

# Training in Biosecurity



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**PESTE  
SUÍNA  
AFRICANA**



**A PSA  
mata os  
suínos**

×  
**Viajantes**  
Não transporte  
uma doença  
letal para  
os suínos



Apoio:


MINISTÉRIO DA  
AGRICULTURA, PECUÁRIA  
E ABASTECIMENTO



Realização:



WORLD ORGANISATION FOR ANIMAL HEALTH  
Protecting animals, preserving our future



## Three stages of transmission control in an epidemic

- Include any feasible methods through assumptions on mechanisms
- Financial and effort fatigue, with a loosening of those initial steps based on expense and difficulty
- Risk-based assessment of biosecurity



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Biosecurity is management

Transmission analysis is science

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Low  
likelihood-  
High impact  
events

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Sparse data

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Needs large databases of  
disparate farms

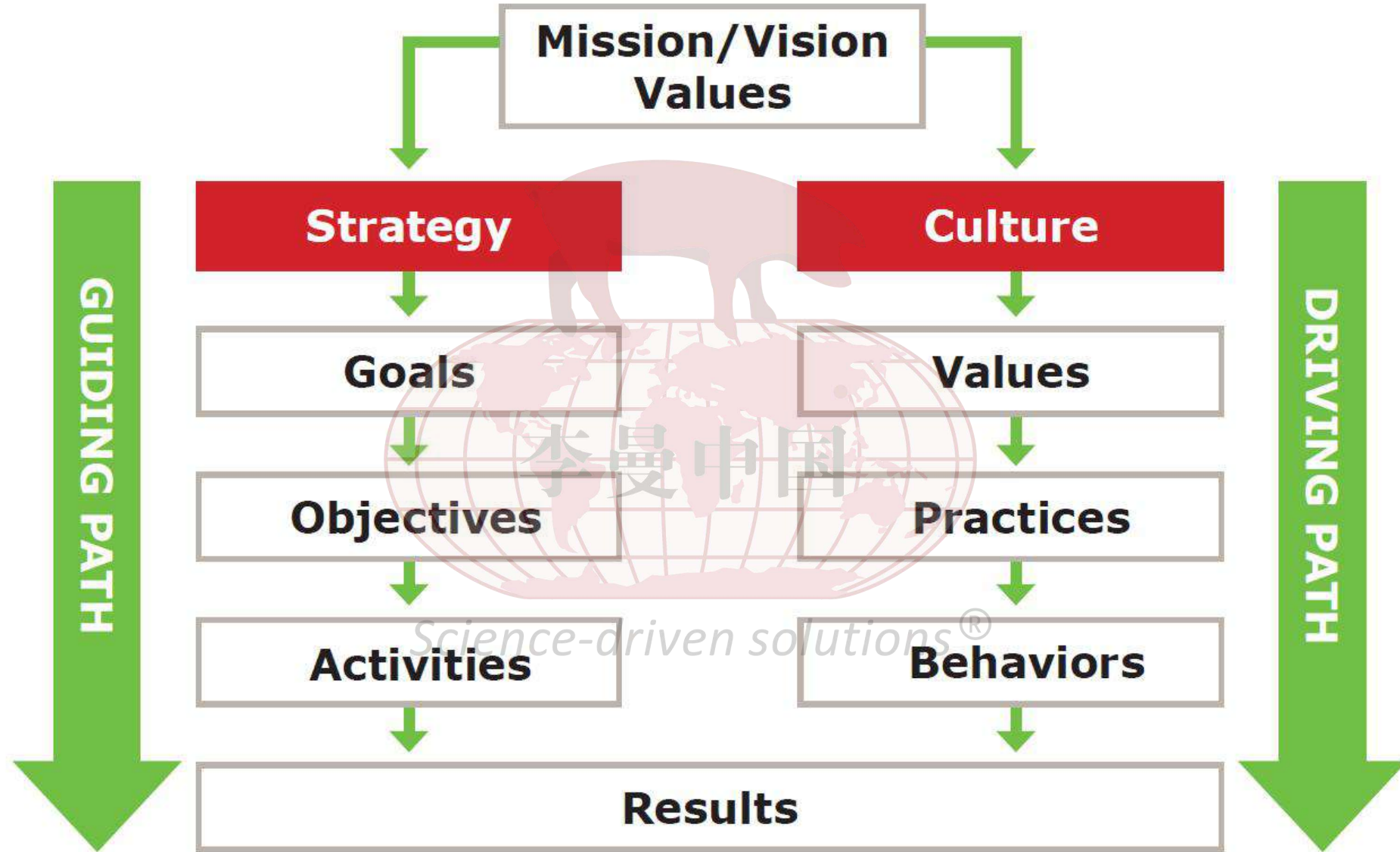
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Needs definition of biosecurity  
risks

