



Food and Agriculture  
Organization of the  
United Nations



ROME 17-18 APRIL 2019



# Report Appendices

43<sup>RD</sup> GENERAL SESSION  
OF THE EUROPEAN COMMISSION  
FOR THE CONTROL OF  
FOOT-AND-MOUTH DISEASE  
(EuFMD)

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*Please note the Report is available online and as a separate document on the EuFMD website.*

# **Appendix 1**

## Agenda



## Appendix 1. Agenda

Day 1  
17<sup>th</sup> of April 2019

Time	Item	Presenter
09:00	Opening of the Session	FAO, OIE, DG SANTE
09:20	<b>1</b> Adoption of the Agenda	J. Angot, EuFMD
09:25	<b>2</b> Global and Regional surveillance reports	D. King, WRL/TPI
09:50	Progress of the GF-TADS Global Strategy	FMD working Group
10:20	<b>3</b> Transboundary disease risks in the European region: situation report, co-ordination arrangements and priorities for future actions to reduce risk	F. Rosso, EuFMD
10:40	<b>Break</b>	
11:00	<b>4</b> <b>Technical Point 1.</b> Modelling FMD and transboundary diseases at European scale: potential for optimizing control measures at regional and national scales	K. Mintiens, EuFMD
11:30	<b>5</b> <b>Technical Point 2.</b> Biosecurity classification of holdings in Europe: potential gains for the public and private sectors in disease emergencies	J. Dewulf, University of Ghent
12:00	<b>Technical Point 3.</b> How prepared are we? Towards a framework for better planning and testing of emergency preparedness	S. Gaynor, EuFMD
12:30	<b>Lunch</b>	
14:00	<b>6</b> <b>Technical point 4.</b> Early warning and better preparedness for FMD and similar TADS in the European neighbourhood: the case for an integrated approach	F. Rosso, EuFMD
14:30	<b>7</b> Report of the Executive Committee on the actions since the 42 <sup>nd</sup> Session	EuFMD team
	Report of the Training evaluation	W. Wapenaar, University of Nottingham
15:00	<b>Break</b>	
15:30	<b>8</b> Proposed updating to the four year Strategic Plan (2019-2022) – Introduction	K. Sumption, EuFMD
15:45	<b>a. Improved preparedness</b> for management of FMD and similar TADS ("FAST diseases") crises by Members and across Europe as a whole	M. de la Puente, EuFMD
16:05	<b>b. Reduced risk</b> to Members from the FAST disease (FMD and similar TADS) situation in the European neighbourhood	F. Rosso, EuFMD
16:25	<b>c. Sustained progress</b> of the GF-TADS Global Strategy against FMD and the improved security of supply of effective vaccines	N. Lyons, EuFMD
16:45	<b>Discussion</b>	
17:30	Side-events foyer: presentation of Get Prepared; EuFMDis; Training	
19:00	Bus departs for Dinner	
19:30	<b>Dinner at Taverna Capranica</b>	

# Day 2

## 18<sup>th</sup> of April 2019

Time	Item		Presenter
09:00	9	Information Session - Current FMD Situation in: Turkey	A. Bulut
09:20		Israel	T. Gosher
09:35		Georgia	Z.Rukhadze
09:55	10	Report on the status of FMD antigen and vaccine banks in the European Neighbourhood	K. Krstevski, EuFMD
10:10	11	Report of the Standing Technical Committee (STC) and its working groups	E. Ryan, Chair of the STC
10:30		<b>Break</b>	
11:00	12	Minimum Standards for laboratory containment of foot-and-mouth disease virus: proposed updating	K. Tjørnehøj, National Veterinary Institute, Technical University, Denmark
11:25		Training planned on Biorisk management	
11:30	13	Proposal for Technical Committees and their functions in the upcoming biennium	K. Sumption, EuFMD
11:50	14	Financial Report, Budget and membership contributions for the biennium 2018-2019	K. Sumption, EuFMD
		a. Administrative Fund	
		b. Emergency Fund and EC Trust Fund	
12:20	15	Election of the Executive Committee	FAO
13:00	16	Any other issues (recognitions for service)	
13:15	17	Draft Conclusions	K. Sumption, EuFMD
13:30		<b>Closing</b>	

## A note on speakers

**D. King:** Head of the FAO World Reference Laboratory for FMD and an OIE expert for foot-and-mouth disease and swine vesicular disease. He works at The Pirbright Institute in the United Kingdom and coordinates international FMD surveillance activities undertaken by the global OIE/FAO FMD Laboratory Network for FMD.

**F. Rosso:** Manager for Pillar II - Risk reduction programme. He is involved in coordinating the activities aimed at reducing the risk to EuFMD Member countries through the progressive control of FMD in the European neighbourhood (North Africa, Middle East and South East Europe). He also works as senior veterinary officer in Malta.

**K. Mintiens:** FMD Quantitative Risk Assessor for EuFMD, managing contingency planning and enhancing preparedness for Member States. He has over 25 years of experience in helping farmers, industry and government with managing animal diseases and welfare in livestock in Low, Middle, and High income countries. He has key expertise in quantitative risk analysis, epidemiology, biostatistics and international project management.

**J. Dewulf:** Professor in Veterinary Epidemiology at Ghent University, Belgium. He has long standing experience in studying biosecurity as a tool to control endemic and epidemic animal diseases. He is the creator of the Biocheck.Ugent biosecurity scoring system.

**S. Gaynor:** Emergency Preparedness Officer for EuFMD, involved mainly in simulation exercises, training and guideline documents. In her previous experience as an official veterinarian in Ireland she was involved in exotic disease control and emergency preparedness for 20 years.

**M. de la Puente:** Coordinates Pillar I activities for EuFMD as FMD risk management specialist. She is involved in delivering training for Member States and the adaptation of the Australian Animal Disease Spread Model (AADIS) to Europe to develop a multi-country FMD spread model (EuFMDiS). She has been involved for the last 6 years in the BTSF initiative as tutor and training coordinator.

**N. Lyons:** Manages Pillar III for EuFMD and is a veterinary epidemiologist. In addition to his role at EuFMD, he is a research fellow at the Pirbright Institute where he works on field-based vaccine evaluation, novel surveillance tools and the socio-economic burden of livestock diseases. He works mainly in East Africa and the Middle East.

**E. Ryan:** Head of Ruminant Animal Health division in the Irish Department of Agriculture, Food and the Marine. He previously worked in EuFMD. He has been on the EuFMD Standing Technical Committee since 2014, acting as chair since 2015.

**M. Stone:** Deputy Director General, International Standards and Science, at the World Organisation for Animal Health, OIE. Before that, he worked as a veterinary epidemiologist in various roles for the New Zealand government.

**W. Wapenaar:** Clinical Associate Professor in Cattle Health and Epidemiology, Faculty of Medicine & Health Sciences, Nottingham University, UK. Within the School of Veterinary Medicine and Science she leads the development and implementation of digital learning and assessment during the 5-year veterinary degree course.

**K. Krstevski:** Short Term placement in the EuFMD where he coordinates the activities for support of the national FMD laboratories in the Balkan region. He is seconded by the Ss. Cyril and Methodius University-Faculty of Veterinary Medicine from North Macedonia, where he manages the work of the national animal health laboratory and gives lectures in infectious diseases.

**K. Tjørnehøj:** Chair of the EuFMD Special Committee for Biorisk Management (SCBRM). Senior Adviser and Biosafety Officer for the high-containment facilities of the National Veterinary Institute, Technical University of Denmark, at Lindholm Island. She has coordinated review process of the FMD Minimum Biorisk Management Standards during 2018-2019.



With the support of



[www.fao.org/eufmd](http://www.fao.org/eufmd)

**Appendix 2**  
March 2019 report  
on the FMD situation - GMR

**Foot-and-Mouth Disease Situation**  
**Food and Agriculture Organization of the United Nations**  
**Monthly Report**

**March 2019**

**#PRINCIPAL INFORMATION SOURCES USED:**

Databases:

OIE WAHID World Animal Health Information Database  
FAO World Reference Laboratory for FMD (WRLFMD)  
FAO Global Animal Disease Information System (EMPRES-i)

Other sources:

FAO/EuFMD supported FMD networks  
FAO/EuFMD projects and field officers

**The sources for information are referenced by using superscripts.**  
**The key to the superscripts is on the last page.**

*Please note that the use of information and boundaries of territories should not be considered to be the view of the U.N. Please, always refer to the OIE for official information on reported outbreaks and country status.*

## I. HIGHLIGHTS

### Summary comments:

I am very pleased to write a few words to summarise the current FMD situation. From January to March 2019, the WRLFMD has been particularly busy with >300 sample submissions. We have reported test results for sample submitted from Algeria, Burkina Faso, Egypt, Ethiopia, Hong Kong SAR, Israel, Korea (Republic of South Korea), Laos, Mongolia, Palestinian Autonomous Territories, Saudi Arabia, Sierra Leone, South Sudan, Thailand, Uganda, Vietnam, and Zambia. New sequence data submitted from Ghana, Russia (from ARRIAH, Vladimir) and a number of West/North African countries (from ANSES, France and IZSLER, Italy) were also analysed. Reports for these samples can be retrieved from the WRLFMD website (<http://www.wrlfmd.org/country-reports>).

During this quarter, FMD outbreaks due to the O/EA-3 topotype have continued to be recognised in North African (Maghreb) countries. In addition to the cases reported last year in Algeria and Mauritania, confirmed outbreaks due to this viral lineage have now been reported in Tunisia and Morocco. All sequences from North African countries (generated by VDRL, or provided by ANSES, France and IZSLER, Italy) show a close genetic relationship (~99% nt identity) to viruses recovered during 2018 from a number of West Africa countries, and are distinct to FMD viruses from the same O/EA-3 topotype recently circulating in Egypt and the Eastern Mediterranean. These outbreaks raise questions about trans-Saharan connectivity between countries and the precise routes by which FMDV is being spread from West to North Africa (the trans-Saharan Highway runs from Lagos in Nigeria directly north to Algiers in Algeria). Samples have also been tested from Egypt; where in addition to serotypes O and A, a new introduction of SAT 2 (topotype VII) into the country has been detected which is most closely related to samples collected from Ethiopia (2018). Elsewhere in Africa, samples recently sent to WRLFMD have detected A/AFRICA/G-I and O/EA-2 in Uganda consistent with the FMDV lineages that are known to circulate in this part of East Africa, while serotype SAT 2 cases in the surveillance zone have led to the suspension of the OIE-free status in Limpopo, South Africa. In East Asia, new FMD cases have been detected in the Republic of (South) Korea and Zabaikalskiy in the eastern part of Russia due to the O/ME-SA/Ind-2001e lineage. The rapid spread of this lineage across many countries in the region has been widely discussed in previous reports and sequences from both of these cases are most closely related to viruses detected in China (2018). The complexity of FMD epidemiology in East Asia is further demonstrated by the detection of additional new cases in eastern Russia which are due to the O/SEA/Mya-98 (in Primorskiy) and O/ME-SA/PanAsia (in Zabaikalskiy) lineages and share a closer relationship to viruses from Vietnam and Mongolia, respectively.

The OIE/FAO FMD Laboratory Network (<https://www.foot-and-mouth.org>) encourages countries to submit appropriate clinical samples for laboratory analyses including sequencing and vaccine matching (testing is free-of-charge), for further information or assistance with shipments, please contact [donald.king@pirbright.ac.uk](mailto:donald.king@pirbright.ac.uk)

Don King (WRLFMD, Pirbright)  
23<sup>rd</sup> April 2019

**STOP PRESS:** On 17<sup>th</sup> April 2019, FMD was reported for the first time in Comoros (Indian Ocean). Sequence data for representative cases on the Island of Mwali (provided by ANSES, France) characterises these FMD virus as belonging to the O/EA-2 topotype most closely related to FMD viruses found recently in Tanzania (unpublished sequence data kindly provided by Prof. Christopher Kasanga, Sokoine University of Agriculture, Tanzania).

## II. GENERAL OVERVIEW

*Pools represent independently circulating and evolving foot-and-mouth disease virus (FMDV) genotypes; within the pools, cycles of emergence and spread occur that usually affect multiple countries in the region. In the absence of specific reports, it should be assumed that the serotypes indicated below are continuously circulating in parts of the pool area and would be detected if sufficient surveillance was in place (Table 1).*

**Table 1:** List of countries representing each virus pool for the period 2014 – 2018 (source EuFMD)

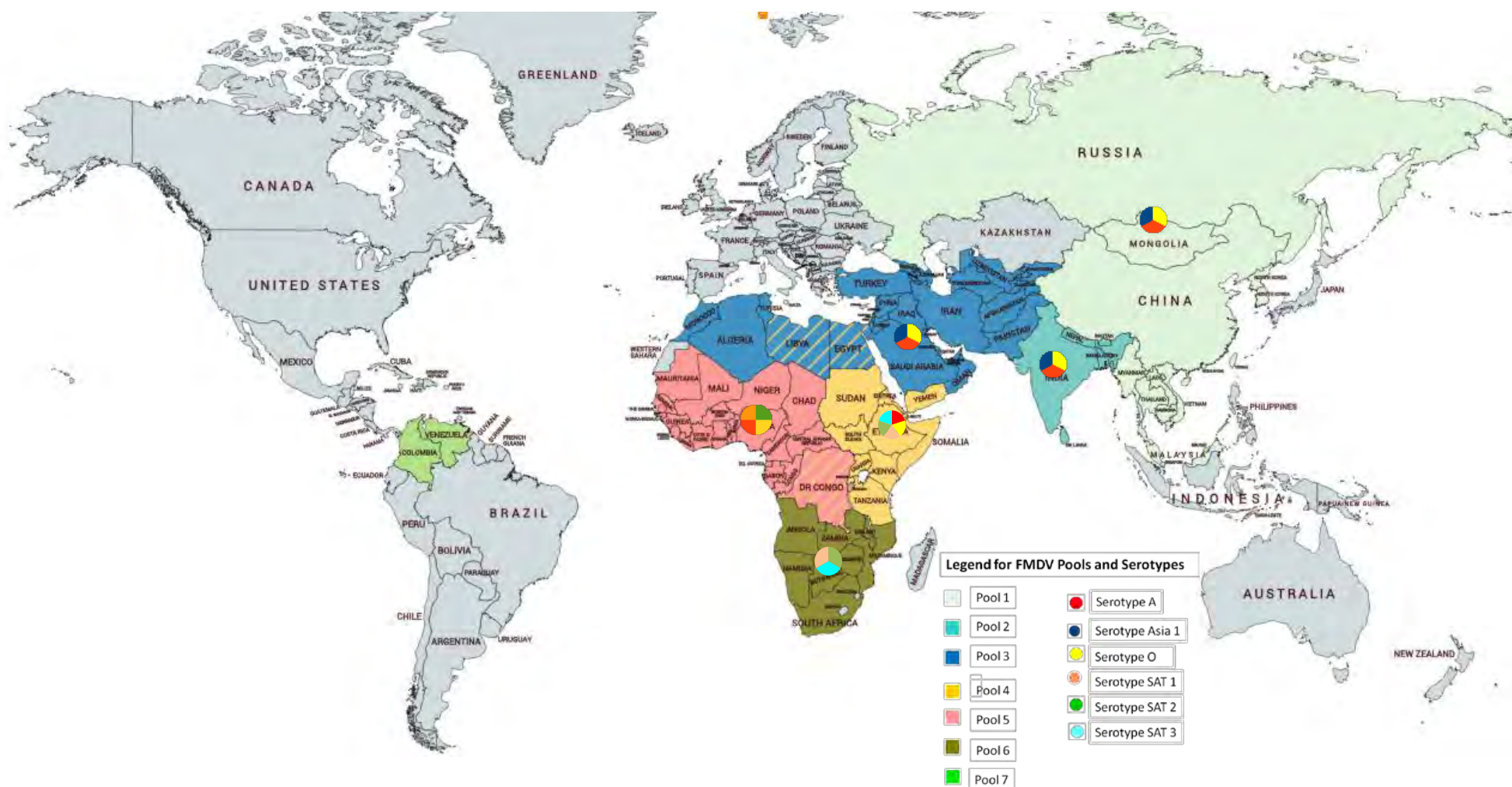
POOL	REGION/COUNTRIES – colour pools as in Map	SEROTYPES
1	<b><u>SOUTHEAST ASIA/CENTRAL ASIA/EAST ASIA</u></b> Cambodia, China, China (Hong Kong, SAR), Taiwan Province of China, Democratic People's Republic of Korea, Republic of Korea, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Russian Federation, Thailand, Viet Nam	A, Asia 1 and O
	<b><u>SOUTH ASIA</u></b> Bangladesh, Bhutan, India, Mauritius, Nepal, Sri Lanka	
3	<b><u>WEST EURASIA &amp; MIDDLE EAST</u></b> Afghanistan, Armenia, Azerbaijan, Bahrain, Georgia, Iran (Islamic Republic of), Iraq, Israel, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Syrian Arab Republic, Tajikistan, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan	A, Asia 1 and O (SAT 2)*
	<b><u>NORTH AFRICA</u></b> Algeria, Egypt, Libya, Morocco, Tunisia	
4	<b><u>EASTERN AFRICA</u></b> Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, Sudan, South Sudan, United Republic of Tanzania, Uganda, Yemen	O, A, SAT 1, SAT 2 and SAT 3
5	<b><u>WEST/CENTRAL AFRICA</u></b> Benin, Burkina Faso, Cameroon, Cabo Verde, Central Afr. Rep., Chad, Democratic Republic of Congo, Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea-Bissau, Guinea, Liberia, Mali, Mauritania, Niger, Nigeria, Sao Tome Principe, Senegal, Sierra Leone, Togo	O, A, SAT 1 and SAT 2
6	<b><u>SOUTHERN AFRICA</u></b> Angola, Botswana, Malawi, Mozambique, Namibia, South Africa, Zambia*, Zimbabwe	{O, A}**, SAT 1, SAT 2 and SAT 3
7	<b><u>SOUTH AMERICA</u></b> Colombia, Venezuela (Bolivarian Republic of)	O and A

\*REPORTED ONLY IN OMAN IN 2017

\*\* ONLY IN NORTH ZAMBIA AS SPILL-OVER FROM POOL 4



**MAP 1: Foot-and-mouth disease (FMD) virus pools: world distribution by serotype in 2014-2018 (source EuFMD, <https://mapchart.net/world.html>)**





### III. IN THIS REPORT

#### *POOL 1- SOUTHEAST ASIA/CENTRAL ASIA/EAST ASIA*

**China**<sup>1</sup> – A FMD outbreak due to serotype O was notified in cattle at Xinjiang on March 17<sup>th</sup> 2019.

**Mongolia**<sup>2</sup> – Field samples belonging to two of the three genetic lineages of FMDV serotype O detected in the bovine samples collected between February 2017 and 2018 were subjected to FMD Vaccine Matching Strain Differentiation (VMSD) tests obtaining good matching results with nearly all the vaccine strains employed.

**Republic of Korea**<sup>2</sup> – Two field isolates belonging to the O/ME-SA/Ind2001e lineage, detected in cattle samples collected during January 2019, obtained good matching results with the vaccine strains used in the VMSD tests.

**Russian Federation**<sup>2,3</sup> – The All-Russian Research Institute for Animal Health (ARRIAH) reported the detection of FMDV serotype O in the outbreak that occurred on March 8<sup>th</sup> 2019, in cattle at Zabajkal'Skij Kray. The VP1 sequences, forwarded by ARRIAH to the WRLFMD, of viruses isolated during FMD episodes that respectively occurred in February 2018, January and March 2019 belong to three different lineages of FMDV serotype O.

**Viet Nam**<sup>2</sup> – Three lineages belonging to FMDV serotype O were detected in a batch of bovine and porcine samples collected between January 2018 and 2019.

#### *POOL 2 - SOUTH ASIA*

**India**<sup>4</sup> - ICAR-Directorate of Foot and Mouth Disease (ICAR-DFMD), Mukteswar, India continues to report the detection of only FMDV serotype O.

#### *POOL 3 - WEST EURASIA & MIDDLE EAST*

**Afghanistan**<sup>5</sup> – For the reporting month, the Central Veterinary Research and Development Laboratory (CVDRL), Afghanistan detected FMDV serotypes ASIA 1 and O among the samples analysed.

**Israel**<sup>2</sup> – Three field isolates, belonging to O/ME-SA/PanAsia2<sup>Qom15</sup> lineage, detected in a set of samples collected from different species, between April and December 2018 obtained good matching results with the vaccine strains employed in the VMSD tests.

**Pakistan**<sup>6</sup> – For the reporting month, 345 outbreaks due to FMDV serotypes A, ASIA 1 and O were reported in the provinces of Baluchistan, Khyber Pakhtunkhwa, Punjab and Sindh.

**Palestine**<sup>1,19</sup> – A FMDV serotype O outbreak, occurred on a goat and sheep farm at Bani Naeem, West Bank on March 26<sup>th</sup> 2019.

**Saudi Arabia**<sup>2</sup> – FMDV O was detected in samples collected from Oryx, gazelle, cattle and sheep collected between January and December 2018.

#### *POOL 3 – NORTH AFRICA*

**Egypt**<sup>2</sup> – FMDV serotypes A, O and SAT 2 were detected among the 36 buffalo and bovine samples collected between January 2017 and November 2018.

**Morocco**<sup>1,2,12</sup> – Another eight new outbreaks, already reported as resolved, due to FMDV serotype O were notified during February and March 2019 on multispecies ruminant farms. The six VP1 sequences of FMDVs collected during January 2019 and forwarded by the European Union Reference Laboratory (EURL), FAO Reference Centre & OIE Reference Laboratory for Foot-and-Mouth Disease chez Agence nationale de sécurité sanitaire – ANSES, Maisons-Alfort, Île-de- France, France were genotyped as O/EA-3.

**Tunisia** <sup>2</sup> – FMD due to serotype O was reported during February 2019 on two small farms at Jendouba and Sidi Bouzid.

#### **POOL 4 - EASTERN AFRICA**

**Ethiopia** <sup>2, 14</sup> – FMDV serotypes O and A were detected in the batch of 55 bovine samples collected in the country between August and December 2019.

**Kenya** <sup>7</sup> – The FMD National Reference Laboratory (FMDNRL), Embakasi, Kenya, reported the detection of FMDV serotype A.

**Uganda** <sup>2</sup> – A FMD outbreak due to serotype A was notified on January 25<sup>th</sup> 2019 on a cattle farm at Nakaseke. A/AFRICA/G-I and O/EA-2 were the lineages detected in the outbreak samples collected in the country during January and February 2019.

#### **POOL 5 - WEST/CENTRAL AFRICA**

<sup>8, 9, 10, 11</sup> No events FMD events and activities were notified in this Pool during the reporting month.

#### **POOL 6 - SOUTHERN AFRICA**

**Malawi** <sup>1</sup> – A FMD outbreak for which serotyping is pending was reported on February 21<sup>st</sup> 2019 in cattle at Mzimba.

**Mozambique** <sup>1</sup> – FMD events are continuing in Nampula and in an area located close to Gonorezoe National Park.

**Zambia** <sup>1</sup> – A FMD outbreak due to serotype O was reported in cattle on February 11<sup>th</sup> 2019 in cattle at Southern.

**Zimbabwe** <sup>1</sup> – The country reported eight FMD outbreaks due to serotype SAT 2, in cattle at Mashonaland East during March 2019.

#### **POOL 7 - SOUTH AMERICA** <sup>1, 13</sup>

No outbreaks are reported for this Pool. FMD in Latin America was last detected in Colombia in October 2018 with outbreaks due to FMDV serotype O, while PANAFTOSA reported historical outbreaks due to serotype A in Venezuela in 2013.

#### **COUNTER**

**\*\*\* 176 MONTHS SINCE THE LAST SEROTYPE C OUTBREAK WAS REPORTED**

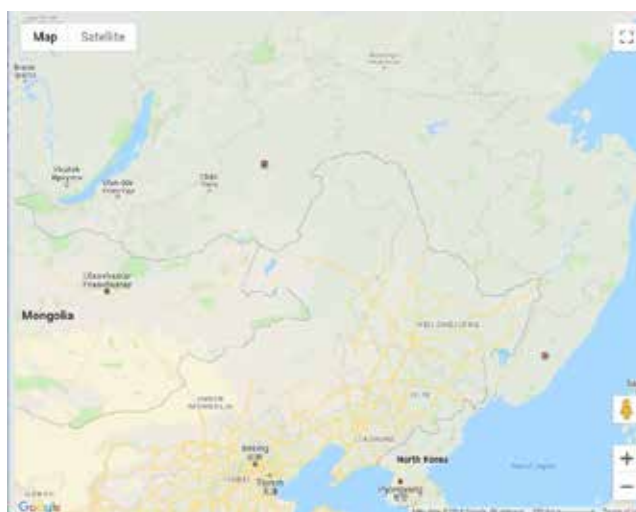
## IV. DETAILED POOL ANALYSIS

A. POOL 1 – SOUTHEAST ASIA/CENTRAL ASIA/EAST ASIA

OUTBREAKS	
Country	Description
<b>Serotype O in <u>China</u></b> <sup>1</sup>	<p>FMD due to serotype O was notified at Xinjiang on March 17<sup>th</sup> 2019, on a cattle farm with a morbidity rate of 22.58% in the 31 animals present. The Lanzhou National Reference Laboratory for Foot and Mouth Disease (OIE Reference Laboratory) confirmed the diagnosis on March 22<sup>nd</sup> 2019 using reverse transcription - polymerase chain reaction (RT-PCR) and gene sequencing. The source of the outbreaks is unknown and general control measures were adopted including stamping out while no vaccination will be carried out. The current outbreak is a continuation of the series of events, which commenced in August 2018. Location of outbreak is represented in Map 3</p> <p><u>The latest lineages reported in the country for serotype O by the WRLFMD are O/SEA/Mya-98, O/CATHAY, O/ME-SA/PanAsia and O/ME-SA/Ind-2001, detected in samples collected in the country during 2018.</u></p> <p><u>Interpretation</u> FMD occurs sporadically in China. This is a continuation of the event that started in August 2018.</p>
<b>Serotype O in <u>Russian Federation</u></b> <sup>1</sup>	<p>A FMD outbreak due to FMDV serotype O was reported on a backyard farm of cattle, sheep and goats on March 8<sup>th</sup> 2019, at Zabajkal'skiy Kray where all species were clinically affected. The location of the outbreak is represented in Map 3. Apparent morbidity rates were respectively 15.94% in cattle (33 animals out of 207) and 0.55% in the small ruminants ( 6 animals out of 1100)</p> <p>The Regional Reference Laboratory for FMD (ARRIAH, Russia) confirmed the diagnosis on March 11<sup>th</sup> 2019 using real-time reverse transcriptase/polymerase chain reaction (RRT-PCR). The source of the outbreaks is unknown and general control measures were adopted including, elimination of animals and vaccination of 4.522 cattle and 4.433 small ruminants. Details on the type of vaccine employed were not provided.</p> <p><u>Interpretation</u> FMD occurs sporadically in Russia. This is a continuation of an event that started reported in January 2019.</p>

SURVEILLANCE (Surv.), VACCINATION (Vacc.) AND POST VACCINATION MONITORING (PVM)		
Country	Activity	Description
<u>Mongolia</u> <sup>2</sup>	Vacc.	Field isolates detected during 2018 and belonging to O/ME-SA/Ind-2001e and O/SEA/Mya-98 lineages were submitted to VMSSD tests that provided good matching results with O 3039, O Manisa and O Tur 5/09, with exception of an isolate belonging to O/SEA/Mya-98 lineage with the O Manisa vaccine strain.
<u>Republic of Korea</u> <sup>2</sup>	Vacc.	The two field isolates detected during January 2019 and belonging to the O/ME-SA/Ind-2001e lineage were submitted to VMSSD tests that provided good matching results with O 3039, O Manisa, O Skr 7/10 and O Tur 5/09.
<b>Russian Federation</b> <sup>1, 2, 3</sup>	Surv. and Vacc.	<p>For the reporting month, the ARRIAH, Russia identified the FMDV serotype O detected in the outbreaks that occurred at Zabaikalskiy Krai as O/ME-SA/Ind-2001 lineage that was submitted to VMSSD tests with good matching results with vaccine strains O/SEA/Mya-98, O/PanAsia and O/PanAsia 2.</p> <p>Serological analysis was conducted on 3,554 serum samples collected from non-vaccinated animals.</p> <p>A summary of the results of the VP1 sequences forwarded by the laboratory to the WRLFMD are reported in Table 2 and Map 3. Three different lineages of FMDV serotype O were detected.</p> <p><b>Table 2:</b> summary of the genotyping results of the FMDV positive samples collected in Russia between February 2018 and March 2019 (source – WRLFMD).</p>

Sample Identification	Location of origin of sample	Host species	Date of collection	Genotype	Most Closely Related Viruses not belonging to the country - Seq id %	Host species
Zabaikalskiy/1/RUS/2018	Chindantskoe, Borzinskiy raion, Zabaikalskiy krai	cattle	07/02/2018	O/ME-SA/PanAsia	MOG/8/2018 (>99.5)	cattle
Zabaikalskiy/2/RUS/2018	Novoborzinskoe, Borzinskiy raion, Zabaikalskiy krai		09/02/2018			
Zabaikalskiy/3/RUS/2018	Solovfeskoe, Borzinskiy raion, Zabaikalskiy krai					
Primorskiy/RUS/1/2019	RusAgro, Grigorfevka, Mihailovskiy raion, Primorskiy krai	porcine	09/01/2019	O/SEA/Mya-98	VN 18-27160 (>95.1%)	porcine
Primorskiy/RUS/2/2019	Merzi-Treid, Prohory, Spasskiy raion, Primorskiy krai		16/01/2019			
Primorskiy/RUS/3/2019	Primorskiy Becon, Prohory, Spasskiy raion, Primorskiy krai		22/01/2019			
Zabaikalskiy/RUS/2019	Kailastuiskoe, Krasnokamenskiy raion, Zabaikalskiy krai	cattle	09/03/2019	O/ME-SA/Ind-2001e	GZGY/CHA/2018-B (99.2%)	cattle



**Map 2:** location of FMDV genotyped samples collected in Russia between February 2018 and March 2019 (source – WRLFMD, Google Fusion Maps).

The country also reported vaccination activities that are summarized in Table 3. Details on the type of vaccination were not provided.

**Table 3:** vaccination activities carried out in the Russian Federation for the reporting month.

Administrative division	Species	Total Vaccinated
Khabarovskiy Kray	Cattle	6,241
	Sheep / goats	3,075
	Swine	7,473
Primorskiy Kray	Cattle	31,054
	Sheep / goats	19,563
	Swine	58,813

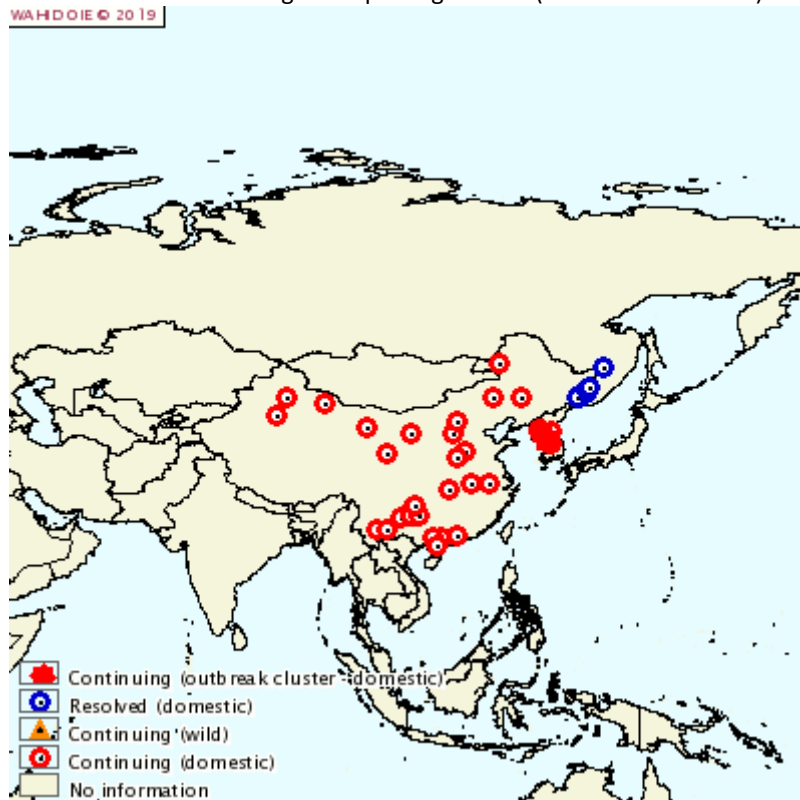
#### Viet Nam 2

Surv.

Fifty-three of the 55 samples collected between January 2018 and 2019 from pigs (N° 43 samples), cattle (N° 7 samples), water buffaloes (N° 4 samples) and goats (N° 1 samples) were positive for only FMDV serotype O. The positive samples were genotyped with the following results:  
O/ SEA/Mya-98 lineage was isolated in 28 pigs, with the isolates all closely related to those circulating in the country during 2018;

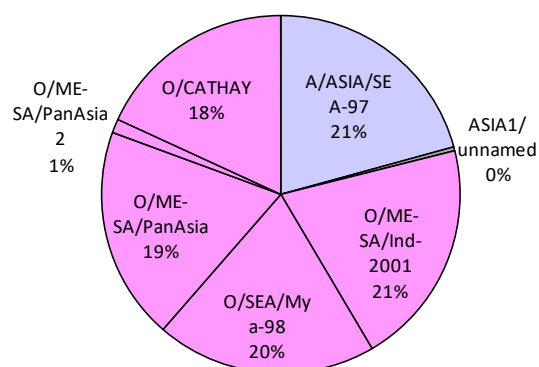
		<p>O/ME-SA/PanAsia lineage was isolated from two water buffaloes, seven cattle and one goat, with some of the field isolates not pertaining to the country, closely related to those isolated in Thailand during 2017 with a sequence identity (seq id) &gt; 97.9% :</p> <p>O/CATHAY lineage was isolated from three pigs, that were closely related to field isolates not pertaining to the country, detected in China in 2013, 2016 and 2018 (seq id &gt; 92.9%).</p>
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**Map 3:** Location of FMD events for Pool 1 during the reporting month. (Source - OIE WAHIS).

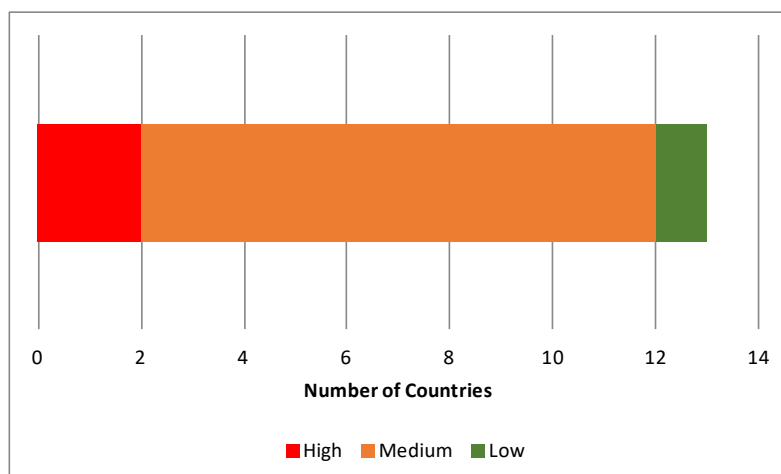


**Table 4 and Graph 1:** Conjectured circulating FMD viral lineages in Pool 1 (further detail (country-level) in Annex).

Serotype	Viral lineage	Number of countries where strain is believed to circulate in the 13 countries of Pool 1
A	A/ASIA/SEA-97	8
ASIA 1	ASIA1/ unnamed	1
O	O/ME-SA/Ind-2001	8
	O/SEA/Mya-98	6
	O/ME-SA/PanAsia	8
	O/ME-SA/PanAsia2	1
	O/CATHAY	4



**Graph 2:** Categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country of Pool 1 – see Annex for explanation).



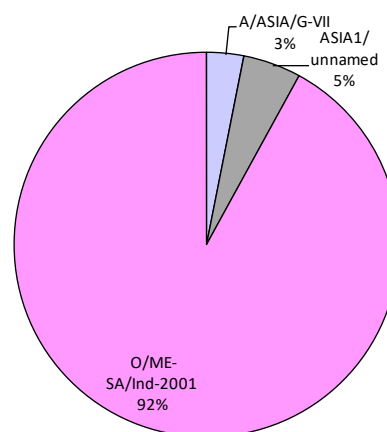
### B. POOL 2 – South Asia

OUTBREAKS	
Country	Description
<b>Serotype O in India <sup>4</sup></b>	ICAR-DFMD, Mukteswar, India detected FMDV serotype O among six bovine samples examined using FMDV antigen and/or RNA detection methods.  <i>Interpretation</i> The information provided is consistent with that of previous reports. The causative serotype is the only reported to circulate endemically in the country since 2016. Data on genotyping of the current circulating strains is required to confirm that the epidemiological situation is not changing.

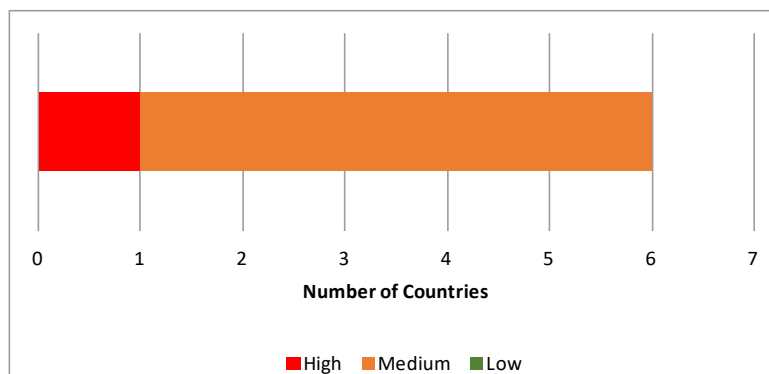
SURVEILLANCE (Surv.), VACCINATION (Vacc.) AND POST VACCINATION MONITORING (PVM)		
Country	Activity	Description
<b>India <sup>4</sup></b>	Surv. and PVM	The laboratory analysed 423 sera collected in the course of epidemiological studies for the detection of FMD antibodies. The FMD diagnostics kits employed are those developed at ICAR-PDFMD. The sublineages currently circulating in the country are represented by O/ME-SA/2001d and O/ME-SA/2001e as described in the <a href="#">latest issue of the ICAR-DFMD Annual Report of 2017-18</a> .

**Table 5 and Graph 3:** Conjectured circulating FMD viral lineages in Pool 2 (further detail (country-level) in Annex).

Serotype	Viral lineage	Number of countries where strain is believed to circulate in the 5 countries of Pool 2
A	A/ASIA/G-VII	3
Asia 1	ASIA1/ unnamed	3
O	O/ME-SA/Ind-2001	5



**Graph 4:** Categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country of Pool 2 (see Annex for explanation).



### C. POOL 3 – West Eurasia & Middle East

OUTBREAKS	
Country	Description
<b>Serotypes ASIA 1 and O in Afghanistan</b> <sup>5</sup>	<p>The CVDRL, Afghanistan detected FMDV serotypes ASIA 1, in eight samples, and O, in five samples, of the 13 serotyped samples. Another seven FMDV positive samples are undergoing serotyping while nine of the total 29 samples examined during the reporting month were negative.</p> <p><a href="#">A/ASIA/Iran-05 and O/ME-SA/PanAsia-2 are the most recent lineages detected by the WRLFMD in samples collected in the country during 2018.</a></p> <p><b>Interpretation</b> This report is partially consistent with previous reports as ASIA 1 was last detected in July of 2018. The causative serotypes are believed to respectively circulate from sporadically to endemically in the country.</p>
<b>Serotypes A, ASIA 1 and O in Pakistan</b> <sup>6</sup>	<p>For the reporting country, 345 outbreaks were notified in the provinces of Balochistan, Khyber Pakhtunkhwa, Punjab and Sindh caused by FMDV serotypes A, ASIA 1 and O. A summary of the outbreaks is reported in Table 6 and their location in Map 4.</p> <p>The FMD control project is currently operated only Punjab and information relative to other areas of the country are provided on voluntarily basis.</p> <p><a href="#">Last reported lineages in the country by the WRLFMD were A/ASIA/Iran-05, ASIA 1/Sindh-08/ and O/ME-SA/PanAsia2 detected in 2017.</a></p> <p><b>Interpretation</b> This report is consistent with previous reports; The causative serotypes are believed to circulate endemically in the country.</p>



**Map 4:** location of outbreaks reported in Pakistan during March 2019 (Source – Progressive Control of Foot and Mouth Disease in Pakistan, Dr. Muhammad Afzal, Project Coordinator, Google Fusion Maps).

