



Food and Agriculture  
Organization of the  
United Nations

**eofmd**  
european commission for the  
control of foot-and-mouth disease

Livelihoods @ risk in a FASTER world - EuFMD Open Session - OS20 - virtual event - workshops

# EuFMDiS for improved preparedness

## Report

Open Session - OS20

Virtual workshop - 27 January 2021

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

# EuFMDis for improved preparedness

## Virtual Workshop

27 January 2021

## Report

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## Background, workshop objectives and target audience

The Open Session 2020 was organized fully online with four live sessions that took place in December 2020 and several virtual workshops organized in 2021, linked to those sessions. The EuFMDiS workshop was particularly linked to the following sessions:

- Session III: Vaccine security and critical resources for emergency management.
- Session IV: Resilience to long term FAST crises. The importance of preparedness and planning to help ensure animal welfare, supply chain and business continuity in prolonged emergency responses.

The expected objectives of this workshop were to:

- To raise awareness on EuFMDiS among EuFMD Member Nations and other FMD free countries, showing some of its main features as a decision support tool for contingency planners.
- To compare different vaccination strategies in a multi-country FMD outbreak in Europe in order to demonstrate how the model can be used to:
  - identify the most effective strategy in the given scenario; and
  - estimate the number of vaccine doses that would be needed.

The main target audience were contingency planners in FMD-free countries with interest in modelling and who are not familiarized with EuFMDiS. Nevertheless, requests to attend the workshop also came from people that has already been exposed to the model. To deal with this situation, when the participants were divided into groups, one group was specifically made with these people that already has an understanding of EuFMDiS, and they most complicated scenario was assigned to them.

## Introduction

The workshop started in plenary session and the objectives and structure of the workshop were explained. EuFMDiS was presented from a conceptual point of view, covering the following aspects:

- The context and concepts of the EuFMDiS model
- The components of the EuFMDiS model:
  - The use of regions within countries
  - Herds and herd types
  - Disease transmission pathways
  - The available control measures
  - Costs and economic impacts that can be estimated
  - Reporting options
- The activities of the EuFMDiS User's Group
- Ongoing and planned new developments of the EuFMDiS model
- The workshop scenario

A scenario prepared beforehand, where three countries were affected by a FMD outbreak was

presented. Starting from the moment the outbreak is detected, four different vaccination strategies were proposed for simulation. Although the study was done before the workshop to have the results ready to be presented during the session, each strategy was assigned to a group:

- **Strategy 1:** Suppressive vaccination with 3km radius-cattle only (V\_3km\_cattle);
- **Strategy 2:** Suppressive vaccination with 3km radius-all species (V\_3km\_all);
- **Strategy 3:** Suppressive vaccination with 5km radius-all species (V\_5km\_all);
- **Strategy 4:** Each country applies a different vaccination strategy: No vaccination; 3Km- all species; 3km-cattle only (V\_3km\_country)

### Division in four groups

Participants were dividing in four smaller pre-defined groups using the break out room functionality in zoom. Each group had an assigned tutor who demonstrated the basics on how to use EuFMDiS and run one of the vaccination strategies.

Two of the tutors, plus one as additional support belonged to EuFMD and two were users of the model from two EuFMD Member Nations (Bulgaria and Austria). During the session, time was granted to address questions from participants.

### Final session: Results of the study and way forward

Back in plenary session, the results of the study were presented and discussed:

As mentioned above, FMD outbreak simulation was performed incorporating four different vaccination strategies. The model outcomes showed that strategy 1 (cattle only vaccination) led to a shortest epidemic duration (Figure 1), and had the smallest number of infected holdings (Figure 2). Expanding the zone size from 3 Km to 5 Km was not effective in reducing the epidemic size and duration. Implementing different control strategies in different countries (strategy 4) was not suitable as it increased both epidemic duration and outbreak size. Not implementing vaccination in the most affected country, might have led to a less effective strategy.

Based on the simulation outcomes, less than 200,000 vaccine doses (worst case scenario) were needed when vaccination was implemented in cattle only while more than 800,000 doses (worst case scenario) were needed when vaccination was implemented in all animal species in a 5km radius of the infected herds (Figure 3 and Table 1). EuFMDiS has features that allow us to estimate the costs incurred for the control of a potential FMD outbreak. It was found that vaccinating cattle only was the most cost effective while strategy 4 resulted in huge economic losses (Figure 4).

Considering the model outcomes, it was found that strategy 1 (vaccination to cattle only) was the most suitable whereas increasing the vaccination zone size to 5km and including multiple animal species in vaccination list was not an effective approach.

EuFMDiS is a powerful tool which enables us to study complex outbreak scenarios (involving multiple countries), and allows to compare varied control measures set by the country or a region. The outputs drawn in this study were for the workshop purpose only, however, this model tool can be further used to answer similar questions incorporating a detail modeling design. It can also be used to address the important issues of disease control such as requirement of human resources and vaccine requirement under different settings (such as risk-based approach).