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Commonality of protocols and  
compliance measurement useful

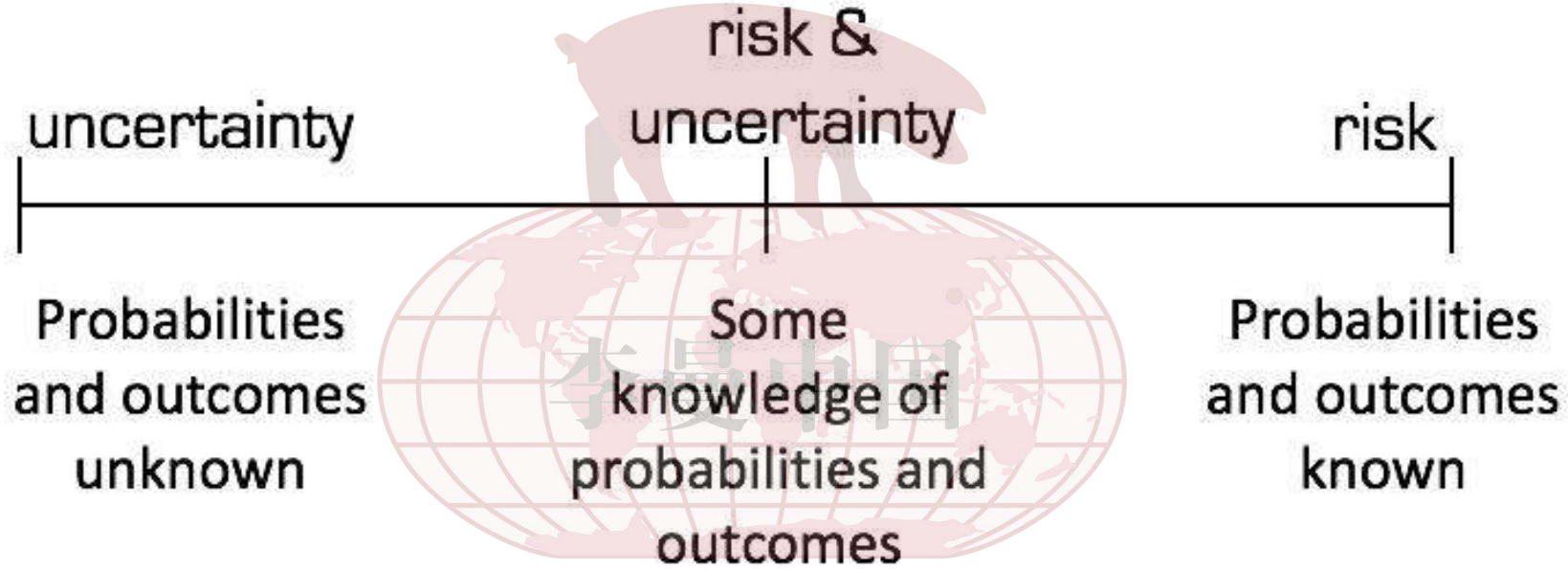


# The challenges

- Low likelihood/ high impact concern
- Mechanisms of transfer identified but not quantified
- Employee performance not outcome-based
- Short-term financial performance contradicted
  - High employee turnover
  - Susceptible to cost-cutting in during financial stress
- Management rarely rewarded for compliance®
- Information is not attainable at farm level
- Unstable regional effects



# Risk & Uncertainty Continuum



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Source: Casavant, Kenneth, Infanger, and Bridges

*ConversationAgent.com*

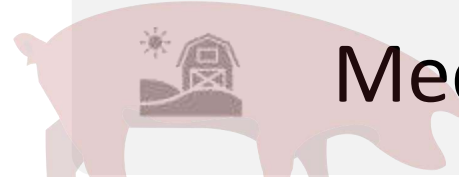


# Evaluation of Transmission Interventions



Inference

What may have an effect?



Mechanistic

What has an effect?



Observational

What is the magnitude and probability of the effect?



Economics

Is it worth it?



