



Food and Agriculture
Organization of the
United Nations



Preparing to use emergency vaccination for Foot-and-mouth And Similar Transboundary animal diseases in European countries

Virtual meeting

10th March 2022

European Commission for the Control of Foot-and-Mouth Disease



Funded by the
European
Union

EuFMD's programme, tools and initiatives

FAST

Foot-and-mouth And
Similar Transboundary
animal diseases

Dt

eufmd digital
transformation

vlearning

eufmd virtual learning
centre

microLearning

eufmd virtual learning

vlc EA

virtual learning centre
for East Africa

Tom

eufmd training
management system

SimExOn

simulation exercises
online

KnowBank

eufmd knowledge bank

GetPrepared

emergency preparedness toolbox

RiskComms

risk communications

SQRA

a method for spatial qualitative
risk analysis applied to fmd.

Pragmatist

prioritization of antigen management
with international surveillance tool

EuFMDiS

european foot-and-mouth disease
spread model

Vademos

fmd vaccine demand
estimation model

GVS

global vaccine
security

PQv

vaccine
prequalification

PCP

progressive control
pathway

PSO

pcp practitioner
officers

VPP

veterinary
paraprofessionals

PPP

public private
partnership

Sustainable development goals, UN-SDGs. EuFMD's programme has a focus on



Together against wasting resources, think twice before printing.

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Abbreviations and acronyms

EuFMD	European Commission for the Control of Foot-and-Mouth Disease
EuFMDiS	European Foot-and-Mouth Disease Spread model
FAST	Foot-and-mouth And Similar Transboundary
FMD	Foot-and-Mouth Disease
MN	Member Nations (of EuFMD)
PPE	Personal Protective Equipment
PPP	Public Private Partnership

Background

In 2020/2021, the EuFMD conducted scoping activities to better understand the state of preparedness for emergency vaccination for FMD And Similar Transboundary (FAST) animal diseases in EuFMD Member Nations (MN). The scoping work, using a survey and workshop with contingency planners/risk managers, identified specific needs in the preparedness for emergency vaccination as well as areas where EuFMD can offer support to Member Nations.

The majority of EuFMD Member Nations participating in the scoping activity indicated that vaccination is included in their emergency plans for control of FAST diseases - especially for FMD. However, only 64% indicated that they had a defined vaccination strategy and fewer than half indicated that they used defined criteria to assist with the decision to implement vaccination. The livestock species to be vaccinated, and the management of vaccinated animals, varied across countries.

The EuFMD Public-Private Partnership (PPP) Initiative¹ for Anticipating FAST-Disease Outbreaks has also identified the need to develop criteria for applying emergency vaccination during FAST disease outbreaks, together with other priorities for improving emergency preparedness. The PPP Initiative involves representatives of European private sector organizations. Their 2021-2023 workplan includes organizing simulation exercises and workshops together with the public sector (contingency planners) to provide recommendations on criteria for application of emergency vaccination during FAST disease outbreaks in different livestock production systems.

The workshop of 10 March 2022 was planned as the first in a series of two workshops to improve preparedness to use emergency vaccination against FAST diseases in EuFMD Member Nations. The workshops form part of a programme of work by EuFMD to identify and address constraints to using emergency vaccination for FMD and similar Transboundary Animal Diseases (TADs) in Europe and its neighbourhood.

¹ The PPP Initiative explores collaborations between private and public partners and academia in the prevention and control of FAST diseases.

Introduction

The decision to use emergency vaccination in response to a Foot and Mouth Disease (FMD) outbreak is based on many complex factors including:

- unique features of each outbreak.
- populations at risk.
- animal welfare issues that arise during outbreaks.
- resources (human, equipment, physical) to eradicate the disease and dispose of carcasses.
- economic factors, including the importance of export trade.
- social and political factors, including the attitude to culling livestock to control the disease.

The aim of the workshop/s was to identify criteria that could assist EuFMD Member Nations to decide whether to implement emergency vaccination as a control measure for FAST diseases. The development of criteria initially focused on FMD, but the work can be adapted in future to apply to emergency vaccination for control of other FAST diseases.

The objectives of the first workshop were to:

- present an example of the use of emergency vaccination for FMD in the EuFMD Member Nations and an example of decision criteria for implementing vaccination.
- identify specific criteria that would influence a decision to implement emergency vaccination for FMD.