OUTBREAKS								
<p><b>Table 6:</b> number of outbreaks reported per serotype and per district in Pakistan during March 2019 (Source –Progressive Control of Foot and Mouth Disease in Pakistan, <i>Dr. Muhammad Afzal</i>, Project Coordinator).</p>								
Province	District	Number Outbreaks	Number of Outbreaks due to FMD Virus Serotypes					
			O	A	Asia-1	Mixed	Not Typed	Negative
Punjab	Multan	12	5	1	-	-	1	5
	Khanewal	3	-	2	-	-	-	1
	Lodhran	4	3	-	1	-	-	-
	Vehari	1	1	-	-	-	-	-
	Rajanpur	1	-	-	-	-	1	-
	Layyah	9	-	-	-	-	9	-
	Muzaffar Grah	20	-	-	-	-	20	-
	DG Khan	7	-	-	-	-	7	-
	Sargodha	1	-	-	1	-	-	-
	Mandi Baha ud Din	2	-	-	2	-	-	-
	Khushab	2	-	-	1	-	-	1
	Bhakkar	7	-	-	7	-	-	-
	Attock	2	1	-	1	-	-	-
	Rawalpindi	12	-	-	10	-	-	2
	Chakwal	9	3	-	1	02 (O+A)	-	3
	Okara	2	1	-	-	-	1	-
	Rahimyar khan	1	1	-	-	-	-	--
	Lahore	27	6	-	1	-	11	9
	Jhelum	8	-	-	7	-	-	1
	Kasur	8	1	-	-	-	6	1
	Gujranwala	1	1	-	-	-	-	-
	Narowal	1	-	-	-	-	-	1
	Sahiwal	3	-	-	-	-	3	-
	Gujrat	3	-	-	-	-	-	3
	Nankana	2	-	-	-	-	-	2
Sindh	Karachi	157	24	5	57	-	27( 3 Rejected)	44
	Thatta	4	-	-	-	-	4	-
Baluchistan	Quetta	20	-	-	4	-	5	11
	Lasbella	1	-	-	1	-	-	-
KPK	Peshawar	2	1	-	1	-	-	-
	Mansehra	2	1	-	1	-	-	-
	Swat	9	2	-	4	-	-	3
	Charsadda	1	-	-	1	-	-	-
	Mardan	1	-	-	1	-	-	-
<b>Total</b>		<b>345</b>	<b>51 (14.8)</b>	<b>8 (2.3)</b>	<b>102 (29.6)</b>	<b>2 (0.6)</b>	<b>95 (27.5)</b>	<b>87 (25.2)</b>
<a href="#">Serotype O in Palestine 1, 19</a>	A FMD outbreak was notified on March 26 <sup>th</sup> 2019 at Hebron, Bani Naeem, West Bank on a goat and sheep farm and diagnosed by the Central Veterinary Laboratory Al-Arub (National laboratory) by RRT-PCR on April 1 <sup>st</sup> 2019. Samples analysed the Kimron Veterinary institute using antigen ELISA and							

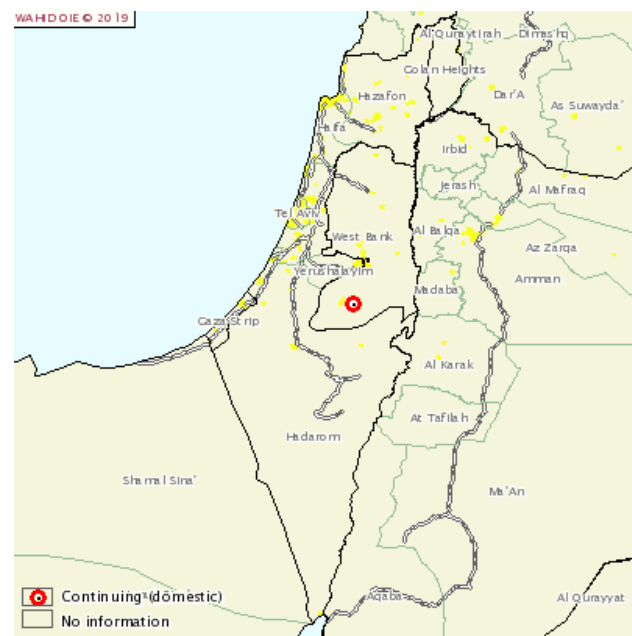


## OUTBREAKS

serotype specific PCR were positive for FMDv serotype O. Molecular typing is ongoing by the same Laboratory.

Apparent morbidity and mortality were respectively 18.48% and 2.31% in the 433 animals present. The source of the outbreak is unknown with the farm vaccinated last in December 2017, as the country is experiencing a shortage of vaccines supplies. General control measures were applied, including control of wildlife reservoirs and the vaccination of the herd with a vaccine against FMDV serotypes A and O. Location of the outbreak is represented in Map 5.

**Interpretation** clinical FMD is detected sporadically in the country and further surveillance activities would better define the level of circulation of the infection. The latest lineage reported by the WRLFMD is in 2017 and 2018 is O/EA-3.

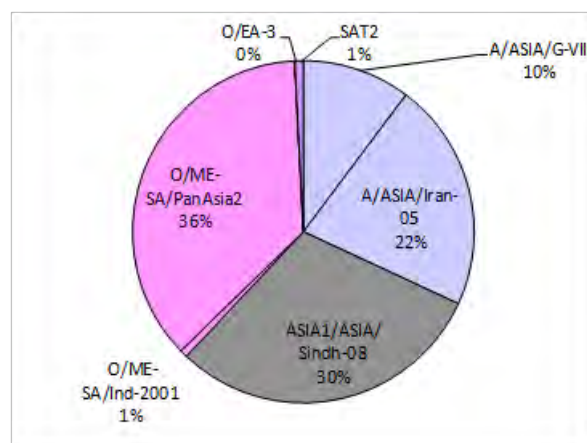


**Map 5:** Location of FMD outbreak at Hebron, Bani Naeem, West Bank. (Source - OIE WAHIS).

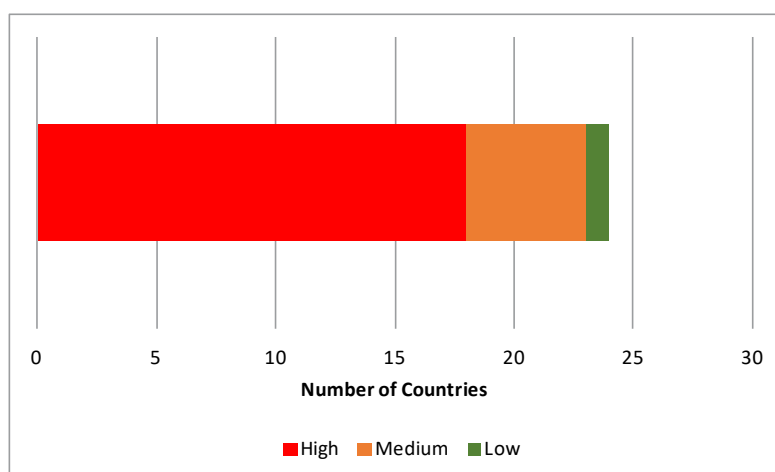
SURVEILLANCE (Surv.), VACCINATION (Vacc.) AND POST VACCINATION MONITORING (PVM)															
Country	Activity	Description													
<a href="#">Israel</a> <sup>2</sup>	Vacc.	Three field isolates, belonging to the O/ME-SA/PanAsia2 <sup>Qom15</sup> lineage detected in 70 of the 85 diagnostic specimens collected between April and December 2018, from different cattle, sheep, gazelle, deer and wild boar, that were subjected to VMST tests obtained good matching results with the following vaccine strains: O 3039, O Manisa and O TUR 5/09.													
Pakistan <sup>6</sup>	Vacc.	<table><tr><th>Province</th><th>Ring Vaccination (Doses)</th></tr><tr><td>Punjab</td><td>37,075</td></tr><tr><td>Sindh</td><td>25,000</td></tr><tr><td>KP</td><td>150</td></tr><tr><td>ICT</td><td>75</td></tr><tr><td>Total</td><td>62,300</td></tr></table>	Province	Ring Vaccination (Doses)	Punjab	37,075	Sindh	25,000	KP	150	ICT	75	Total	62,300	<p>During the reporting month, a ring vaccination campaign was carried out in some of the Provinces of the country as reported in Table 7.</p> <p><b>Table 7:</b> summary of the ring vaccination campaign carried out in some of the Provinces of the country during March 2019 (Source – Progressive Control of Foot and Mouth Disease in Pakistan, <i>Dr. Muhammad Afzal</i>, Project Coordinator).</p>
		Province	Ring Vaccination (Doses)												
		Punjab	37,075												
		Sindh	25,000												
		KP	150												
		ICT	75												
		Total	62,300												
		Veterinary capacity building training courses were conducted in the provinces of Khyber Pakhtunkhwa, Islamabad Capital Territory and Punjab with the attendance of 5 female and 28 male Veterinary Officers.													
<a href="#">Saudi Arabia</a> <sup>2</sup>	Surv.	FMDV O was detected among the eleven samples collected from Oryx (N° 1), gazelle (N° 1), cattle (N° 8) and sheep (N° 1) collected between January and December 2018 in Alhassa (where the sample from the Oryx was collected) and Riyadh. All the species analysed tested positive and the genotyping results identified all the six isolates as O/ME-SA/Ind-2001e, most closely related to the field isolate not pertaining to the country, represented by UAE/1/2015 isolated in a gazelle with a seq id >98.1%.													

**Table 8 and Graph 5:** Conjectured circulating FMD viral lineages in Pool 3 - West Eurasia & Middle East (further detail (country-level) in Annex).

Serotype	Viral lineage	Number of countries where strain is believed to circulate in the 24 countries of Pool 3 - West Eurasia
A	A/ASIA/G-VII	18
	A/ASIA/Iran-05	10
ASIA 1	ASIA1/ASIA/Sindh-08	10
O	O/ME-SA/Ind-2001	6
	O/ME-SA/PanAsia2	22
	O/EA-3	2
SAT2	SAT2	1



**Graph 6:** Categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country of Pool 3 – West Eurasia & Middle East (see Annex for explanation).



#### D. POOL 3 – North Africa

OUTBREAKS	
Country	Description
<b>Serotype O in Morocco</b> <sup>1</sup>	<p>Another eight new outbreaks, already reported as resolved, due to FMDV serotype O were notified in the country during February and March 2019 on multispecies ruminant farms. The outbreaks occurred at Souss-Massa, Tanger-Tétouan-Al Hoceïma and Fès-Meknès.</p> <p>The source of the outbreaks was unknown and the general control measures that were adopted are movement control, quarantine vaccination as reported in Table 10, official destruction of animals and animal products. Screening and surveillance is being carried out within and outside the containment and/or protection zones.</p> <p>A summary of the animals involved and location of outbreaks are reported in Table 9 and Map 7.</p>

**Table 9:** summary of the animals involved in the eight outbreaks that occurred in Algeria between February and March 2019 (Source – WAHIS).

Species	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Apparent morbidity rate	Apparent mortality rate
Cattle	35	18	1	34	0	51.42%	2.86%
Goats	63	0	0	63	0	0%	0%
Sheep	116	0	0	116	0	0%	0%
<b>Total</b>	<b>214</b>	<b>18</b>	<b>1</b>	<b>213</b>	<b>0</b>	<b>8.41%</b>	<b>0.47%</b>

Administrative division	Species	Total Vaccinated	Total farms vaccinated
BÉNI MELLAL-KHÉNIFRA	Cattle	6,278	886
CASABLANCA-SETTAT	Cattle	41,447	8,758
FÈS-MEKNÈS	Cattle	1,616	395
MARRAKECH-SAFI	Cattle	644	129
RABAT-SALÉ-KÉNITRA	Cattle	597	62
SOUSS-MASSA	Cattle	4,227	477
TANGER-TÉTOUAN-AL HOCEÏMA	Cattle	691	211
<b>Total Vaccinated</b>		<b>55,500</b>	<b>10,918</b>

**Table 10:** details of the vaccination activities carried out in Morocco following the outbreaks that occurred between January and February 2019 (Source – WAHIS).

*Interpretation* This is a continuation of events that started in December 2018 caused by the same serotype, which is also reported in neighbouring countries of the same virus pool.

#### Serotype O in Tunisia<sup>1</sup>

FMDV serotype O was responsible for two outbreaks that occurred during February 2019 on small farms at Jendouba and Sidi Bouzid as a continuation of the events that had started in December 2018. The events are already resolved.

A summary of the animals involved is reported in Table 11 and location of the events in Map 7.

The source of the outbreaks was unknown and the general control measures that were adopted are surveillance within and outside the containment and/or protection zones and vaccination will be adopted in response to outbreaks.

**Table 11:** summary of the animals involved in the two outbreaks that occurred in Tunisia between February 2019 (Source – WAHIS).

Species	Susceptible	Cases	Deaths	Killed and disposed of	Slaughtered	Apparent morbidity rate	Apparent mortality rate	Apparent case fatality rate	Proportion susceptible animals lost*
Cattle	14	5	0	0	0	35.71%	0.00%	0.00%	0.00%
Sheep	40	0	0	0	0	0.00%	0.00%	-	0.00%

\*Removed from the susceptible population through death, destruction and/or slaughter

*Interpretation* This is a continuation of events that started in December 2018 caused by the same serotype, which is also reported in neighbouring countries in the same virus pool.

#### SURVEILLANCE (Surv.), VACCINATION (Vacc.) AND POST VACCINATION MONITORING(PVM)

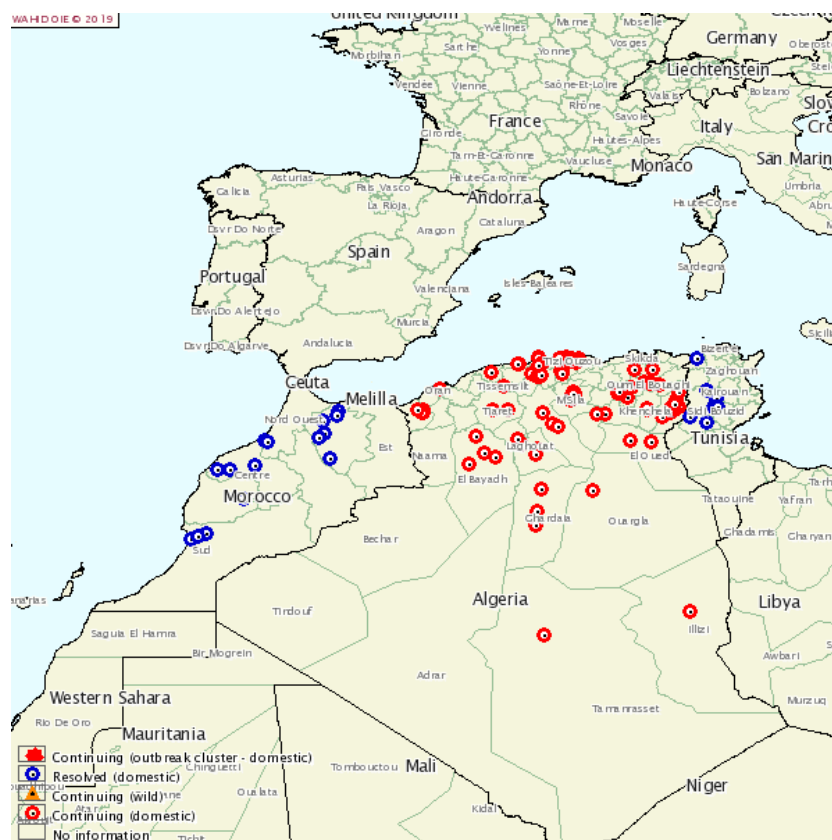
Country	Activity	Description
<a href="#">Egypt</a> <sup>2</sup>	Surv.	Among the 36 buffalo (N° 7) and cattle (N° 29) samples collected between January 2017 and November 2018, one sample was positive for serotype A, one for serotype O and six samples for serotype SAT 2. All positive samples were from cattle.
<b>Morocco</b> <sup>2, 12</sup>	Surv.	The six VP1 sequences of FMDVs collected during January 2019 (the EUR), FAO Reference Centre & OIE Reference Laboratory for Foot-and-Mouth Disease ANSES, France were genotyped as O/EA-3 with the most closely related field virus, not

pertaining to the country, represented by different isolates detected in Algeria during 2018 with a seq id of >98.7%. Location of sample collection is represented in Map 6.



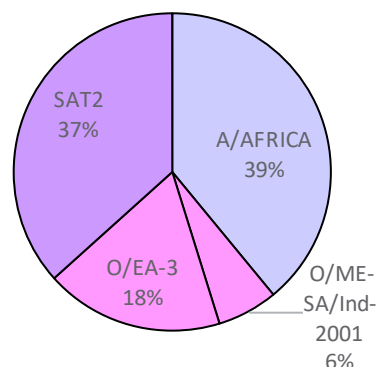
**Map 6:** Location of the genotyped samples collected in Morocco during January 2019 (Source – WRLFMD, Google Fusion Maps).

**Map 7:** Location of FMD events in Pool 3 – North Africa for the reporting month (Source - WAHIS, OIE).

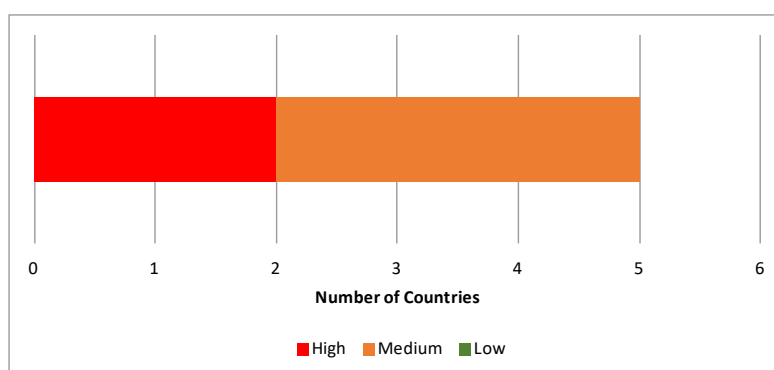


**Table 12 and Graph 7:** Conjectured circulating FMD viral lineages in Pool 3 - North Africa (further detail (country-level) in Annex).

Serotype	Viral lineage	Number of countries where strain is believed to circulate in the 5 countries of Pool 3 - North Africa
A	A/AFRICA	4
O	O/ME-SA/Ind-2001	1
	O/EA-3	5
SAT 2	SAT 3	1

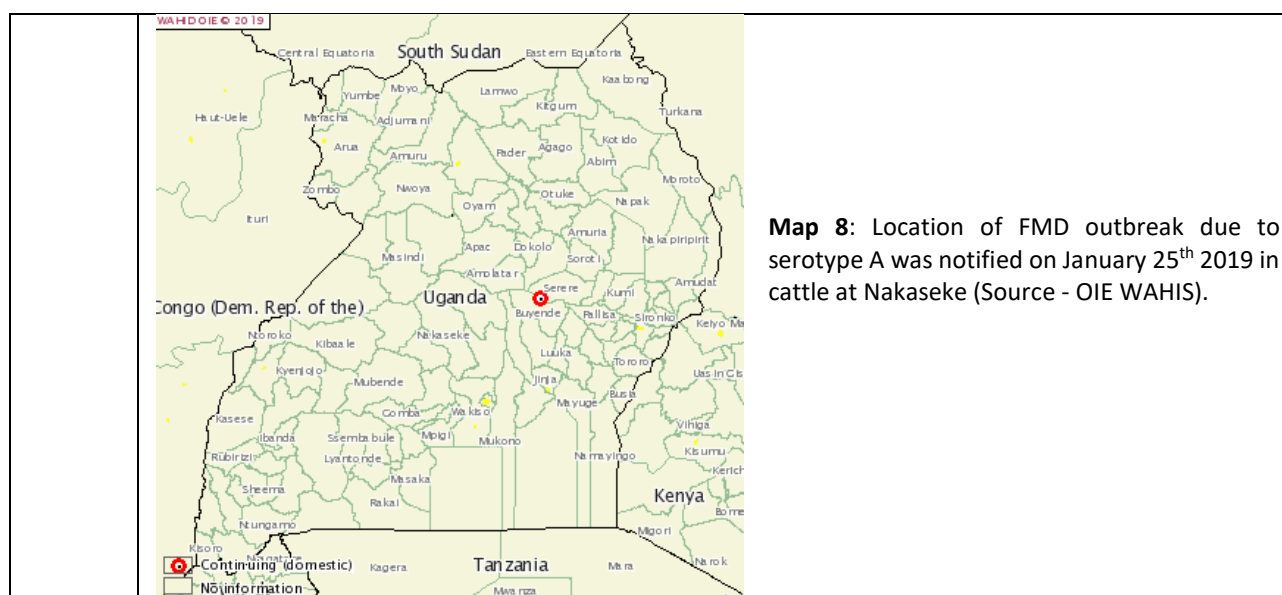


**Graph 8:** Categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country of Pool 3 – North Africa (see Annex for explanation).



#### E. POOL 4 – Eastern Africa

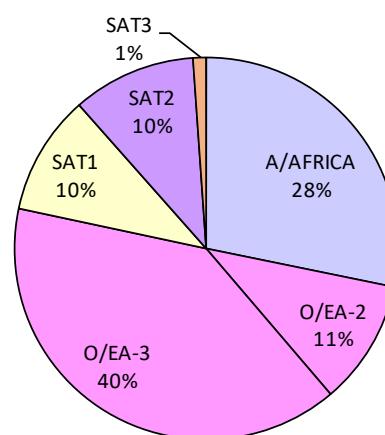
OUTBREAKS	
Country	Description
<b>Serotype A in Uganda</b> <a href="#">1</a> <a href="#">2</a>	<p>A FMD outbreak due to serotype A was notified on January 25<sup>th</sup> 2019 in cattle at Nakaseke. The diagnosis was confirmed by the WRLFMD on March 8<sup>th</sup> 2019, as described in more detail in the following section dedicated to surveillance. The affected animals are cattle belonging to local and cross breeds of different sex and age groups that are in a pastoral system. The affected farms are clustered in close contact during grazing and watering at River Kafu that separates three districts of Nakaseke, Masindi and Nakasongola. The area is characterised by numerous animal movements due to pastures, water points and cattle markets.</p> <p>The source of the outbreak was attributed to legal and illegal movement of animals. General control measures were adopted including surveillance within and outside the protection zone and vaccination of 20,000 cattle using a trivalent vaccine, but information on the serotypes included is not provided. Apparent morbidity rate was very low, 0.1% with no mortality in a susceptible population of 150,000. Location of outbreak is represented in Map 8.</p> <p><u>Interpretation</u> – This report is consistent with previous reports. The causative serotype is believed to be present in the country further surveillance activities would better define the level of circulation of the infection.</p>



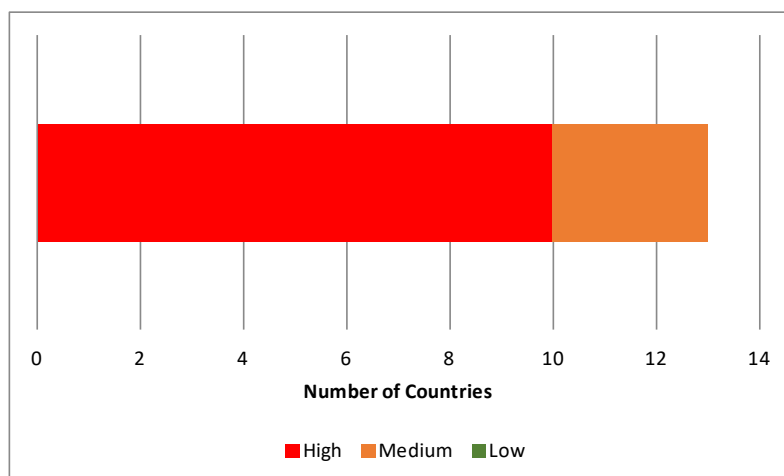
SURVEILLANCE (Surv.), VACCINATION (Vacc.) AND POST VACCINATION MONITORING (PVM)		
Country	Activity	Description
<b>Ethiopia</b> <a href="#">2</a> , <a href="#">14</a>	Surv.	A/AFRICAG-IV (72.22%) and O/EA-3 (27.78%) were the lineages detected in 36 of the 54 cattle samples collected between August and December 2018. The samples positive for the first lineage were collected in the Amhara Region and the Oromia Region, while those positive for the second lineage were collected in the Tigray Region and the Oromia Region. All the samples were closely correlated to other strains circulating in the country.
<b>Kenya</b> <sup>7</sup>	Surv. And Vacc.	The FMDNRL, Embakasi, Kenya, reported the detection of FMDV serotype A in one sample among the two bovine specimens analysed. The virus isolate was submitted to VMSSD test with good matching results. Vaccine strains used are not reported. <a href="#">The most recent lineages detected in the country belonging to the above serotypes are A/AFRICA/G-I and SAT 2/IV/unnamed in samples collected in 2017.</a>
<b>Uganda</b> <a href="#">2</a>	Surv.	Four and eight samples resulted respectively positive for A/AFRICA/G-1 and O/EA-2 out of a set of 52 samples collected from cattle during January and February 2019. Most closely related to field isolates not pertaining to the country for A/AFRICA/G-1 were those detected in Kenya in 2017 with a seq id >94.9%, while for O/EA-2, the most closely related isolates are also field viruses not pertaining to the country were again those detected in Kenya in 2017 with a seq id > 96.5%.

**Table 13 and Graph 9:** Conjectured circulating FMD viral lineages in Pool 4 (further detail (country-level) in Annex).

Serotype	Viral lineage	Number of countries where strain is believed to circulate in the 13 countries of Pool 4 - East Africa
A	A/AFRICA	11
O	O-EA2	3
	O-EA-3	9
SAT1	SAT1	10
SAT2	SAT2	6
SAT3	SAT3	5



**Graph 10:** Categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country of Pool 4 (see Annex for explanation).

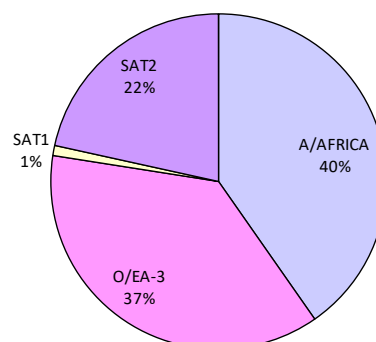


#### F. POOL 5 – West / Central Africa

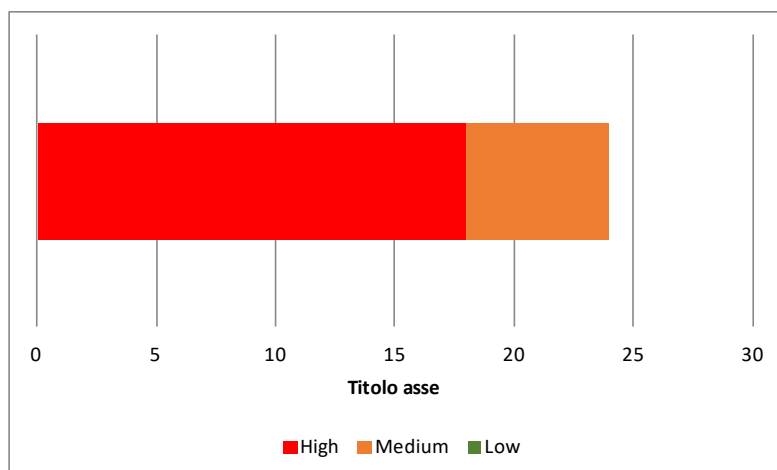
<sup>8, 9, 10, 11</sup> No events FMD events and activities were notified in this Pool during the reporting month.

**Table 14 and Graph 11:** Conjectured circulating FMD viral lineages in Pool 5 (further detail (country-level) in Annex).

Serotype	Viral lineage	Number of countries where strain is believed to circulate in the 24 countries of Pool 5 -West Africa
A	A/AFRICA	14
O	O/EA-3	22
SAT1	SAT1	2
SAT2	SAT2	14




**Graph 12:** Categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country of Pool 5 (see Annex for explanation).





**G. POOL 6 – Southern Africa**

OUTBREAKS	
Country	Description
<b>Serotyping pending in Malawi<sup>1</sup></b>	<p>A FMD outbreak for which serotyping is pending was reported on February 21<sup>st</sup> 2019 in cattle at Mzimba. Laboratory diagnosis was based on the detection of antibodies to non-structural proteins of the FMDV.</p> <p>Outbreaks are occurring as the population at risk is in a communal grazing system. Illegal animal movement is the main source suspected for the introduction of infected animals in the area. Movement control, quarantine and surveillance are the measures adopted for containing the spread of infection. Vaccination will be adopted in response to the outbreaks if a suitable vaccine is available.</p> <p>No mortality was notified in the affected animals while apparent morbidity rate was 0.36% in the 80,000 susceptible cattle. Location of the outbreak is represented in Map 9.</p>  <p><b>Map 9:</b> Location of FMD outbreak due to serotype A was notified on January 25<sup>th</sup> 2019 in cattle at Nakaseke (Source - OIE WAHIS).</p> <p><u>Interpretation</u> – Further information is required to assess if this represents a new incursion or if the serotype responsible of the outbreak has been circulating subclinically/unreported. Timely serotyping of the FMD viruses causing the outbreaks would aid the country in choosing the appropriate vaccine.</p>
<b>Serotyping pending Mozambique<sup>1</sup></b>	<p>Two separate FMD events are reported in the country as following:</p> <ul style="list-style-type: none"> <li>- The <u>first event</u> refers to an outbreak, which occurred on May 17<sup>th</sup> 2018. Cattle of all ages and sexes were affected. Diagnosis was confirmed on serological basis by the Central Veterinary Laboratory, Directorate of Animal Science (DCA), Institute for Agrarian Research of Mozambique (IIAM) (National laboratory) on May 24<sup>th</sup> 2018, using a non-structural protein ELISA.</li> </ul> <p>The outbreak involved cattle of a village of Nampula that registered only a low apparent morbidity of 3.27% in a population of 2,200 animals. The source of the outbreak is due to the illegal movement of animals and for this movement control was set up for the containment of the spread of infection. Other control measures were set up including the vaccination of 49,529 cattle using a trivalent vaccine containing SAT 1, SAT 2 and SAT 3.</p> <p>From the beginning of the event in May 2018, up to 30 of October 2018, 493 clinical cases of FMD were observed after which no other clinical cases of FMD were reported and for this considered as resolved. Location of the outbreak is reported in Map 10.</p>




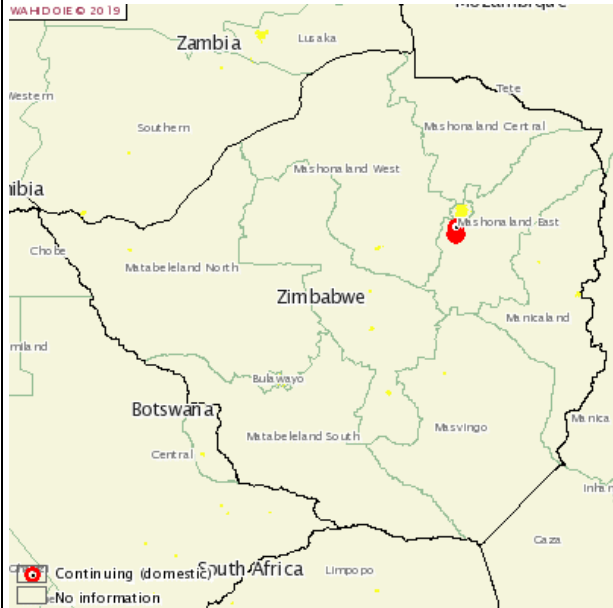


**Map 10:** Location of FMD outbreak, which occurred on May 17<sup>th</sup> 2018 in cattle of a village of Nampula (Source - OIE WAHIS).

The second event affected the area that is located close to Gonorezoe National Park in Zimbabwe. The investigation conducted in the surrounding crush pens and the routine clinical inspection on site and vicinity areas indicate that no cases of FMD were detected and the disease affected cattle of one village. Even in this case, the source of the outbreak is due to the illegal movement of animals. The Veterinary Authority instituted as disease control measures, the ban of livestock movement, vaccination in the whole district and branding. Vaccination was administered to 116,150 cattle in Gaza using a trivalent aqueous vaccine containing FMDV serotypes SAT 1, SAT 2 and SAT. The clinical inspection of cattle in the affected area and neighbouring areas showed no new cases of FMD since April 2018 up to present.

Interpretation – Further information is required to assess if these events represent a new incursion or if the serotypes responsible of the outbreaks were circulating subclinically/unreported. Timely serotyping of the FMD viruses causing the outbreaks would aid the country in choosing the appropriate vaccine.

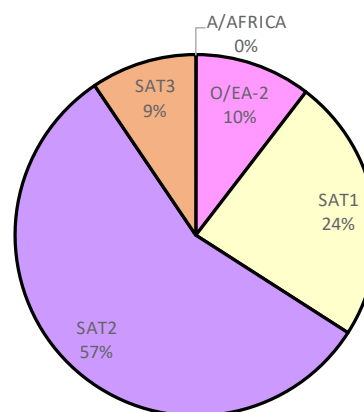
<p><b>Serotype</b> <b>O</b></p> <p><u><a href="#">Zambia</a></u><sup>1</sup></p>	<p>The FMD outbreak due to serotype O that was reported on February 11<sup>th</sup> 2019 in cattle at Southern was diagnosed by Central Veterinary Research Institute and the Botswana Vaccine Institute (FMD Regional Reference Laboratory) on March 13<sup>th</sup> 2019, using antigen detection ELISA and NSP ELSIA. Only an apparent morbidity of 6.82% was observed in the 8,214 affected cattle. The outbreak is due to the illegal movement of animals and the affected cattle are mainly on commercial farms in Chisamba District of Central Province, while in Southern Province, the affected animals are on the traditional sector.</p> <p>General control measures set up include vaccination of 13,643 cattle (ring vaccination) in Central Province and 99,855 cattle in Southern province. Location of outbreak is represented in Map 11.</p> <p><u>Interpretation</u> - This serotype was not previously reported in this province although it has been previously reported in the north of country. This report suggests that there has been spread within the country.</p>
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	 <p><b>Map 11:</b> Location of FMD outbreak due to serotype O that was reported on February 11<sup>th</sup> 2019 in cattle at Southern Province (Source - OIE WAHIS).</p>
<p><b>Serotype SAT 2 in Zimbabwe</b> <a href="#">1</a></p>	<p>The country reported other eight FMD outbreaks (Map 12) of the episodes that started during June 2018 due to serotype SAT 2. The new outbreaks diagnosed on clinical basis are on different cattle farms at Mashonaland East during March 2019 with an apparent morbidity of 8.03% in the 2,652 affected cattle.</p> <p>As reported for the other countries of the same pool, the notified events are due illegal movement of animals, as well as, contact with infected animals at grazing/watering.</p> <p>A total of 5,796 cattle were vaccinated in the containment zone marked around the infected farms in Seke district. While in Mashonaland Central and East, 127,265 and 120,000 were respectively vaccinated. No details on the vaccine type were provided. Intensive surveillance and implementation of control measures remain in force in the affected districts. Veterinary checkpoints complimented by police are in place in strategic points in the infected areas and all illegally moved cattle are being destroyed.</p> <p><b>Interpretation</b> - This report is consistent with previous reports. The causative serotype is believed to circulate endemically in the country. Trivalent (SAT1, SAT2, SAT3) vaccine supplied by Botswana Vaccine Institute is in use.</p>  <p><b>Map 12:</b> Location of FMD outbreaks due to serotype SAT 2 on cattle farms at Mashonaland East during March 2019 (Source - OIE WAHIS).</p>

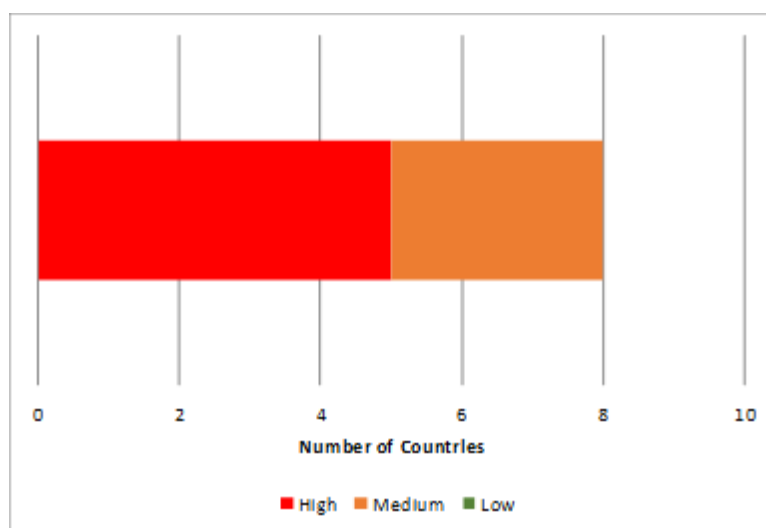
SURVEILLANCE (Surv.), VACCINATION (Vacc.) AND POST VACCINATION MONITORING (PVM)		
Country	Activity	Description
South Africa <sup>15</sup>	Surv.	The ARC-Onderstepoort Veterinary Institute analysed 7,659 sera using liquid-phase blocking ELISA and 1,313 sera in solid phase competition ELISA for the detection of antibodies against SAT 1, SAT 2 and SAT while 61 serum samples were tested using a non-structural protein antibody ELISA.

**Table 15 and Graph 13:** Conjectured circulating FMD viral lineages in Pool 6 (further detail (country-level) in Annex).

Serotype	Viral lineage	Number of countries where strain is believed to circulate in the 8 countries of Pool 6 -Southern Africa
A	A/AFRICA	1
O	O-EA-2	2
SAT1	SAT1	6
SAT2	SAT2	8
SAT3	SAT3	3



**Graph 14:** Categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country of Pool 6 (see Annex for explanation).

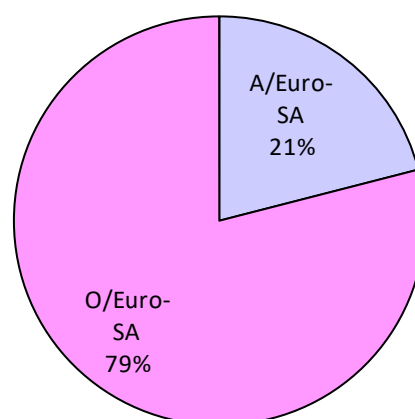
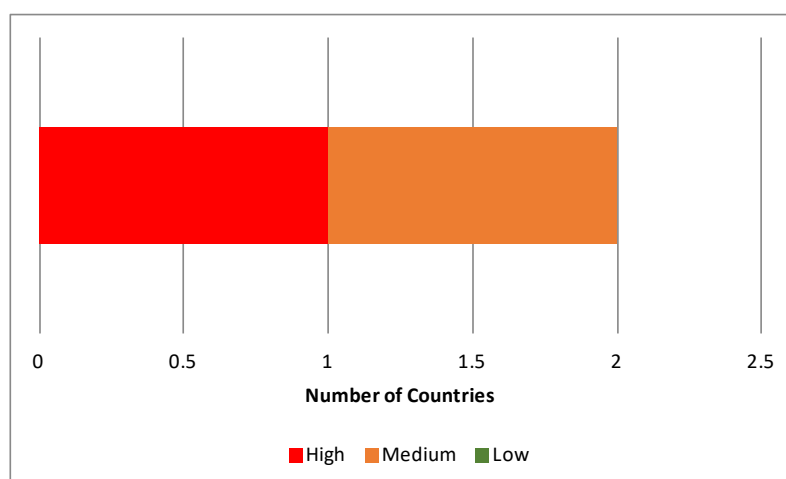


#### H. POOL 7 – South America

SURVEILLANCE (Surv), VACCINATION (Vacc) AND POST VACCINATION MONITORING (PVM)		
Country	Activity	Description
<u>Colombia</u> 1 -	Surv	Following the outbreaks that occurred in the country due to FMDV serotype O, last notified in October 2018, the veterinary services have completed on February 18th 2019 the verification of absence of the circulation of FMDV through the use of sentinels in the primary and secondary outbreaks. This was conducted through the clinical examination for absence of FMD signs and the serial serological control confirming the absence of viral activity because negative for FMD antibodies. At the end of these controls the animals were removed by slaughter and burial.