Figure 1. Epidemic duration (in days) estimated for four different control strategy.

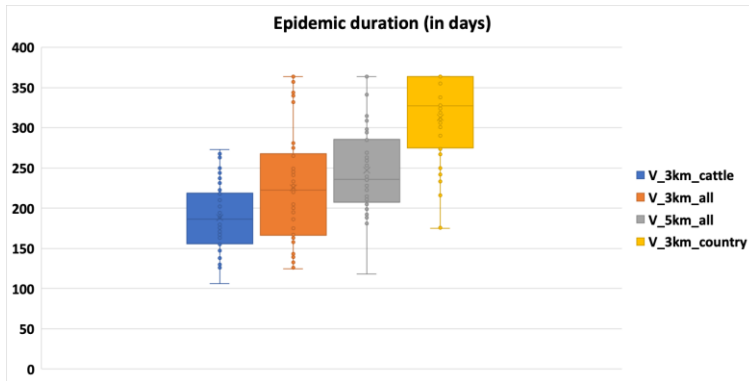


Figure 2. Number of infected holdings under different control strategies

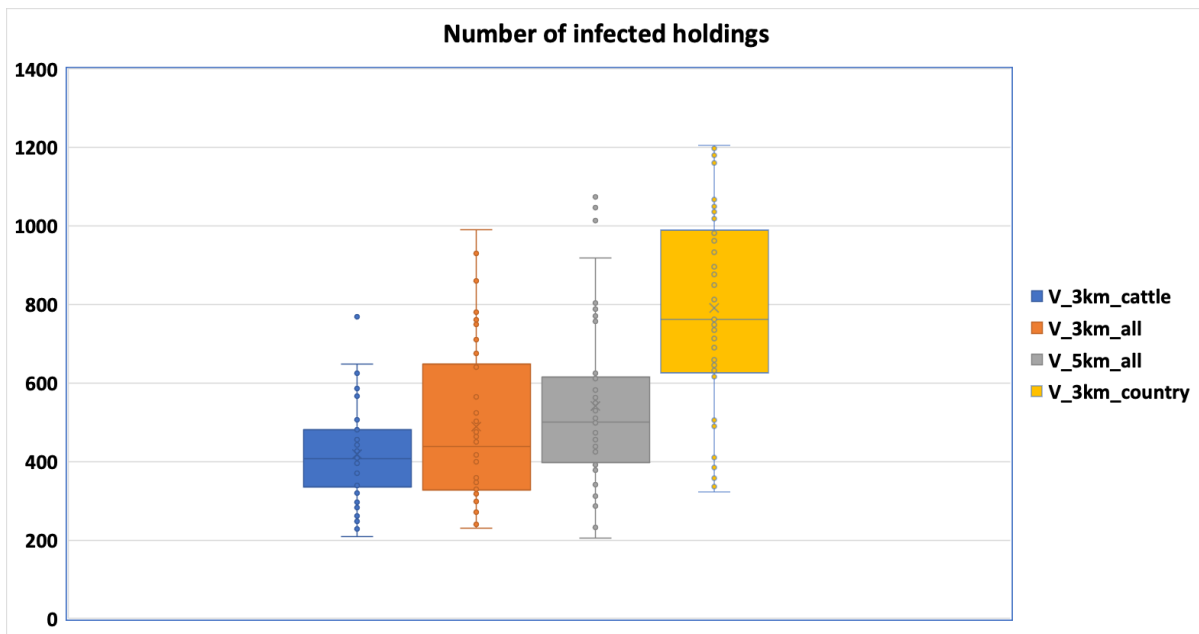


Figure 3. Total costs incurred (million Euros) under different control strategies.