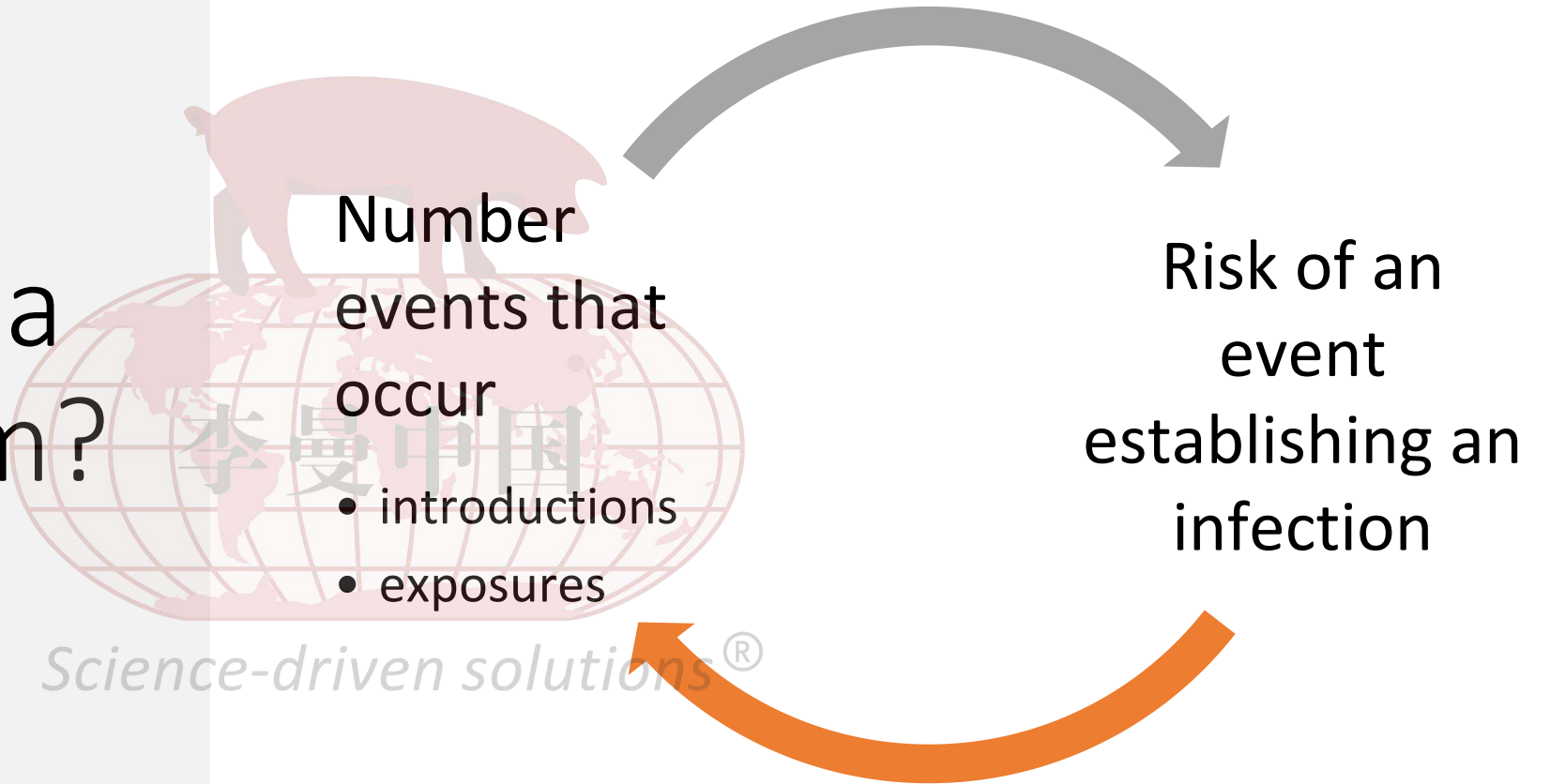
Burden of proof

Do we test to include or remove it?

