Determination of risk management options, importance of consistent decision-making process in identification of RM options

Animal disease risk assessment, management & simulation exercises training workshop Abu Dhabi, United Arab Emirates, 17-19 October 2023

Foot and Mouth Disease, Peste des Petits Ruminants, Lumpy Skin Disease, Rift Valley Fever, Sheep and Goat Pox
Learning objectives

• Understanding risk management requirement
• Different risk management options and when to use them
• Reviewing and evaluating the options and implementation
• Importance of consistency in risk management options
• Communicating the options
Risk Management

• Definition of risk: “the likelihood of the occurrence and the magnitude of the biological and economic consequences of an adverse event or effect to animal or human health” (WOAH)

• Definition: “process of identifying, selecting and implementing measures that can be applied to reduce the level of risk.” (WOAH)

• What you must also consider is the acceptable level of risk (ALOR) and the Appropriate Level of Protection (ALOP)

• WTO SPS rules on risk assessment and risk management for trade
Schematic of the different components of risk analysis

Risk Assessment
- Hazard Identification
- Entry Assessment
- Exposure Assessment
- Consequence Assessment

Risk Communication

Risk Management
- Risk Evaluation
- Option Evaluation
- Implementation
- Monitoring and Review
Risk Management

• A structured process which combines information from the risk assessment, expert judgement about control measures, communication plans

• Balances the potential benefits versus assessed risks with or without the control measures
  • Economic
  • Reputational
  • Legal

• Apply appropriate management measures to mitigate the risk
• Monitor and review the outcome with audits or inspections

Any SPS measures must be supported by a risk assessment and should not be discriminatory or unfeasible
Risk is acceptable;
Risk is acceptable given the actions are practical;
Risk is unacceptable, no matter the cost.
Acceptable Level of Risk

• Each country has the right to set its own ALOR
• It may be exceedingly difficult and expensive to manage a risk down to a negligible level.
• Instead, the RM uses the principle of As Low As Reasonably Practical
• Tolerability = cannot be reduced further without unreasonable cost or impractical solution
Comparing risk intervention strategies

• Helps managers understand different interventions and prioritise them
• May consider all interventions along a chain (Import to Farm to Fork)
• Use a baseline model or assessment then add in interventions
• Interventions include vaccination, movement restriction, quarantine, testing or treatment
Risk management consequences

• The RM should consider the primary and secondary consequences of a risk management measure.
• Both positive and negative
• The impact on the food producer, the consumer, the environment are direct primary impacts
• Secondary could include employment, social impacts, community changes
Foot and Mouth Disease 2001, UK

- >2,000 establishments
- >2 million animals on 8,000 establishment preventively culled
- Epizootic lasted 18 months
- Costs to government were around £3 billion and to wider society were £5-6 billion more
- Costs for government were mostly on compensation and the personnel used for managing the restrictions and the on-farm testing
- Costs for wider society including closing the country to tourists, loss of income for businesses and event cancellation; mental health impacts not costed
Measures to prevent movement onto a farm

• First, consider the type of movements and the transmission pathways
  • Airborne, fomite (contaminated equipment), waterborne, close contact, sexual transmission
  • What are the steps in the pathway and which step can be easily prevented?
  • What if animals are being moved to slaughter, to milking, to breed
  • Where is it sensible to sample and test, and what do you do with the outcome?
Measures to prevent disease spread into a new region

- National movement restrictions
- Of what? How long do they last?
- Which moves are suspended?
- What about moves to slaughter, non-susceptible animals?
The costs of the UK 2001 outbreak can be split into five main categories:

- Direct Costs to the Farmer (compensation and disposal) - £3 billion
- Welfare Cull costs - £0.2 billion
- Costs to the Wider Agricultural Sector - £0.3 billion
- Costs to the Tourist Industry - £5 billion
- Export Costs - £0.3 billion

The nationwide movement ban and related restrictions was directly responsible for increased costs in several of these categories (though may, of course, have significantly reduced the outbreak size).
• Direct Costs: Proportional to total livestock culled (~£1200/cattle, ~£320 sheep)
• Welfare Costs: Proportional to total number of farms per day subject to movement restrictions ( ~£5 per Farm Day Restricted)
• Agricultural Costs: Proportional to total number of movements prevented (~£140 per movement prevented)
• Export Costs: Proportional to length of the export ban (~£400,000 per day)
• Tourism Costs: Proportion to scale of outbreak (~£170 per Farm Day Restricted)

• livestockmovements.shinyapps.io/movement_control/
Measures to prevent disease introduction to the country

• WOAH guidelines for safe trade for different diseases are the basis of preventing disease incursion

• However, live animals and products may be consigned during the period of silent spread before disease is reported

• What are the options?
  - Pre-movement testing
  - Quarantine
  - Post movement testing
  - Treatment

• But if disease is spread by wildlife or vectors, options are more limited
How do you compare?

- Ideally, you go back to your risk assessment and include control measures.
- Can be easier to do with a quantitative model.
- You need data on costs and values (as it all comes down to money!)
- But you can also use simulation exercises which will be the subject of next part of the training!
Questions or comments?