**Table 16 and Graph 15:** Conjectured circulating FMD viral lineages in Pool 7 (further detail (country-level) in Annex).

Serotype	Viral lineage	Number of countries where strain is believed to circulate in the 2 countries of Pool 7 -South America
A	A/Euro SA	1
O	O/Euro SA	2

**Graph 16:** Categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country of Pool 7 (see Annex for explanation).

## V. OTHER NEWS

<sup>2</sup>The 4<sup>th</sup> WRLFMD Quarterly Report for the period October – December 2018 contains a new format for recommendations of FMDV vaccines to be included in antigen banks for Europe. The discussion of Table 17 is contained within the report.

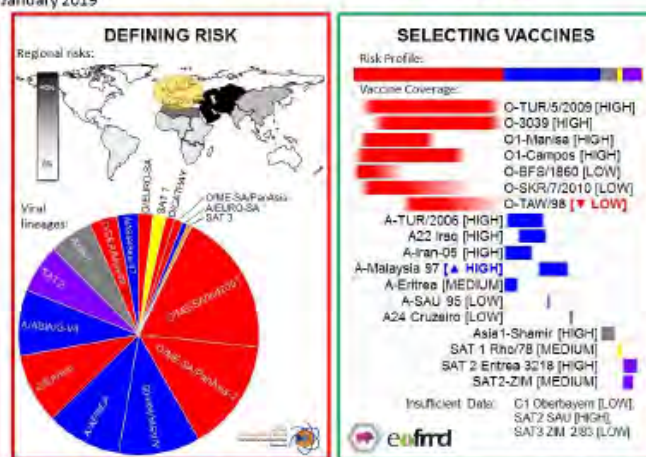
**Table 17:** Recommendations from WRLFMD® on FMD virus strains to be included in FMDV antigen banks (for Europe).

This report provides recommendations of FMDV vaccines to be included in antigen banks. These outputs are generated with a new tool (called PRAGMATIST) that has been developed in partnership between WRLFMD® and EuFMD. These analyses accommodate the latest epidemiological data collected by the OIE FAO FMD Laboratory Network regarding FMDV lineages that are present in different *source regions* (see Table below), as well as available *in vitro*, *in vivo* and field data to score the ability of vaccines to protect against these FMDV lineages.

Lineage	West Eurasia	East Asia	North Africa	India and Southern Asia	East Africa	West and Central Africa	Southern Africa	South America
O ME-SA PanAsia-2	35	-	-	-	-	-	-	-
O ME-SA PanAsia	-	10	-	-	-	-	-	-
O SEA Mya-98	-	33	-	-	-	-	-	-
O ME-SA Ind2001	6	20	35	80	-	-	-	-
O EA or O WA	3	-	20	-	45	37	-	-
O EURO-SA	-	-	-	-	-	-	-	74
O CATHAY	-	10.5	-	-	-	-	-	-
A ASIA Sea-97	-	25	-	-	-	-	-	-
A ASIA Iran-05	25.5	-	-	-	-	-	-	-
A ASIA G-VII	17.5	-	-	16	-	-	-	-
A AFRICA	-	-	35	-	24	25	-	-
A EURO-SA	-	-	-	-	-	-	-	26
Asia-1	12.5	1.5	-	4	-	-	-	-
SAT 1	-	-	-	-	10	10	27	-
SAT 2	0.5	-	10	-	20	26	57	-
SAT 3	-	-	-	-	1	-	16	-
C	-	-	-	-	-	-	-	-

### Vaccine Antigen Prioritisation: Europe

January 2019



The table defines the relative distribution of FMDV lineages in each of the eight *source regions*, while the figure highlights the importance of these *source regions* for Europe (using data collected at the EU-RL Workshop); please contact WRLFMD EuFMD for assistance to tailor these outputs to other geographical regions. NB: Vaccine-coverage data presented is based on available data and may under-represent the true performance of individual vaccines.

**VI. REFERENCES – Superscripts**

1. [http://www.oie.int/wahis\\_2/public/wahid.php/Wahidhome/Home](http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home)
2. World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD), [www.wrlfmd.org](http://www.wrlfmd.org).
3. Regional Reference Laboratory for FMD (ARRIAH, Russia) - *Dr. Svetlana. Fomina*.
4. ICAR-Directorate of Foot and Mouth Disease, Mukteswar, India - *Dr. S. Saravanan*.
5. Central Veterinary Research and Development Laboratory (CVDRL), Aghanistan - *Dr. Wahidullah* Head of Laboratory
6. Progressive Control of Foot and Mouth Disease in Pakistan - *Dr. Muhammad Afzal*, Project Coordinator.
7. National FMD Reference Laboratory, Embakasi, Kenya – *Dr. Kenneth Ketter*.
8. Laboratoire National Vétérinaire (LANAVET) - Garoua, Cameroon - *Dr. Simon Dickmu Jumbo*.
9. Ghana
10. FMD Research Centre, Virology Research Department, National Veterinary Research Institute, Vom, Plateau State, Nigeria - *Dr. Ularamu Hussaini*
11. Senegal
12. The European Union Reference Laboratory (EURL), FAO Reference Centre & OIE Reference Laboratory for Foot-and-Mouth Disease chez Agence nationale de sécurité sanitaire – ANSES, Maisons-Alfort, Île-de- France
13. OIE/FAO FMD Reference Laboratory Network, Annual Report 2016
14. National Animal Health Diagnostic and Investigation Center (NAHDIC) – *Dr. Daniel Gizaw*.
15. ARC -Onderstepoort Veterinary Institute, Republic of South Africa - *Dr LE Heath/Ms E Kirkbride*
16. FMD Situation in SEACFMD Countries 2015-2016; presentation at the The 23<sup>rd</sup> SEACFMD Sub-Commission Meeting 9-10 March 2017, Siem Reap, Cambodia, [http://www.rr-asia.oie.int/fileadmin/sub\\_regional\\_representation/sub\\_regional\\_programme/seacfm/SEACFMD\\_Activities/sub\\_com/23nd\\_Meeting\\_2017\\_/presentations/1.3\\_Regional\\_FMD\\_situation.pdf](http://www.rr-asia.oie.int/fileadmin/sub_regional_representation/sub_regional_programme/seacfm/SEACFMD_Activities/sub_com/23nd_Meeting_2017_/presentations/1.3_Regional_FMD_situation.pdf)<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5283054/>
17. Islam, M. S., et al. "Distribution of foot and mouth disease virus serotypes in cattle of Bangladesh." SAARC Journal of Agriculture 15.1 (2017): 33-42. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5283054/> and neighbouring countries (A lineage).
18. Ibrahim Eldaghayes et al. Exploiting serological data to understand the epidemiology of foot-and-mouth disease virus serotypes circulating in Libya Open Vet J. 2017; 7(1): 1–11 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5283054/>
19. Acting Chief Veterinary Officer of the Israeli Veterinary Services and Animal Health - *Dr. Tamir Goshen*

## VII. Annex

The estimates of the relative prevalence of serotypes and strains presented in the Tables below are based on the best data available to us and we are always trying to improve them. The accuracy of these estimates is only as good as the level of surveillance and reporting permits. Readers with relevant data or information are encouraged to contact EuFMD so that it can be included in the report.

In this report, the N. African countries of Morocco, Algeria, Tunisia and Libya considered together as a separate group, as the epidemiological situation is distinct and of interest to risk managers.

### Description of methods

#### **How to interpret the estimates of the relative prevalence of serotypes and strains:**

If 100 animals that had been infected with FMD virus in the last 12 months were randomly selected from a country or virus pool:

1. How many animals would be infected with each serotype?
2. Within each serotype, how many would be infected with each virus strain?

#### **Pool-level estimates and assumptions:**

As the data required to calculate the relative prevalence of serotypes and strains are not directly available in most countries, they were estimated in 3 steps as follows:

1. First, each country in the pool is assigned a weight according to the number of animals infected with FMD each year:

$$weight_{country\ 1} = \frac{(FMD\ incidence * susceptible\ population)_{country1}}{\sum_{country\ 1}^{country\ n} (FMD\ incidence * susceptible\ population)}$$

The expected FMD incidence was based on the paper by Sumption *et al* 2008 as follows: i) Low/Sporadic: 0.029 new infections per 1000 animals/year; ii) Medium: 0.458 new infections per 1000 animals/year; iii) High: 1.759 new infections per 1000 animals/year.

The susceptible livestock population is the sum of sheep, goat, cattle, buffalo and pig populations from FAOStat.

2. For each country, the relative prevalence (RP) of each FMD serotype and strains within serotype is specified for all countries where FMD is believed to circulate endemically. First, the relative prevalence of each serotype is specified by dividing 100 points according to the serotypes that would be represented if 100 animals infected with FMDV in the previous year were randomly selected from the country. Subsequently, the relative prevalence of each serotype is broken down to reflect the distribution of circulating strains within each serotype.
  - If no information is available for a given country, then the circulating serotypes and strains are inferred from the neighbouring countries.
  - If there is only information about presence of serotypes and/or strains, but no data on the relative prevalence, then it is assumed that the serotypes/strains are circulating in equal prevalence.
  - When available, data from the last 24 months are considered, otherwise the most recent data available are used as well as the current situation in the region.
  - In the absence of reporting, a country is considered infected until it (re)gains recognition of freedom from the OIE

3. Data from steps 1 and 2 are combined at pool level according to the following formula:

$$relative\ prevalence_{serotype\ or\ strain} = \sum_{country\ 1}^{country\ n} (weight_{country} * RP_{serotype\ or\ strain})$$







Similarly to what is described above are the criteria adopted for the categorization of the level of uncertainty relative to the FMD epidemiological situation defined for each country:

**High:** There has been little or no reporting of laboratory results (serotype and/or molecular characteristics) from this country within the last 24 months. The serotype/strain distribution is based on inferences from the situation in neighbouring countries;

**Medium:** There is some information available about the circulating serotypes and/or strains, but from a low number of samples and/or not representative of entire country or different sectors and/or not from the past 24 months;

**Low:** There is reliable information available about the circulating serotypes and/or strains, obtained from analysis of a large number of samples that represent the country's livestock population.

#### Legend of icons in the following tables

	>=95%
	>=60%
	>=30%
	>=5%
	<5%
	no strain circulating



**Table 18:** Conjectured circulating FMD viral lineages in each country of Pool 1 (current to March 2019)

Country	Last Outbreak Reported/Serotype	FMD incidence rate	Presumed serotype distribution within country			Presumed viral lineage distribution within country							Uncertainty	Reference
			A	Asia1	O	A/ASIA/SEA-97	ASIA1/ unnamed	O/ME-SA/Ind-2001	O/SEA/Mya-98	O/ME-SA/PanAsia	O/ME-SA/PanAsia2	O/CATHAY		
CAMBODIA	Dec 2016/ A & O	high	●		●	●				●			medium	2
CHINA	March 2019/O, May 2017/A	high	●		●	●		●	●	●		●	medium	2
CHINA (HONG KONG, SAR)	Dec 2018/O	high			●			●				●	medium	2
KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF	May 2014/not confirmed, July 2014/O	high	●		●	●		●					high	as per REPUBLIC OF KOREA (SOUTH KOREA)
LAO PEOPLE'S DEMOCRATIC REPUBLIC (LAOS)	Jan 2018/O Mar 2015/A	high	●		●	●			●	●			medium	2
MALAYSIA	May 2018/O, August 2016/A	medium			●					●			medium	2
MONGOLIA	May 2018/O, Sept 2016/A	medium			●			●	●	●			medium	2
MYANMAR	May 2018/O, April 2017/Asia 1, July 2016/ not typed, Oct 2015/A	high	●	●	●	●	●	●			●		medium	2, 16
REPUBLIC OF KOREA (SOUTH KOREA)	Jan 2019/O, April 2018/A	low/sporadic	●		●	●		●					low	2
RUSSIAN FEDERATION	March 2019/O, Oct 2016/Asia 1, Jan 2016/ A	low/sporadic			●			●	●	●			medium	2
TAIWAN PROVINCE OF CHINA	Jun 2015/A	low/sporadic			●							●	high	as per HONG KONG
THAILAND	Oct 2018 /A & O	high	●		●	●		●	●	●			medium	2
VIETNAM	Jan 2019/O, November 2017/A and not typed	high	●		●	●		●	●	●		●	medium	2






















**Table 19:** Conjectured circulating FMD viral lineages in each country of Pool 2 (current to March 2019)

Country	Last Outbreak Reported/Serotype	FMD incidence rate	Presumed serotype distribution within country			Presumed viral lineage distribution within country			Uncertainty	Reference
			A	Asia1	O	A/ASIA/G-VII	ASIA1/unnamed	O/ME-SA/Ind-2001		
BANGLADESH	Dec 2016/A, ASIA 1 and O	high							high	17
BHUTAN	Apr 2018/O, Sep 2017/A	high							medium	2
INDIA	Mar 2019/O, Apr 2015/A, ASIA 1	high							medium	2
NEPAL	Feb 2018/O, Mar 2018/Asia 1, April 2017/A	high							medium	2
SRI LANKA	May 2018/O	high							medium	2

**Table 20:** Conjectured circulating FMD viral lineages in each country of Pool 3 –West Eurasia (current to March 2019)

Country	Last Outbreak Reported/Serotype	FMD incidence rate	Presumed serotype distribution within country			Presumed viral lineage distribution within country								Uncertainty	reference
			A	Asia1	O	sat2	A/ASIA/G-VII	A/ASIA/Iran-05	ASIA1/ASIA/Sindh-08	O/ME-SA/Ind-2001	O/ME-SA/PanAsia2	O/EA-3	SAT2		
AFGHANISTAN	Mar 2019/O & Asia 1, Dec 2018/A	high	●	●	●			●	●		●			medium	4
ARMENIA	Dec 2015/A	low/sporadic	●		●		●				●			high	13
AZERBAIJAN	2007/O	low/sporadic	●	●	●		●	●	●		●			high	as per Iran
BAHRAIN	Mar 2015/O	low/sporadic	●		●		●			●	●			high	as per Saudi Arabia
GEORGIA	2001/ASIA 1	low/sporadic	●		●		●				●			high	as per Turkey
IRAN, ISLAMIC REPUBLIC OF	Feb 2018/A, Asia 1 & O,	high	●	●	●		●	●	●		●			medium	2
IRAQ	Dec 2013/A, ASIA 1	high	●	●	●		●	●	●		●			high	as per Iran
ISRAEL	Feb 2019/O, June2017/A	low/sporadic	●		●		●				●	●		low	2
JORDAN	Mar 2017/O	low/sporadic	●		●		●			●	●			high	2, as per Saudi Arabia
KAZAKHSTAN	Jun 2013/ A & Aug 2012/O	low/sporadic	●	●	●		●	●	●		●			high	as per Iran
KUWAIT	April 2016/O	high	●		●		●			●	●			high	2, as per Saudi Arabia
KYRGYZSTAN	Aug 2014/not typed & Apr 2013 /O, A,	low/sporadic	●	●	●			●	●		●			high	as per Pakistan
LEBANON	2010/not typed	low/sporadic	●		●		●				●			high	as per Turkey
OMAN	May 2015/SAT 2	high				●							●	high	2
PAKISTAN	Mar 2019/ A, O & Asia 1	high	●	●	●			●	●		●			medium	2
PALESTINE	Mar 2019/Untyped, Dec 2017/O, Mar 2013/Sat 2	low/sporadic			●							●		medium	2
QATAR	Dec 2013/O	low/sporadic	●		●		●			●	●			high	as per Saudi Arabia
SAUDI ARABIA	Dec 2018/O & Oct 2016/A	high	●		●		●			●	●			high	2
SYRIAN ARAB REPUBLIC (SYRIA)	2002/ A & O	high	●		●		●				●			high	as per Turkey
TAJIKISTAN	Nov 2012/ not typed & Nov 2011/Asia 1,	low/sporadic	●	●	●			●	●		●			high	as per Pakistan
TURKEY	Oct 2015/ A May, 2014- 2015/ Asia 1 and O	high	●		●		●				●			medium	2
TURKMENISTAN	Not available	low/sporadic	●	●	●		●	●	●		●			high	as per Iran
UNITED ARAB EMIRATES	Sep 2016/O	low/sporadic	●		●		●			●	●			high	as per Saudi Arabia
UZBEKISTAN	Not available	low/sporadic	●	●	●		●	●	●		●			high	as per Iran

**Table 21:** Conjectured circulating FMD viral lineages in each country of Pool 3 - North Africa (current to March 2019)

Country	Last Outbreak Reported/Serotype	FMD incidence rate	Presumed serotype distribution within country			Presumed viral lineage distribution within country				Uncertainty	Reference
			A	O	SAT 2	A/AFRICA	O/ME-SA/Ind-2001	O/EA-3	SAT 2		
ALGERIA	Dec 2018/O, Nov 2016/A May-Jun 2016/Sat 2, Aug 2016/typing pending	medium								medium	2
EGYPT	Nov 2018/Sat 2, Feb 2018/A & April 2017/O	high								medium	2
LIBYA	Oct 2013/O	high								high	18
MOROCCO	Mar 2019/O	low/sporadic								high	2
TUNISIA	Feb 2019/O, April 2017/A	medium								medium	2



**Table 22:** Conjectured circulating FMD viral lineages in each country of Pool 4 (current to March 2019)

			Presumed serotype distribution within country					Presumed viral lineage distribution within country							
Country	Last Outbreak Reported/Serotype	FMD incidence rate	A	O	sat1	sat2	sat3	A/AFRICA	O/EA-2	O/EA-3	SAT1	SAT2	SAT3	Uncertainty	Reference
BURUNDI	Aug 2013 / not available	high												high	as per Tanzania
COMOROS	2010	high												high	no data available
DJIBOUTI	Not available	high												high	as per Ethiopia
ERITREA	Nov 2016/not reported, Jan 2012/O	high												high	as per Ethiopia
ETHIOPIA	Feb 2019/A& O, April 2018/ SAT 2, Feb 2018/SAT 1	high												medium	2
KENYA	Mar 2019/A & SAT 2, Nov 2018/O, May 2018/ SAT 1	high												medium	2
RWANDA	Nov 2012/not typed	high												high	as per Kenya
SOMALIA	June 2016/not reported	high												high	as per Ethiopia
SOUTH SUDAN	June 2017/O & SAT 2, Mar 2018/A Dec 2016/ not sampled	high												high	2
SUDAN	May 2017/O	high												medium	2
TANZANIA, UNITED REPUBLIC OF	Oct 2016/SAT 1, Aug 2016/O & SAT 2, Jun 2016/A	high												high	2
UGANDA	Feb 2019/A & O, Nov 2014/SAT1, Jan 2015/SAT 3, July 2015/ SAT 2 and untyped	high												high	2, as per Kenya
YEMEN	2009/O	high												high	as per Ethiopia









**Table 23:** Conjectured circulating FMD viral lineages in each country of Pool 5 (current to March 2019)

Country	Last Outbreak Reported/Serotype	FMD incidence rate	Presumed serotype distribution within country				Presumed viral lineage distribution within country				Uncertainty	Reference
			A	O	sat1	sat2	A/AFRICA	O/EA-3	SAT1	SAT2		
BENIN	Jun 2014/O, A, SAT 1, SAT 2	high	🕒	🕒	🕒	🕒	🕒	🕒	🕒	🕒	high	1
BURKINA FASO	Aug2018/O	high	🕒	🕒		🕒	🕒	🕒		🕒	medium	1, as per Mali
CAMEROON	Dec 2019/untyped, Nov 2014/O, SAT 2, May 2014/SAT 1, Apr 2014/ A	high	🕒	🕒		🕒	🕒	🕒		🕒	high	as per Nigeria
CAPE VERDE	Not available	low/sporadic		●				●			high	as per Senegal
CENTRAL AFRICAN REPUBLIC	Not available	high	🕒	🕒		🕒	🕒	🕒		🕒	high	as per Nigeria
CHAD	Aug 2016/Not reported	high	🕒	🕒		🕒	🕒	🕒		🕒	high	as per Nigeria
CONGO	Jun 2013/not typed	high	🕒	🕒		🕒	🕒	🕒		🕒	high	as per Nigeria
CONGO, DEMOCRATIC REPUBLIC OF	Mar 2018/untyped	high	🕒	🕒	🕒		🕒	🕒	🕒		high	1
COTE D'IVOIRE	Jun 2018/O	high		●				●			high	1, as per Guinea
EQUATORIAL GUINEA	Not available	high	🕒	🕒		🕒	🕒	🕒		🕒	high	as per Nigeria
GABON	Not available	high	🕒	🕒		🕒	🕒	🕒		🕒	high	as per Nigeria
GAMBIA	July 2018/O	high		●				●			medium	1
GHANA	July 2018/untyped, June 2017/O, Dec 2016/ SAT 2, 2014/not available	high	🕒	🕒		🕒	🕒	🕒		🕒	high	as per Nigeria
GUINEA	Sep 2018/O	high		●				●			medium	1
GUINEA-BISSAU	Aug 2018/O	high		●				●			high	as per Guinea
LIBERIA	Not available	high		●				●			high	as per Guinea
MALI	Oct 2016/not reported	high	🕒	🕒		🕒	🕒	🕒		🕒	high	1
MAURITANIA	July 2018/O, Dec 2014/SAT 2	high				●				●	medium	2
NIGER	2014/not sampled, May 2015/O	high	🕒	🕒		🕒	🕒	🕒		🕒	high	as per Nigeria
NIGERIA	Sep 2018/O & Sat 2, Sept 2016/ SAT 1, Nov 2015/A	high	🕒	🕒		🕒	🕒	🕒		🕒	high	2
SAO TOME AND PRINCIPE	Not available	0									high	no data available
SENEGAL	Sep 2018/O, Feb 2015/ A, 2014/ SAT 2	high		●				●			medium	2
SIERRA LEONE	Aug 2018/O	high		●				●			medium	as per Senegal
TOGO	2012/O	high	🕒	🕒		🕒	🕒	🕒		🕒	high	1, as per Nigeria

**Table 24:** Conjectured circulating FMD viral lineages in each country of Pool 6 (current to March 2019)

Country	Last Outbreak Reported/Serotype	FMD incidence rate	Presumed serotype distribution within country					Presumed viral lineage distribution within country					Uncertainty	Reference
			A	O	SAT1	SAT2	SAT3	A/AFRICA	O/EA-2	SAT1	SAT2	SAT3		
ANGOLA	April 2016/SAT 2	high											high	as per Zambia
BOTSWANA	July 2018/SAT 2, June 2015/SAT 1	medium											medium	2
MALAWI	Feb 2019/untyped, Jan 2019/SAT 2, June 2016/SAT 1	medium											high	2
MOZAMBIQUE	June 2018/ Typing pending, Oct 2017/SAT 2, May 2015/ SAT 1	high											high	2
NAMIBIA	Sep 2017/SAT 2, Aug 2017/typing pending, May 2015/SAT 1	medium											high	2
SOUTH AFRICA	Jan 2019/SAT 2, Oct 2017/SAT 1, Dec 2015/SAT 3	medium											high	2
ZAMBIA	Feb 2019/ A & O, May 2017/SAT 3, Mar 2017/SAT 2, Jan 2013/SAT 1	low/sporadic											medium	2
ZIMBABWE	Jan 2019/SAT 1 & SAT 2, Sep2018/typing pending, Jun 2013/SAT 3	high											medium	1, 2

**Table 25:** Conjectured circulating FMD viral lineages in each country of Pool 7 (current to March 2019)

Country	Last Outbreak Reported/Serotype	FMD incidence rate	Presumed serotype distribution within country		Presumed viral lineage distribution within country		Uncertainty	Reference
			A	O	A/Euro SA	O/Euro-SA		
VENEZUELA	Oct 2018/O	medium					high	11
COLUMBIA	2011/O, 2013/A	medium					medium	1



# **Appendix 3**

## **Report of the World Reference Laboratory (WRL) for FMD**





## Global Status Report for FMD: Tracking the emergence and spread of new viral lineages

**Donald King**

**Acknowledgements:** Valerie Mioulet, Nick Knowles, Anna Ludi, Ginette Wilsden, Andrew Shaw, Nick Lyons, Mehreen Azhar, Hannah Baker, Antonello Di Nardo, Bob Statham, Lissie Henry, Jemma Wadsworth, Clare Browning, Britta Wood, Alison Morris, Abid Bin-Tarif, Ashley Gray, Beth Johns, Mark Henstock, David Paton, Dexter Wiseman, Julie Maryan, Sarah Belgrave






FMD Reference Laboratory

## Setting the scene for FMD....



### Core reference laboratory activities:

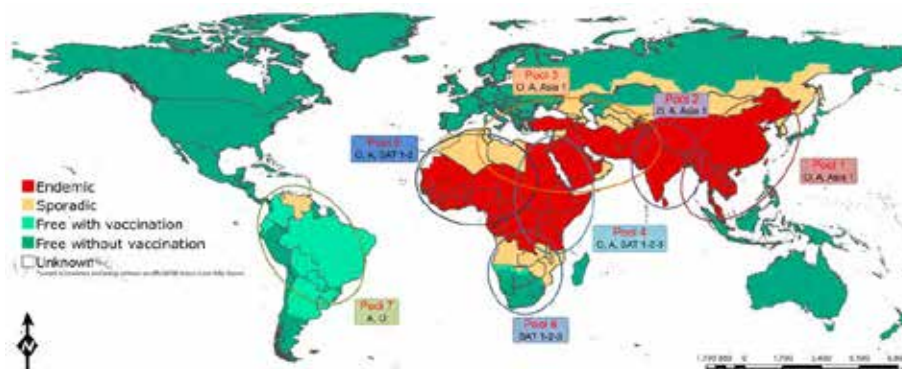
- Seven virus serotypes and multiple viral topotypes/strains
- Monitoring global patterns of virus distribution
  - Tracing sources of outbreaks (who-infected-who?)
  - Early recognition of the emergence of new lineages
- Vaccine matching and antigenic prediction

[www.pirbright.ac.uk](http://www.pirbright.ac.uk)

## Conjectured global status

### Endemic pools

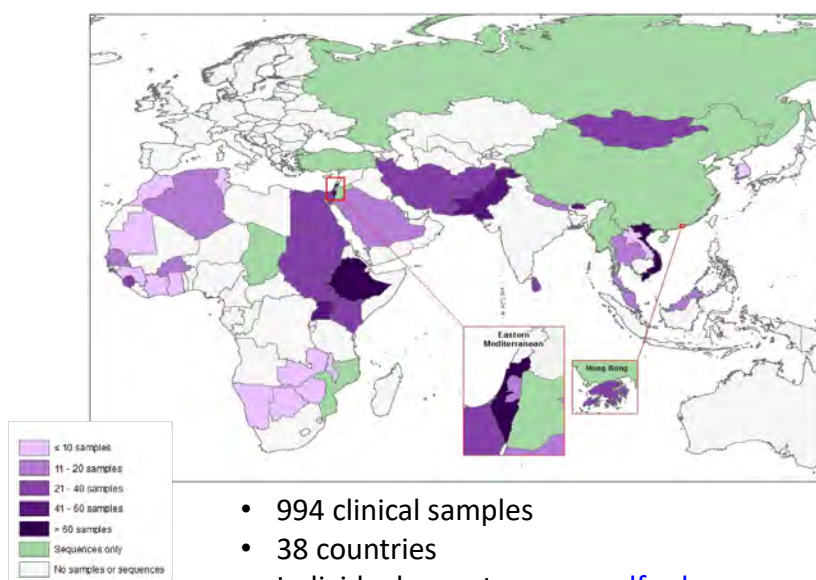
- Maintain specific FMD virus strains
- Distribution of FMDV serotypes in the endemic pools is not equal
- Control via (tailored) vaccination and supporting diagnostics



- In addition to circulation of local strains, long-distance “trans-pool” movements of FMDV are frequently observed

[www.pirbright.ac.uk](http://www.pirbright.ac.uk)

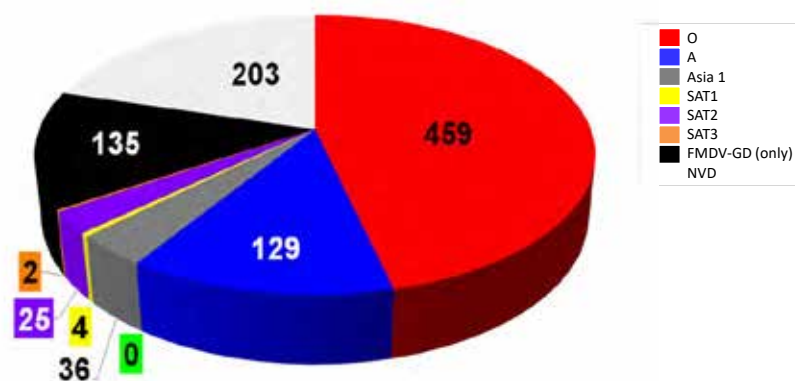
## Submissions to WRLFMD (Q4 2017 - Q1 2019)



- 994 clinical samples
- 38 countries
- Individual reports: [www.wrlfmd.org](http://www.wrlfmd.org)

[www.pirbright.ac.uk](http://www.pirbright.ac.uk)

### WRLFMD samples (Q4 2017 - Q1 2019): FMD virus serotypes




- No reported **serotype C** outbreaks since 2004 (Kenya and Brazil)
- Continue to be a large proportion of samples where FMD virus cannot be recovered (FMDV-GD or NVD)

[www.pirbright.ac.uk](http://www.pirbright.ac.uk)

### Enhanced surveillance via the OIE/FAO FMD Laboratory Network



- Able to rapidly respond to changing events
- **Global surveillance and changing patterns in risk**
- **Harmonised and improved lab capacity**
- Established in 2004
- 15 Core OIE and FAO FMD Reference Laboratories
- 4 European Laboratories: 

Core Network Members and affiliates:

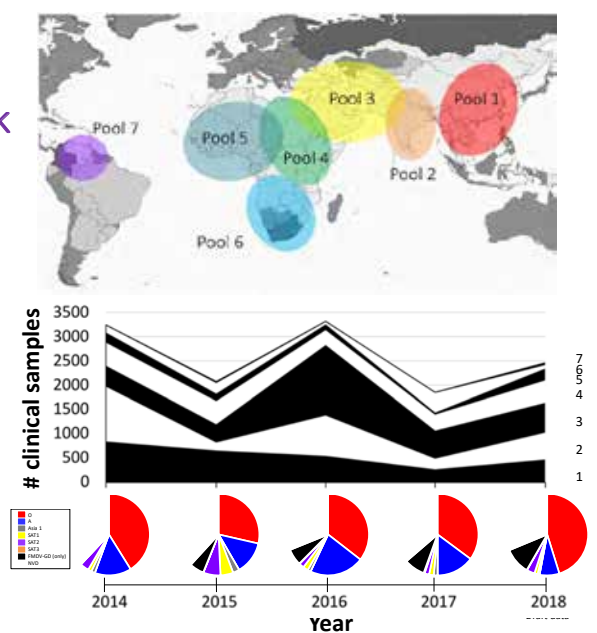


Pirbright – November 2018

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## Samples tested by the OIE/FAO FMD Laboratory Network

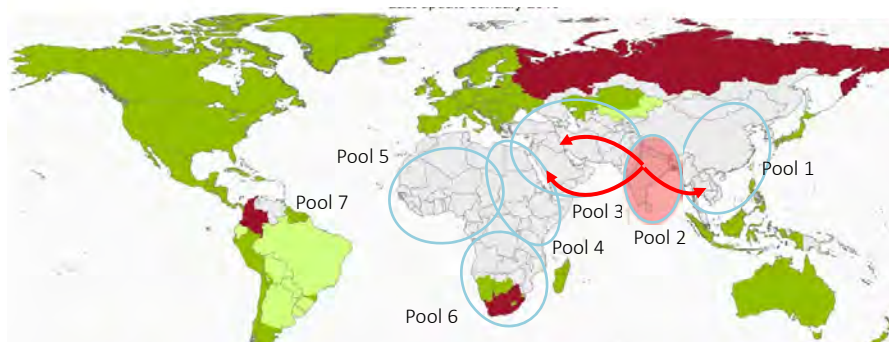
- 2000-3500 samples tested annually
- Data used to define relative importance of different FMD virus lineages in each Pool
- Surveillance gaps in Pool 5 (W. Africa) and Pool 6 (S. Africa)
- Reports available: <http://www.foot-and-mouth.org/>



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## FMD – Global status

### Recent “trans-pool” spread from **Pool 2**

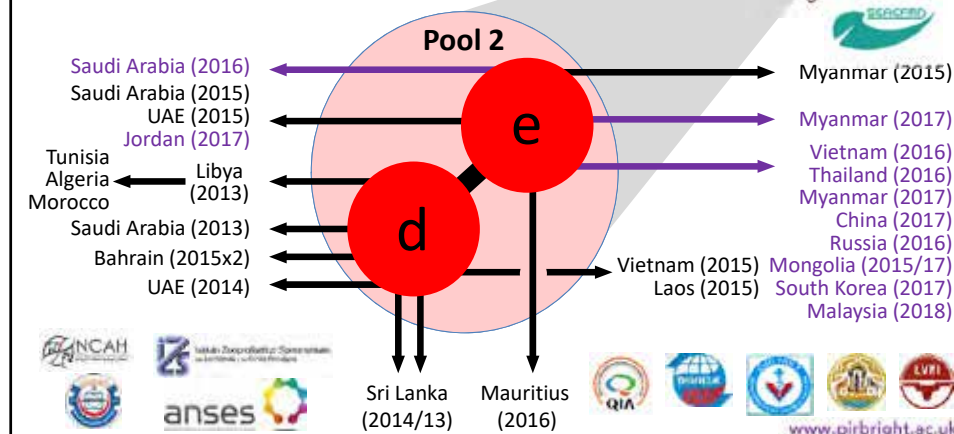


- Spread of FMD viruses endemic from Pool 2 (India, Bangladesh, Nepal, Bhutan)
- 2015: **A/ASIA/G-VII** into West Eurasia (Iran, Turkey, Saudi Arabia, Armenia and Israel)
- 2017: **serotype Asia 1** into Myanmar

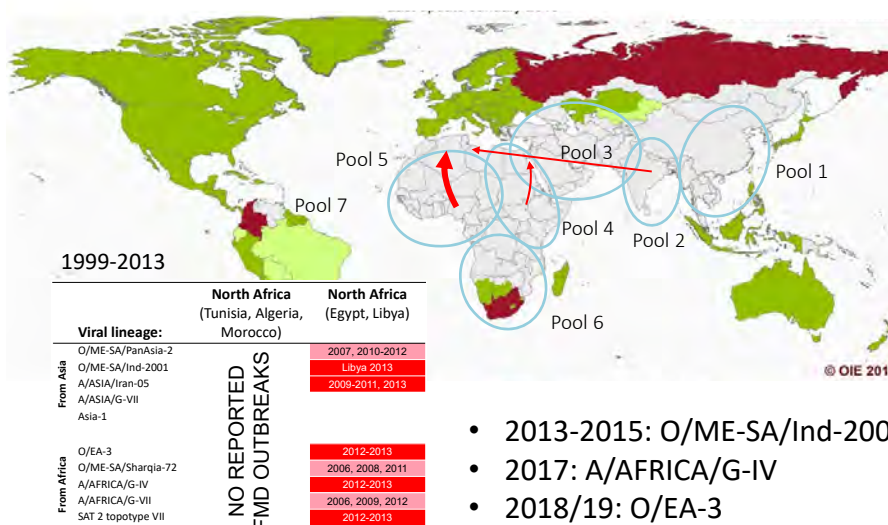
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## O/ME-SA/Ind-2001: a new pandemic lineage?