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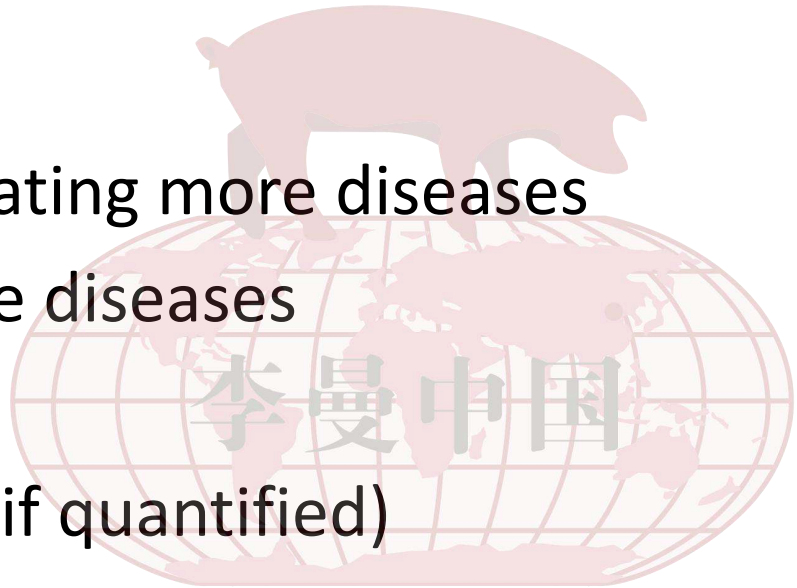


# What makes a risk for a farm?



# Additional Benefits of Biosecurity

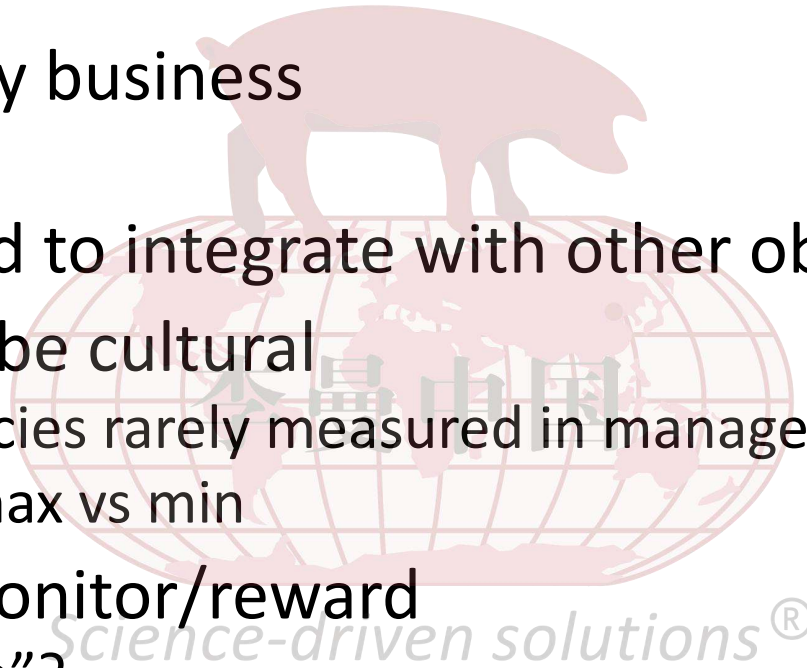
- Ease of production
- Potential for eradicating more diseases
- Prevention of future diseases
- Stability of supply
- Capital availability (if quantified)



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# The people problem

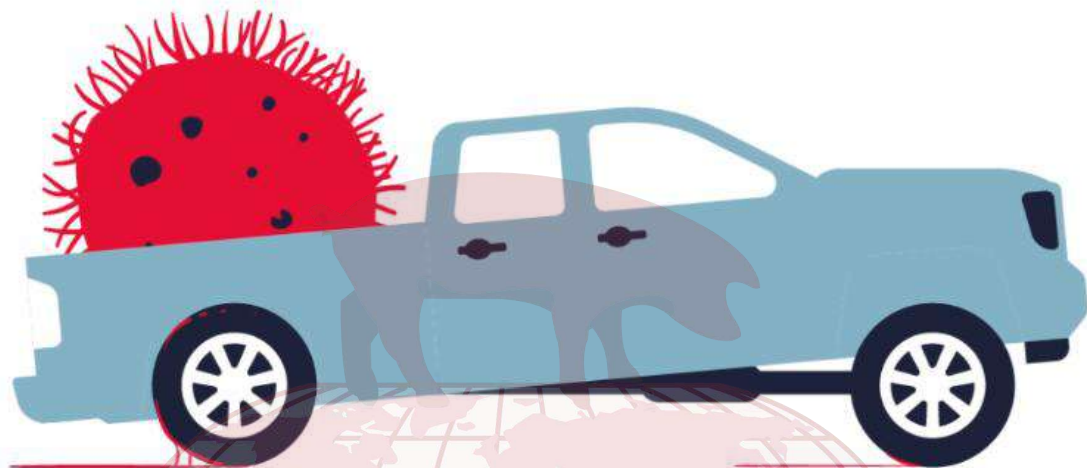
- Pig farming is a risky business
  - Farm size a risk
- Rule-based but hard to integrate with other objectives
- Corner-cutting can be cultural
  - Cultural competencies rarely measured in management
  - Eg truck washes: max vs min
- Behavior hard to monitor/reward
  - How clean is “clean”?
- “Nudges” hard to define
- Limited experiences