Workshop planning

The workshop was planned by a team from EuFMD. The agenda (Appendix 1 – Workshop Agenda) included two presentations relevant to emergency vaccination for FMD in Europe, followed by scenario-based discussions. FMD outbreak scenarios developed through the European Foot-and-Mouth Disease Spread model (EuFMDiS).

Scenario development

Four scenarios were proposed and developed, modelling the introduction and spread of FMDv in four countries: Bulgaria, Spain, Denmark and Austria, as follows:

- The starting location, method of FMD introduction, and time of year were provided by representatives from Bulgaria, Spain, Denmark and Austria.
- The scenario was developed using the EuFMDiS model for each affected country.
- There was a 21-day ‘silent spread’ period from the first introduction, with the confirmation of the outbreak occurring at the end of this period, followed by implementation of a control program.
- The EuFMDiS simulations used for each scenario were selected to meet the needs of the exercise and should not be considered indicative of what would happen if FMD were to be introduced into each of the countries. Simulations involving larger and longer outbreaks were selected to ensure there would be good discussions around possible use of vaccination.
- Each simulation included the following control measures:
 - For Bulgaria, Spain and Austria, a 48-hour country-wide ban on livestock movements of susceptible species was declared following diagnosis. For Denmark, the movement ban was 72 hours, consistent with Denmark's contingency plan for FMD.

- All susceptible livestock on confirmed infected holdings were culled, followed by disinfection of the holding. No pre-emptive culling of animals in suspected, contact or neighbouring herds was applied.
 - The model assumed 3 km protection zone and a 10 km surveillance zone around each infected holding, with continued movement restrictions and surveillance activities.
 - The control program included tracing of contact herds following movements onto and off infected holdings, reporting of suspect cases, and surveillance in the protection and surveillance zones around infected holdings.
- All scenarios involved infection in a single country only.
 - Resources available for control were based on estimates provided by the countries.

In order to focus the discussion on the criteria pertaining to each scenario, participants were advised to assume that an appropriate vaccine for the field strain was available, and that there was no limit on the quantity of vaccine available.

Participants

Participants were invited from EuFMD Member Nations through the EuFMD contingency planning focal points network. 61 participants attended the workshop, including facilitators from EuFMD (Appendix 2).

Workshop conduct

The workshop was held online. Two presentations, on the use of emergency vaccination for FMD in the Netherlands in 2001, and the Netherlands vaccination and control policy for FMD, were followed by discussions in five breakout rooms.

Each breakout room discussed the scenario for one of the four countries (Bulgaria, Spain, Denmark or Austria). The scenario for Denmark was discussed in two separate breakout rooms to manage breakout room numbers. Participants were allocated to the breakout rooms based on their Member Nations and/or role, with the breakout room having participants from the scenario-country, neighboring countries, European private sector organizations and some with representatives from the European Commission.

Discussions were based on FMD scenarios developed using the EuFMDis model in the four countries. Participants received Part 1 of the scenario (days 1 – 3 of the outbreak) for consideration before the workshop. Parts 2 (day 14) and 3 (day 90) of the scenarios were presented by facilitators during the discussions in breakout rooms.

Workshop outputs

Decision criteria

Table 1 shows the criteria identified by participants as most important for their scenario and country during the workshop.

TABLE 1
Priority decision criteria for implementing emergency vaccination

Criteria	Bulgaria	Spain	Denmark	Austria	Denmark (2)
Density of susceptible livestock in affected area	√	√	√	√	√
Culling capacity	√	√	√	√	√
Disposal capacity	√	√	√	√	√
Public reaction to control measures – pre-emptive culling	√	√		√	√
Epidemiological capacity to predict outbreak trajectory/modeling	√	√	√		
Economic impact related to restrictions of trade	√	√		√	
Rate of spread/epidemic curve		√	√	√	
Species of susceptible livestock in affected area/species of livestock affected		√			√
Human resources for vaccination		√		√	
Human resources for surveillance				√	√
Acceptance of regionalization/ability to contain infection to continue trade from unaffected areas	√	√			
Biosecurity and other characteristics of affected farms	√	√			
Perceived mode of spread			√		√
Availability of equipment and PPE	√				
Speed of decision-making	√				
Type of farms affected: small vs large commercial holdings	√				
Cost-benefit analysis		√			