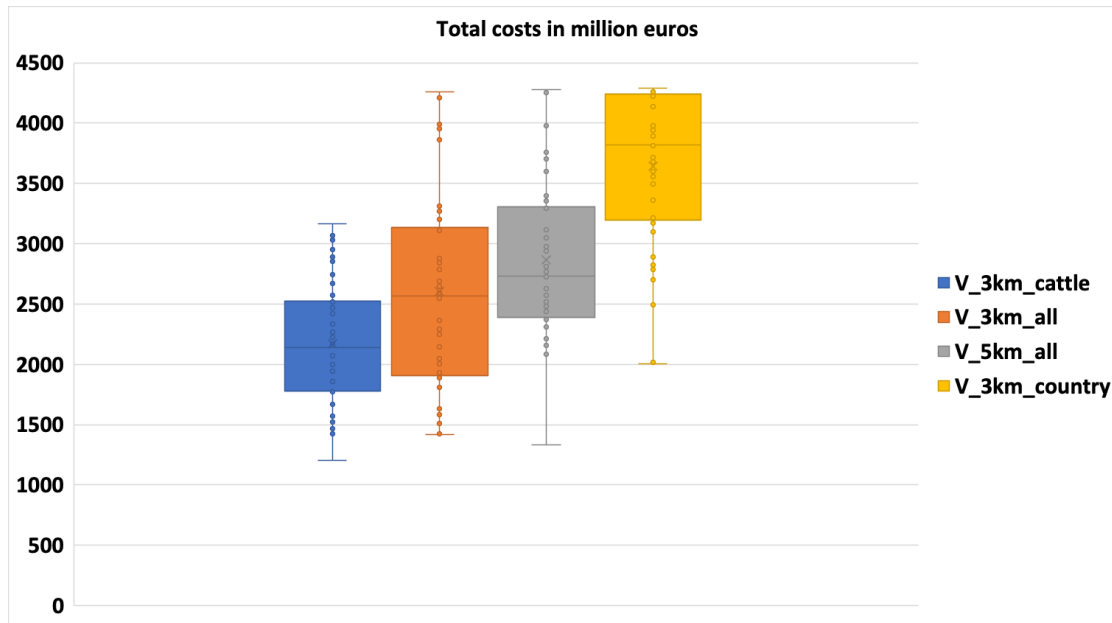


Table 1. Vaccine doses required under different control strategies (by country)

Strategies	Austria	Italy	Slovenia
V_3km_cattle	129626 (107151, 146937), 184127	14505 (2566, 34419), 181680	1183 (376, 1413), 5564
V_3km_all	267158 (190312, 368871), 611692	5596 (1288, 15684), 274528	1134 (740, 2649), 5883
V_5km_all	654830 (403616, 739465), 850571	7508 (450, 33842), 187532	811 (62, 3537), 5539
V_3km_country		3878 (767, 10876), 257190	92 (22, 2162), 4589

Finally, some time was allocated to discuss the opportunities, interest and limitations for the use of EuFMDiS and possible additional developments needed. Especially, the data collection, development and implementation of a post-outbreak surveillance component was emphasized.

## Annex 1 – Workshop agenda

Time	Session	Description	Responsible
3:00-3:30 pm	Plenary	Welcome and objectives of the workshop Brief description of the model Presentation of the scenario and the different vaccination strategies	K. Mintiens (EuFMD)
3:30-4:10 pm	Four breakout rooms	Each group will have a different vaccination strategy and an EuFMDiS tutor will be responsible to explain to the group how to run this strategy in the model and to answer different questions from the participants	K. Mintiens (EuFMD) S. Yadav (EuFMD) T. Marschik (Austria) V. Todorova (Bulgaria)
4:10-4:20 pm	Break		
4:20-5:00 pm	Plenary	Presentation of the results Discussion and conclusions	S. Yadav (EuFMD) K. Mintiens (EuFMD)



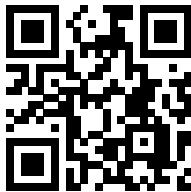
## Annex 2 – List of participants

Name	Country	Group work #
Koen Mintiens	EuFMD	1*
Kart Jaarma	Estonia	1
Jukka Ranta	Finland	1
Leena Seppä-Lassila	Finland	1
Edvins Olsevskis	Latvia	1
Martins Serzants	Latvia	1
Gundega Murniece	Latvia	1
Shankar Yadav	EuFMD	2*
Fabrizio Rosso	EuFMD	2*
Damien Barrett	Ireland	2
Elisaveta Lukanovska	North Macedonia	2
Fiona Macdermott	Ireland	2
German Cáceres Garrido	Spain	2
Robert Valerio House	Germany	2
Sergio Bonilla Garcia	Spain	2
Vera Adam	Luxembourg	2
Tatiana Marschik	Austria	3*
Krzysztof Jazdzewski	Poland	3
Marius Masiulis	Lithuania	3
Sandra Cesnuleviciene	Lithuania	3
Alvydas Malakauskas	Lithuania	3
Richard Wallo	Czech Republic	3
Sena Inel Turgut	Turkey	3
Maria De La Puente Arévalo	EuFMD	4*
Victoria Todorova	Bulgaria	4*
Alejandro Rivera	Panaftosa	4
Aleksandra Nikolic	Serbia	4
Janessa Brown	Canada	4
Manuel Sanchez Vazquez	Panaftosa	4
Michel Bellaiche	Israel	4
Tatjana Labus	Serbia	4
Tiziano Federici	EuFMD, Operational assistant	Main Room
Elena Salvati	EuFMD, Operational assistant	1
Filippo Pedullá	EuFMD, Operational assistant	2
Benedetta Arangio Ruiz	EuFMD, Operational assistant	3
Ludovica Nela	EuFMD, Operational assistant	4

\* tutors/presenters



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## Hold-FAST tools

GET PREPARED, Vlearning, FMD-PCP, EuFMDIS, Pragmatist, Impact Risk Calculator, Virtual Learning Center, SMS Disease reporting, Global Vaccine Security, Outbreak Investigation app, PCP-Support Officers, PCP Self-Evaluation tool, AESOP, Telegram, Whatsapp, Global Monthly Reports, Real Time Training.

## EuFMD Committees

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

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