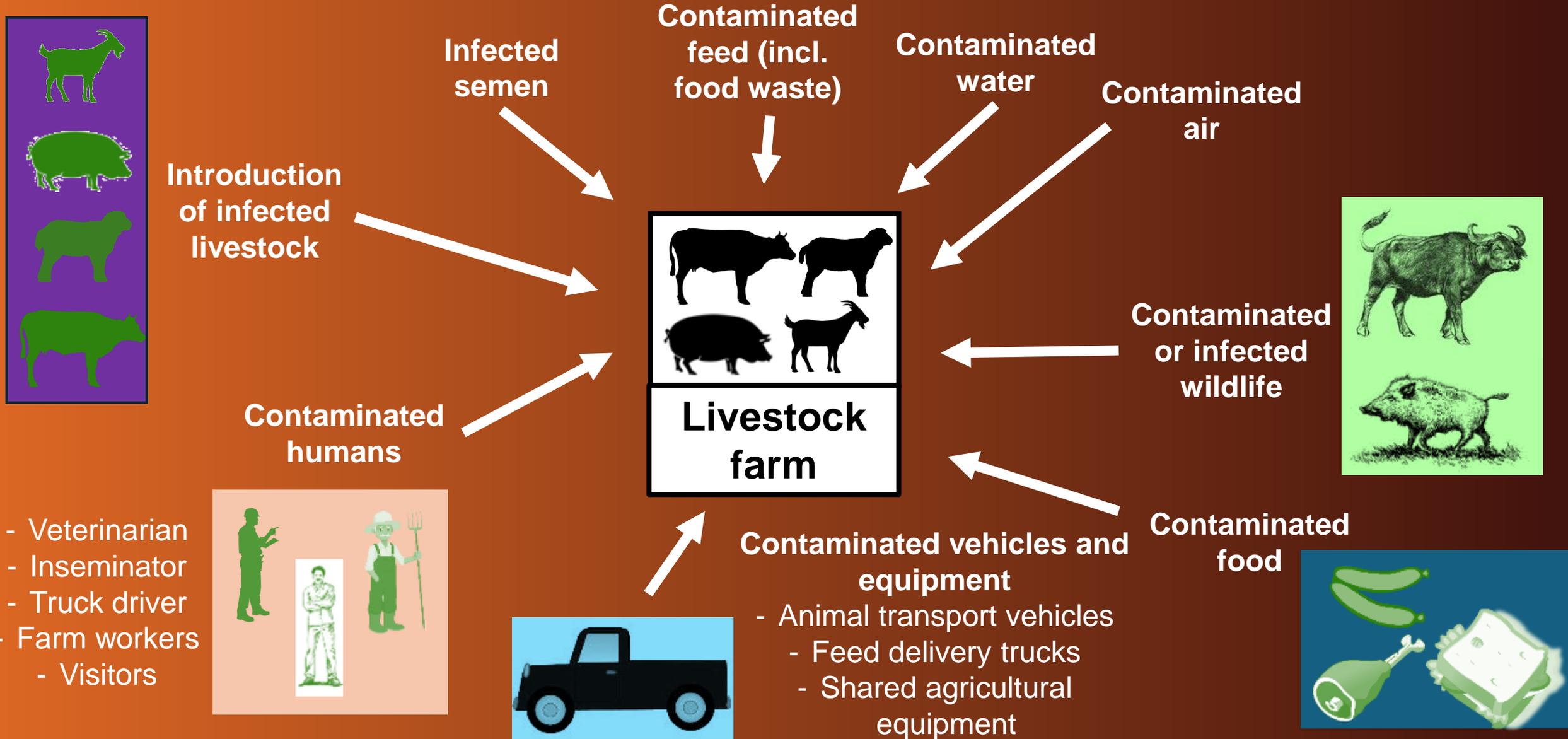
Risk Assessment (based on WOAHA)

- entry, exposure and consequence assessments
 - qualitative, semi-quantitative, quantitative
- methodology
 - define risk question(s)
 - develop risk pathway diagram
 - convert risk pathway diagram to risk assessment model
 - define likelihoods and uncertainties for each step in risk pathway diagram
 - estimate risk or other outcomes

Risk Pathways for Introduction of FMD Virus to Cattle Farms



Example of Potential Mechanisms for Introduction of Infectious Pathogens to a Livestock Farm



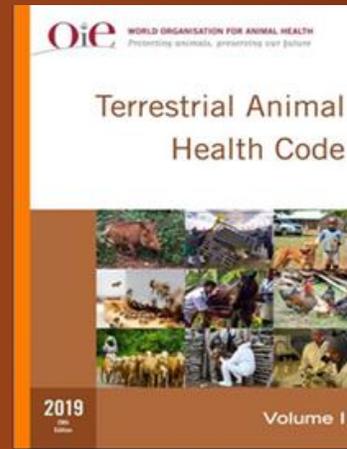
Prevention

FMD Risk Management

- farmer behaviour
- biosecurity
- cattle movement
- zoning compartmentalisation
- technical tools
 - diagnostics
 - vaccination
- need to design integrated FMD risk management programme based on
 - clear objectives defined in consultation with key stakeholders
 - understanding of
 - local FMDV epidemiology
 - performance characteristics of vaccine and diagnostics