Data needed

Participants indicated that availability of the following data would assist the decision-making process to implement emergency vaccination during an outbreak of FMD:

- Economic data about trade (domestic and export).
- Likely economic impact of different control measures.
- Census data of the livestock population.
- Number of affected livestock and species.
- Likelihood of spread in wildlife – including density and distribution in affected locations.
- Livestock movement patterns.
- Information on resources required, and capacity to manage the outbreaks (disposal capacity; vaccination capacity; surveillance capacity).
- Presence and location of high value or rare/endangered animals.
- Impact on farmers, businesses, tourism, including any restrictions on movements of people.
- Attitude of trade partners to regionalization/zoning.
- Public attitude towards culling/control measures.
- Characteristics of an ongoing epidemic (high risk period, epidemic curve, duration etc).

Some participants questioned the value of scheduled surveillance visits to farms in the surveillance zone when response resources were already constrained, and suggested there may be less resource-intensive ways to conduct surveillance during the outbreak.

Discussion

All breakout rooms indicated that exceeding the capacity (or the likelihood of exceeding capacity) for culling and disposal would be an important criterion for the decision to implement emergency vaccination. Four of five breakout rooms also indicated that public reaction to control measures, in particular culling, would be an important consideration when deciding whether to use emergency vaccination as a control measure.

The ability to predict the epidemiological course of the outbreak was rated highly, with some participants suggesting that they would attempt 'real-time' modelling during an outbreak in order to assist with decision-making.

The effect of an FMD outbreak on trade was important for all countries. Some breakout rooms did not distinguish between the loss of trade caused by the FMD outbreak and additional loss that may result from a delay in return to trade because of the use of vaccination. During the discussion, participants noted that a prolonged outbreak controlled without vaccination may lead to similar, or greater, trade losses than an outbreak which had been controlled in a shorter time using vaccination. Therefore, pre-outbreak modelling of the economic impacts of different control measures would be useful in contingency planning.

Two breakout rooms indicated that acceptance by trading partners of 'FMD-free' areas within the country (by limiting spread in affected areas) would be important for making decisions on control measures, including vaccination.

Biosecurity and other characteristics of the infected farms were highlighted as criteria in the decision-making process in two breakout rooms.

The South-Eastern European country group (discussing the scenario in Bulgaria) considered as important factors the availability of equipment, the speed of decision-making and the type of affected farms, while the breakout groups discussing scenarios in Austria, Denmark and Spain underlined the human resources for stamping out, vaccination and surveillance as parts of an emergency vaccination decision tree.

The use of scenarios based on simulation modeling of actual country data was an engaging way for participants to consider criteria for decision-making. An additional benefit of the workshop was that it enabled identification of improvements in model output-reporting to support training. In particular, the ability to generate detailed situation reports during a simulation in real time would be a valuable enhancement to EuFMDiS.

Following the workshop, at least one additional country expressed interest in the use of EuFMDiS, and participants from at least one other country expressed interest in further contingency planning for emergency vaccination.

Next steps

The workshop of 10 March 2022 is the first in a series of two, and part of a programme of work by EuFMD to identify and address constraints to using emergency vaccination for FMD and other FAST diseases in Europe and its neighbourhood.

EuFMD plans to use the data generated from this workshop to conduct further modelling in EuFMDiS, to be discussed in a second workshop to be held on 14 June 2022.

Appendices

1 Agenda

2 List of Participants

3 PowerPoint Presentations

Appendix 1: Workshop agenda

10 March 2022, 14:00 - 17:00 Central European Time (CET) (UTC+1) online:		
Time	Topic	Presenter
14:00 - 14:15	Welcome, housekeeping, opening remarks	F. Rosso (EuFMD) K. Gibson (EuFMD)
14:15 - 14:30	Experience with emergency vaccination in Europe – Foot-and-mouth disease in the Netherlands 2001	A. Bouma (Netherlands Ministry of Agriculture)
14:30 - 14:50	A decision tree for implementing emergency vaccination for FMD	M. Spierenburg (Netherlands Food and Consumer Product Safety Authority)
14:50 - 15:00	Question time/Introduction to scenarios and assumptions	Facilitator
15:00 - 15:10	Short break	
15:10 - 15:40	Breakout room discussions - Scenario Part 1	Breakout rooms with moderators
15:40 - 16:05	Breakout room discussions - Scenario Part 2	Breakout rooms with moderators
16:05 - 16:25	Breakout room discussions - Scenario Part 3	Breakout rooms with moderators
16:25 - 16:50	Report back from breakout rooms Discussion of decision criteria	Breakout room rapporteurs Facilitator
16:50 - 17:00	Next steps and plans for 2 nd workshop June 2022 (date to be confirmed)	Facilitator
Close		