- Two sub-lineages (d and e)
- Since 2013, full genomic sequence data indicates that there have been multiple “escapes” from Pool 2  
(Bachanek-Bankowska et al., 2018)



## New FMD outbreaks in North Africa (Maghreb), new threats to Europe?

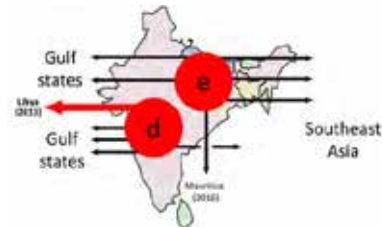


- 2013-2015: O/ME-SA/Ind-2001
- 2017: A/AFRICA/G-IV
- 2018/19: O/EA-3



## 2013-2015: Emergence of O/ME-SA/Ind-2001

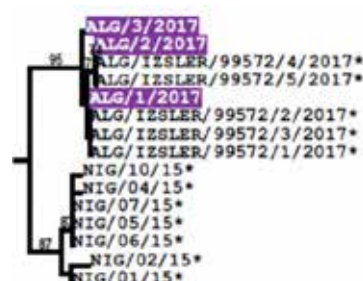
- FMD virus lineage emerged from Pool 2 (India, Nepal, Bangladesh)
- Separate “escapes” of this lineage have caused outbreaks in the Gulf States of the Middle East and Southeast Asia
- Spread in an east-to-west direction in North Africa
  - Libya: first detected 1/09/2013
  - Tunisia: reported 29/04/2014 (>100 outbreaks)
  - Algeria: reported 27/07/2014 (>400 outbreaks)
  - Morocco: reported 2/11/2015 (6 outbreaks)



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## March – April 2017: FMD cases in Algeria and Tunisia

- >100 outbreaks in cattle
- First cases of Serotype A in the Maghreb > 30 years
  - Algeria 1977
  - Tunisia 1984
- Due to a new FMD virus strain for the region (A/AFRICA/G-IV)
- Sequences from Algeria (March) and Tunisia (April) >99% identity
- Most closely related to FMD viruses from Nigeria

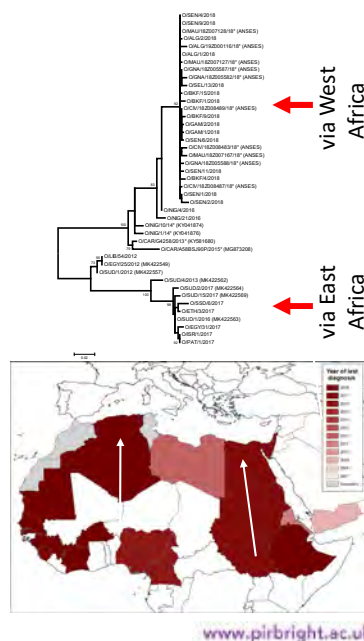


Institute of Virology and Immunology  
 Pirbright, Wokingham, Hampshire, RG26 2AT, UK

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## Since June 2018: new serotype O cases in Algeria, Tunisia and Morocco

- Due to the O/EA-3 toptotype
- Cases in Algeria (>100 outbreaks), Tunisia (14 outbreaks) and Morocco (34 outbreaks)
- July 2018 -January 2019: Samples tested for FMD outbreaks in Burkino Faso, Gambia, Guinea, Ivory Coast, Mauritania, Senegal, Sierra Leone
- **Close epidemiological connections between W. Africa and Maghreb (~99% nt identity between FMD viruses from these regions)**

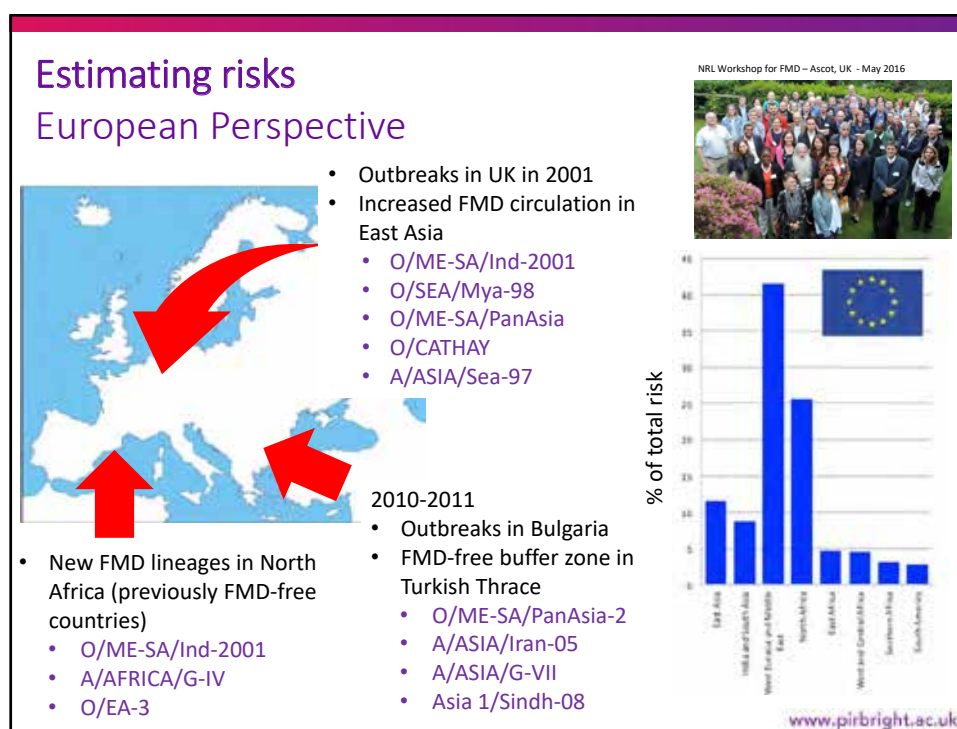
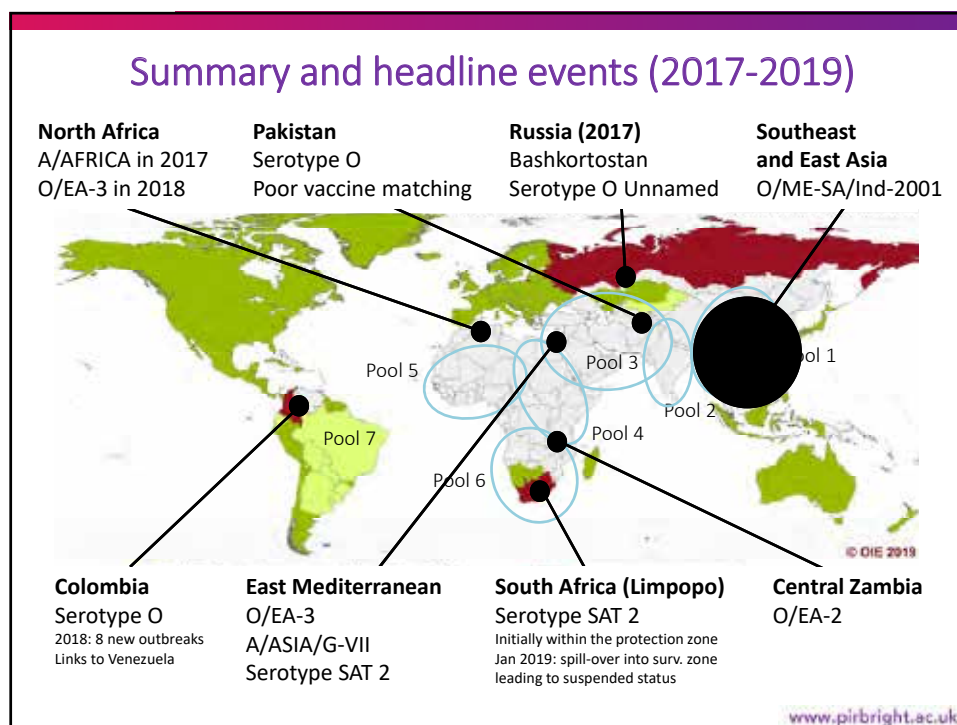


## New samples from West and East Africa

Use of transfection methods to rescue problematic FMD viruses

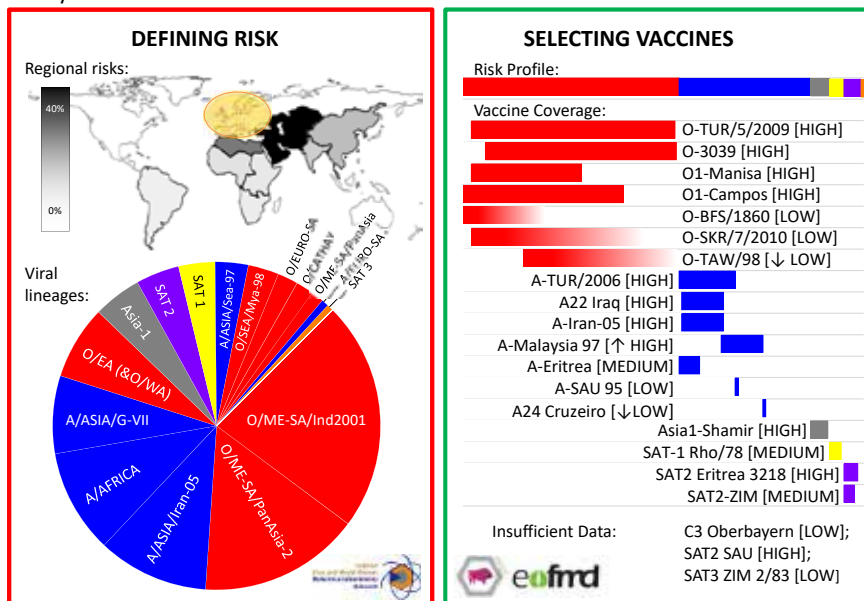
- Previous samples from South Sudan and Sierra Leone were FMDV-GD only (no live FMDV in the entire batch)
- Samples tested by new lineage-specific rRT-PCR and tentatively characterized as O/EA-3 (developed with NAHDIC, Ethiopia)
- “live” FMDV subsequently recovered from the RNA samples following transfection methods in LFBKs (using Lipofectamine 2000 and/or RiboJuice)
- Sequence data was obtained for these viruses (and reported) and vaccine matching is now underway
- Although optimization required, represents a useful approach for virus recovery from difficult samples (additional recent success with FMDV-GD samples from Laos)





## Vaccine Antigen Prioritisation: Europe

January 2019



## Reports and information

- New website ([wrlfmd.org](http://wrlfmd.org)) launched in November 2018
- In addition to *Genotyping reports*, now contains *Vaccine matching* and *Serotyping reports*
- Other data sources:
  - EuFMD Monthly report
  - Quarterly WRLFMD report

### Tools for FMDV sequences

- Priority for the FMD community
- FMDVTools: <https://mallorn.pirbright.ac.uk>



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## Proficiency Testing Scheme (PTS)

- To assist National FMD Laboratories to develop/improve accurate and reproducible FMD diagnostic tests
- QA requirements to support ISO/IEC 17025

Phase XXXI update (covered by current WRLFMD contract and old EURL responsibilities):

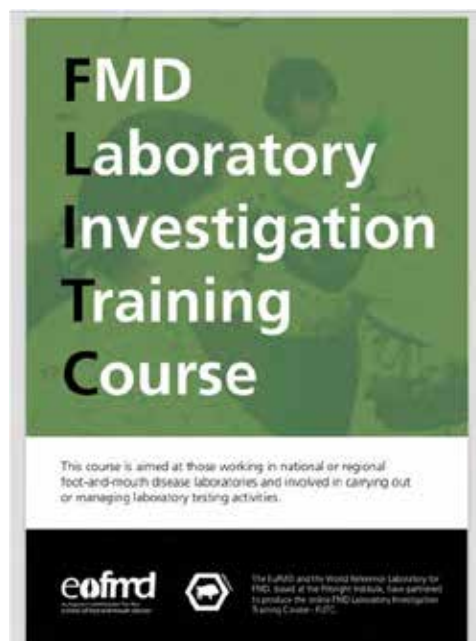
	Phase XXXI
Total invited laboratories	102
Participants from European Union (funded by EURL for FMD)	26 (EU member states)
Participants from Global Network	Argentina, Brazil, Canada, Russia, Senegal, Thailand Pending: Botswana, China, Ethiopia, India, Kenya, Nepal, Nigeria, Republic of Korea, South Africa, USA
Participants from EuFMD Member states (non-EU)	Bosnia & Herzegovina, Georgia, Kosovo, FYRO Macedonia, Norway, Serbia, Switzerland, Turkey Pending: Albania,
Participants from neighbourhood countries	Algeria, Armenia, Montenegro, Morocco Pending: Belarus, Iran, Iraq, Jordan, Lebanon, Moldova, Tunisia, Ukraine
Other participating countries	Australia, Namibia, New Zealand, Singapore, Chinese Taipei,

- Proposal for Phase XXXII:
  - Global PTS to complement PTS organised by EURL
  - Focus on endemic diagnostic challenges
  - Scenarios tailored PCP expectations for the participating labs

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## E-learning

- WRLFMD has developed an e-learning course for FMD diagnostic methods
- Delivered with EuFMD
  - November 2017
  - February 2019
- >200 scientists from across the world have completed this course



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## Acknowledgements

- Support for the WRLFMD and research projects
- Collaborating FMD Reference Laboratories and field teams
- Partners within the OIE/FAO FMD Lab Network



  
Department  
for Environment  
Food & Rural Affairs

**eofmd**

[www.pirbright.ac.uk](http://www.pirbright.ac.uk)

## **Appendix 4**

### Global Strategy



## FAO-OIE GLOBAL FMD CONTROL STRATEGY

**Samia Metwally**

Senior Animal Health Office  
Animal Production and Health  
FAO of the United Nations  
Rome, Italy

**Matthew Stone**

DDG  
World Organisation for Animal  
Health (OIE)  
Paris, France

### GF-TADs FMD Working Group



Samia Metwally  
Andriy Rozstalnyy



Keith Sumption



Neo Joel Mapitse  
Gregorio Torres  
Djahne Montabond

## Contents

- FMD WG vision and workplan
- Resource documents
- Progress on the implementation of the global Strategy
- FAO and OIE activities contributing to the global strategy
- Challenges and priorities

## 35<sup>th</sup> GF-TADs FMD WG meeting

(29-30 Jan, 2019 Rome, Italy)

### Conclusions of the meeting were to:

- Leverage on synergies with PPR and Rinderpest Secretariats
- Strengthen collaboration with partners on implementation of the FMD Global Strategy
  - SWOT analysis of regional dynamics and identify areas of high impact
  - Regional Economic Communities, AU-IBAR, FAO and OIE regional and national offices, Ref centres

### Per GF-TADs gsc10 recommendation:

- Develop socioeconomic guidelines for impact assessment
- Develop a strategic plan for resource mobilisation and advocacy with partners
- Increase awareness at national level and visibility

## Vision and Action Plan 2019-2020

### Mitigating the challenges

- At least one roadmap meeting for all sub-regions
- Socio-economic guidelines
- Support from Reference Laboratories
- Strengthening of the existing lab and epi networks
- Coordination of regional efforts
- Engagement of key stakeholders, donors and decision makers
- PCP support officer system
- Resource mobilization

Strategy	Activity	Key Success Indicators
1.1	Development of FMD Global Strategy (GFS) and its implementation	1.1.1: GFS is developed and approved by the GF-TADs
1.2	Development of FMD Global Strategy (GFS) and its implementation	1.2.1: GFS is implemented in all sub-regions
1.3	Development of FMD Global Strategy (GFS) and its implementation	1.3.1: GFS is implemented in all sub-regions
1.4	Development of FMD Global Strategy (GFS) and its implementation	1.4.1: GFS is implemented in all sub-regions
1.5	Development of FMD Global Strategy (GFS) and its implementation	1.5.1: GFS is implemented in all sub-regions
1.6	Development of FMD Global Strategy (GFS) and its implementation	1.6.1: GFS is implemented in all sub-regions
1.7	Development of FMD Global Strategy (GFS) and its implementation	1.7.1: GFS is implemented in all sub-regions
1.8	Development of FMD Global Strategy (GFS) and its implementation	1.8.1: GFS is implemented in all sub-regions
1.9	Development of FMD Global Strategy (GFS) and its implementation	1.9.1: GFS is implemented in all sub-regions
1.10	Development of FMD Global Strategy (GFS) and its implementation	1.10.1: GFS is implemented in all sub-regions
1.11	Development of FMD Global Strategy (GFS) and its implementation	1.11.1: GFS is implemented in all sub-regions
1.12	Development of FMD Global Strategy (GFS) and its implementation	1.12.1: GFS is implemented in all sub-regions
1.13	Development of FMD Global Strategy (GFS) and its implementation	1.13.1: GFS is implemented in all sub-regions
1.14	Development of FMD Global Strategy (GFS) and its implementation	1.14.1: GFS is implemented in all sub-regions
1.15	Development of FMD Global Strategy (GFS) and its implementation	1.15.1: GFS is implemented in all sub-regions
1.16	Development of FMD Global Strategy (GFS) and its implementation	1.16.1: GFS is implemented in all sub-regions
1.17	Development of FMD Global Strategy (GFS) and its implementation	1.17.1: GFS is implemented in all sub-regions
1.18	Development of FMD Global Strategy (GFS) and its implementation	1.18.1: GFS is implemented in all sub-regions
1.19	Development of FMD Global Strategy (GFS) and its implementation	1.19.1: GFS is implemented in all sub-regions
1.20	Development of FMD Global Strategy (GFS) and its implementation	1.20.1: GFS is implemented in all sub-regions



## Working Group workplan 2019-2020

Seven strategic objectives and activities



**Promote the adoption & implementation of the PCP**



**Increase vaccine effectiveness**



**Ensure sufficient and sustainable laboratory competencies in all regions**



**Vet services and their infrastructure are improved following the PVS pathway**



**Improve epidemiology competencies**



**Synergies with other TAD control programmes**



**Ensure sustainability and safeguarding of the implementation of the global strategy**

## Resource documents




- PCP guidelines updated and published; RAG, fast track, roadmap platform (2<sup>nd</sup> Edition)
- Risk Assessment Plan template prepared
  - PCP stage 0 to 1 (English and to French) and training is ongoing
- Official control plan template is in review (for moving to stage 3)
- Electronic questionnaires for PCP stage self-assessment assessment



GF-TADs  
GLOBAL FRAMEWORK FOR THE  
PROGRESSIVE CONTROL OF  
TRANSBOUNDARY ANIMAL DISEASES  
OIE

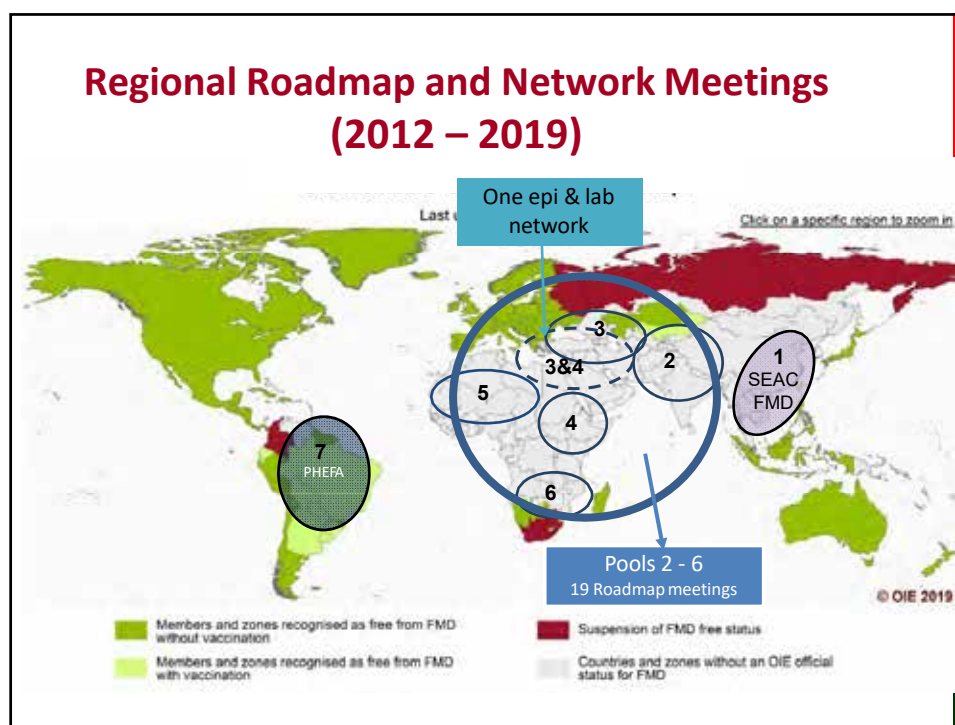
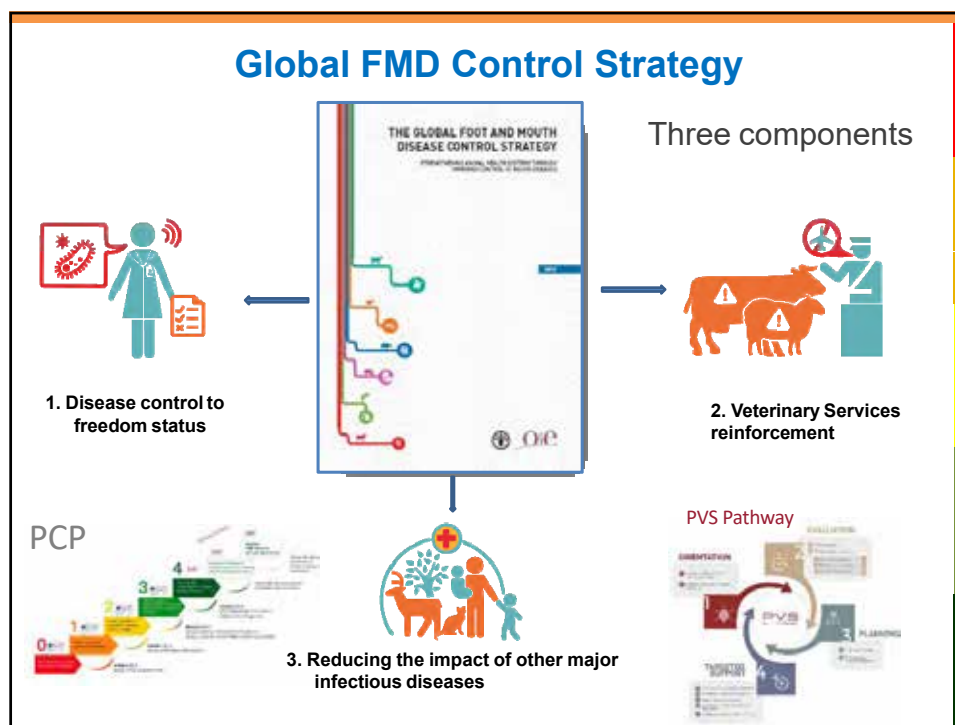
## FAO-OIE FMD Vaccination & Post-vaccination Monitoring Guidelines



Arabic      Translation      French      Russian

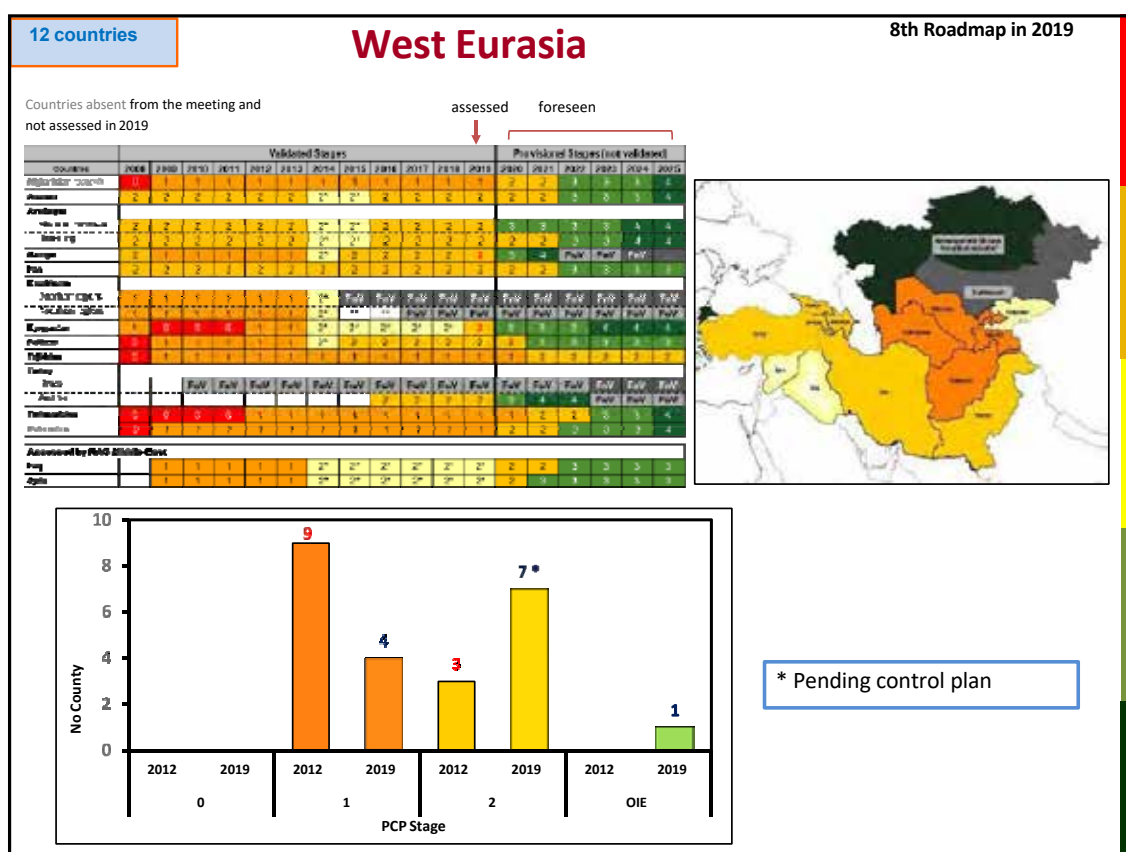
## Communication and awareness: GF-TADs website

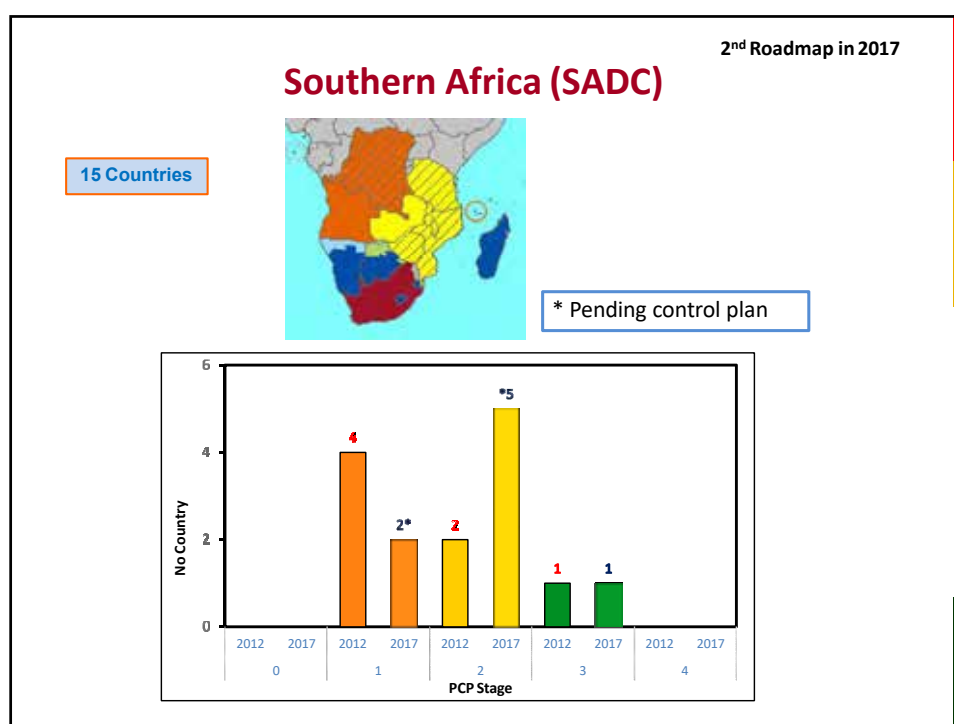
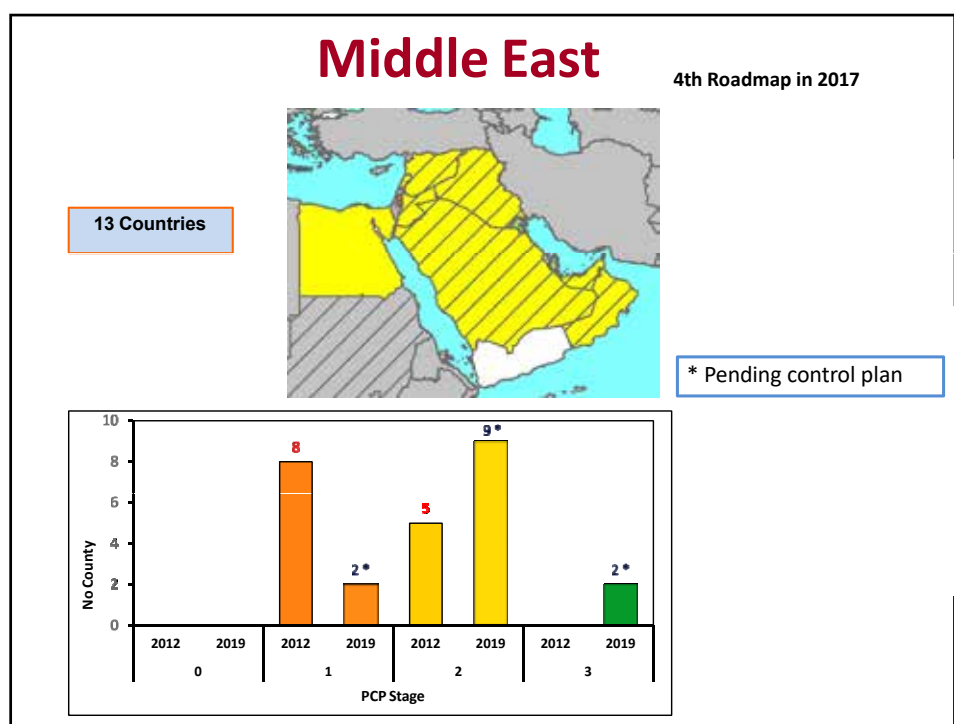


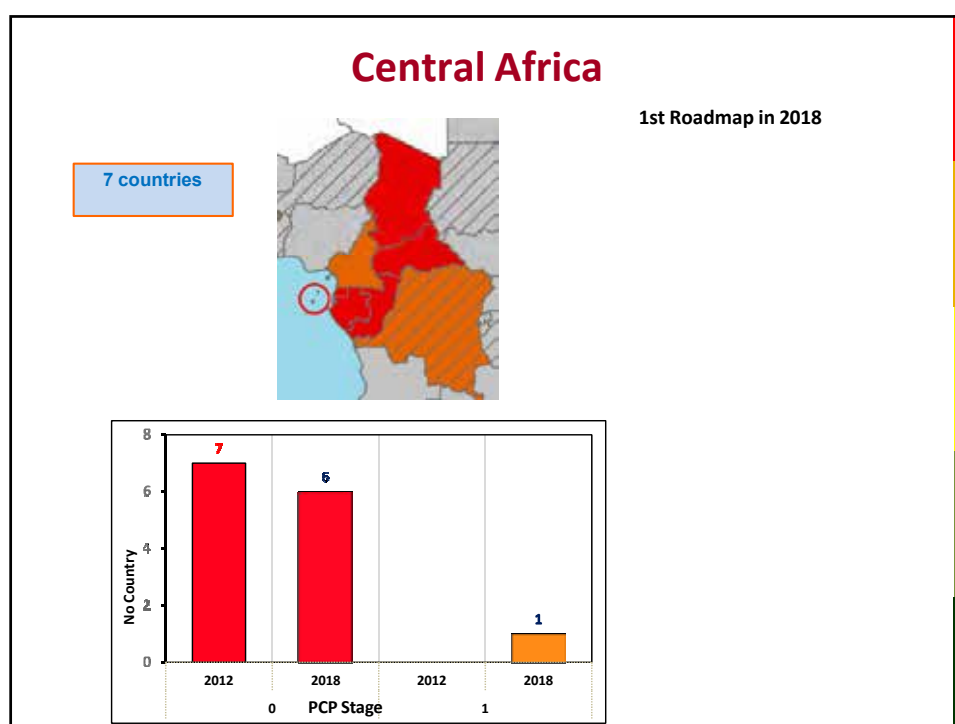
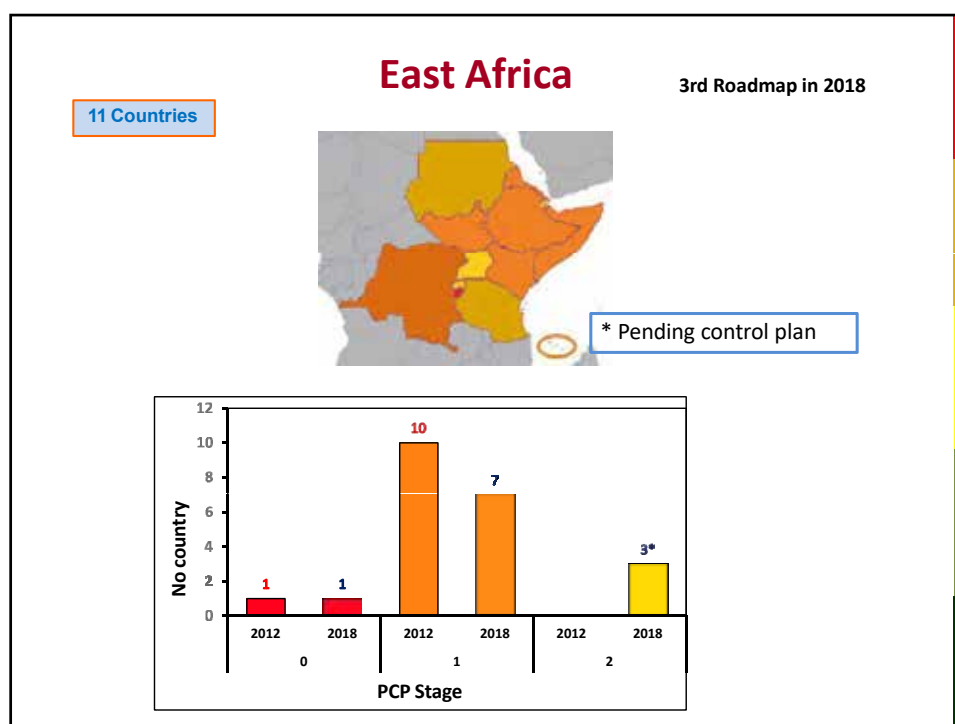




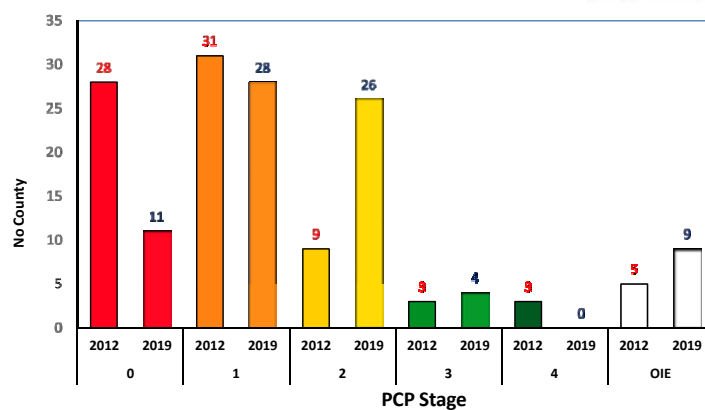
## REGIONAL ROADMAPS 2017- 2019





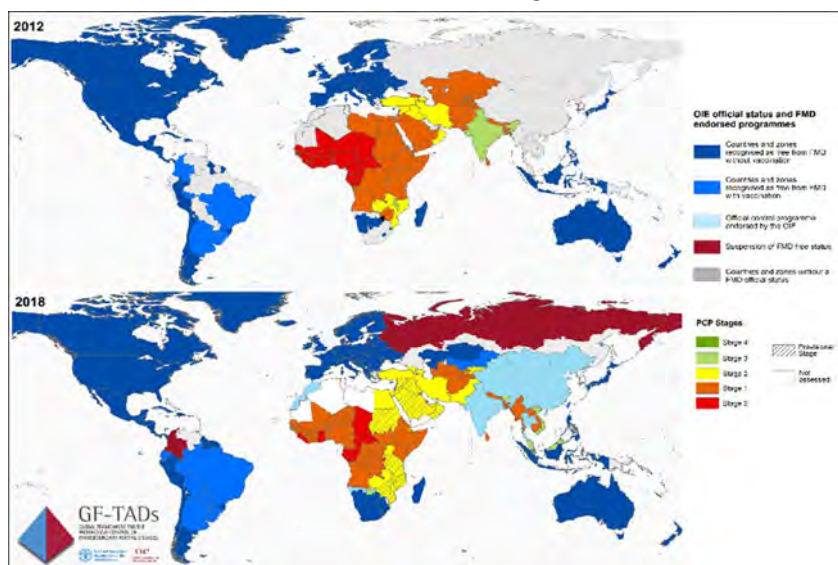


### No. Country in Each PCP Stage (79 total)



### The global situation of FMD in 2012 and 2018

OIE Official FMD free status and official control program  
GF-TADs FMD PCP stages



## EuFMD Support to the Global Strategy Pillar III

- Roadmap meetings;
- PCP Support officers (PSO);
- Global access to PCP-FMD training resources;
- E-Learning;
- Guidelines on socioeconomic impact analysis;
- Support in translation of documents and PCP tools.

## OIE activities contributing to the Strategy



### OFFICIAL RECOGNITION OF FMD FREE STATUS & ENDORSED PROGRAMS

31% of official statuses and programs were on FMD in 2018.

Conduct FMD or FMD/PPR missions

OIE Workshops on status recognition and endorsement of programmes

OIE/EuFMD Pilot workshops  
-Safe Trade and FMD Control, *Istanbul April 2018*

-FMD and Containment Zone,  
*Belgrade Oct 2018*



### REVISION OF THE TERRESTRIAL CODE'S FMD CHAPTER

Surveillance methods for shorter recovery period

### VACCINES

Vaccination chapter 4.17 (**new**), adopted in 2018

OIE Policy Paper on Vaccine Banks (Oct. 2018)

Pirbright - AU-PANVAC Twinning: FMD vaccine quality control in Africa launched April 2019

OIE FMD Vaccine bank for South-East Asia FMD vaccines: *delivered 6.7 million doses to eligible countries in Asia (Jan 2019)*

## OIE activities contributing to the Strategy



### OIE/FAO FMD LABORATORY NETWORK

Global surveillance and changing patterns in risk  
Harmonised and improved lab capacity  
MoU signed by 15/15 of the “core members”  
Support to Members on  
FMD diagnostics  
Vaccines (selection and PVM)



### PVS EVALUATIONS FMD RELATED CRITICAL COMPETENCES

Link PCP-FMD with 27 recommended Critical Competencies of the OIE PVS tool.

PVS missions, Twinning of Laboratories, Veterinary legislation support programme as tools for the implementation of the Global Strategy



### PUBLIC-PRIVATE PARTNERSHIP (PPP)

Assist Members in developing sustainable PPPs to strengthen Veterinary Services collaboration with CIRAD and supported by the B&MGF.

## FAO activities contributing to the Strategy



### E-LEARNING MODULES

Disease recognition  
Field investigation  
Field biosecurity



### CREATING AWARENESS

Increasing awareness about FMD, PPR and rinderpest to livestock keepers and veterinarians (Africa and Asia)



### NATIONAL

Enhancement of FMD Control in Pakistan” – USD 2,648,276



### IMPROVEMENTS TO FMD CONTROL

Building resilience and self-reliance of livestock keepers by improving control of FMD and other TADs”  
USD 16,754,787



## North Africa FAO and EuFMD

- Support North African countries in the surveillance and control of FMD
- Providing FMD diagnostic kits to North African countries
- PVM Workshop (Algeria – Morocco – Tunisia ) 18-20 march 2019
- Technical meeting to support FMD risk-based strategy plan in Libya - 21-22 March 2019



## Surveillance Evaluation Tool (SET)

### ➤ SET methodology

- Comprehensive assessment of animal health surveillance capacities
- Input from stakeholders centrally & *in field*
- 90 indicators of surveillance scored → results automatically generated

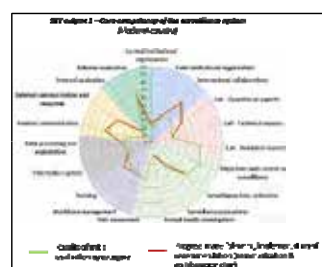
### ➤ Results

- Strengths/weaknesses of AH surveillance
- Country-specific action plans for improvements developed with veterinary services (VS)

### ➤ Status of evaluations

- 14 countries evaluated
- Reports posted online when validated by Vet Services

[http://www.fao.org/ag/aginfo/programmes/en/empres/tools\\_SET.html](http://www.fao.org/ag/aginfo/programmes/en/empres/tools_SET.html)



External evaluation (led by FAO HQs or regional office)      Self-evaluation (led by FAO country office)



## In-service Applied Veterinary Epidemiology Training (ISAVET)

- Tailored to the Ministry of Agriculture
- Four months training: 4 wk of hands-on training and 3 months of mentored field project
- Beneficiaries: 14 African counties – 180 vets
- Senegal and Ethiopia- FMD surveillance data analysis and outbreaks



### ISAVET Training Options:

1. \* Frontline (4 months)
2. Intermediate (9 Months)
3. Advanced (2 years)

### CAHWS Training\*

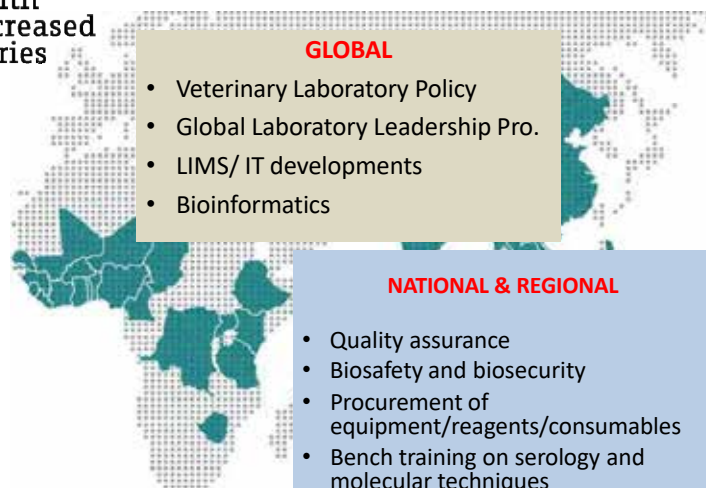
\* Current FAO focus: 2017 - 2021



## Laboratory Capacity Building GHSA & Emerging Pandemic Threats (EPT)

Animal health  
capacity increased  
in 35 countries

Bangladesh  
 Benin  
 Bhutan  
 Burkina Faso  
 Cambodia  
 Cameroon  
 Chad  
 China  
 Côte d'Ivoire  
 Democratic Republic of the Congo  
 Egypt  
 Ethiopia  
 Ghana  
 Guinea  
 India  
 Indonesia  
 Jordan  
 Kenya  
 Lao People's Democratic Republic  
 Liberia  
 Mali  
 Mongolia  
 Myanmar  
 Nepal  
 Niger  
 Nigeria  
 Philippines  
 Senegal  
 Sierra Leone  
 Thailand  
 Togo  
 United Republic of Tanzania  
 Uganda  
 Viet Nam  
 Zimbabwe



### GLOBAL

- Veterinary Laboratory Policy
- Global Laboratory Leadership Pro.
- LIMS/ IT developments
- Bioinformatics

### NATIONAL & REGIONAL

- Quality assurance
- Biosafety and biosecurity
- Procurement of equipment/reagents/consumables
- Bench training on serology and molecular techniques
- Lab assessment and gap analyses



## EMERGENCY RESPONSE MISSIONS on FMD

### Emergency Management Centre

#### ▪ FMD mission to Zambia (16 – 25 April 2018 )

- Outcome / Active surveillance at diptanks contributed to improving the vaccination programme and planning



#### ▪ FMD mission to Malawi (9 – 13 July 2018)

- Advise on additional mitigation measures (markets, movements, biosecurity, awareness, vaccination)
- Outcome / Development of an action plan

#### ▪ FMD mission to Mauritania (03 – 09 October 2018)

- Assessment of the national epidemiological situation / Development of a control program



## FAO Regional workshop Regional Workshop on FMD and other TADs

Vladimir, Russia, 29-30 November 2017

- Nine countries of Central Asia, Caucasus and Russian Federation
- The objectives:
  - increase networking between the countries and FAO/OIE collaboration/ref centers
  - risk Based approach and how to apply them for domestic and wildlife, outbreak investigations and control
  - gain better knowledge of FMD, LSD and ASF
  - collaboration and share information among countries



### Training on FMD in response to incursion of serotype O for West and Central Africa

February 25-28, 2019

- May- September 2018, wide spread of FMD outbreak
- 137 outbreaks report in 11 countries. Topotype O EA-3
- Affecting cattle, sheep, goats, pigs with high mortality in young animals

#### Training objectives:

- update on the FMD situation in the region;
- assist countries in the design of national surveillance plans and prepare risk assessment plan (RAP);
- training on how to conduct a field investigation, collect and preserve dx samples;
- bench training on FMD diagnosis and sample shipping to the reference centers.



