EuFMD-Erice 2008

The global control of FMD; challenges and opportunities

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FMD – a global threat to livestock productivity
Natural cases of type O PanAsia II strain, 2008

Iran Veterinary Organization//EuFMD/EC project
Key bottlenecks and issues affecting further progress

• lack of incentives at national level
• lack of incentives at producer level to invest in prevention
• lack of opportunity to purchase vaccine (state controlled access, limited or no suppliers, cold-chain issue)
• lack of technical advice to guide vaccine purchase
• commonplace high risk situations: open borders/classical transboundary rangeland issues, and wildlife-domestic interface
• lack of confidence in the vaccination approach to FMD control
EUFMD Commission

- **35 member states** in Europe (26 EU +9 non-EU members)
- governed by member states
- **EC (SANCO) agreement** with FAO for support of actions (8 m€, to 2009)
- **priorities:** reducing risk of FMD incursions
  - European neighbourhood
  - pre-accession support to protect Turkey
  - virus intelligence to guide European preparedness
  - increasing recognition that EU is at risk from distant locations
Incursions of FMDV to western Europe and neighborhood

from FIVE virus pools (ecosystems) in the past 12 years.

Type O, Type A, Type Asia-1, Type SAT2
This paper

• summarises the challenges and opportunities for working at global to local scale to bring FMD under control and enable eradication,

• has been prepared as part of the development process between FAO and the OIE (World Animal Health Organisation) of a global approach to long term FMD control.
Perspectives on FMD

- usually negative: fear, shame, bad images
- it’s someone else’s problem
- a once in a lifetime event (if you live in free regions)
- a common infection /daily event (in hot spots of infection)
- it’s under-reported (reporting has consequences)
- it’s a created monster
  - impact distorted by the international animal trade implications
- it’s a real monster
  - because of its extreme infectivity and direct losses

Central Asia: FMD cases not reported to OIE
Perspectives on control of FMD in endemic countries

• impossible
  - until movement can be controlled
  - until broad antigenic spectrum vaccines are available (and annual or less frequent shots)

• high risk
  - any progress can be quickly lost from re-invasion from neighbouring countries

• requires huge investment in repeated rounds of vaccination
  - who will pay?

• not worth trying
  - unless our neighbours do

• owners/producers do not care
  - FMD usually does not kill

• Governments give FMD a low priority
  - unless they are aiming for export markets
7 issues

- Coordinating national efforts
- Vaccination: upscaling and effective use
- Who will pay? Stakeholder and national buy-in
- Measuring and communicating risk, and progress
- Information gaps: diagnostics at point of use
- Capacity gaps: veterinary services
- Sustainable and feasible regional and global strategies
Challenges and Opportunities: plan for EuFMD-Erice 2008

- Coordinating national efforts to achieve regional progress (Session 1)
- vaccination: upscaling and effective use (Session 2)
- stakeholder and national buy-in to FMD control (Session 3)
- measuring global progress in risk reduction and early warning (Session 4)
- diagnostics: how to ensure quality services are available where needed (Session 5)
- veterinary service capacity: to prevent and control (Session 6)
- coherent and feasible global strategy to achieve change (Session 8)
Coordinating national efforts to achieve regional progress (Session 1)

Global FMD weight of infection (prevalence estimates); FAO/EUFMD (used in the EFSA risk assessment 2006)
Coordinating national efforts to achieve regional progress (Session 1)

- **The Watershed Concept**
  - Global FMD pool = is made of mostly separate “regional” pools (~7)
  - Each pool has antigenically distinct virus strains - requiring adapted vaccination programs
Coordinating national efforts to achieve regional progress (Session 1)

- **Opportunity:**
  - seven regional roadmaps for seven virus pools
  - regional co-ordination, regional solutions
Vaccination: upscaling and effective use (Session 2)

Use of FMD vaccination- *asymmetric*!

- most of the global FMD vaccine use in 2006 was in China, in swine:
  - globally > 2 billion FMD vaccine doses/year. (2008: >3 billion)
  - mostly in China and by countries free- or close to FMD freedom
  - Impact?

- but very limited application in worst affected countries!
Vaccination: upscaling and effective use (Session 2)

Average Coverage - dangerously low?

Use of vaccination (2006):
% coverage by species - based on two doses p.a
Includes countries (n=64) free with vaccination and non-free countries

Upscaling –enormous implications!

- who will pay?
- scale of production will need to rise – years of investment needed
- can vaccination intervals be increased?
- economies of scale: harmonise vaccination across regions?
- dealing with antigenic diversity
Vaccination: upscaling and effective use (Session 2)

• **Opportunities**
  - targeted vaccination - to risk populations and ages (2A)
  - produce regular guidelines (antigens, potency) for each regional FMDV pool (2B)
  - build on current R&D to develop novel vaccines (2C)
  - implement a global system of independent analysis of vaccine performance (accredited labs to undertake serology) (2D)
Stakeholder and national buy-in to FMD control (Session 3)

Challenge -

• in endemic regions, whose responsibility is it to prevent FMD? the state, the animal owner or livestock trader?
Stakeholder and national buy-in to FMD control
(Session 3)

- what is in it for animal owners and traders to invest in FMD prevention?
- how can investments be stimulated in FMD control (farm/containment/national level)
- if livelihoods and incomes of animal owners rise, will FMD control automatically follow?
- will a focus on livelihoods create conditions favouring FMD control?