Appendix 2: Workshop participants

Country/ Organization	Name	Last name	Role
EuFMD	Fabrizio	Rosso	EuFMD Deputy Executive Secretary
EuFMD	Kathy	Gibson	Planning team/facilitator
Spain	German	Caceres Garrido	Moderator/Participant
Denmark	Sten	Mortensen	
EuFMD	Tsviatko	Alexandrov	Planning team
EuFMD/Sweden	Erika	Chenais	
EuFMD	Koen	Mintiens	
EuFMD	Shankar	Yadav	
Netherlands	Annemarie	Bouma	Speakers
Netherlands	Marcel	Spienburg	
Austria	Beate	Liehl	Participants
Austria	Simon	Stockreiter	
Austria	Tatiana	Marschik	
Belgium	David	Lefebvre	
Belgium	Els	Goosens	
Bulgaria	Daniel	Pavlov	
Bulgaria	Tsvetan	Iliev	
Bulgaria	Ventsiana	Pekova	
Croatia	Neven	Mirić	
Czechia	Petr	Kučínský	
Denmark	Erik	Rattenborg	
Denmark	Jan	Dahl	
Denmark	Kathrine Ellen	Poll	
Denmark	Lis	Alban	
Estonia	Luisa	Leinberg	
Estonia	Maarja	Kristan	
EU	Dimitrios	Dilaveris	
EU	Francesco	Berlingieri	
EuFMD	Bouda	Vosough Ahmadi	
EuFMD	Martin	Ilott	
Finland	Tanja	Lahteinen	
Germany	Christa	Jeske	
Germany	Mark	Holsteg	
Germany	Ulrike	Bange	
Hungary	Anikó	Schmidt	
Hungary	Lázár	Márton	
Iceland	Sigurbjorg	Bergsdottir	
Ireland	June	Fanning	
Ireland	Pat	Meskill	

Israel	Michel	Bellaiche		
Italy	Erica	Molica Colella		
Italy	Francesco	Plasmati		
Italy	Tiziana	Trogu		
Lithuania	Marius	Masiulis		
Lithuania	Paulius	Busauskas		
Malta	Pantaleo	Gemma		
North Macedonia	Dejan	Ristov		
North Macedonia	Vanja	Kondratenko		
Norway	Kari	Lybeck		
Norway	Siri	Løtvedt		
Poland	Adam	Drosio		
Serbia	Dragana	Zivanović		
Slovenia	Damjana	Grobelsek		
Spain	Ana Luisa	Velasco		
Spain	Sergio	Bonilla		
Sweden	Anna	Ordell		
UK	Keira	Benefer		
EuFMD	Tiziano	Federici		Operational team
EuFMD	Maurizio	Licastro		
EuFMD	Elena	Salvati		

Appendix 3: PowerPoint presentations

PowerPoint presentations are available in SlideShare [here](#).

EuFMD Committees

Executive Committee, Standing Technical Committee (STC), Special Committee for Surveillance and Applied Research (SCSAR), Special Committee on Biorisk Management (SCBRM), Tripartite Groups.

Hold-FAST tools

AESOP. Assured emergency supply options; EuFMDiS, FMD spread model; GET PREPARED toolbox. Emergency preparedness; GVS. Global Vaccine Security; Online Simulation Exercises; Outbreak Investigation application; Pragmatist. Prioritization of antigen management with international surveillance management tool; PCP-FMD. Progressive Control Pathway for foot-and-mouth disease; PCP-Support Officers; SAT. PCP Self-Assessment Tool; RTT. Real Time Training; SMS Disease reporting; SQRA toolkit. A method for spatial qualitative risk analysis applied to FMD; Telegram; TOM. EuFMD training management system; Global Monthly reports; VADEMOS. Vaccine Demand Estimation Model; VLC. Virtual Learning Center. Microlearning.

United Nations Sustainable Development Goals (UN-SDGs)

EuFMD's programme has a main focus on



Thinking of the
environmental
footprint

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