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oie WORLD ORGANIZATION FOR ANIMAL HEALTH  
Observing, assessing, preventing and protecting





eofmd  
European Federation of  
Animal Health



## Follow-up & Recommendations

- **Countries to:**
  - prepare national FMD risk assessment plan (RAP) by 1 June 2019
  - develop their national surveillance plan using the template provided
  - collect available retrospective data on cross-border animal mobility over the past two years
  - forbid the use of antibiotics for treatment of FMD infection
- **Organizations to:**
  - support and reinforce the regional epidemiological and laboratory networks
  - provide technical support on FMD risk assessment & national RAPs
  - assist countries in sample shipments and dx reagents and kits
  - organize a follow-up hands-on train the trainer workshop in 2020
  - bench training especially on rtPCR, and technical advice on laboratory waste management
  - assist countries to conduct FMD socio-economic impact studies
  - eLearning modules on field investigation and farm biosecurity

## Challenges national, regional and global levels

Political will	Resources & skills	Movement control and transparency	Diagnostic capacity & supplies
<p>National priorities may not be the control of FMD</p> <p>Inadequate stakeholders engagement</p>	<p>Shortage of resources at national, regional and international levels</p> <p>Socio-economic, Risk assessment and risk management skills</p>	<p>Cross-border movement control</p> <p>Livestock migration</p> <p>Timely information exchange</p>	<p>Shipment of samples to Ref Labs</p> <p>Virus sequencing</p> <p>Vaccine matching and procurement</p>
			



## Progress Global FMD Control Strategy

- Global FMD control is **feasible** and can be a driver to improve animal health systems, trade, nutrition and economic growth
- **System is established for assessing countries along the PCP**
- **PCP-FMD approach and reinforcement of veterinary systems are gradually gaining acceptance. Seventy nine countries are engaged and closely monitored with notable evidence of advancement**
- **Several countries developed and are implementing RBSPs**
- **A few countries advanced to OIE status**

## Acknowledgments

- AGAH staff, decentralized offices and ECTAD teams
  - VonDobschuetz S., De Battisti C., Lockhart C., Bengoumi M., Rozstalnyy, Bonbon, E.
- OIE HQs and regional and sub regional offices
- EuFMD Secretariat
- Continental-Regional organizations: AU-IBAR, IGAD, EU
- Development partners (DTRA-USA; Italian government)
- Former Members of the FMD WG: Jemi Domenech, Giancarlo Ferrari, Julio Pinto, Peter DeLeeuw, Nadège Leboucq

## Thank you for your attention




# **Appendix 5**

## TAD risks




**Transboundary disease risks in the European Region**  
**Situation report, co-ordination arrangements and priorities for future actions to reduce risk**



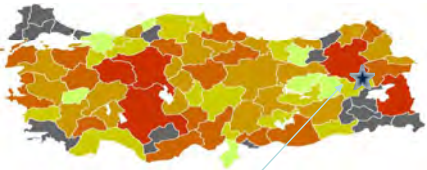
43<sup>rd</sup> EuFMD General Session, 2019

**South East Europe** **Foot and Mouth Disease**


FMD distribution '13-'17 for ME and WE (A-O)



Year 2018

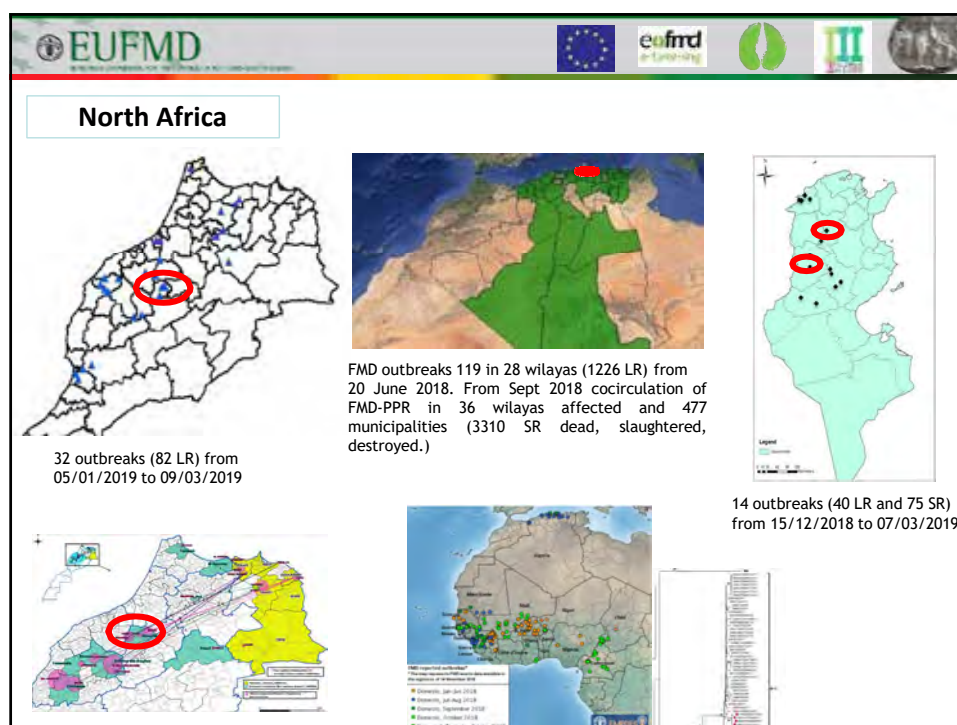
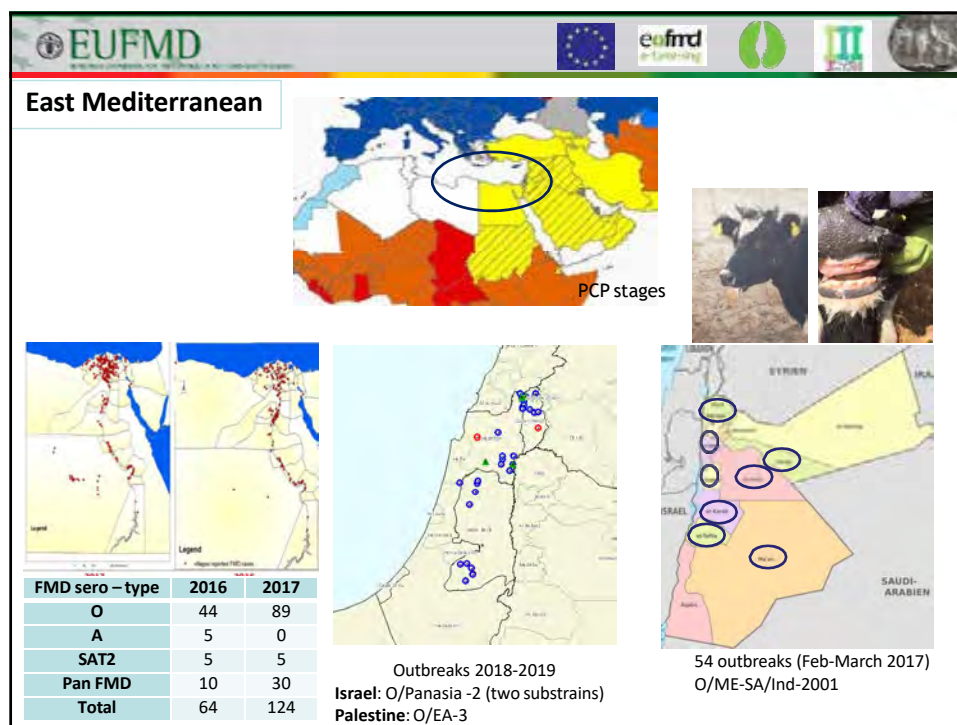


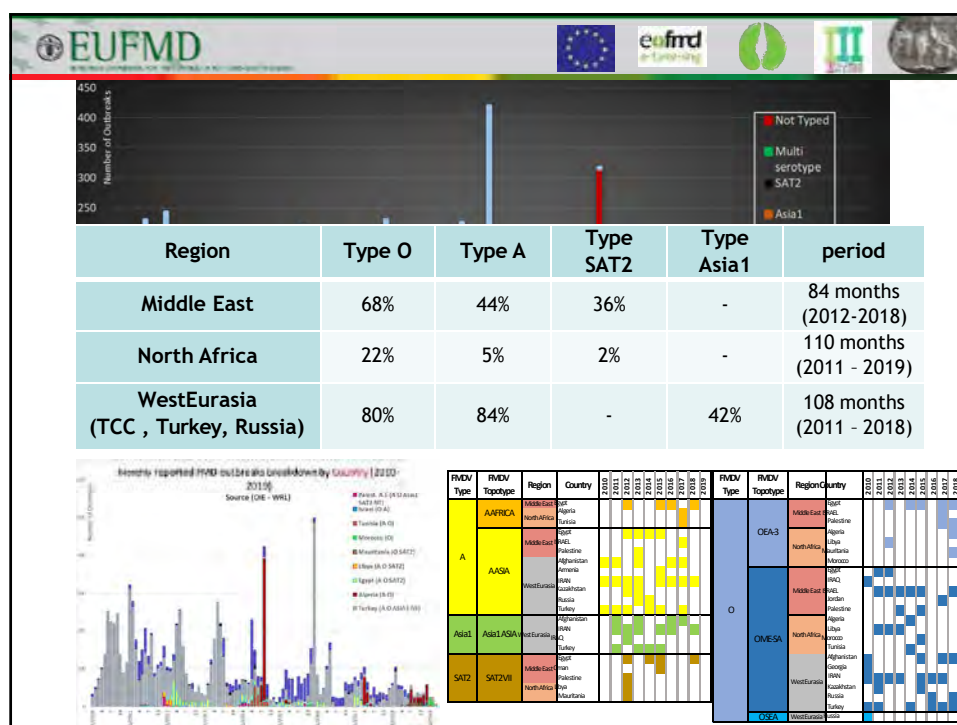
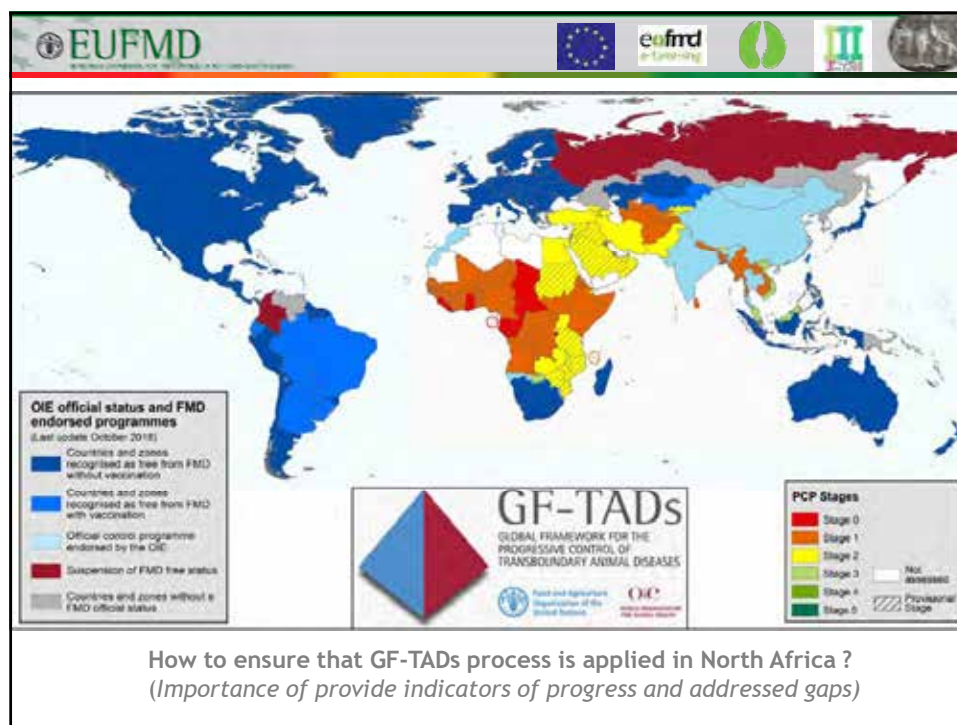
Serotype O :306; Serotype A :1; PCR (+) :75

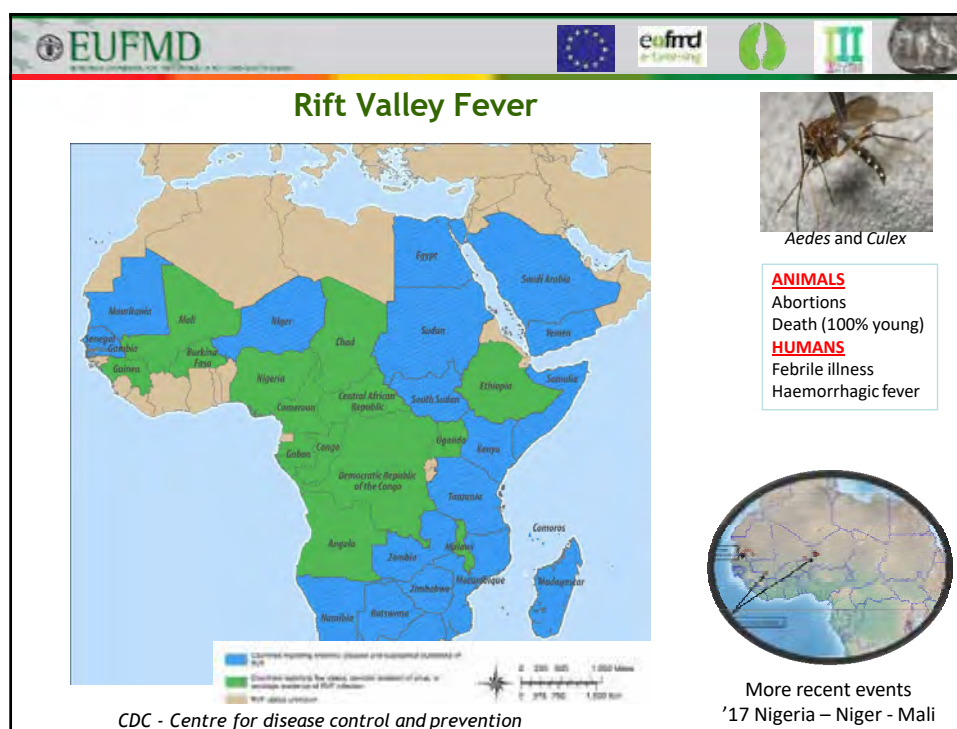
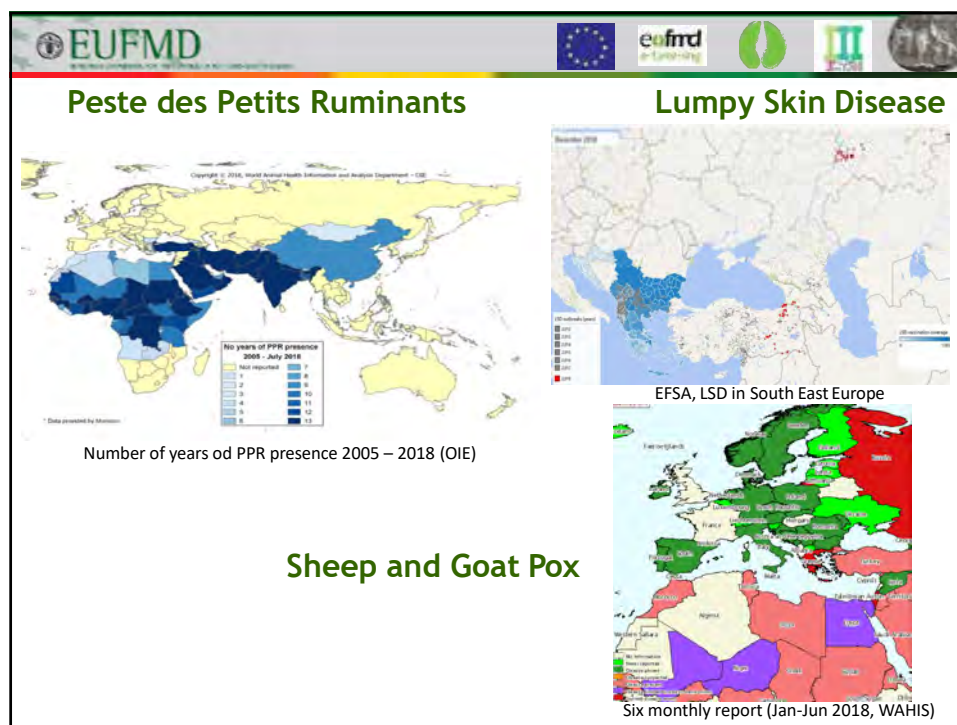


No outbreaks since 2016 (Arm). Candidate zone for PCP 3 and reduced virus circulation

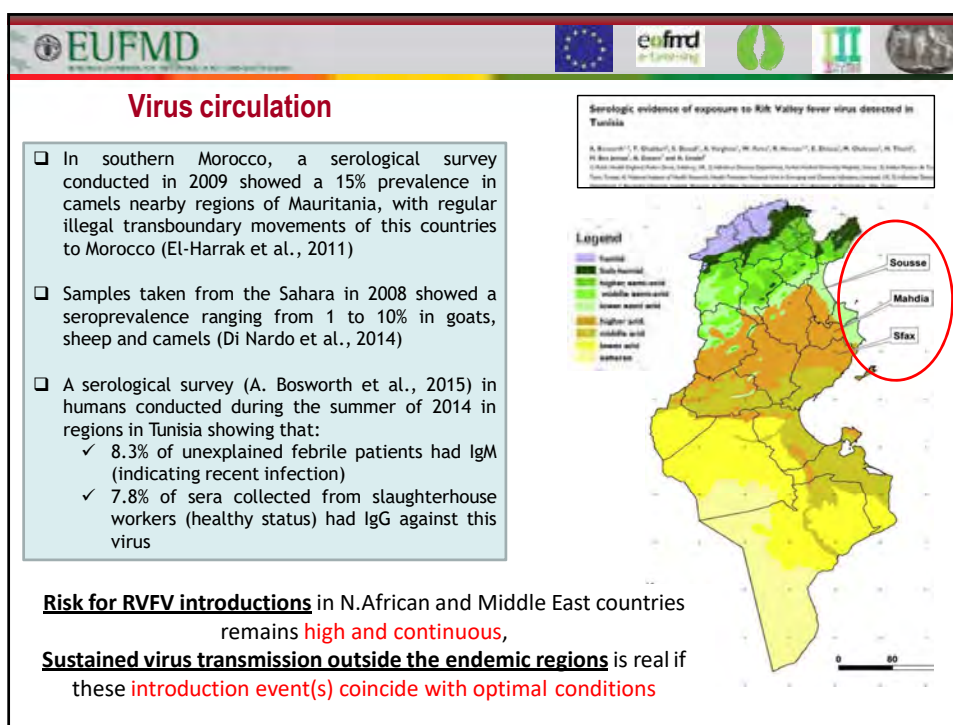
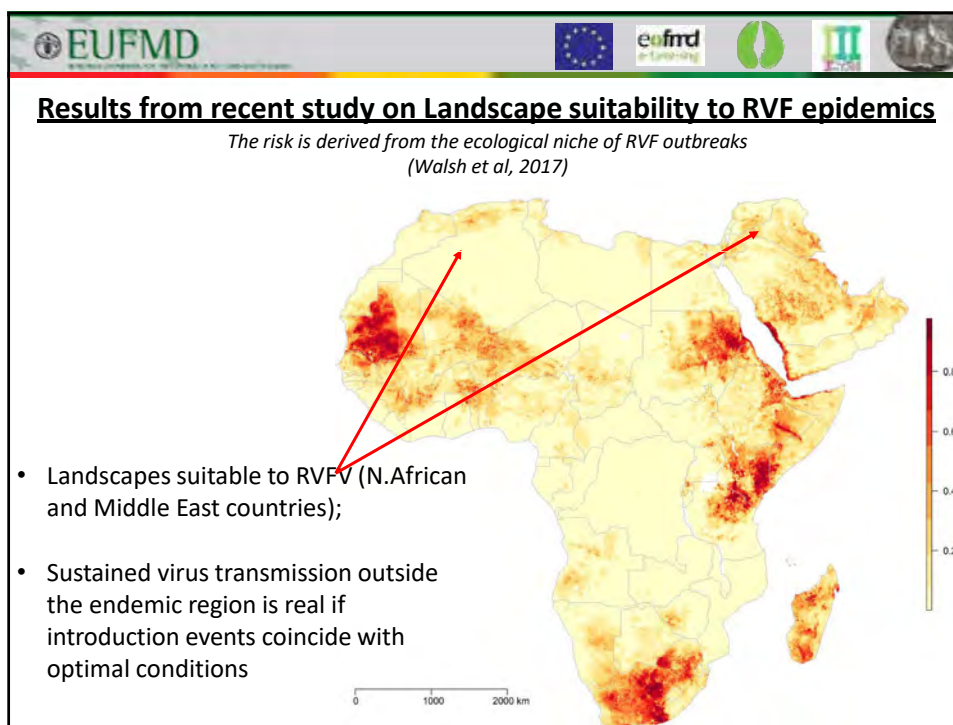
FMD/type A/Asia/IRAN 05/ SIS 13  
 FMD/type A/Asia/G VII  
 FMD/type O/ ME-SA/ panasia 2 / Qom 15  
 FMD/type Asia 1/ Asia/ Sindh 08

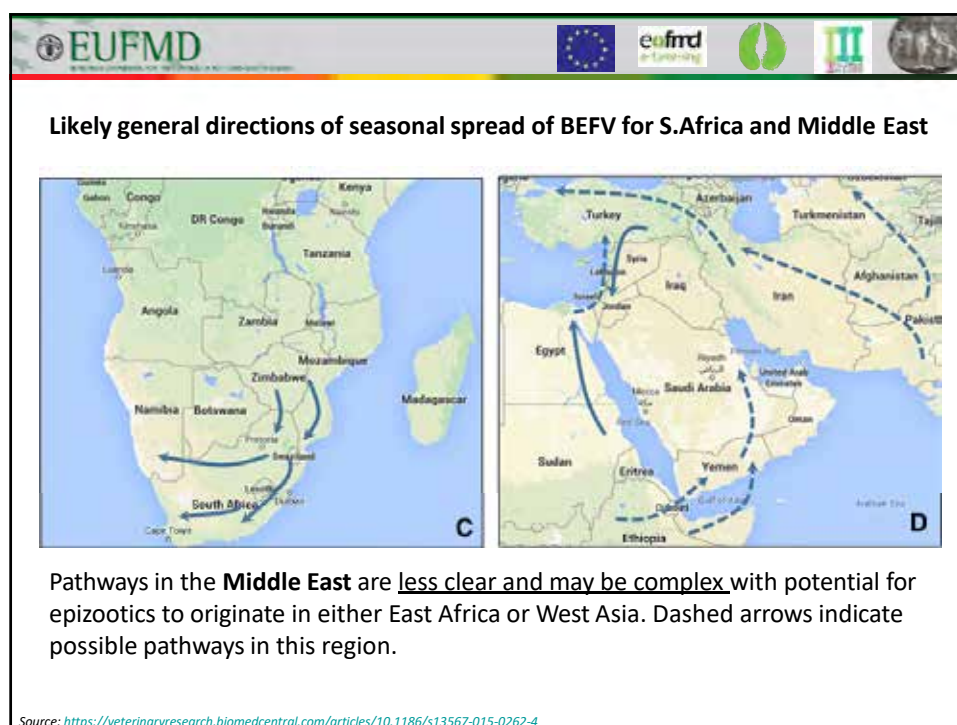
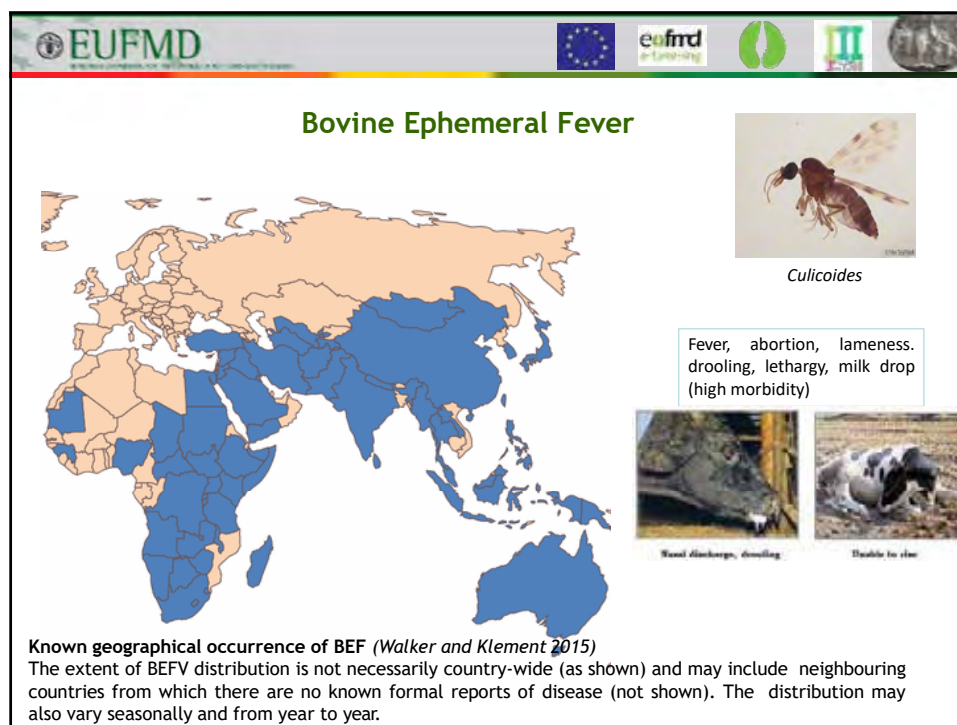




































## THE BEF THREAT TO EUROPE IS REALISTIC

- Big epidemic recorded in Turkey 2012, with outbreaks in many regions (unlike previous Turkey epidemics).
- Frequency of new epidemics increased over the year

**Importance of rapid detection/confirmation if introduced in Europe, as for the RVF**












## Climate change

Recent accelerated climate change has exacerbated existing environmental problems in the Mediterranean Basin that are caused by the combination of changes in land use, increasing pollution and declining biodiversity.

↓



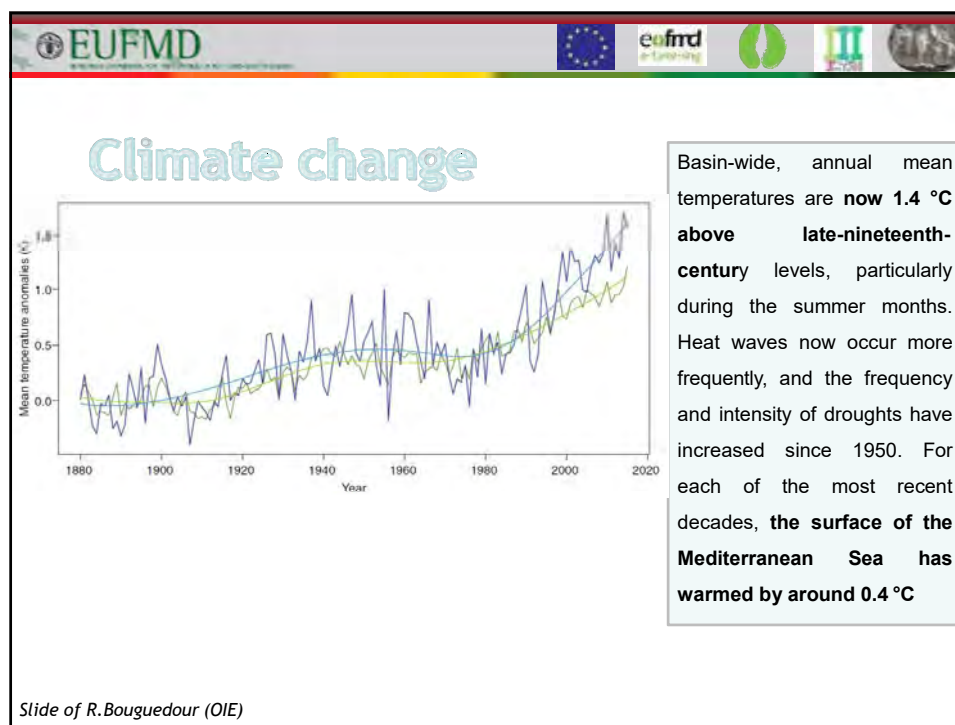
REVIEW ARTICLE

<https://doi.org/10.1016/j.nature.2018.08.001>

### Climate change and interconnected risks to sustainable development in the Mediterranean

Wolfgang Cramer<sup>1\*</sup>, Joël Guiot<sup>2</sup>, Mariana Fader<sup>3</sup>, Joaquim Garrabou<sup>4,5</sup>, Jean-Pierre Gattuso<sup>6,7</sup>, Ana Iglesias<sup>8</sup>, Manfred A. Lange<sup>9</sup>, Piero Lionello<sup>10,11</sup>, Maria Carmen Llasat<sup>12</sup>, Shlomit Paz<sup>13</sup>, Josep Peñuelas<sup>14,15</sup>, Maria Snoussi<sup>16</sup>, Andrea Toret<sup>17</sup>, Michael N. Tsimplis<sup>18</sup> and Elena Xoplaki<sup>19</sup>

Slide of R. Bougedour (OIE)






- ## Priorities to reduce the risk
- ➡ Early Warning Systems for major threats
  - ➡ Regular collection and sharing of relevant risk information including submission of isolates
  - ➡ Improved networking between centres of expertise and Ref Laboratories
  - ➡ Training programme for national staff (epi-lab-PVM-etc.)
  - ➡ Assist definition of integrated control and surveillance
  - ➡ Emergency arrangements for vaccine supply




# **Appendix 6**

## Modelling EuFMD

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**EuFMDiS**  
 European Foot and Mouth Disease Spread model

## Modelling FMD and transboundary diseases at European scale: potential for optimizing control measures at regional and national scales


**Koen Mintiens**  
*The European Commission for the Control of Foot-and-Mouth Disease*

**Marko Potocnik**  
*Administration of the Republic of Slovenia for Food safety, Veterinary sector and Plant protection*

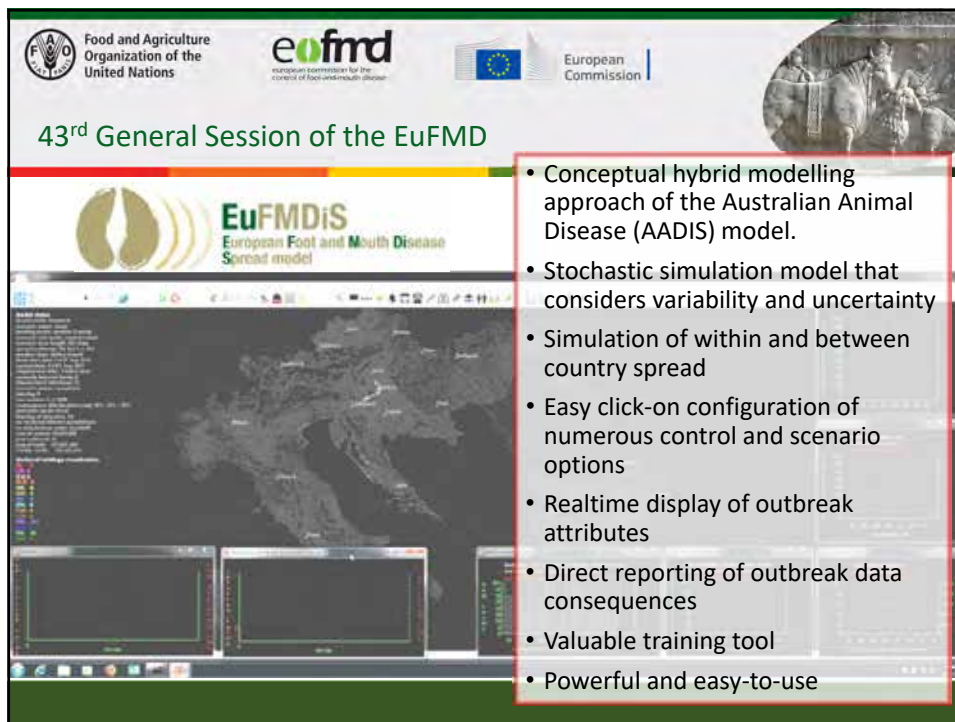
 Food and Agriculture Organization of the United Nations
  eufmd
  European Commission

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## EU remains vulnerable for TAD incursions


MAP 1 | foot-and-mouth disease (FMD) virus serotype world distribution by serotype in 2013-2017 (source: FAO, <https://www.fao.org/world/04/m1>)

- Continuous global threats for TADs
- FMD remains high on list
- High impact in EU open market
- Need for well-developed contingency planning
- Plans and preparedness need to be tested



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**EuFMDiS**  
European Foot and Mouth Disease  
Spread model

- Conceptual hybrid modelling approach of the Australian Animal Disease (AADIS) model.
- Stochastic simulation model that considers variability and uncertainty
- Simulation of within and between country spread
- Easy click-on configuration of numerous control and scenario options
- Realtime display of outbreak attributes
- Direct reporting of outbreak data consequences
- Valuable training tool
- Powerful and easy-to-use



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**EuFMDiS**  
European Foot and Mouth Disease  
Spread model

# Case Study for Slovenia

**Marko Potocnik**  
Administration of the Republic of Slovenia for Food safety,  
Veterinary sector and Plant protection



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Video available on EuFMD You tube channel:  
<https://youtu.be/PeTTs2IOPk4>




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### Upscaling EuFMDiS



- Initially requested by Central European CVO Forum
- Operational in 7 EU pilot MS:
  - IT, AT, SI, HR, HU, RO, BG
- Adaption to additional MS and their settings
  - ES and IE will join soon
- Opportunity for assessing intra-community spread and impact of FMD
- Assess EU-wide impact of control options
  - Movement restrictions
  - Culling policies
  - Vaccination strategies
  - Biosecurity measures
- Incorporate wildlife component
- Extend to other diseases

=> EU-wide participation and engagement



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---

## EuFMDiS Advisory Group



### Strategy and Operational Plan 2019-2023 for EuFMDiS:

- Extend EuFMDiS to a pan-European setting and make it available in additional countries
- Additional developments within the FMD context
- Adding new diseases



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## EuFMDiS Objective


Contribute to Europe-wide systematic support delivered to risk assessment, contingency planning and targeting of interventions through modelling of national and regional control measures for FAST diseases.




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### Extend EuFMDiS to a pan-European setting and make it available in additional countries


- Increase awareness
  - Publication in scientific journals
  - Presentation at conferences and meetings
  - Publish on website
- Validation and independent review
  - Peer review
  - External assessment
  - Extensive testing
- Engage the user community
  - Webinars and discussion forum
  - Users support
  - Proficiency testing
- Pan-European data collection
- User agreement and data sharing license




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### Additional developments within the FMD context

**Priority**

- Additional spread pathways:
  - Common grazing on pastures
  - Markets
- Include locations of rendering plants and slaughterhouses

**Very nice to have**

- Include animal welfare consequences
- Include enhanced biosecurity as control option

**Nice to have**

- Include wildlife component



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## Adding new diseases


- Priority to pan-European extension for FMD
- Vector-borne diseases have higher priority
- Non-vector borne diseases controllable by vaccination
- Identification of diseases is to the General Session



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## Endorsement of the Advisory Group


- Technical experts can be added to provide technical guidance
- Representation of the user group
- Geographical representation, e.g. Eastern Europe, Mediterranean region
- Include experts from industry organisations
- Representation can alter according to the agenda
- Meetings to be planned when necessary



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Commission**



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### Conclusions

- EuFMDiS is a powerful and easy-to-use tool that simulates FMD spread within and between countries.
- EuFMDiS provides high value for EU-wide contingency planning as it models spread, impact, success of control measures, availability of resources at a multi-country level.
- It would be an opportunity to further develop EuFMDiS to model FMD and transboundary diseases at European scale.

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Commission**



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### Thank you

**Meet the EuFMDiS team at the demo stand in the atrium:**

**Tiziano Federici**  
**Enrico Mezzacapo**  
**Maria de la Puente**  
**Koen Mintiens**





# **Appendix 7**

## EuFMDis brochure

## Spread model

## European Foot and Mouth Disease



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United Nations

Vienna

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control of foot-and-mouth disease

Rome

• Zagreb

• Budapest

• Bucharest

• Ljubljana

• Sofia

• Madrid



# **Appendix 8**

## **On-farm biosecurity**

# Biosecurity classification of holdings in Europe: potential gains for the public and private sectors in disease emergencies

Prof. Dr. Jeroen Dewulf

[Jeroen.Dewulf@UGent.be](mailto:Jeroen.Dewulf@UGent.be)

In Collaboration with Dr. Koen Mintiens



## What is biosecurity



## BIOSECURITY

=

The combination of all measures taken to reduce the risk of  
introduction and spread of diseases on herd, region,  
country,... level



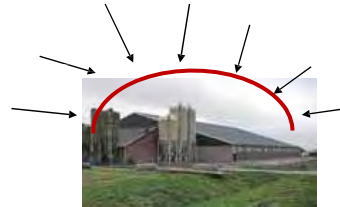


## What is biosecurity

### EXTERNAL BIOSECURITY

= Reduce introduction

- endemic diseases
- "exotic" diseases



### INTERNAL BIOSECURITY

= reduce spread



## Why biosecurity

**BIOSECURITY is (should be) the basis of any disease control program**



## Biosecurity = complex

- No protocol suitable for every herd
- Balance biosecurity – management
- Tool?