Enable Business Continuity - where and when Country Freedom is not possible

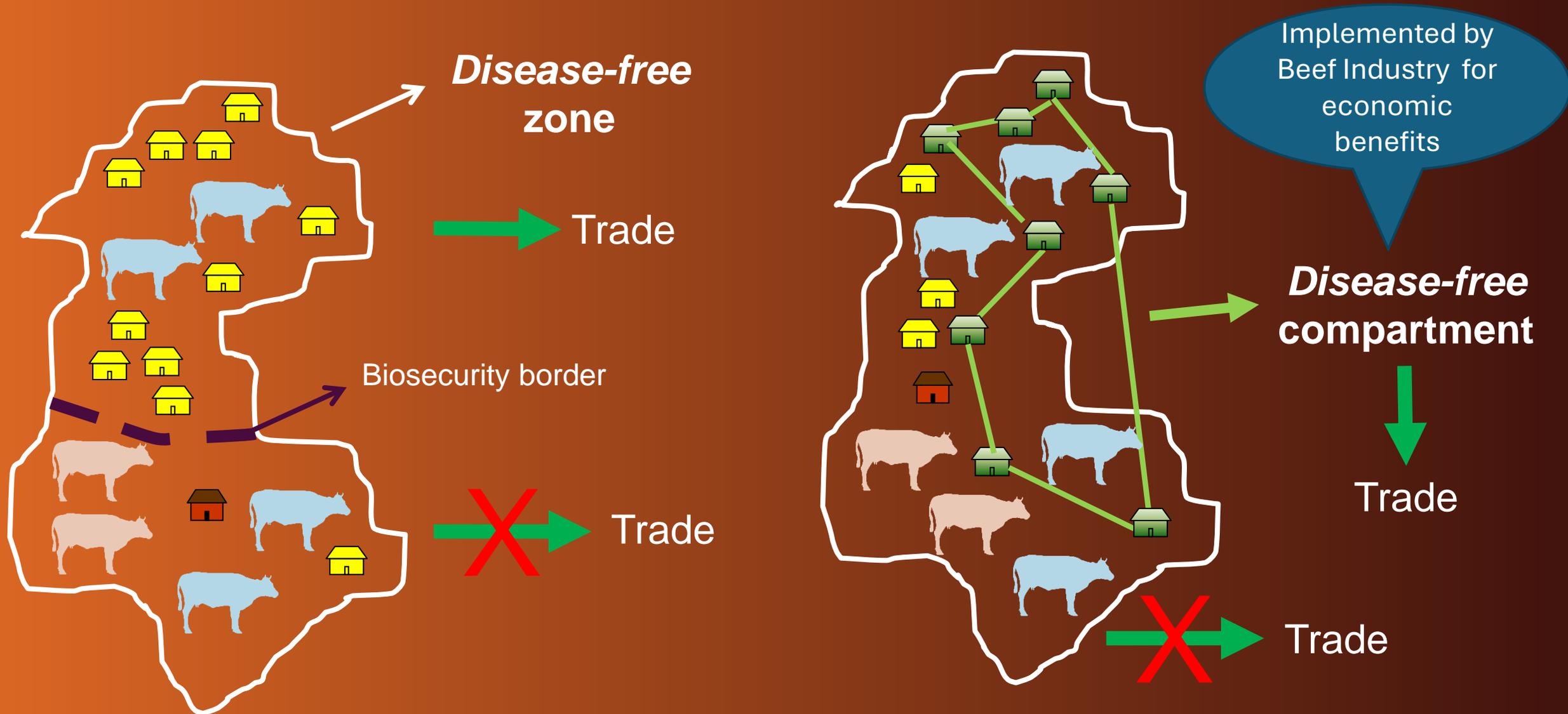
OIE Standards: Veterinary Services, risk analysis, surveillance, welfare, certification, etc



- Key definitions: Terrestrial Code Glossary
<https://www.oie.int/index.php?id=169&L=0&htmfile=glossaire.htm>

Zoning (since 1993)	Compartmentalisation (since 2003)	Commodity risk management (since 1968)
defined primarily on a geographical basis (using natural, artificial or legal boundaries)	Defined primarily by biosecurity management and husbandry practices	Defined primarily by the inherent risk of the commodity