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**Commercial**

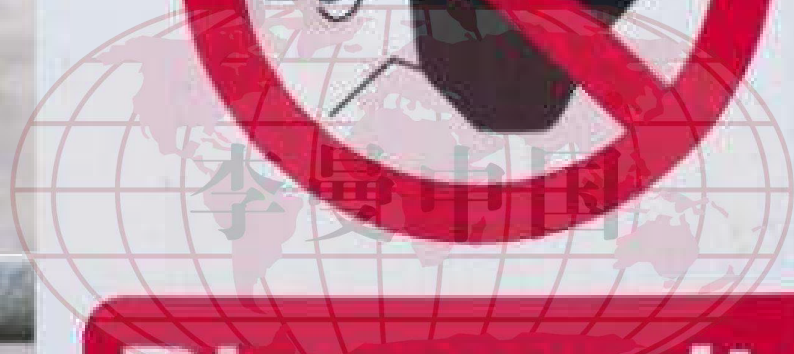
**price-driven solutions**<sup>®</sup>  
**pig**

**farmers**





**Biosecurity**  
**Do not**  
**enter**

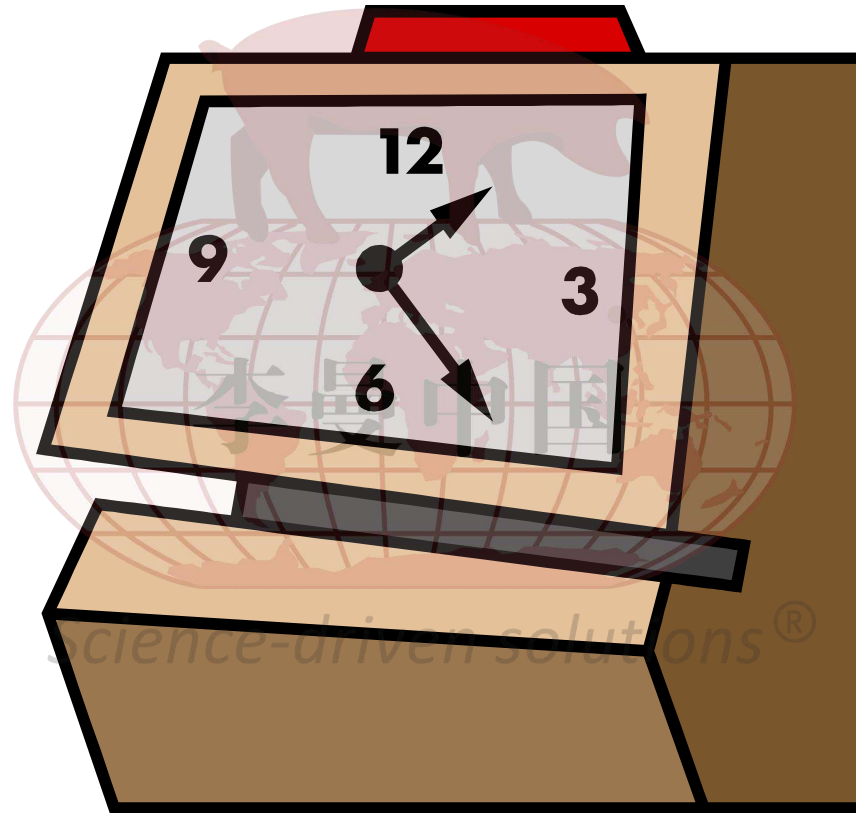




# Communication issues

- The role of communication is to facilitate and promote the spread of "innovation" (biosecurity) by building on the way people perceive their own situation and the environment in which they act.
- Awareness of why the biosecurity practices being promoted make sense to those expected to implement them is key to behaviour change and must form part of any communication strategy.
- Communication is as an instrument of advocacy, stimulating policy-makers and media to rally round the importance of biosecurity, helping to create the "enabling" or "support" environment within which individuals and communities can play their role.