→ **Scoring System**



## Biosecurity scoring system and website for pigs, poultry and cattle



## Risk Based Biosecurity Scoring System

### Quantification of biosecurity status



Comparing of scores between different herds

Comparing of scores in time

Taking different risks into account

FREE FOR USE



## Risk Based Biosecurity Scoring System

### Weighted scores

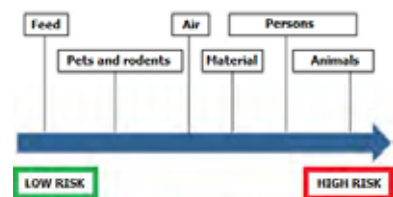


Figure 1: General arrangement of the transmission routes between farms according to their relative importance (adjusted from Boklund, 2008)

Based on scientific research

Risk for transmission: direct vs. indirect contact

Weight factor for each subcategory and each question

FREE FOR USE





## External Biosecurity (50)



Subcategory	Weight factor
Purchase of animals and semen	24
Transport of animals, removal of manure and dead animals	23
Feed, water and equipment supply	15
Personnel and visitors	17
Vermin and bird control	11
Environment and region	10





## Internal Biosecurity (50)



Subcategory	Weight factor
Disease management	10
Farrowing and suckling period	14
Nursery unit	14
Fattening unit	14
Measures between compartments and the use of equipment	28
Cleaning and disinfection	20





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[ABOUT BIOCHECK](#)
[NEWSLETTER](#)
[WORLDWIDE](#)
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[RESEARCH](#)
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### BIOCHECK.UGENT, prevention is better than cure!


**WELCOME!**

Biocheck.Ugent is a risk-based scoring system to evaluate the quality of your on-farm biosecurity in an scientific and independent way.


Fill in the online questionnaire for free and receive valuable feedback about the biosecurity level of your farm. You get a summarizing and personal report with detailed results. These findings can help you to choose your own suitable biosecurity pathway.

Don't hesitate and get started to lift your farm to a higher biosecurity level!


[Start the Biocheck.Ugent!](#)
[How to use Biocheck.Ugent!](#)




The Biocheck.Ugent was filled in 11340 times around the world to evaluate the on-farm biosecurity level!



# 8213



# 2681



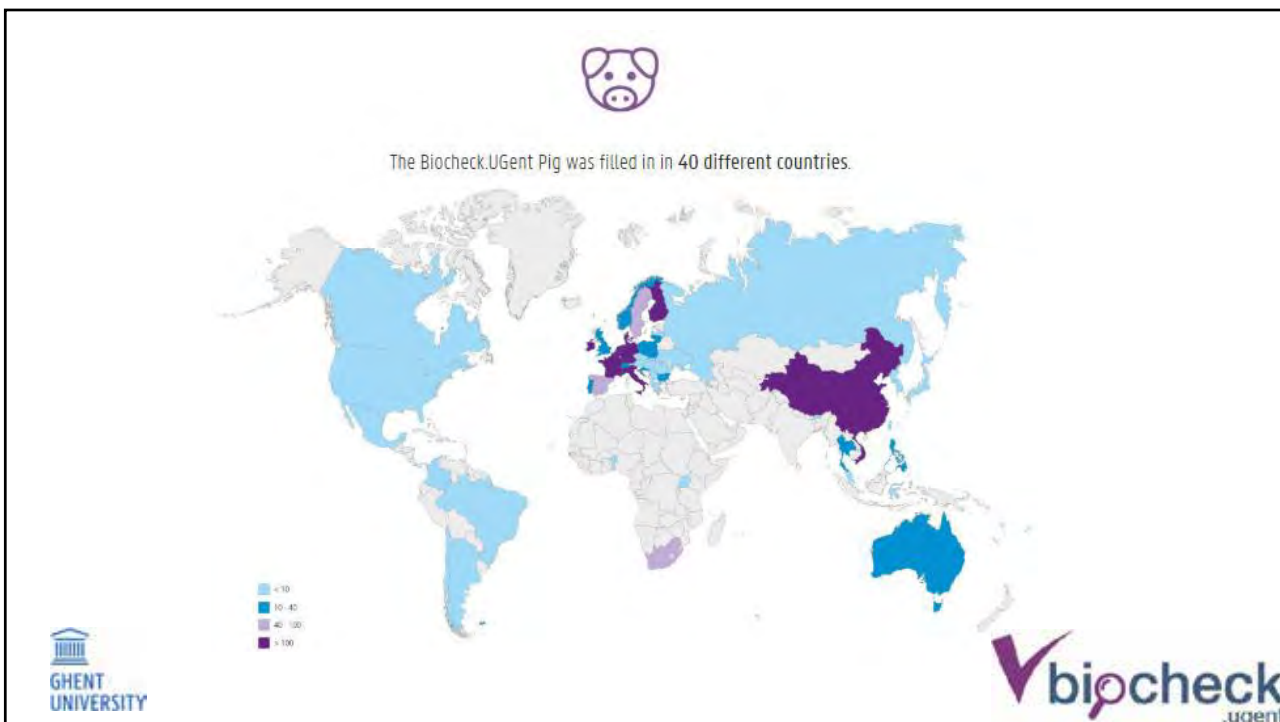
# 446

Agenda

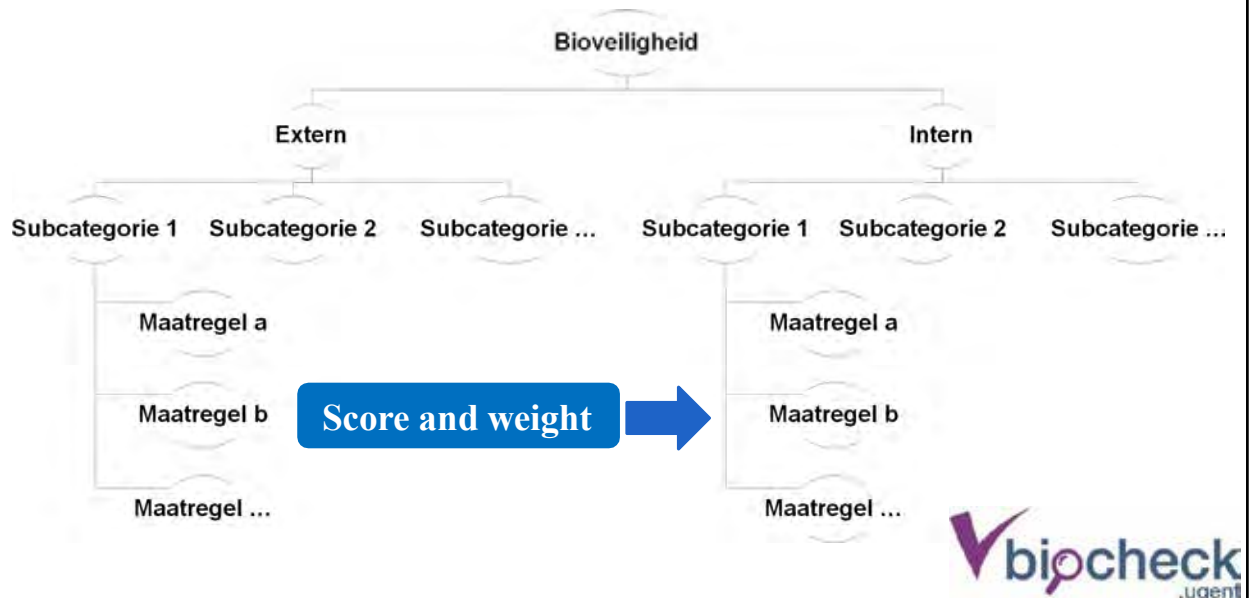
20-11-2018  
New presentation available about the Biocheck.Ugent tool!

"Biosecurity in animal production and veterinary medicine (from principles to practice)" now available for purchase!

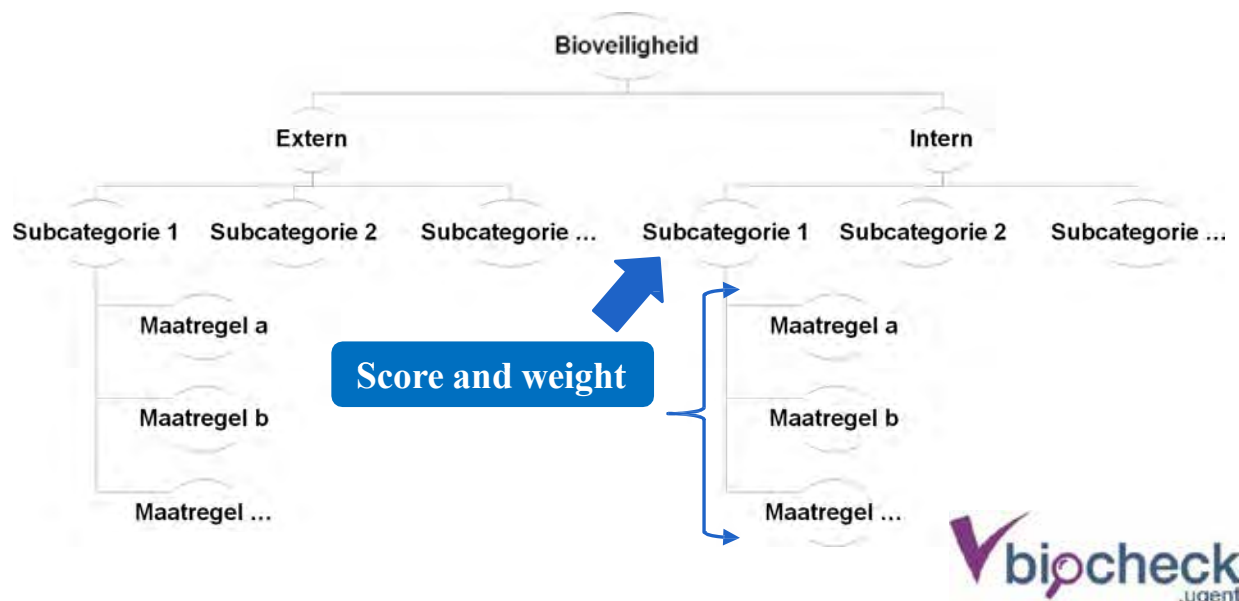
**Ever growing database**



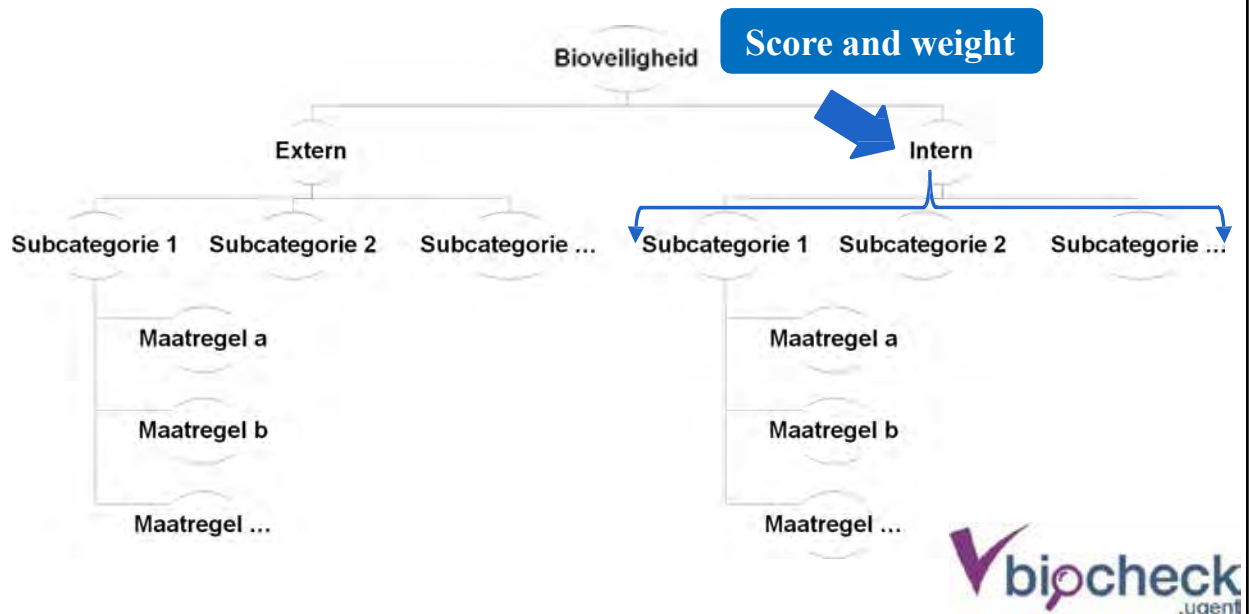
## Design scoring system



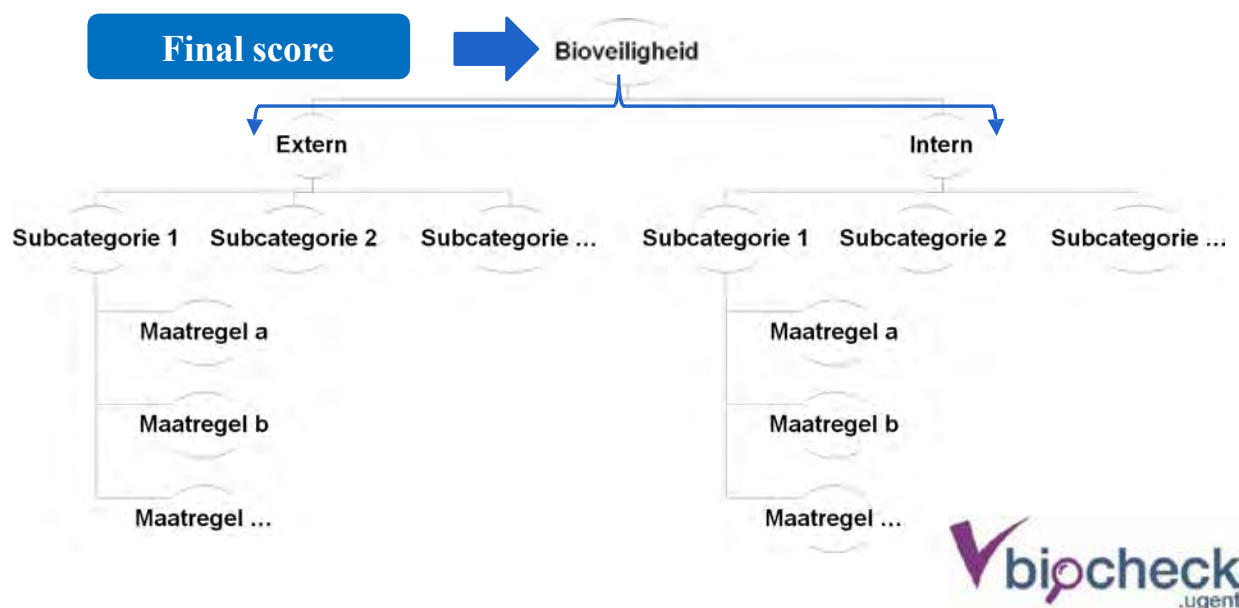
## Design scoring system



## Design scoring system

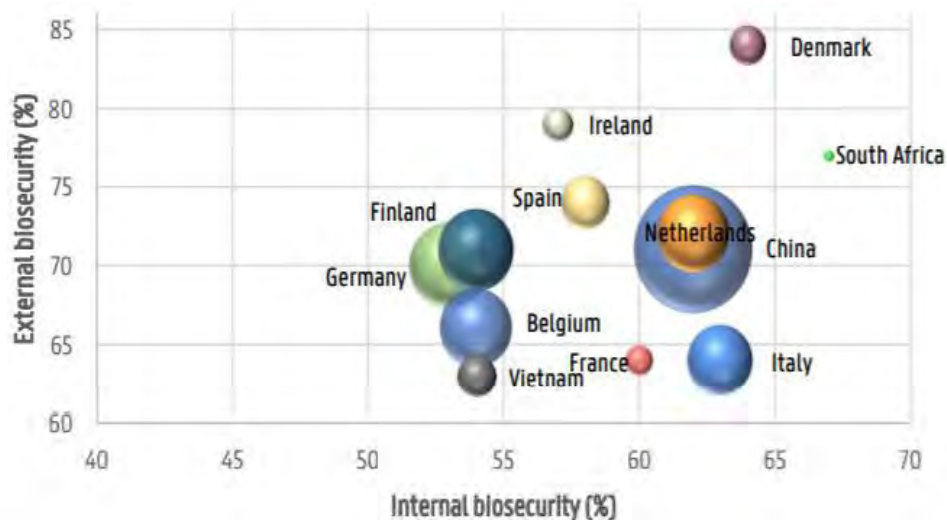


## Design scoring system

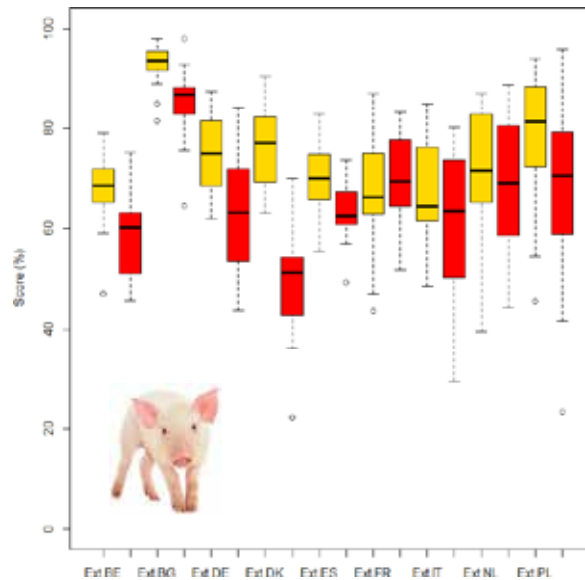


Nr	Description	Score	Country average
<i>External biosecurity</i>			
A	<u>Purchase of animals and semen</u>	56 %	89 %
B	<u>Transport of animals, removal of manure and dead animals</u>	57 %	70 %
C	<u>Feed, water and equipment supply</u>	87 %	39 %
D	<u>Personnel and visitors</u>	78 %	64 %
E	<u>Vermin and bird control</u>	60 %	63 %
F	<u>Environment and region</u>	30 %	52 %
<b>Subtotal External biosecurity:</b>		<b>62 %</b>	<b>66 %</b>
<i>Internal biosecurity</i>			
A	<u>Disease management</u>	60 %	58 %
B	<u>Farrowing and suckling period</u>	79 %	80 %
C	<u>Nursery unit</u>	88 %	65 %
D	<u>Fattening unit</u>	43 %	72 %
E	<u>Measures between compartments and the use of equipment</u>	68 %	44 %
F	<u>Cleaning and disinfection</u>	95 %	48 %
<b>Subtotal Internal biosecurity:</b>		<b>73 %</b>	<b>55 %</b>
<b>Total:</b>		<b>68 %</b>	<b>61 %</b>

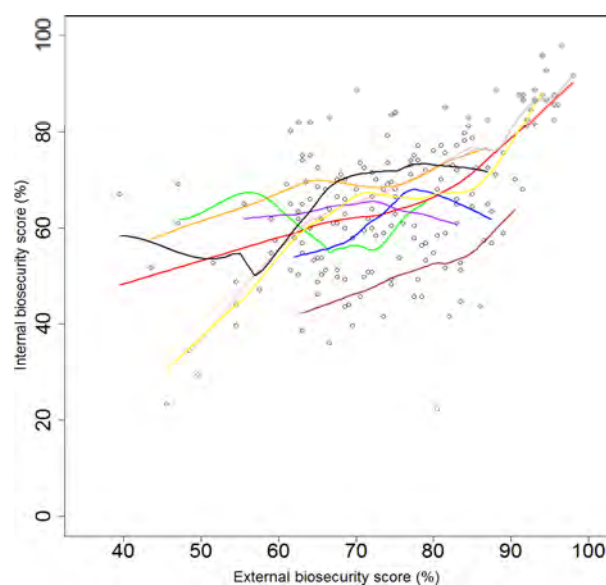
N/A = Not applicable



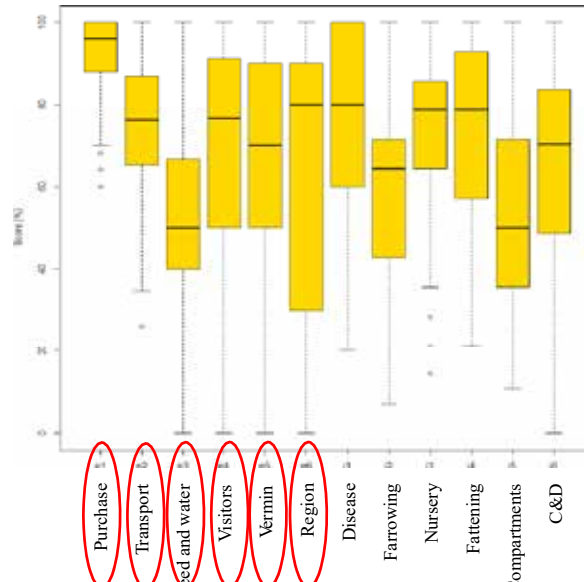
## Country-level comparison of external and internal biosecurity



## Country-level comparison of external and internal biosecurity



## Overview per subcategory



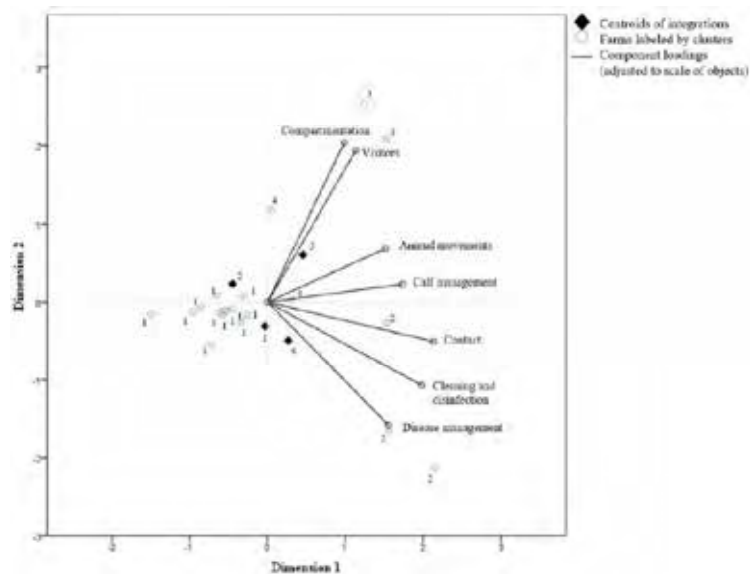
## FMD specific scoring system

Disease	Species affected and asymptomatic carriers				Direct contact			Indirect contact											References			
	Zoonotic	Other reservoirs	Asymptomatic carriers	Wild life reservoir	Animal to animal	Transplacenta	Venereal diseases	General	People	Animals	Rodents	Fomites	Syringes/needles	Ingestion		Inhalation				Manure	Vector	
														Feed	Water	General	Droplet	Aerosol				
Enterotoxemia ( <i>Clostridium</i> spp.)		Humans	X	X	X			X	X	X	X	X		X	X					X		[215-225]
Foot and Mouth disease		Cloven-hooved livestock, wildlife	X	X	X			X	X	X	X	X	X	X		X			X			[24, 226-232]
Giardiasis	X	Mammals	X	X	X			X	X	X	X	X		X	X					X		[168, 173, 233]
Infectious Bovine Keratoconjunctivitis			X		X			X	X	X		X									X	[234-244]
Infectious Bovine Rhinotracheitis (IBR)			X		X	X	X	X	X			X				X			X			[48, 65, 68, 120, 245-260]
Interdigital infections		All			X			X						X								[23]
Intestinal parasites	X	Ruminants	X	X				X	X	X		X		X	X					X	X	[269-291]
Leptospirosis	X	Mammals			X		X	X				X		X	X	X				X		[4, 292]
Lice and ectoparasites	X				X			X		X	X	X										[293-308]
Listeriosis	X	Mammals, birds	X	X	X	X		X	X	X	X	X		X								[3]

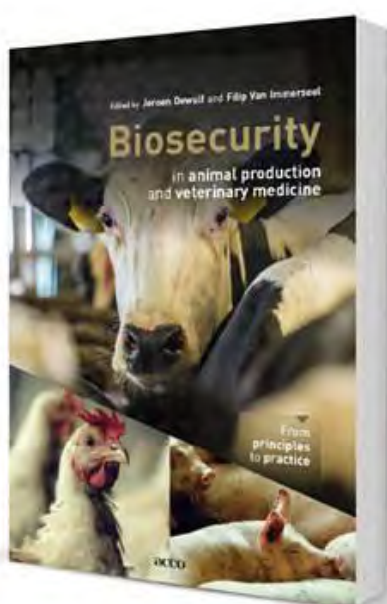




## Categorical Principal component analysis



23



- Benelux: [www.acco.be/biosecurity](http://www.acco.be/biosecurity)
- Worldwide: [www.bol.com](http://www.bol.com)
- Worldwide: [www.amazon.com](http://www.amazon.com)
- Or contact us at contact us [veterinary@acco.be](mailto:veterinary@acco.be)



# **Appendix 9**

## Get prepared



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## Technical Item 3

### How prepared are we? Towards a framework for better planning and testing of emergency preparedness

**Sally Gaynor**  
Emergency Preparedness Officer, EuFMD



43<sup>rd</sup> General Session of the EuFMD Rome 17-18 April 2019



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- Review of GET Prepared concept
- Previous Concept Document
  - Pathway to improve preparedness
  - Multi year preparedness cycle
  - Testing contingency plans using simulation exercises
  - Identifying lessons (gaps)
  - Action plan to improve
  - Tracking improvements
  - Exercises in 3 pilot countries in the Balkans


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- How can we help member countries to improve?
  - FMD specific tools developed by EuFMD e.g. training, e-learning, videos, guidelines, EuFMDis
  - Wealth of experience in member countries - in particular those that have experienced outbreaks of various diseases in recent years
  - How do we access this?

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- DG SANTE Directorate F - SANTE.F2 identifies gaps in preparedness and good practices during audits on contingency planning and disease control
- Limited opportunities to share these e.g.
  - Reports on study visits, BTSF, contingency planning workshops 2013-2015
- Not remit of Directorate F or G
- No single platform for sharing materials

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- Discussions with SANTE.F2 have been positive towards a collaboration with EuFMD to:
  - contribute to webinars on gaps in preparedness
  - develop criteria for good practice
  
- EuFMD will follow up on examples of good practices identified by SANTE.F2, through the member country focal points


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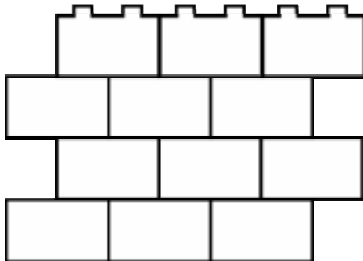
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- Visualisation of the concept
  - Each component of emergency preparedness is a brick in a wall
  - The wall is to give the idea of building preparedness
  - Bricks are lego-style - indicating that the building process is continuous




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- The layers




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- The foundations
- The 3 epidemiological phases – alert, emergency, restoration
  - In line with the ongoing review of the FAO Good Emergency Management Practices
- Different colours for the phases - green, orange, red and grey




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- Each phase could have multiple layers
- Each layer can include complementary components e.g.
  - Alert phase:
    - **Suspect investigation** (personal biosecurity, epidemiological investigation, clinical examination and sampling)
  - Emergency phase:
    - **Infected premises** (valuation, killing, disposal, cleaning and disinfection, and restocking)
    - **Outbreak management** (Central Decision Making Unit, NDCC, LDCC, Expert Groups)
    - **The 3 Cs** (Cooperation, Coordination, Communication)



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- What is/will be in the toolbox?
 
- For each component there will be 3 categories:
  - self-assessment (e.g. questionnaire, checklist)
  - assessment of resource requirements (e.g. resource calculator, EuFMDis)
  - examples of good practice (e.g. videos, guidelines, templates, SOPs)
- Tools will be mixture of those developed/approved by EuFMD and by EU Member States

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Restoration		Vaccination exit strategy	Recovery of free status	Psychological support		
The 3 Cs		Coordination with operational partners	Cooperation with stakeholders	Communication		
Support functions		Legal	Financial	Purchases, tenders, contracts		
Resources		Personnel	Equipment	Facilities		
Emergency management		Central Decision-Making Unit	NDCC	LDCC	Expert groups	
Additional measures		Vaccination	Preventive culling	Welfare slaughter		
Zones		Control zones	Checkpoints	Zone Surveillance	Movement controls	
Infected premises	Valuation	Killing	Disposal	Cleaning & disinfection	Re-stocking	
Suspect investigation	Personal biosecurity	Clinical examination	Sampling	Epidemiological investigation		
Early detection	Risk assessment	Surveillance	Awareness	Farm biosecurity		
Foundations	Training	Simulation exercises	EuFMDis			
Foundations	Outline contingency plan	Outline operations manual	Format for SOPs	Self-assessment tool		
Foundations 43 <sup>rd</sup> General Session of the EuFMD	Identification & Registration	Value chain analysis	Laboratory	Prevention		

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Killing exercises are still a fundamental component

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- Dynamic process

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- Initial focus
  - Components with no tools currently and which have greatest impact on effectiveness of disease control (killing, disposal and scaling up of resources)


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- What are the benefits?
- Tools can be used not only by EU Member States, but also other member countries, in particular those following EU rules
- Many tools could be used for, or adapted for, other Transboundary Animal Diseases
- Benefits to EuFMD - linking and improved use of EuFMD tools e.g. Knowledge Bank, Self-Assessment Tool and EuFMDis

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- What are the next steps?
- Between now and the commencement of the new work plan
- Communication and consultation with the Contingency Planning Network

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### Emergency Preparedness

#### GET PREPARED TOOL BOX


A set of existing tools and new tools for assessing gaps in preparedness and resource requirements

A collaboration to share good practices


A tool box to assist country contingency planners

Learn more  
[eufmd.info](http://eufmd.info)


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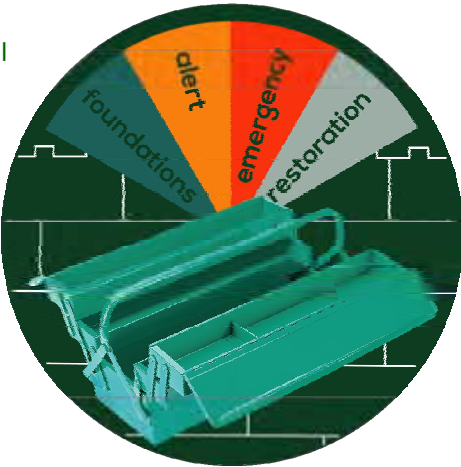
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- Your collaboration is essential



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# **Appendix 10**

## Early warning

## Appendix 10. Early warning- Dr Rosso

**Early warning and better preparedness  
for FAST diseases in the European  
neighbourhood**

**The case for an integrated approach**



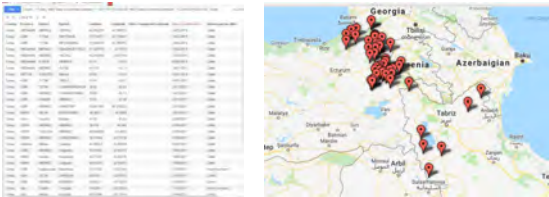
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**Early warning** can be defined as a system of data collection and analysis to monitor the occurrence of a specific event in order to provide timely notice when an emergency threatens and trigger early and appropriate response

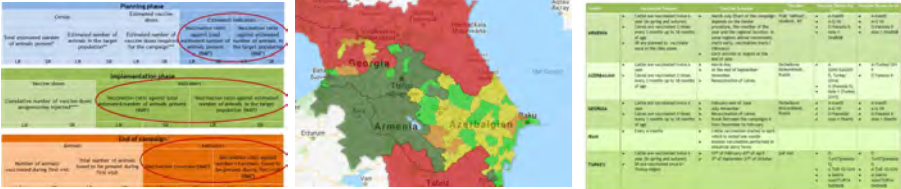
- ➡ Systematic collection and analysis of information
  - ➡ Regular monitoring
    - ➡ Timely information sharing

**Regional cooperation between Transcaucasia and neighbouring countries (statement of intention)**

Improved system for **immediate and monthly reporting** of the FMD outbreaks



Monthly reporting of level of implementation of the vaccination programmes

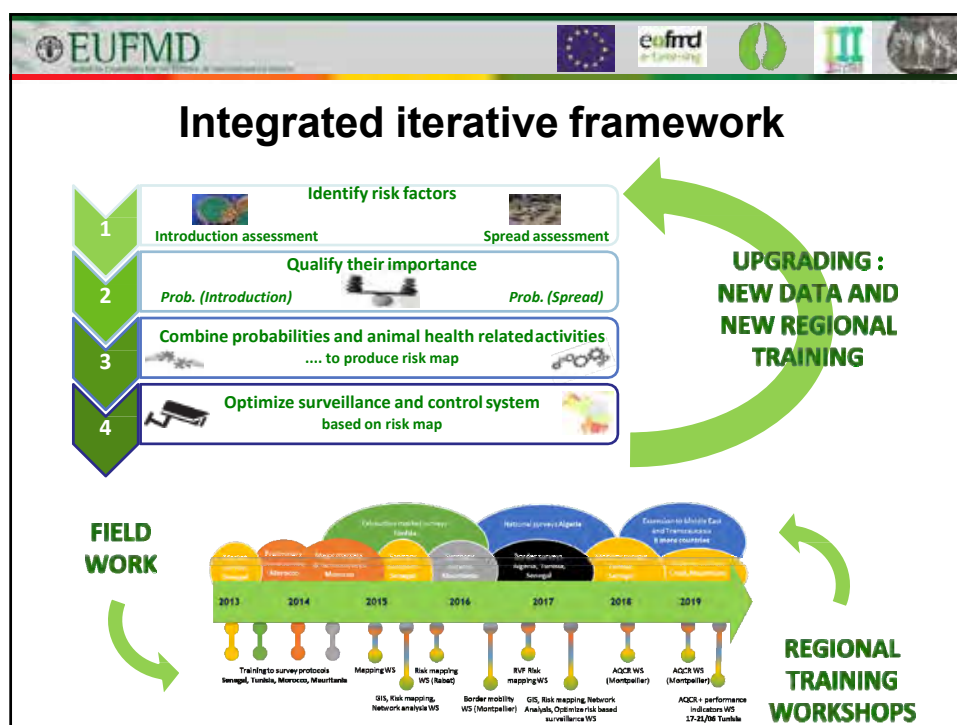
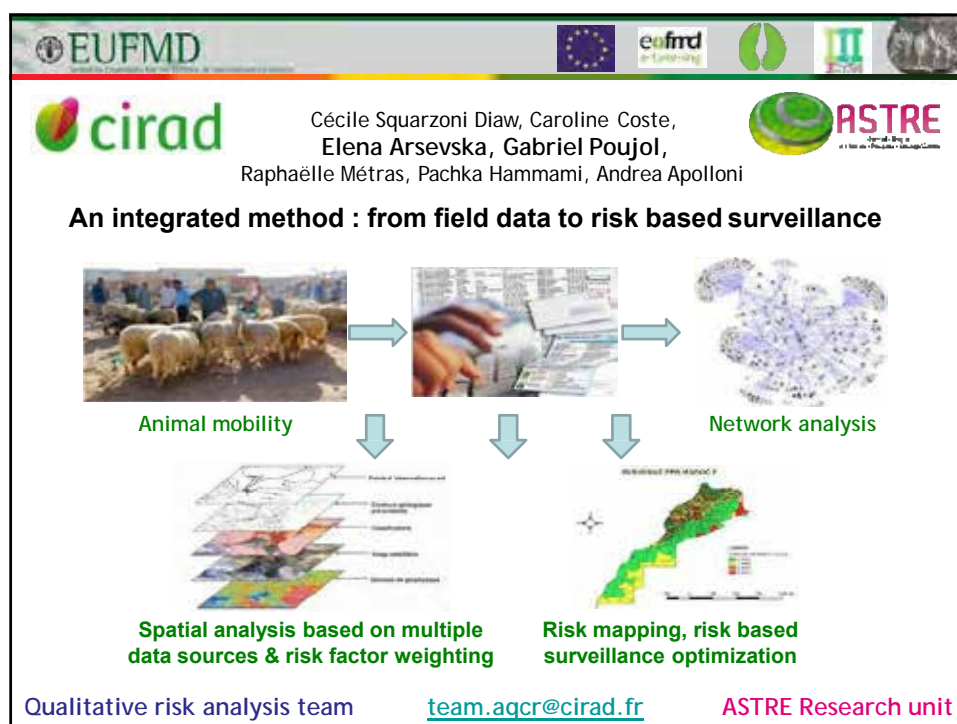


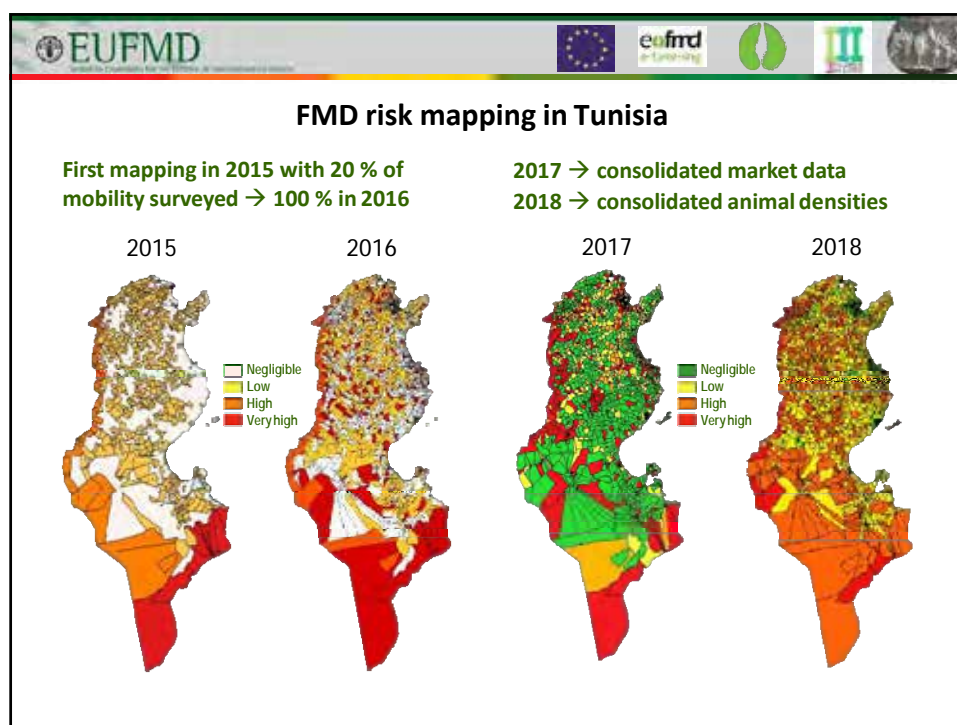
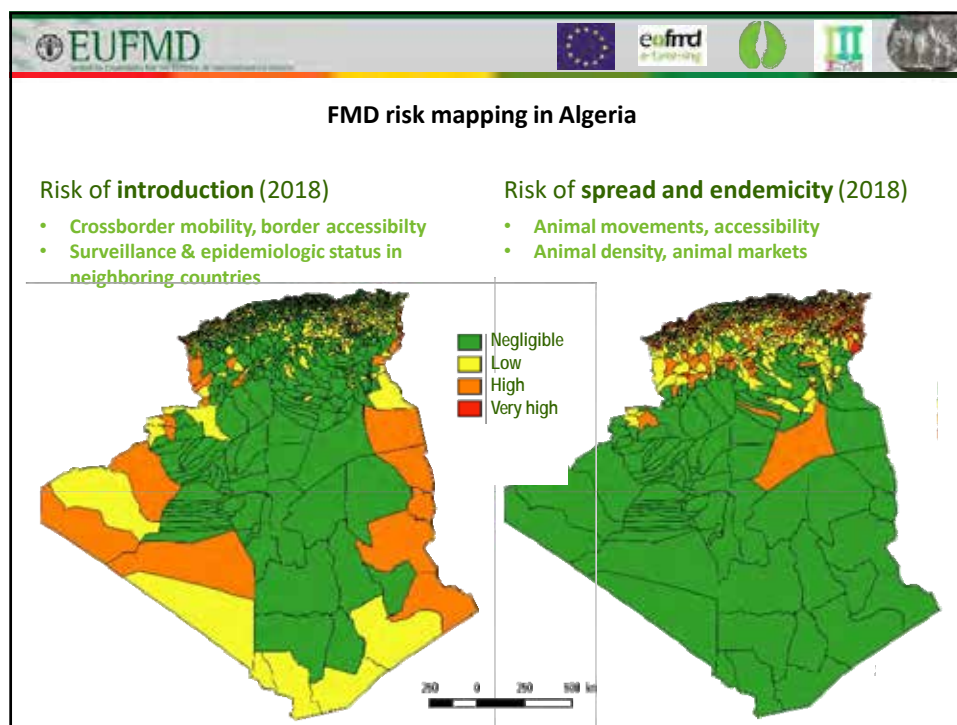
**Partnerships for integrated approach**