Zoning or Compartmentalisation



Free Learning Resources

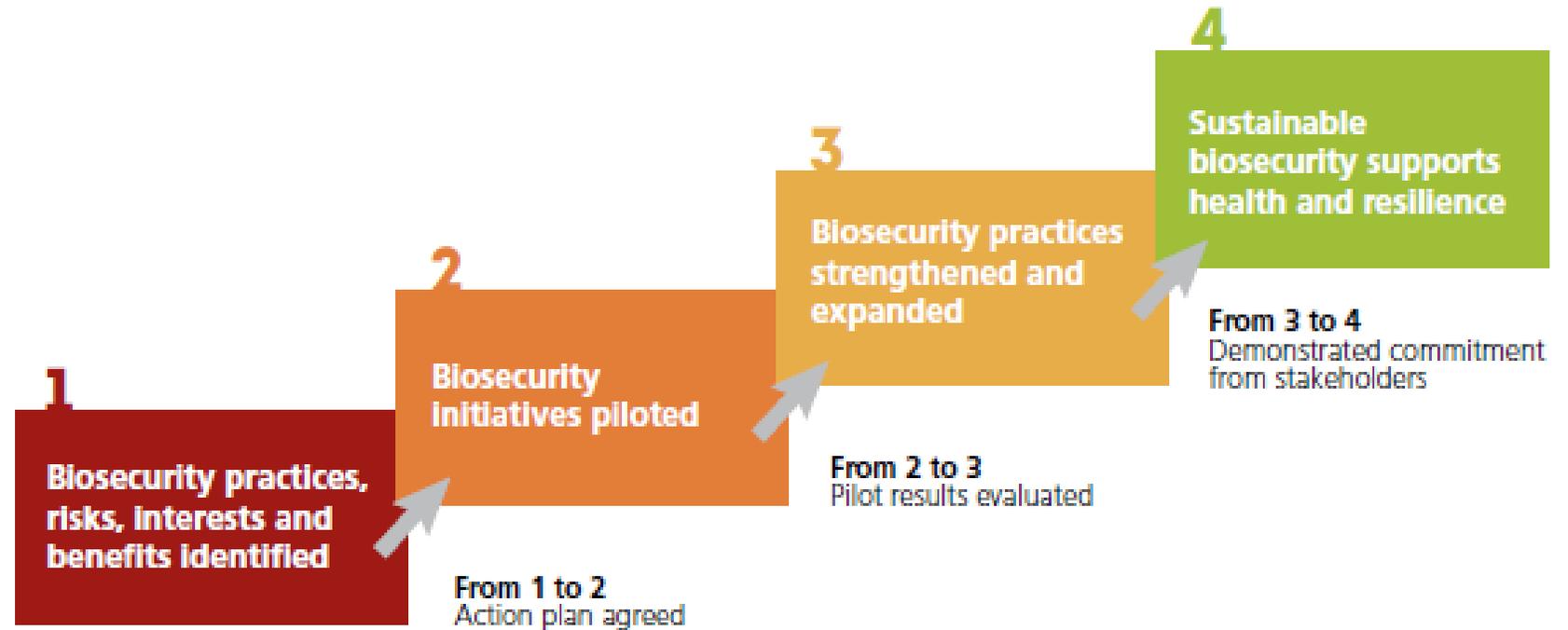
FAO Progressive Management Pathway for Terrestrial Animal Biosecurity (FAO-PMP-TAB)

Putting the framework into action

FAO ANIMAL PRODUCTION AND HEALTH / HANDBOOKS 3



FIGURE 1
Steps of the FAO-PMP-TAB



Source: Author's own elaboration.

FAO Regional Office for Europe and Central Asia > News > News Detail

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FAO offers free multilingual course to improve biosecurity on ruminant farms



The European Commission for the Control of Foot-and-Mouth Disease (EuFMD)



Food and Agriculture
Organization of the
United Nations



Who we are

Global situation

What we do

Progressive Learning Pathway

Meetings and Events

Tools

Resources



Programme

What is the European Commission for the Control of Foot-and-Mouth Disease ?

The Commission works with Member Nations on their preparedness, with European neighbours to put in place sustainable control programmes, and to support and promote the global strategy for progressive control of Foot-and-Mouth Disease through close partnership with DG-SANTE of the European Commission, with the Food and Agriculture Organization of the United Nations and the World Organization of Animal Health. [\[read more\]](#)

eufmd
European Commission for the Control
of Foot-and-Mouth disease

Conclusions

Conclusions

- FMD risk management needs to be based on sound understanding of risk pathways in underlying eco-social system
- well designed FMD control and prevention programme
 - based on agreement with key stakeholders on aims of FMD risk management programme
 - should aim to co-design disease control and prevention programmes with key stakeholders
 - tailor FMD risk management tools to specific characteristics of risk pathways
 - optimal use of technical tools, such as vaccines and diagnostics
 - critical assessment of performance characteristics of tools (vaccines, diagnostic tests)
 - biosecurity
 - zoning and compartmentalisation
 - behaviour change