Lamb mortality: type O epidemic, Turkey 2007
Risk behaviour challenge:
FMD control - what’s in it for me?
Stakeholder and national buy-in to FMD control (Session 3)

- **Opportunities**
  - international standards and policy objectives that encourage investment at farm/containment level (FAO paper 1)
  - national FMD risk reduction strategies that address critical risk control points in the market chain risk (FAO paper 2)
  - FAO/OIE/partners to promote critical risk control analyses for (all) endemic countries
Critical control points - in the market chain

• “if I was vaccinated, I would be less risk when traded”
Measuring global progress in risk reduction and early warning (Session 4)

- Keynote papers
  - David Paton et al (WRL, Pirbright)
  - Andres Perez et al (Davis, USA)

- Challenges
  - outbreak reporting - deficient, and a poor measure of incidence of infection
  - No standardized system for measuring
    - FMDV burden (incidence)
    - or progress to establish capacity
    - effectiveness of vaccination programs
  - detecting emergent FMDV epidemics before transboundary spread
Measuring global progress in risk reduction and early warning (Session 4)

- **Opportunities**
  - apply new surveillance options to increase information and analytical/predictive power (vaccine matching)
  - improve global monitoring
    - **ANNUAL** progress monitoring reports
    - lab findings (OIE/FAO lab network) PLUS progress monitoring
  - implement a set of projects for multi-country incidence monitoring
  - apply new inactivated procedures for shipping samples to Ref Labs
  - monitor incidence (NSP%) of infection as measure of vaccination success
Monitoring force of infection: - Turkey, 2007
In hot spots, FMD is a common “childhood illness”


Survey at animal markets in Turkey (2008) - for exposure to FMD (NSP +ve)
FAO-EUFMD/EC/GDPC
Information for action: how to ensure quality lab services are available where needed (Session 5)

- **Keynote papers**
  - Don King (WRL, Pirbright)
    - a new era in access to diagnostics?
  - Kris de Clercq (VAR, Belgium)
    - driving up global standards - international proficiency

- **Challenges**
  - preventing FMD needs accurate and timely information on the FMDV risk (especially vaccine suitability)
  - most endemic countries lack local quality lab services to perform FMDV characterization
  - too few validated test kits
  - how to make the new tools available and applied where needed
  - linking local lab services to the international surveillance for emergent strains
Information for action: how to ensure quality lab services are available where needed (Session 5)

• **Opportunities**
  - supply all endemic countries with a minimum diagnostic capacity
    - penside/ rapid test systems
  - support/implement a global QA system for Reference Labs
  - fill gaps in diagnostic test kits needed for use in endemic regions
Veterinary service capacity: to prevent and control (Session 6)

• Papers:
  - Global reporting, Participatory epidemiology, lessons from capacity building in SE Asia

• Challenges
  - enormous asymmetries
    • in capacity to regulate animal movement and control disease
    • in complexity and risk (5 serotypes in east Africa vs 2 in China)
  - enormous importance of animal movement; breeding, fattening, slaughter
  - incoherent country strategies and policies
  - weak national capacity to plan and assess progress
Veterinary service capacity: to prevent and control (Session 6)

- **Opportunities**
  - FMD can only be fought at the front-line
    - with stakeholder support
    - country National risk reduction strategy that takes account of its capacity
      - adapt the OIE Performance -Vision - Strategy tool to assess FMD capacity
      - international need to assess and monitor capacity build-up
  - utilise PRA to rapidly assess FMD epidemiology, reasons for control failure, intervention options
  - invest in lab networking and upgrading
Anti-virals for FMD control (Session 7)

- update Session following breakthroughs announced in EuFMD-Paphos (2006)
- not part of current control strategies
- possibilities
  - emergency anti-viral therapy may reduce dependence on vaccination
  - may reduce need for massive emergency vaccine stocks
Coherent and feasible global strategy to achieve change (Session 8)

• Keynote:
  - Joseph Domenech, CVO- FAO
  - elements of a global FAO/OIE strategy for FMD control

• Panel discussion
  - OIE, EC, EuFMD
  - WRL Pirbright (OIE/FAO Ref Lab network)
  - Global FMD Research Alliance (GFRA)

• Opportunity
  - to shape the international strategy to be presented at OIE/FAO Paraguay Conference in 2009
Current situation
- risk of spread from virus pools
Situation in 20 years?

risk reduction - circulation remaining in reservoirs/hot spots

+ some genotypes/serotypes extinct?
Summary

• At global scale, food production needs to rise by 50% by 2030 to meet targets for hunger reduction.
• Foot-and-mouth disease (FMD) is a “‘One world problem’”
• Long term FMD control should
  - provide benefits at every level,
  - contribute to global efficiency in food production.
• Long term control will require buy-in at regional level in the seven major reservoirs
• Financing: mainly from the national public and private sector
• International role: promoting investment
• A start has been made.....lets build on it
Thank you for your attention

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