Choice: before or after shower?





We can't  
compensate  
for other  
factors

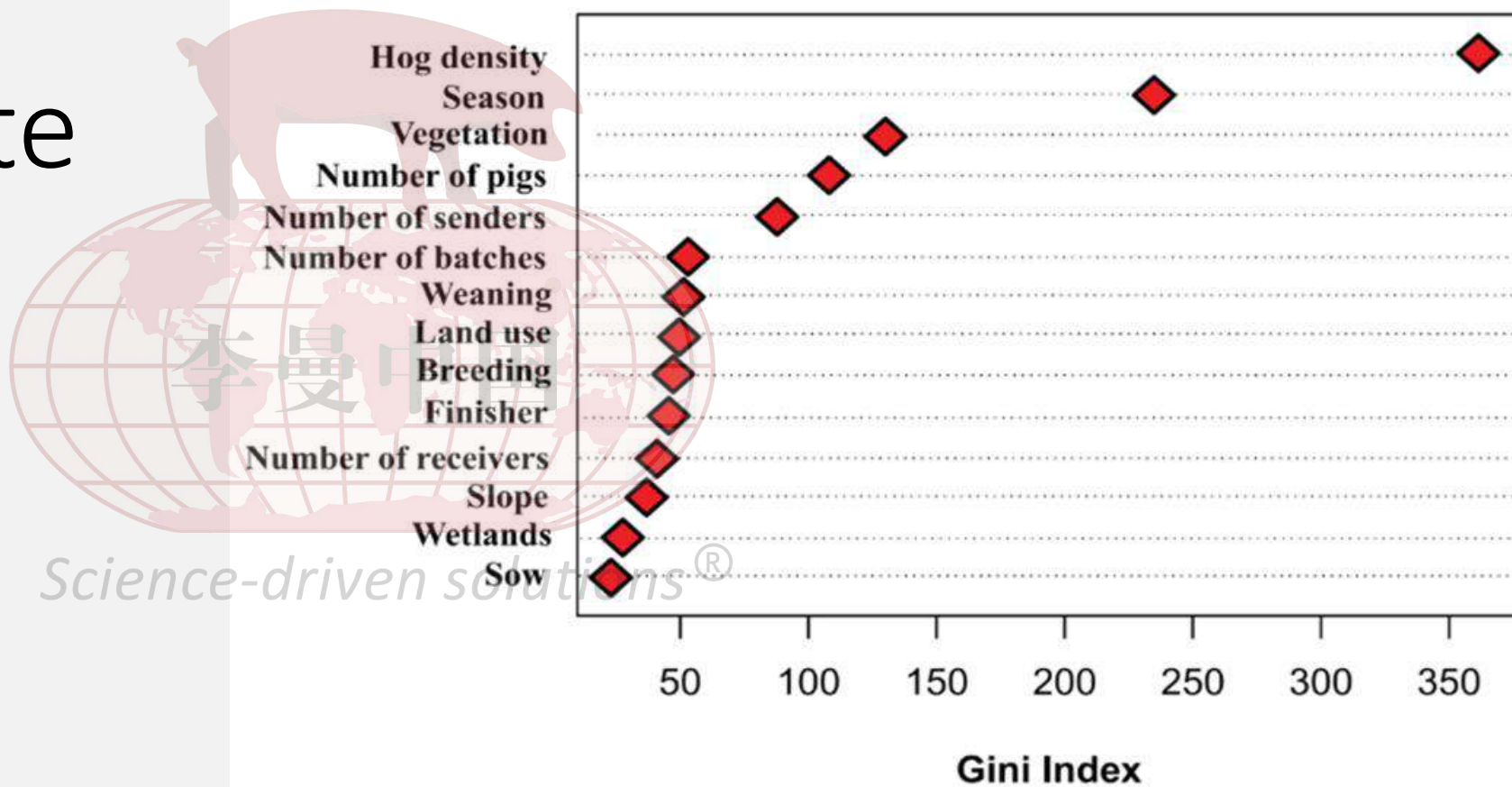
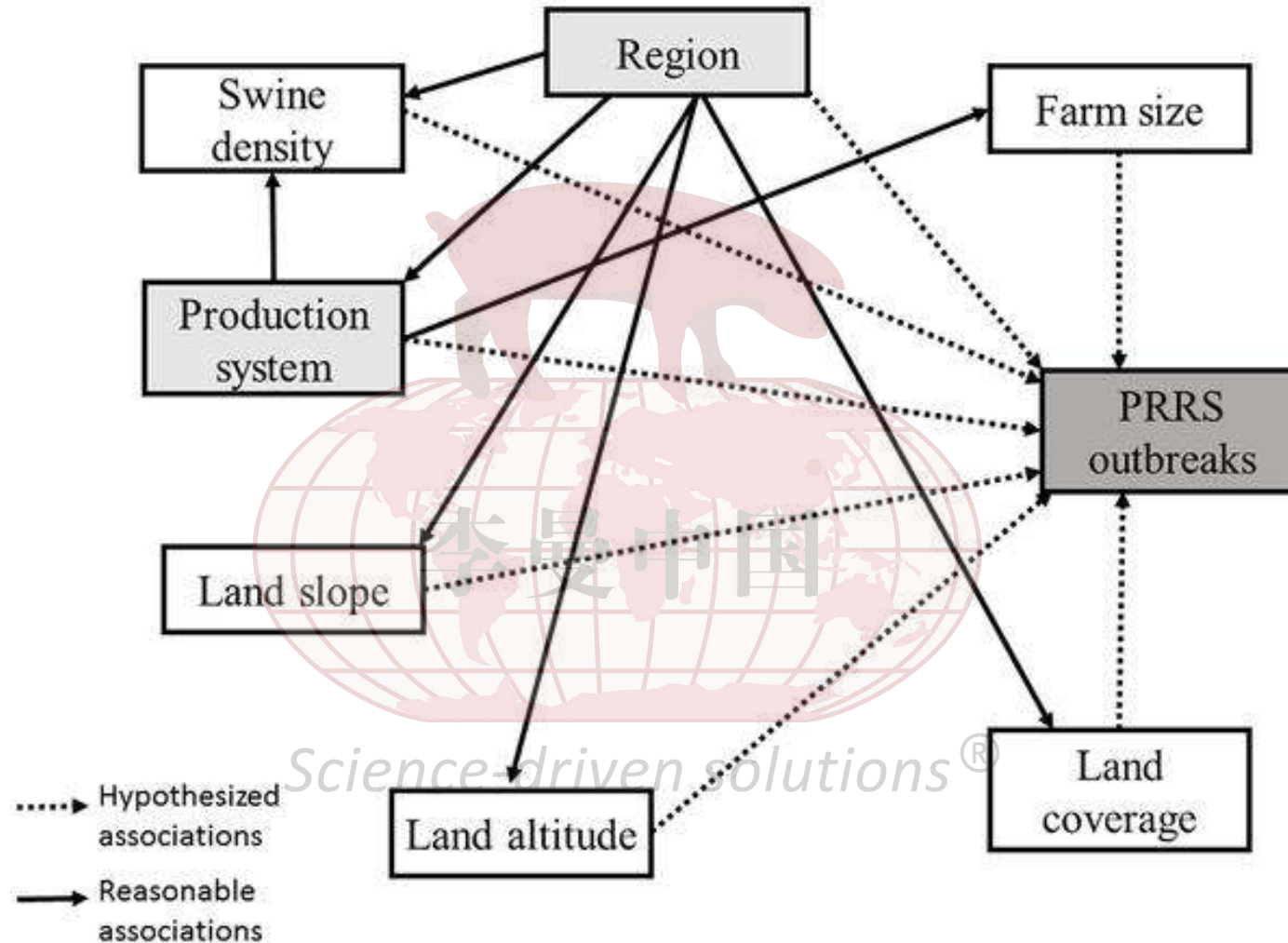


Fig 4. Causal diagram showing the hypothesized and plausible associations between the outcome of interest and investigated exploratory variables.



Arruda AG, Vilalta C, Perez A, Morrison R (2017) Land altitude, slope, and coverage as risk factors for Porcine Reproductive and Respiratory Syndrome (PRRS) outbreaks in the United States. PLOS ONE 12(4): e0172638. <https://doi.org/10.1371/journal.pone.0172638>  
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0172638>

# Where do we go?

- Collect the data you need - together
- Avoid retrospective presumptions
- Know your costs
- Don't rely on a technological discovery
- Treat biosecurity as a common good
- Assess and reassess
- Celebrate compliance