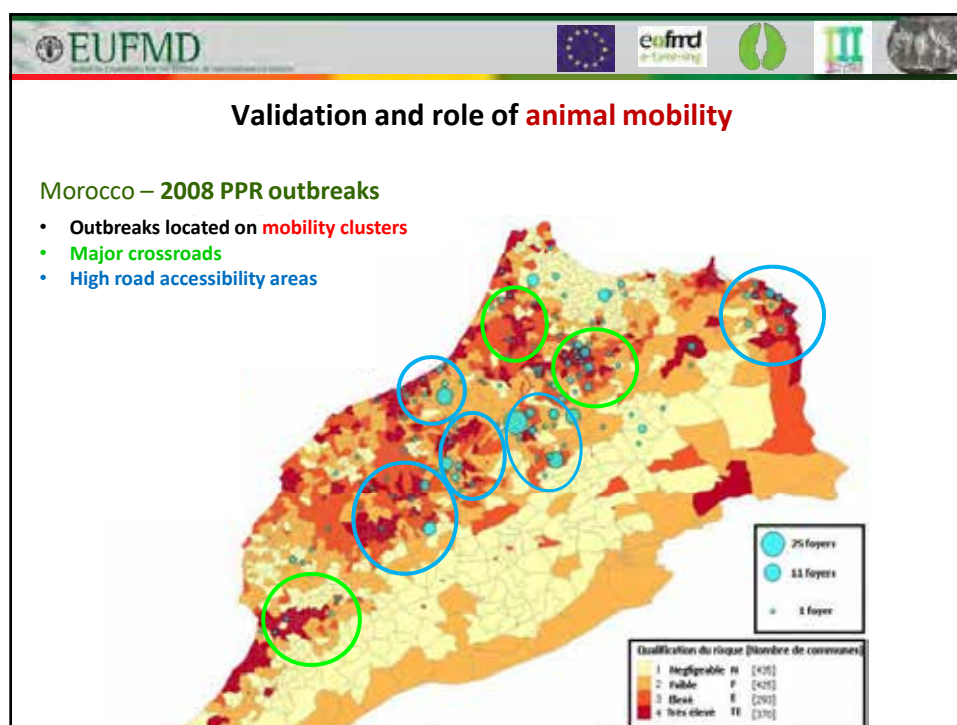
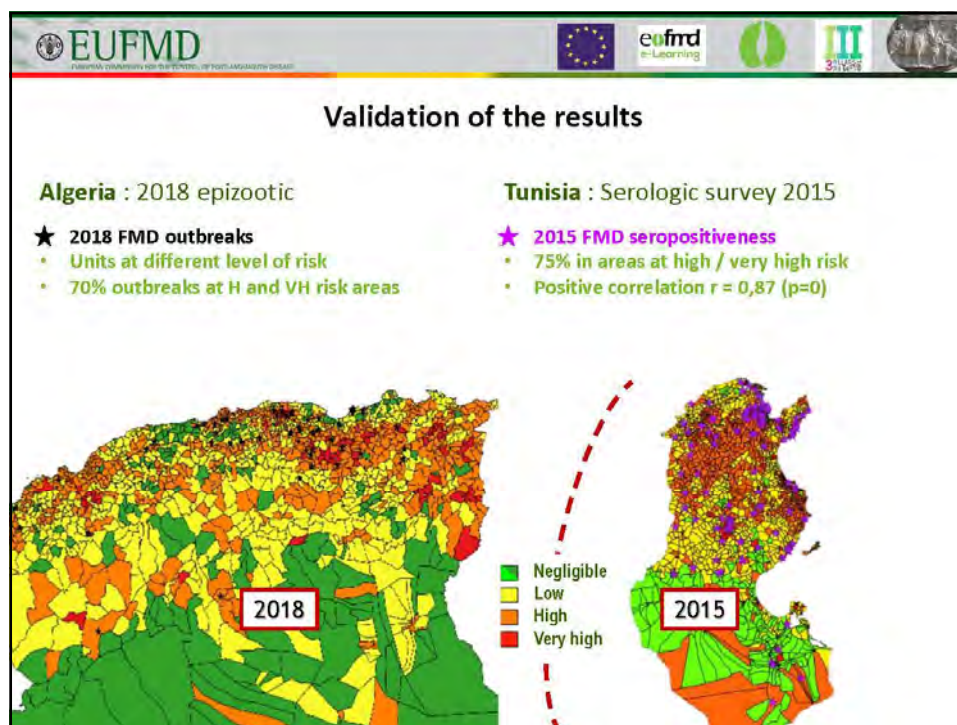
 Improving country capacity to design and implement Risk Based Strategic Plan for FMD control and monitor and evaluate the implementation of control activities under stages 2 and 3 of the Progressive Control Pathway (PCP);

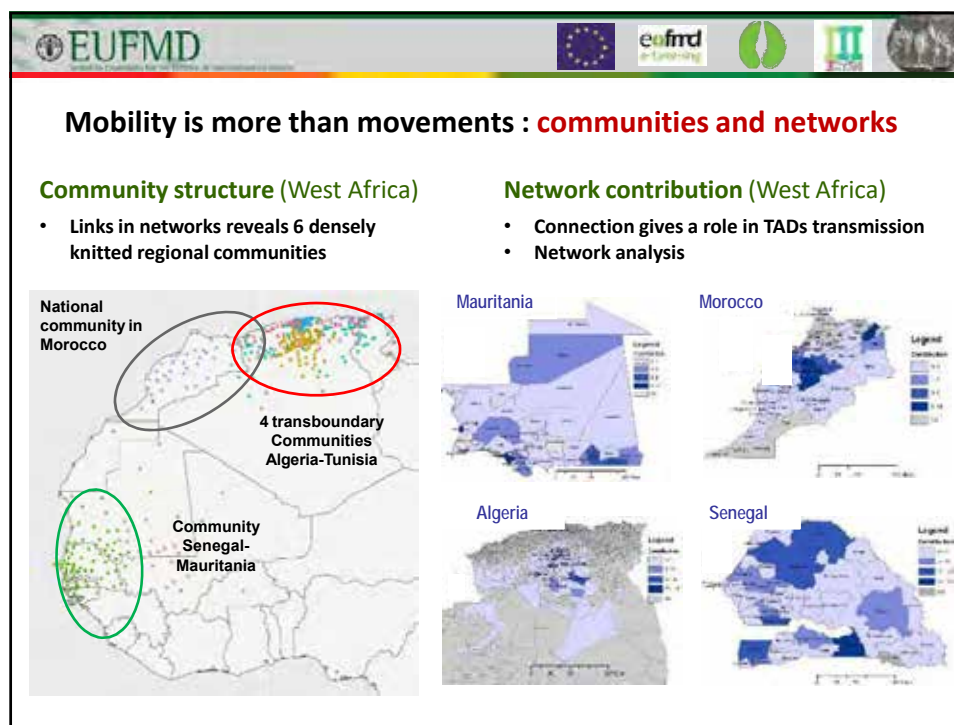
 Improving the capacity of veterinary services of Algeria, Chad, Mauritania, Morocco, Senegal, and Tunisia (+ Libya, Egypt, Sudan) on development of risk information and mapping tools and update surveillance protocols











**EU FMD**

**Considerations**

Collegial (net)work within a panel of experts (national, regional, international)

Capacity building (toolkits) and national expertise consolidated

Multiple operational applications

Unpublished data on animal mobility and diseases

Optimization of targeted and cost-benefit surveillance and control protocols

Essential regional approach and regional risk assessment

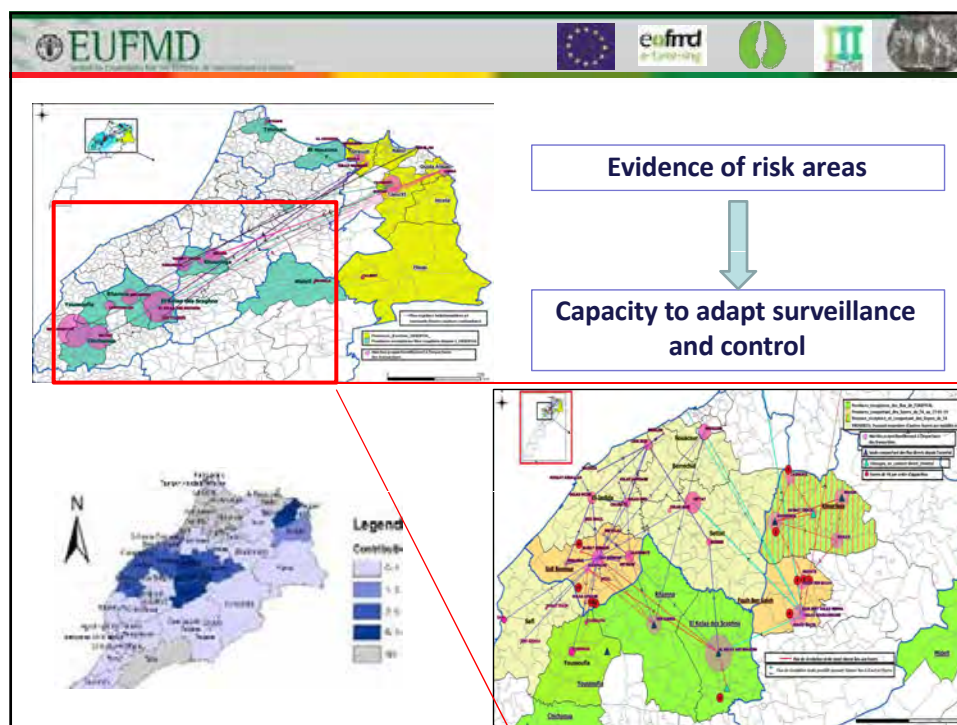
Geographic enlargement from 3 countries in 2013 to 14 in 2019

One health, general approach (methods & tools)

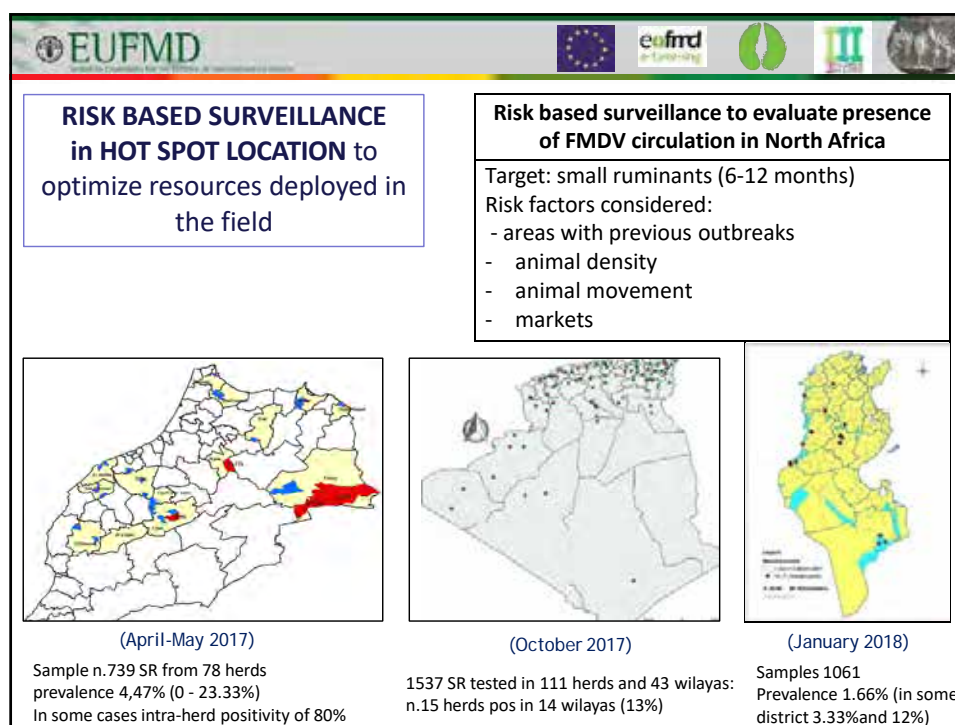
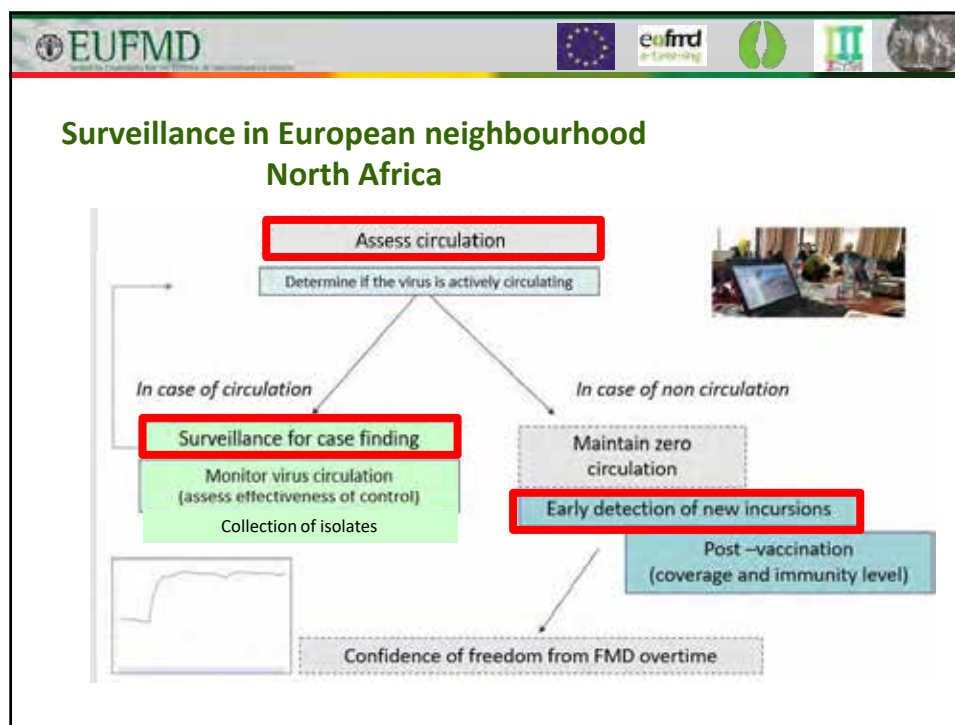
Perspectives

- Regional participatory sessions to extend to new countries
- New tools are developed (toolkit, portal, logbook,...)
- Transposable methodology (other diseases and territories)









<b>Regular monitoring</b>	
<b>Active surveillance</b>	
<b>Advantages :</b> Targeted to sample of population Higher sensitivity (especially in vaccinated population)	<b>Disadvantages:</b> More difficult and expensive Need to optimize resources (priority areas) Need use reliable tests (high Se and Sp)
<b>Primary surveillance (farmer reporting)</b>	
<b>Advantages:</b> Complete coverage of population Continuous	<b>Disadvantages:</b> Difficult to make farmers report diseases
Requirements for early detection and case finding	



**Participation of stakeholders in the assessment of primary surveillance**




1. An infected animal shows clinical signs of disease
2. The farmer (keeper/herder) notices the signs as abnormal
3. The farmer (keeper/herder) contacts the veterinary services (public or private)
4. The veterinarian visits to examine the animal
5. The attending veterinarian suspects FAST
6. The attending veterinarian sends samples to the laboratory analysis
7. The samples are tested for FAST
8. The laboratory test correctly provides a positive result

Understanding of the social and cultural contexts that affect the distribution and dynamics of diseases

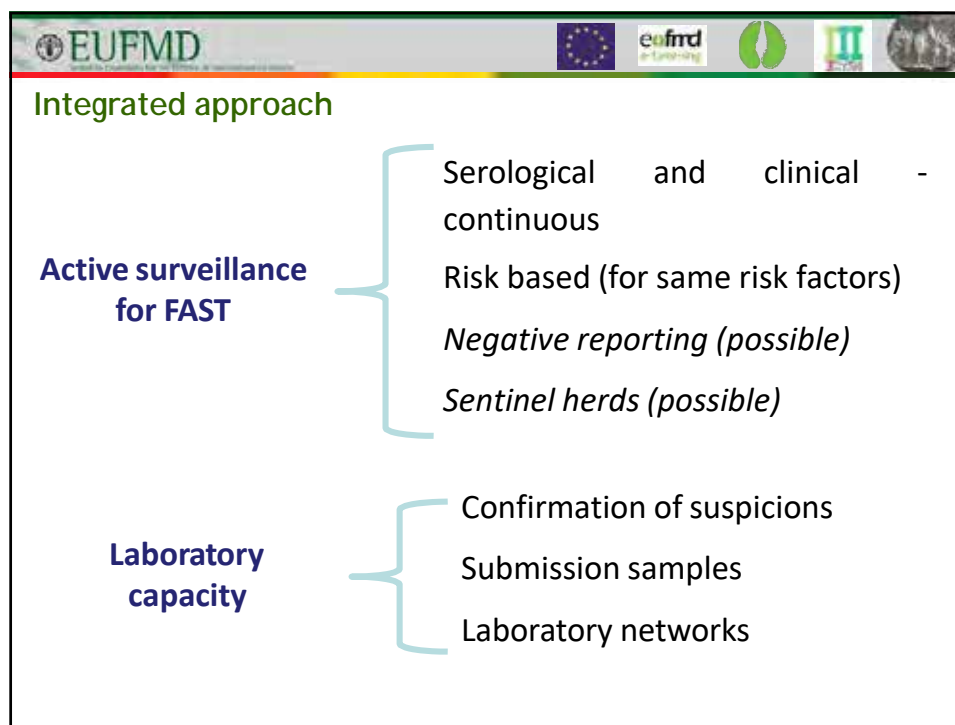
**Integrated approach** allows for more synergies through connecting and integrating different aspects and activities to be the most effective.

**Primary surveillance for FAST** → **Similar signs and symptoms**  
**Same actors/stakeholders**



FMD	RVF	BEF	LSD	SGP	PPR
Fever	Fever	Fever	Fever	Fever	Fever
Depression	Depression	Depression	Depression	Depression	Depression
Vesicles			Vesicles/ulcers		Erosive lesions
Drooling	Drooling	Drooling	Drooling		Drooling
	Nasal discharge	Nasal discharge		Nasal discharge	Nasal discharge
Lameness		Lameness			
Death young	Death young			Death (possible)	Death
Abortion	Abortion	Abortion	Abortion		Abortion
Milk drop	Milk drop	Milk drop			
	Bloody diarrhea		Cutaneous nodules	Papules	Diarrhea





**Timely information sharing**

Different providers (national and international)

Different users with different interests and different risks

The goal is: to provide risk information **in time**, to **different providers** and to **interested users**

The image shows four overlapping screenshots of different information sharing platforms. The top one is 'Epi-Info', the middle one is 'GLEWS', the bottom one is 'Epi-Info', and the bottom right one is a map of Europe with text in French: 'Carte des zones de répartition des souches de la fièvre typhoïde en 2018'.








### Priorities for EWS in European neighbourhood

- ✓ Facilitating the collection of risk information
- ✓ Identification of risk hot spot location
- ✓ Designing continuous surveillance in risk areas
- ✓ Enhance investigation and collection of good samples
- ✓ Supporting laboratory networking and training
- ✓ Facilitation cooperation (lab-epi) between countries
- ✓ Providing regular risk information to risk managers








### Key messages



Collection of risk information



Identification of risk hot spot locations



Surveillance in risk areas



Regular training



Timely info on risk change



Early warning

# **Appendix 11**

## **Team Report –EuFMD**

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# Report of the Executive Committee of the 43<sup>rd</sup> General Session

## 2017-2019

**K.Sumption, J.L.Angot**  
The European Commission for the Control of Foot-and-Mouth Disease



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## Three Pillars: What we have done since the 42<sup>nd</sup> GS

**1,353,859**

Clicks on the e-learning website

**+4000**

Trainees met face to face during our events

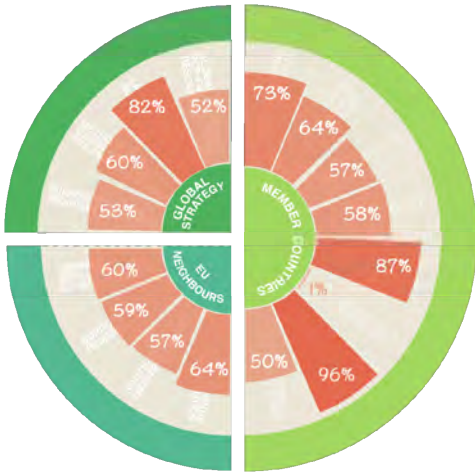
**16** PARTNER INSTITUTIONS

**4148**

Participants accessed the e-learning website since October 2017

**122** EXPERTS ENGAGED

**12** STPs RECRUITED



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## Pillar III



**Nick Lyons**  
EuFMD Pillar III Supervisor  
Research Fellow in Epidemiology  
The Pirbright Institute, UK



*Jenny Maud, Bouda Ahmadi, Cornelis Van Maanen, Etienne Chevanne, Jean-Claude Udahehuka, Mostafa Anower, Willington Bessong-Ojong*

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## Pillar III • our vision


### Promoting the global strategy for FMD control through:

1. Supporting the activities of the GF-TADs FMD Working Group
2. Promoting the use of the Progressive Control Pathway (PCP-FMD)
3. Enhancing global FMD surveillance
4. Improved capacity in endemic areas by providing relevant trainings


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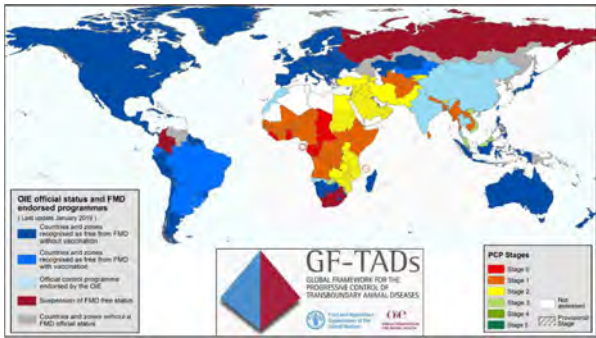


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### Pillar III • 2017-19 Activities


- Development of a new system of **PCP Support Officers (PSOs)** who provide individual country support in PCP advancement




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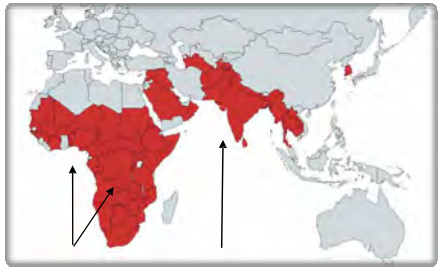


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### Pillar III • 2017-19 Activities




- Enhanced training outreach in FMD outbreak investigation and control** through expanding our network in Africa and Asia and utilizing new approaches to improve access in areas of poor connectivity, such as through establishing networks on WhatsApp.



Pillar III e-learning outreach

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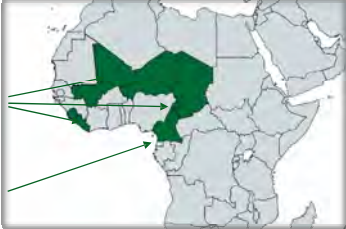
### Pillar III • 2017-19 Activities


- Advancing FMD surveillance in challenging endemic scenarios through supporting the global laboratory network and promoting the use of lateral flow devices and environmental sampling




Lateral flow device deployment

Environmental sampling project





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### Pillar III • 2017-19 Expenditures and Outcomes

**30** Experts trained in PCP-FMD

**2** Road-Map Meetings

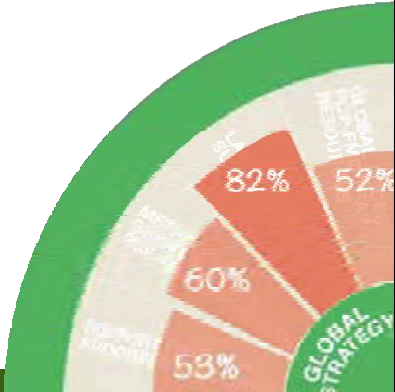
**2** FAO/OIE Laboratory Network meetings

**76** FMD endemic YounWoks participating in e-learning

**4** Letters of Agreement  
Funded under the Pillar III Global Strategy

**+1000** Participants from Pillar III regions enrolled in e-learning courses in the last 3 months

**150** PARTICIPANTS FUNDED to attend the Pillar III events



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### Pillar III & Pillar II

The work done under Pillar III and Pillar II is integrated


- Tools and methodology to assist countries in PCP progression (PSO, Roadmap, workshops, guidelines)
- Laboratory networks and laboratory capacity (PTs, support)
- Vaccine security and quality
- Trainings and e-learning (e.g. socio-economics, value chain, PVM, safe trade)

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# Pillar II



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## 43<sup>rd</sup> General Session of the EuFMD

# Pillar II • our vision

## Reducing neighborhood risk by:

1. Progressing along **the PCP** for FMD control
2. Improving **risk assessment** for better identification of risk of FMD introduction and spread within countries and across borders
3. Enhancing capacity to design and implement **risk based surveillance and control** strategies
4. Improving national and regional capacity for the **management of FMD**



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### Pillar II • 2017-19 Activities

1. Regular support provided to countries through **workshops, training, diagnostic material and backstop support** to assist their progression along the PCP for FMD control






2. Implementation of **animal mobility and qualitative FMD risk mapping** for North Africa and Sahel, Libya- Egypt- Sudan and Trans-Caucasus






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### Pillar II • 2017-19 Activities

3. Assistance provided to **design and implement risk based surveillance** in high-risk areas and in country missions organized to **revise control strategies** according to risk



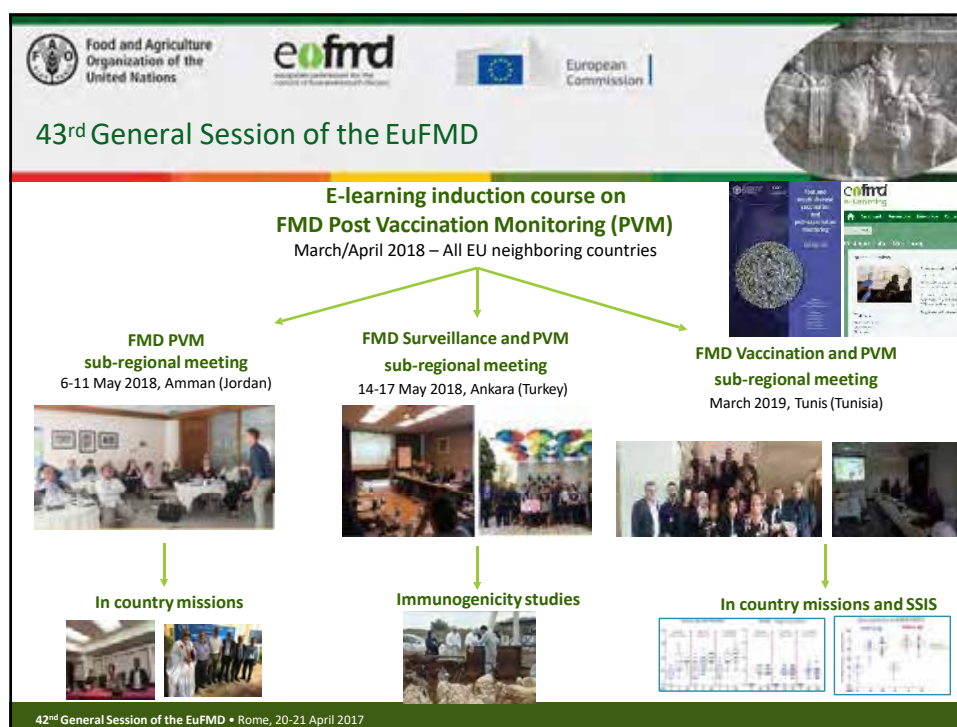



4. Improving **national and regional capacity for the management of FMD** through the development and delivery of training programme for national staff (online courses in **French, Russian, Arabic, Turkish** and **face to face training courses**)






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### Pillar II <> Pillar I

The work done under Pillar II and Pillar I is closely connected

- Improved early warning systems - risk information availability
- Surveillance design (e.g. Thrace)
- Emergency preparedness and contingency planning
- Training and e-learning (e.g. FMD recognition, investigation and control)

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## Pillar I



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## Pillar I • our vision

### Improve Member States preparedness by:

- Providing high quality training, tailored to countries needs
- Providing different tools to countries (training, decision support and assessment)
- Collaborating with other partners to have the best available knowledge

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### Pillar I • 2017-19 Activities

- A **complete training programme** offered to EuFMD Members, with new approaches included: *regional initiatives* and *in-country missions*,
- **GET Prepared** concept ready to be developed, a *toolbox* whose main objective is to improve preparedness for animal disease emergencies by assisting countries to identify and prioritize gaps in preparedness, and to address these using various tools,
- **EuFMDiS** is one of the main tools that can contribute to a Europe-wide systematic support to risk assessment, contingency planning and targeting of interventions through modelling of national and regional control measures for FAST diseases,
- Active surveillance activities implemented in **Thrace** have proved to be a good example of collaboration between Turkey, Bulgaria and Greece, at the same time demonstrating *confidence in FMD-freedom in the region above 90%*.

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### Pillar I • 2017-19 Activities

- SimEx in the **Balkans** used as a tool to improve national emergency preparedness, testing the relevant contingency plans and operations manuals of the countries in the region,
- **13 countries** have been supported to participate in the lab PTS organized by the EU-RL, to assess and prove their testing competencies. Concept for immediate regional support in diagnostic reagents for an FMD crisis has been drafted



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## EuFMD Global Monthly Report



Collaborative work,  
Results of the three pillar efforts over the years

A **new format** since 2019  
Building bridges with the PRAGMATIST Tool

Sources: **Official databases and Networks**

24

GMR  
Global Monthly  
reports

> **300 subscribers**

Now enriched by monthly contributions from  
3 FMD intelligence focal points =  
3 FMD virus pool regions: Asia, East and South Africa

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**Workshops**

MoU/ LoA

Field missions

HR

Liaison FAO/OIE/EU/MS

Real Time Training



**Procurement**

Project cycle

E-Learning Webinars

Partners Agreement

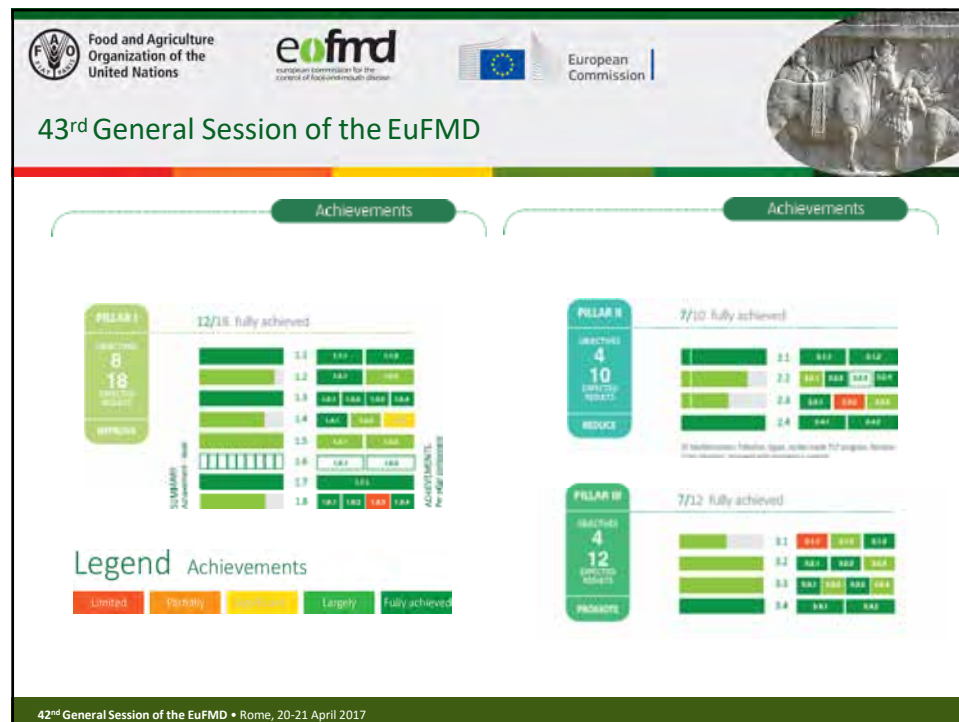
Web & Design

Finance

Logistics

Social Media

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## General conclusions for the EuFMD team work between on 2017-2019

- Value of **three pillars**
- Constant **monitoring** of the achievements
- Importance of regular **coordination** (internal and external) and **guidance** (ExCom)
- Contribution of **partnerships**
- Value of high quality **trainings** and progressive **capacity building** (e.g. RTT)
- Importance of systems for **continuous support** (e.g. PSO, vaccine security, GET Prepared, EuFMDiS)
- Relevance of **constant presence** in risk areas
- Raising awareness** of all stakeholders and **appropriation** by them
- Importance of **networks** support
- Value of **flexibility** and **innovation**

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Erica Tomat  
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Enrique Dobarro

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### What next?

Follow our **upcoming activities** on






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#team #officialmeeting #livestock #zerohunger #animalphotography #eufmdmission

The documents are printed on recycled paper. **All the meeting documents**, including the Open Session report, the 97th Executive Committee, the Lab Minimum Standards proposal, are available for download on our Events App and are on the USB key provided.

The **EuFMD Events App** is on Google Play and App Store.



Thinking of the  
environmental  
footprint

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# **Appendix 12**

## **Evaluation report and EuFMD response**

## Appendix 12 -Evaluation report and EuFMD response

### Report of the Training Evaluation Group

**Dr Wendela Wapenaar** DVM, PhD, Diplomate ABVP (Dairy Practice), SFHEA, NVS, MRCVS, Chairman of the group, University of Nottingham Nottingham, UK; **Dr Daniele de Meneghi** DVM PhD Dipl. ECVPH, Università degli Studi di Torino, Torino, Italy; **Dr Geraldine Boseret** DVM PhD MScV Res ECVPH, Université de Liège Liège, Belgium

#### Chairperson summary

It was a pleasure to visit the EuFMD team and meet many of the team members, in person or virtually. The knowledge present in the team and the various training programmes are invaluable and unique. The training provided could be extended to a considerably wider audience and has the opportunity to develop into an accredited course within a higher education institution. **The weaknesses observed during our evaluation visit were quality assurance of the offered training and impact assessment.** The strengths of the programme are the team of people involved, their expertise and their attitude. We hope that you will find our evaluation report useful to help further develop a future strategy, and we would like to thank you for your concerted efforts in helping to control FMD worldwide to the benefit of animals and people.

#### EuFMD Secretariat –Response to findings (April 2019)

As a result of the evaluation, we propose the following to:

1. **Commit** funds to assess the impact of selected training courses delivered under Phase IV, such as the Real-Time Training programme, and from this, better understand how to build impact assessment into the course development and delivery.
2. **Develop** a new system for quality assurance of course development, delivery and impact assessment, with guidance from establishments in the Evaluation Team.
3. **Identify**, following point 1 and 3, core positions and responsibilities within the training team, to ensure the daily management follows the principles and practices agreed, with implementation starting from September 2019.
4. **Further explore** the possibilities of certification of courses on the basis of quality and relevance, including the potential that EuFMD training courses (on emergency preparedness for FMD and similar TADS) become in the near future part of a career development path for veterinary officers, under a wider “competency based training framework” such as being considered by the Association of European State Veterinary Officers chapter of the FVE.



## Evaluation Report –continued

### **EuFMD training programme**

The EuFMD training programme uses multiple learning approaches as a successful strategy to approach a wide and specific target audience. Mass education (tutored courses, open access courses) and specific training (resulting in “ambassadors” and “impact deliverers”) are both required to achieve the programme aims and objectives.

#### Real time training

The real time training programme is a unique training module giving attendants the possibility to encounter FMD in its clinical presentation in endemic countries. The data shared by the team during our visit demonstrated that the cascade training (that attendants are requested to deliver in their home region) is not carried out to its full potential. An emphasis on this part of the training could help to demonstrate the impact of this training programme. In this case, future certification of the EuFMD training programme could be a motivator for attendants; delivering knowledge exchange (KE) events and measuring the impact of those could be a compulsory element of their training. Adequate support would be required for this part of the training, which could, in addition to skills provided to the trainees, provide structured evidence of impact the EuFMD training programme.

#### Networks

Role of networks is to share knowledge between FMD researchers and other stakeholders. Many participants are listed on the different networks, which show varying levels of activity. In the available time it was difficult to assess how much activity from participants there was versus posts from the EuFMD team; a structured evaluation of these networks would be helpful to assess how they contribute to the overall aim and strategy. From the conversations had, it appeared there was an opportunity to engage attendants of other EuFMD courses (i.e. real time training) and use the networks to motivate and engage attendants after courses are completed. Currently, this part of the training programme came across to us as the least focused, and a future strategic plan with measurable outcomes would help to focus the work.

#### Workshops

The workshops were well structured and relevant. Further course development across the three pillars needs to include socioeconomics and risk analysis along the value chain as it is relevant for all countries involved. There are steps taken (with i.e. CIRAD) for collaboration with partners with relevant knowledge and experience in these areas to add value, and we would encourage these, and additional, collaborations to further widen the network and share expertise.

#### E-learning

The innovative nature of course development (i.e. using WhatsApp) and the motivation to deliver training in a way relevant to the intended participant is highly commendable. The opportunity for feedback is well developed. The quality assurance (QA) and impact of the different online modules needs further development to maintain focus with regards to delivery and time spent. As the quantity of the work is growing due to its own success, it is crucial to keep focus on QA and impact.

#### Operations team

The operations team was well organized and showed a great team spirit, which we encountered throughout the whole EuFMD team. The open-mindedness, approachability and flexibility of staff was inspirational and makes this organization fast and responsive. The opportunity to work within the FAO but with quite significant freedom to make decisions, and the team of people involved, have made this unit a great success. With growing outside interest and more external work requests, EuFMD needs to be careful in planning a strategy that can maintain the current ethos. Due to the short-term contract requirements set by FAO, there are frequent change-overs of staff. It is imperative that planning and organization is well documented, which the operations team does well with appropriate and comprehensive SOP's for various procedures.

#### Short Term Placements (STP)

Although not the easiest from a management point of view, this is a commendable strategy that creates an ideal combination of local experts' knowledge combined with FMD expertise, and it is used to develop in country or region initiatives. The long term impact of these placements is challenging to measure but there are opportunities to explore to further demonstrate the value of these placements, for example as 'EuFMD ambassadors' collaborating with the focal point in their country.



## Summary of recommendations

### Procedures for course development

1. When further developing courses it is **essential to focus on impact**; currently feedback is used to improve the course(s), however this is insufficient considering the aims and objectives of the overall programme.
2. Many stakeholders are involved in FMD control; therefore, there are good reasons to **include training focusing also on non-vet stakeholders** in the training programme, as their support and buy-in is essential when aiming for a shared control strategy.
3. The current training programme is successful and receives positive feedback, and it is not unexpected that several requests have been made to develop similar programmes for **other diseases**. We would encourage this development, however not before there is the establishment of a clear QA process and strategy in place to measure impact of courses.
4. Developing courses focusing on different diseases will provide even more opportunities to **collaborate with other stakeholders**, i.e. universities, research organizations, charity, NGOs, industry, farmer associations etc.; the EuFMD team currently has strengths (i.e. with regards to responsiveness and flexibility) and involvement with other parties may make this more challenging and needs consideration.
5. Strategic steps moving in a more collaborative direction can help to achieve impact, which we wholly support.
6. Clear time points of evaluation will help to decide what the best future direction will be for the EuFMD team.
7. Involving STPs to identify suitable partnerships in their region may be useful as they will understand cultural peculiarities and differences.
8. When considering course development, the strategy needs to be clear for each offering; the **target audience needs to be clear**; describe what you want to achieve, make it measurable and work towards that. For example, 'everyone' is not a realistic audience for the networks as they currently are, and this lack of focus makes it difficult to assess impact and value. If its function is to distribute information, who is it aiming for, what is the best way to deliver that information, and is it important to engage with the target audience or measure their participation?

### Certification

9. The EuFMD training programme currently has no certification standard. Although only a brief review could be performed in the time available, we deem the training programme of such quality that further development towards official certification would be **highly recommended**.
10. Currently, the main challenge of a formal accreditation process is the **lack of a structured QA process** (further detail below).
11. There is limited evidence that the current course elements meet their objectives; courses are carried out and the feedback is usually positive, but the evidence of achieving learning outcomes is missing.
12. Course development would need to include transparency of the different course elements towards credits of a course.
13. We would recommend developing the course in **collaboration with a university** with the aim to register the existing course as continuing professional education (CPD) initially.
14. We would envisage a great opportunity to develop a year's Postgraduate certificate/MSc programme, considering the opportunities within the cascade training and other elements of the training programme to create a win-win situation of measuring impact and further developing research and KE skills in participants. Within this framework one could consider a **'state vet' training module** that could apply to all EU member states.
15. The opportunities to formalize the training are worth exploring and need to be part of the future strategy discussion; is it depth on disease (FMD only) and breadth of audience, or is it breadth on disease to a more specific audience? Once a strategy is decided upon, the action plan can be mapped out for the following years.

### Quality Assurance (QA)

16. The course appears successful based on anecdotal evidence. We have no concerns of a lack of quality, however, we do have concerns that (beyond questionnaires) there is **no structural evaluation** or QA policy in place. This leaves opportunity for time and resources to be spent in areas of interest (or ease) which are not the main focus of the programme. A process needs to be in place to evaluate the quality and objectives of the programme.
17. **Quality assurance also includes the pedagogy** used in the training and its development. What are the qualifications of staff involved on training development, what evidence is provided to assure quality of delivery? Higher education (HE) institutions have different methods to evaluate this; a team of external reviewers/examiners allocated to each of the courses, but not actively involved with them, would provide a sounding board to critically evaluate pedagogy and QA. Most reviewers would review the course for 3 or 4 years before handing over the task to a new examiner. Having a structure in place which includes

these reviewers can provide guidance on educational aspects of the course and help confirm the course is adequate to meet its objectives.

18. **Structured involvement of your target audience** is recommended in HE institutions; a team of participants is asked to share their experiences and expectations. This helps to deliver the best 'student experience'. The quality assurance of the content of the training material does not concern us as a peer review process within the EuFMD team appeared to be in place. This process however needs to be **formalized and be part of a structured QA policy**.

#### Existing procedures for feedback and monitoring of the outcomes of training

##### *Feedback*

19. There is abundant evidence of interest and positive feedback on many of the courses offered; it was great to hear how adjustments were made whenever possible, based on the feedback. The opportunity to provide feedback is provided and many respondents are very positive about the course attended. To further learn and improve we would recommend to **reduce the effort on feedback and use the time gained to collect information on impact**.
20. It seems that a more **consistent, automated and less labor-intensive feedback** could be adopted; it would be worthwhile to evaluate if all the information gathered in the different feedback surveys are efficiently and adequately used and if they actually contribute to achieve the aim of the programme.
21. A more consistent brief (what to stop and what to keep doing more off) survey for all training elements would enable comparison between the different training elements. Impact assessment can help streamline some of the feedback surveys to a more manageable process which does impact objectives and aims by providing key information to improve and develop courses. We do not want to underestimate the positive experience which participants will have had on the course, however a potential client considering to pay for participants on one of the courses might be more interested to read about the impact the course will have.
22. When aiming the focus on impact; it is advisable to move away from detailed attendant feedback to explore **reasons of non-attendance and/or limited participation**. Are there ways to improve the programme to engage stakeholders that are currently not or only participate in a limited way?
23. **Learner analytics** available on VLE platforms such as Moodle provide various data to provide feedback with regards to engagement, assessment performance and various other elements. This automated feedback can be valuable to collect information from a large range of participants, as opposed to a likely biased group of participants responding to a survey.
24. How the feedback gets used might also be a good bit of information to share with attendants, CVO's and focal points to create engagement and demonstrate how their feedback contributed to further development. A "champion" amongst the attendants could play the role of "EuFMD ambassador".

##### *Monitoring*

25. Current monitoring of outcomes appears minimal; cascade training in the real-time training is an opportunity, but overall it appears there is a great opportunity to **intensify member state contact**.
26. This intensification of current contact can include, i.e. follow-up refresher training, increased contact with trained people and focal point, established in collaboration with the focal point, encouraging the nomination of a previous training attendee as a EuFMD ambassador/champion who can help identify suitable new participants. By sharing information from feedback or other KE activities done by other participants between trainers and attendees.
27. With regards to for example the real-time training, a more structured follow-up could be developed to encourage cascade training and follow-up of impact; a contact point 1 month after the training, bi-monthly reminders to share cascade training experiences, and, a year after programme, a meeting to share experiences of cascade training.
28. This could provide the EuFMD team with measurable impact parameters and would encourage participants to implement by feeling the sense of belonging of being part of a team, which is what they did experience when on the real time training.

#### Current methods for assessing the impact of the training programme

29. There is currently **limited evidence of impact** or 'value for money' evaluation, there appeared to be surprisingly little demand or reward from the EC to do this. However with external parties ('clients') now paying for training, the evidence of impact ('value added') becomes more pressing, and quantification of impact using key indicators would support investment in training.
30. In addition impact is important for the team internally to show the effect of all the efforts they put in. **Impact assessment should therefore be** part of the future strategy and evaluated as part of a structured process. Impact evaluation should drive course development together with needs assessment.
31. There was reference made to anecdotal evidence relating to improved job prospects of trained staff, **keeping records/tracks** of trained staff and evidencing career paths would additionally help demonstrate impact. External parties asking for training

- and personalized advice demonstrates a demand, however, this is not actual impact of the training programme.
32. An example to measure impact would be to **assess emergency preparedness of a country** before and after training (including cascade training) or to ask CVO's or focal points for a brief report describing the implementation of knowledge via the trainees.
  33. A better understanding of in-country challenges may reveal that within-country training may have bigger impact at country level compared to sending staff abroad for training, currently the programme has limited methods to assess these aspects.
  34. Short term impact of online courses can be measured by online assessment, and this is currently done; however it is unclear if the knowledge presented at the online assessment is due to the training. A pre and post assessment will help consolidate this and provide evidence for **short term impact**. A structured review of this performance needs to be part of the impact assessment on a regular basis. However, the actual use and impact of this trainee knowledge in their work environment is more relevant considering the aim and objectives of the programme, so efforts need to focus on those elements as well.
  35. **Intensifying contact with previous course participants**, as discussed above, can help to identify some of these impacts.
  36. **Learner analytics** can be used to evidence short term impact and assist in decision-making; for example, webinars may seem cumbersome and not have many immediate attendants, but how many people watch the webinar in the year following publication? Can you think of ways to approach attendants to measure long term impact? Using the learner analytics available online can help automate this process and help make evidence based decisions.
  37. Once the impact of each training element has been established, the next step should be to consider the effort (time and resource) allocated to that element. This aspect is currently unclear, however without knowing the impact of the course, there is little point in detailing the time and resource spend. **Regular evaluation of the strategy, including impact assessment** needs to be ongoing throughout the programme at set time points so direction can be adjusted where needed.

## EuFMD RESPONSE to the recommendations

The Secretariat is very grateful to the evaluation team for their time and dedication to the evaluation of the various components that make up the overall EuFMD training programme, from e-learning, to face to face (F2F) to the system for “building depth” through the short term placements (STPs) system for staff of veterinary authorities to work within the EuFMD programme. We note the overall positive response and also the areas for improvement in the Chairpersons summary *“The knowledge present in the team and the various training programmes are invaluable and unique. The training provided could be extended to a considerably wider audience and has the opportunity to develop into an accredited course within a higher education institution. The weaknesses observed during our evaluation visit were quality assurance of the offered training and impact assessment. The strengths of the programme are the team of people involved, their expertise and their attitude”*.

The EuFMD training programme has expanded rapidly over the past six years, bringing a significant challenge to maintain quality across the training when provided to diverse settings. The development and delivery side each face issues of ensuring new trainers and new courses meet the current standards expected, and utilize the feedback received.

The evaluation report makes clear we must focus on processes for quality assurance, impact assessment and how to ensure the monitoring of outcomes and impacts feeds back into better design and delivery of training.

It also suggests that, given the scale of the training, it could contribute well as a component of an overall training of European state/public health veterinary officers, in line with the current working group established under the FVE (Federation of Veterinarians of Europe).

As a result of the evaluation, we propose the following:

1. To commit funds to assess the impact of selected training courses delivered under Phase IV, such as the Real-Time Training programme, and from this better understand how to build impact assessment into the course development and delivery;
2. To develop a new system for quality assurance of course development, delivery and impact assessment, with guidance from establishments in the Evaluation Team;
3. Following this, to identify core positions and responsibilities within the training team, to ensure the daily management follows the principles and practices agreed, with implementation starting from September 2019;
4. To further explore the possibilities of certification of courses on the basis of quality and relevance, including the potential that EuFMD training courses (on emergency preparedness for FMD and similar TADS) become in the near future part of a career development path for veterinary officers, under a wider “competency based training framework” such as being considered by the Association of European State Veterinary Officers chapter of the FVE.

The table below provides the summary of the response to recommendation domains.

	<b>Recommendation domain</b>	<b>Response to recommendations</b>	<b>Proposed Actions</b>
1	<b>Procedures for Course Development</b>	Recommendations accepted regarding: <ul style="list-style-type: none"> <li>- Need to revise the QA processes to respond to several recommendations including the need to focus on IMPACT</li> <li>- Need to design in the evaluation and its time points</li> <li>- To consider the needs of other categories of animal health.</li> </ul>	Invite external expert team to develop the QA procedures and design of the system, before July 2019, with support of a training grant.
2	<b>Certification</b>	Recommendations on the whole are accepted. #9 “to proceed towards official certification is highly recommended” is noteworthy and could become a principle in the work-programme –Phase V. #14: “consider a state vet training module that could apply to all EU MS” is significant as it foresees that training provided could be an part of a wider initiative on competency based training for staff of veterinary authorities.	<ol style="list-style-type: none"> <li>1. CPD points system for courses (online and F2F) depending on demand.</li> <li>2. Continue Work with FVE /VETCEE working group on identifying competency framework for staff of veterinary authorities</li> <li>3. Following #2, explore with OIE –HQ how a competency framework for vet authorities might add value to current common training.</li> </ol>
3	<b>Quality Assurance (QA)</b>	Accepted. QA policy and procedures will be revised and introduced that include the pedagogy QA.	
4	<b>Procedures for monitoring and feedback</b>	Recommendations to standardize and automate, and give more focus to what doesn’t work well (understand better limited participation for example) Rec #24: on “training champions” to be considered.	<ol style="list-style-type: none"> <li>1. More automated feedback system has been introduced from September 2018.</li> <li>2. We need to work more on sharing the feedback and using the feedback constructively.</li> </ol>
5	<b>Monitoring</b>	Monitoring of outcomes is weak and more structured approach to post-course follow-up is needed.	This will need to be built into the plans for each course, to also have planned follow-up agreed in advance. To be addressed in the design of Phase V training.
6	<b>Assessment of impact</b>	The nine recommendations are challenging to implement and we will need expert assistance to design impact assessment into the training course development and delivery.	To invite the University of Nottingham to undertake an impact assessment of several Phase IV courses and provide guidance on the systematic use of impact assessment we should apply in future.

# **Appendix 13**

## **Strategic Plan**








## The proposed 4 year EuFMD Strategic Plan (April 2019-2023)

**ANIMAL HEALTH  
SECURITY THROUGH  
BETTER PREPAREDNESS AND  
REDUCED RISK FROM FMD AND  
SIMILAR TADS  
("HOLD-FAST")**





## Rationale for the Strategy

- FMD remains the #1 disease risk – in the European neighbourhood
- Over 250 million cases annually across the world – daily risk of FMD entry into EU : must maintain effort
- Capacity, Training and Preparedness tools already developed for FMD are relevant to similar TADS
- EuFMD already active in areas where PPR, poxviruses, ASF are present
- Adapting spread models (EuFMDis) to similar TADS is straightforward
- **Europe (+GF-TADS) needs implementing partners able to work effectively at national level in the neighbourhood**










## The Strategic Plan in 10 points

### 1. PRINCIPLES

*Non-negotiable values, commitments and behaviours that you can **HOLD** us to*

- **Continuous co-ordination**
- **Regular review** - of the risk situation
- **Seek synergy** - with the relevant EU institutions
- **Sharing of expertise** in emergency preparedness and epidemic management
- **Continuous engagement** with veterinary services
- Effective use of European and neighbourhood reference laboratories and expertise
- **Commitment** - to provide world-leading training quality and tools
- **Continuous improvement**- in delivery and impact
- An attitude of always seeking to leverage efforts

## 2. SCOPE – FOCUSED but **fast** to adjust

**Focus on FMD:**

- **Every part of the programme to support FMD control**
- **Many parts of the programme relevant to improved control of Similar Transboundary Animal Diseases**
- *Within the Scope*

**Category 1: FMD, and currently PPR, capripoxviruses**

- Similar risk factors to FMD/in directly bordering neighbourhood/Vaccination is an option

**Category 2: Rift Valley Fever, Bovine Ephemeral Fever**

- In one or more neighbourhood countries/vaccination needed/Ruminants are directly affected with major losses

**Category 3: Not included in the above but kept under review**

- Currently cause outbreaks in EU-MS (e.g. ASF) / co-ordination is well established at EU level
- Other TADS, according to risk



### 3. OUR THREE GOALS (“Pillars”)



I IMPROVE PREPAREDNESS	II REDUCE RISK	III SUSTAINED PROGRESS
Improve preparedness for management of FMD and similar TADS (“FAST diseases”) crises by Members and across Europe as a whole.	Reduce risk to Members from the FAST disease (FMD and similar TADS) situation in the European neighbourhood.	Sustained progress of the GF-TADS Global Strategy against FMD and the improved security of supply of effective vaccines.



### 4. OBJECTIVES and KPIs (Fourteen)



*Feasible, costed, and achievable*

Goal	Objectives	Key Performance Indicators (KPI)
<b>Improved preparedness</b>	1. National capacity development	1. Knowledge Achieved With Training
	2. Regional and national capacity in emergency preparedness	2. MS satisfaction with CP tools
	3. Preparedness for use of emergency vaccination	3. MS satisfaction with EV assessments
	4. South-Eastern Europe	4. % countries having tested CP plans for FAST diseases
	5. Applied research program	5. Satisfaction of Technical Committee with completed studies
	6. Proficiency test services (extended EU scheme)	6. Number of eligible non-EU countries participating
	7. FAST disease information gathering and analysis	7. MS satisfaction with FAST risk reports
<b>Reduced risk</b>	1. Co-ordinated activities (under GF-TADS/REMESA)	1. PCP-FMD indicators for progress (14 countries)
	2. FAST disease: Improved Early Warning	2. Regular surveys of satisfaction levels with EW system outputs
	3. Integrated capacity development	3. Knowledge Achieved with Training (tested) and numbers trained
<b>Sustained global progress</b>	1. Sustained and effective PCP-FMD implementation	1. Process indicators, completion of Roadmaps and #countries utilising PSO expertise
	2. Improved global laboratory support	2. Surveillance targets met in three of the five Roadmaps; system for regional vaccine recommendations being used
	3. Better training for progressive control	3. Knowledge Achieved With Training (tested) and numbers trained
	4. Improved vaccine security	4. PPP: satisfaction of stakeholders in rate of progress



## 5. SIGNIFICANT NEW ELEMENTS to the programme

<p><b>Europe-wide TADS modelling capacity</b> serving MS and the region as a whole (EuFMDis+)</p>	<p><b>Laboratory proficiency and capacity for FAST diseases</b> established across the Balkan countries supported by a diagnostic bank</p>
<p><b>Integrated FAST disease early warning system</b> in the REMESA/neighbourhood region be in place by end of 2020.</p>	<p><b>Vaccine security platform:</b> Addresses a gap affecting contingency planning</p>

## 6. CORE ELEMENTS of the programme continued from Phase IV

<p><b>World –leading Training Programme</b></p>	<p><b>GET Prepared</b> Expertise and support to guide MS on stress-testing of their preparedness resources</p>
<p><b>Regionally co-ordinated targeted, national assistance to</b> apply the Progressive Control Pathway (PCP-FMD)</p>	<p><b>Fund for Applied Research (FAR Fund)</b> Studies with generic (multi-TADS) applicability will be favoured</p>
<p><b>Global Intelligence</b> Regular risk reports: but with added FORECASTING</p>	

## 7. GOVERNANCE and CO-ORDINATION with partners

*Member States govern – through the elected Officers*

*Co-ordination, in a changing disease risk environment*



- DAILY
- Periodic review (@6 month intervals)
- With the priorities of GF-TADS Europe

*Technical support for decisions on changing priorities*

- Greater role of the Standing Technical Committee (STC) on decisions upon changes in priorities or intensities of efforts on specific TADS

Governance	
Meet every 6 months	
EuFMD Executive Committee + OE, PAO, B	
Co-ordination	Co-ordination with the private sector
GF-TADS (Europe, Middle East, Global)	All platforms for emergency planning for private sector engagement

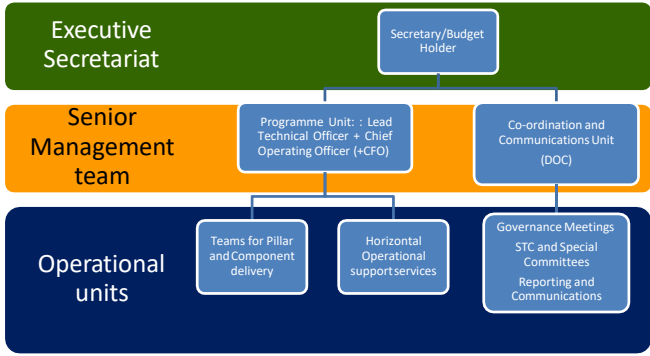
Technical support for decisions on changing priorities	
EuFMD Standing Technical Committee (STC) for support to decisions on areas of technical complexity	New Special Committee for Surveillance and Applied Research
Emergency management	
Coordination	
Daily with DG-CAHIS and with the GF-TADS Emergency Management Centre (EMC)	

## 8. OPERATIONAL MANAGEMENT



*The programme will be delivered as per Phase IV:*

*Through a dedicated, technically and operationally autonomous Secretariat fully applying the FAO administrative procedures*



```

graph TD
    ES[Executive Secretariat] --> SBH[Secretary/Budget Holder]
    ES --> ST[Senior Management team]
    ST --> PTU[Programme Unit: Lead Technical Officer + Chief Operating Officer (+CFO)]
    ST --> CCU[Co-ordination and Communications Unit (DOC)]
    PTU --> TPC[Teams for Pillar and Component delivery]
    PTU --> HOS[Horizontal Operational support services]
    CCU --> GMR[Governance Meetings STC and Special Committees Reporting and Communications]
    
```



## 9. FINANCING: Administrative & Programme Funding

*EuFMD : circa 1m€ p.a*

*Programme Funds (EC request): 3 m€ p.a*

Circa Eur. 4,000,000 per annum	
Eur. 3,000,000 EC Programme	Eur. 1,000,000 Raised by the EuFMD



Component	Amount	Source identified
Programme Budget (Table 2)	3.0 m€ per annum	EC: DG-SANTE (request)
Programme Management & Secretariat	0.6 m€ per annum	Member States annual contributions
Scientific Support:		
FAST-Network and Fund for Applied Research (Special Committee)	0.2 m€ per annum	Additional voluntary contributions of MS/others
Ad-hoc funding of programme elements	0.2 m€ per annum	Additional contributions of donors or resource partners
<b>Total</b>	<b>4.0 m€ per annum</b>	

## 9. Programme budget estimates


*Programme Funds (EC request): 3 m€ p.a*

Goal (Pillar)	Phase V per annum
1. Improved preparedness	1,559,550
2. Reduced risk	760,450
3. Sustained global progress	680,000
	<b>3,000,000</b>

## 10. Environmental sustainability objectives

*Programme objectives contribute to reduced global impact (GHG+) of ruminants and operational procedures apply the 3 R's*



Food and Agriculture  
Organization of the  
United Nations



eufmd  
european federation for the  
control of foot-and-mouth disease



European  
Commission




## 43<sup>rd</sup> General Session of the EuFMD


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### 10. Thinking of the environmental footprint by

- **Promoting FMD control** which can benefit the global environment by reducing GHG emissions from livestock through globally increased productivity:




Large ruminants are one of the most important sources of GHG and over 60% live in countries which have endemic FMD




Thinking of the  
environmental  
footprint

- **Applying the 3Rs in our activities through**



**Reducing:** air travel through increasing e-work (webinars, e-learning, skype) and offsetting the carbon footprint from unavoidable travel



**Re-using:** promoting BYOB (Bring Your Own (water) Bottle)



**Re-cycling:** as much as possible in FAO HQ (and at home)





**EuFMD**  
European Federation for the Control of Foot-and-Mouth Disease



eufmd  
e-learning







## Strategic Plan 2019-2022

### Pillar I

***Improved preparedness for management of FMD and similar TADS ("FAST diseases") crises by Members and across Europe as a whole***

**Proposed updating**



43<sup>rd</sup> EuFMD General Session, 17-18 April 2019





## OBJECTIVE 1: NATIONAL CAPACITY DEVELOPMENT

**EXPECTED OUTPUT**  
Improved level of training in FAST diseases crisis management at national level

**HOW TO DO IT?**  
Training menu supported by the training credits system

- Design of the training menu based on MS needs
  - What the MS see as their needs
  - Collaboration with other organizations to identify priorities
  - Risk based: Collaboration with Pillar II
- More country-tailored programs
- Incentives to choose the option “assistance with the national training system”



## OBJECTIVE 1: NATIONAL CAPACITY DEVELOPMENT

**HOW TO DO IT?**  
We have a lot of high quality training material that is useful for all FAST diseases. To develop new training material,...

- We will focus on the practical problems countries face
  - Exit strategy after an outbreak
  - What reagents would be needed in the first weeks of an outbreak
- We will prioritize a regional approach

**Higher number of open resources (Knowledge Bank /YOUTUBE)**

- Link to national education organisations
- To be used within the FAST national training strategy



## OBJECTIVE 2: REGIONAL CAPACITY IN EMERGENCY PREPAREDNESS (EP)

### EXPECTED OUTPUT

STATE OF THE ART tools for EP available to MS to assess and improve preparedness for FAST diseases across Europe


## OBJECTIVE 2: REGIONAL CAPACITY IN PLANNING






### HOW TO DO IT?

Through the collaborative work with other institutions:

EFSA, DG SANTE Dir F, others

- GET Prepared:** Comprehensive toolbox to assist MS in the assessment and improvement of their contingency plans
- EuFMDis+:** Pan- European model covering FMD and other FAST diseases, and with new features included such as the wildlife component and biosecurity considerations




**OBJECTIVE 3:    PREPAREDNESS FOR USE OF EMERGENCY VACCINATION**






**EXPECTED OUTPUTS**

- Improved CP considering vaccination as an option against FAST diseases
- Progress to address barriers to the access to effective vaccines against FAST diseases

**HOW TO DO IT?**

1. **Establishment of a Vaccine security platform**
  - Public-private platform (PPP): private sector, RL and R&D experts, vaccine registration and contingency planners to meet on a regular basis
  - To discuss about and promote progress to the access to effective vaccines against FAST diseases
1. **Assured Emergency Supply Options (AESOP)**










**OBJECTIVE 4:    IMPROVED EP in SOUTH-EASTERN EUROPE  
(THRACE and BALKANS)**

**EXPECTED OUTPUTS**

- Improved emergency preparedness in the region
- Improved surveillance systems

→ Greater confidence in freedom from FAST diseases and increased likelihood of early detection of an incursion





- OBJECTIVE 4: SOUTH-EASTERN EUROPE  
THRACE and BALKANS**
- HOW TO DO IT?**
- **Thrace +:** Possibility to extend the current coordinated regional surveillance approach
  - **Simulation exercises, workshops and continuous support to improve emergency preparedness for FAST diseases**
  - **Improve laboratory proficiency and capacity for FAST diseases across the region**
  - **Diagnostic bank for FAST diseases** (initially: Balkans, but may serve wider need)









## OBJECTIVE 5: APPLIED RESEARCH PROGRAMME


**EXPECTED OUTPUT**






Tools and new knowledge to improve emergency preparedness against FAST diseases

**HOW TO DO IT?**

- Competitive selection of studies to support through the Fund for Applied Research (FAR)
- Identification of Europe-wide priorities in emergency preparedness and gaps of tools and knowledge
- Expert Committee (SCSAR) - prioritization, guidance on impact of potential studies






## OBJECTIVE 6: PROFICIENCY of the NRLs (non-EU MS) for FMD (extension of the PTS operated under the EU-RL)







## OBJECTIVE 7: FAST disease intelligence provided for risk assessment







**HOW TO DO IT?**

- Continuity of current system (GMR) for information gathering and analysis
- Addition of epidemic fore-casting based on intelligence focal points system
- Greater integration of informatics and analysis (with OIE/FAO networks)

**RELEVANT TO ALL THE PILLARS**



     					
Goal (Pillar)	Component Objectives	Subcomponents € Per annum	Phase V per annum	Per annum Phase IV (2017-18)	Phase V Increase %
1. Improved preparedness	1. National capacity development	39 MS @8000 (312,000)	312,000	261,488	19
	2. Regional capacity in emergency planning		160,000	71,077	125
	3. Preparedness for use of emergency vaccination incl emergency reserves		300,000	161,890	85
	4. South-Eastern Europe incl Diagnostic Bank		369,550	289,555	28
	FAST Diagnostic Bank	80,000			
	THRACE surveillance	188,500			
	Emergency Preparedness and exercises	101,050			
	5. Applied research program		250,000	186,194	34
	6. PTS		30,000	23,150	30
	7. Global informatics for Risk assessment		138,000	42,100	228
	TOTAL		1,559,550		


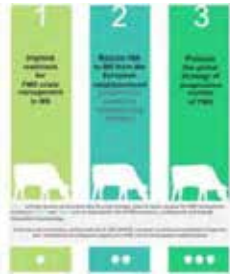







## Strategic Plan 2019-2022

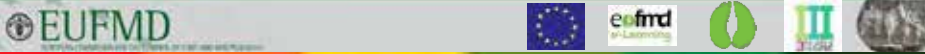
### Pillar II

*Reduced FMD risk to EUFMD Members from European neighbourhood*

#### Proposed updating

43<sup>rd</sup> EuFMD General Session, 17-18 April 2019




### *Priorities and opportunities in the future programme for integration of efforts for risk reduction of FAST diseases*

➡ Priority: **early warning** and **better preparedness** for FMD and Similar TADs in the EU neighbourhood – integrated cost-efficient approach

➡ Opportunities:

- building on **networks** established
- making use of the **horizontal approach**
- adopting **flexible** programme
- working with **partners**

43<sup>rd</sup> EuFMD General Session, 17-18 April 2019




### **Risk and threats change - What is needed ?**






- Close coordination and clear roles
- Flexibility to shift priorities, resources and activities
- Efficient use of models for early detection (e.g. Thrace)
- Efficient use of acquired expertise

....and ....

- Capacity to work in different setting
- Continual presence in the field
- Capacity and flexibility to deliver quickly
- Combination of experience and innovation


















## COMPONENT 1: COORDINATED ACTIVITIES

To achieve **FAST progressive control**:

- **Coordinated mechanism under GF-TADs** with regular updates of FMD control strategies and definition of priorities and related workplans
- **Coordination with countries** to support national programmes (regional/sub-regional/national activities)














## COMPONENT 2: IMPROVED EARLY WARNING

- Collection and analysis of **risk information**
- Definition of **hot spot locations**
- Design **risk based** multi-disease **surveillance**
- Improve **collection and delivery of isolates**
- Prioritization of **vaccines** and improve their availability
- Facilitate **sharing of risk information**


























## COMPONENT 3: CAPACITY BUILDING

- **Laboratory** capacity
- Vet Services capacity (e.g. clinical investigation, surveillance and control)
- Effectiveness of control measures (e.g. PVM)
- **Network** among **centres of expertise**
- Application of **Terrestrial Animal Health Code**





## Horizontal elements of the Pillar II programme

1

Improve readiness for FMD crisis management in MS

2

Progressive control (PSO)

Early warning

Capacity building

3

Networks (centres of expertise)

Trainings

Emergency preparedness:  
Cont. PI. - AESOP - PRAGMATIST

Better use of expertise and budget

Goal (Pillar)	Component Objectives	Subcomponents € Per annum	Phase V per annum	Per annum Phase IV (2017-18)	Phase V Increase %
2. Reduced risk	1. Co-ordinated activities (under GF-TADS/REMESA) <i>PCP progress in Turkey/Georgia neighbourhood</i> <i>PCP progress in South and Eastern Mediterranean (REMESA countries)</i>		300,450	297,347	1
		150,450			
		150,000			
	2. FAST disease: Improved Early Warning <i>Continuous Multi-disease surveillance in three hot-spots</i> <i>FAST surveillance Network</i>		250,000	173,904	44
		200,000			
		50,000			
	3. Integrated capacity development <i>E-learning Course development</i> <i>Training delivery</i>		210,000	74,000	184
		65,000			
		145,000			
	Total		760,450		

## Strategic Plan 2019-2022

### Pillar III

***Sustained progress of the GF-TADS Global Strategy against FMD and the improved security and supply of effective vaccines***



- 1. Sustained and effective PCP-FMD implementation
- 2. Improved global laboratory support
- 3. Better training for progressive control
- 4. Improved vaccine security

43<sup>rd</sup> EuFMD General Session, 17-18 April 2019

## 3.1 Sustained Global Progress

- Sustained progress of GF-TADs Global Strategy for **FMD**
- Continued support the FMD Working group including improved PCP information management

Pillar III – Future workplan

## How to do it?

### Supporting PCP-FMD application:

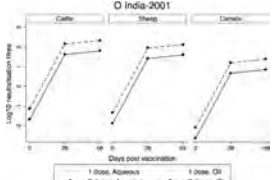

- PCP-FMD tool-kit
- Regional roadmaps
- PCP Support Officers (“PSOs”)
  - Promote risk-based control and management (PCP principles)
  - Extended program - to support all countries engaging in PCP-FMD
  - Training system for “Certification” PSO under GF-TADS – with trained expertise from all roadmap regions
  - EuFMD to manage system and support development
- Leverage additional funds to implement activities

Pillar III – Future workplan

## 3.2 Improved Global Laboratory Support

**HOW TO DO IT?**

- WRL-FMD and OIE/FAO Laboratory Network
  - CONTRACTED support - KPI's are surveillance targets in different regions
  - Shift in emphasis towards Post-vaccination monitoring and regional vaccine selection and performance
  - Targeted efforts to improve sampling in address Surveillance gaps
- Associated training for all Roadmap regions (online programmes)

Pillar III – Future workplan

## 3.3 Better Training for progressive control

**HOW TO DO IT?**

- World-leading suite of training courses for national PC programmes: multiple languages and regions
- Assist countries (+ partners) to deliver national FMD training (online/mobile access)
- Co-ordinated effort with OIE (PPP for progressive control, Safe-Trade,...) and OIE to develop an integrated overall suite of training for FAST diseases




Pillar III – Future workplan








## 3.4 Vaccine Security

**WHY?**

**Lack of Global Vaccine Security affects everyone**







The confidence that vaccines are affordable, available, effective and accessible to stakeholders

**HOW TO DO IT?**

- **Platform for stakeholders** to review barriers affecting access to vaccines for FAST diseases
- bringing together regulators, risk managers, research and private sector stakeholders
- **Supported by Working groups** and associated studies to address information gaps affecting investment decisions


Pillar III – Future workplan

<div style="display: flex; justify-content: space-between; align-items: center; border-bottom: 2px solid #f00; margin-bottom: 10px;">       </div>					
Goal (Pillar)	Component Objectives	Subcomponents € Per annum	Phase V per annum	Per annum Phase IV (2017-18)	Phase V Increase %
3. Sustained global progress	1. Sustained and effective PCP-FMD implementation		170,000	121,424	40
	PCP support to GF-TADS countries (PSO system)	80,000			
	Support PCP Roadmaps	50,000			
	Co-ordination/Support tools for PCP implementation	40,000			
	2. Improved global laboratory support		320,000	314,386	2
	Contract to support OIE/FAO FMD Ref Lab	200,000			
	Network	120,000			
	Surveillance support				
	3. Better training for progressive control		140,000	97,766	43
	E-learning Course development	50,000			
	Training delivery	90,000			
	4. Improved vaccine security		50,000	-	
	<b>Total</b>		<b>680,000</b>		

## **Appendix 14**

### **New strategy Hold Fast**





# Hold-FAST

A Europe secure from the daily threat of  
**F**oot-and-mouth disease **A**nd **S**imilar **T**ransboundary  
animal diseases



## New strategic plan

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



Thinking of the  
environmental  
footprint

STRATEGIC PLAN

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

Hold - FAST

A Europe secure from the daily threat of FMD And Similar Transboundary (FAST) animal diseases



Hold-FAST  
in 10 points


Vision of the Strategic Plan

A Europe secure from the  
daily threat of Foot-and-mouth disease  
And Similar Transboundary (FAST) animal diseases

The setting

FMD remains the #1 disease risk - but all member states,  
not only EU, are at risk of other FAST diseases

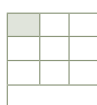
Based on 9 strong principles	4 significant new elements	Owned and Governed by the Member states (ExCom) International co-ordination with OIE and FAO (GF-TADS)
Scope: FAST disease threats	5 core-activities retained	Financial support Ec and Member States
3 goals / levels European, neighbourhood, Global	14 Components 14 KPI, strategy and tactics	Environmentally responsible operations

## STRATEGIC PLAN European Commission for the Control of Foot-and-Mouth Disease

### Hold - FAST

A Europe secure from the daily threat of **FMD** And **S**imilar **T**ransboundary (FAST) animal diseases

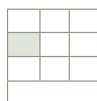
## Hold-FAST In 10 points



### 1. Principles

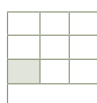
Non-negotiable values and commitments that frame the entire strategic planning activity:

- Continuous co-ordination
- Regular review of the risk situation
- Synergise efforts with the relevant EU
- Sharing of expertise in emergency preparedness and epidemic management
- Continuous engagement with veterinary services in the neighbourhood
- Effective use of European and neighbourhood reference laboratories and expertise
- World-leading training quality and tools
- Continuous improvement in delivery and impact
- An attitude of always seeking to leverage efforts



### 2. Clear Scope

Foot-and-mouth disease (FMD) and those transboundary animal diseases which pose similarities to FMD.



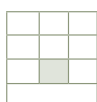
### 3. Three goals (Pillars)

I IMPROVE PREPAREDNESS	II REDUCE RISK	III SUSTAINED PROGRESS
Improve preparedness for management of FMD and similar TADS ("FAST diseases") crises by Members and across Europe as a whole.	Reduce risk to Members from the FAST disease (FMD and similar TADS) situation in the European neighbourhood.	Sustained progress of the GF-TADS Global Strategy against FMD and the improved security of supply of effective vaccines.

## STRATEGIC PLAN European Commission for the Control of Foot-and-Mouth Disease

### Hold - FAST

A Europe secure from the daily threat of **FMD** And **S**imilar **T**ransboundary (FAST) animal diseases

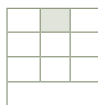


#### 4. Key Performance Indicators, Strategies and Tactics

14 Components > 14 KPIs, each with Strategy and Tactics.

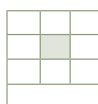
- KPIs: Quantitative measures that reflect progress towards objectives.
- Strategies: Approaches taken to achieve a particular objective.
- Tactics: Specific actions, projects, or initiatives that will be executed to achieve an objective.

Goal	OBJECTIVES	KPI Key Performance Indicators
I IMPROVE PREPAREDNESS	<ul style="list-style-type: none"> <li>• National capacity development</li> <li>• Regional and national capacity in emergency preparedness</li> <li>• Preparedness for use of emergency vaccination</li> <li>• South-Eastern Europe</li> <li>• Applied research program</li> <li>• Proficiency test services (extended EU scheme)</li> <li>• FAST disease information gathering and analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Knowledge Achieved With Training</li> <li>• MS satisfaction with CP tools</li> <li>• MS satisfaction with EV assessments</li> <li>• % countries having tested CP plans for FAST diseases</li> <li>• Satisfaction of Technical Committee with completed studies</li> <li>• Number of eligible non-EU countries participating</li> <li>• MS satisfaction with FAST risk reports</li> </ul>
II REDUCE RISK	<ul style="list-style-type: none"> <li>• Co-ordinated activities (under GF-TADS/REMESA)</li> <li>• FAST disease: Improved Early Warning</li> <li>• Integrated capacity development</li> </ul>	<ul style="list-style-type: none"> <li>• PCP-FMD indicators for progress (14 countries)</li> <li>• Regular surveys of satisfaction levels with EW system outputs</li> <li>• Knowledge Achieved with Training (tested) and numbers trained.</li> </ul>
III SUSTAINED PROGRESS	<ul style="list-style-type: none"> <li>• Sustained and effective PCP-FMD implementation</li> <li>• Improved global laboratory support</li> <li>• Better training for progressive control</li> <li>• Improved vaccine security</li> </ul>	<ul style="list-style-type: none"> <li>• Process indicators, completion of Roadmaps and #countries utilising PSO expertise</li> <li>• Surveillance targets met in three of the five Roadmaps; system for regional vaccine recommendations being used</li> <li>• Knowledge Achieved With Training (tested) and numbers trained</li> <li>• PPP: satisfaction of stakeholders in rate of progress</li> </ul>



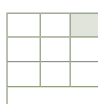
## 5. Significant new elements to the programme

Modelling capacity	Diagnostic bank	Early warning system	Vaccines
A Europe-wide TADS modelling capacity.	Laboratory proficiency and capacity supported by a diagnostic bank.	Integrated FAST disease early warning system in the REMESA/ neighbourhood region by end of 2020.	Vaccine security platform.



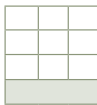
## 6. Core elements of the programme continued from Phase IV

Training	GET Prepared	PCP-FMD	FAR fund	Global intelligence
A world-leading training programme.	Expertise and support to MS on their preparedness.	Regionally co-ordinated targeted, national assistance to countries to apply the Progressive Control Pathway.	Fund for Applied Research (FAR).	Global intelligence on FMD with regular risk reporting on FMD.



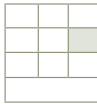
## 7. Oversight. Governance and co-ordination with partners and technical support structures

Governance			Technical support for decisions on changing priorities	
meets every six months				
EuFMD Executive Committee + OIE, FAO, EC.			EuFMD Standing Technical Committee (STC) for support to decisions on areas of technical complexity.	New Special Committee for Surveillance and Applied Research.
Co-ordination	Co-ordination with the private sector		Emergency management	
EC (DG-SANTE), EFSA, GF-TADS (Europe, Mid-East, Global)	PP Platform for emergency planing. For private sector engagement.	PP platform for vaccine security	Co-ordination	
			Daily with FAO-OIE and with the GF-TADS Emergency Management Centre (EMC)	



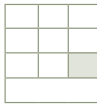
8. Operational management

The EuFMD Secreatariat.



9. Financing the plan

Circa Eur. 4,000,000 per annum	
Eur. 3,000,000 EC Programme	Eur. 1,000,000 Raised by the EuFMD



10. Environmental responsability and Sustainability Objectives

Applying the three “R’s”: Reduce, Re-use and Re-cycle to all operations.



# **Appendix 15**

## Turkey update



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## TURKEY FMD&FASTs SITUATION AND CONTROL STRATEGIES IMPLEMENTED

On Behalf of **Dr. Nihat Pakdil**, CVO  
**A.Naci BULUT**  
Şap Institute, Ankara, Turkey

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## FMD SITUATION

- FMD is endemic in Anatolia region in Turkey
  - Currently only Serotype O (O PanAsiaII/Qom15) circulated
  - Since January 2018 Serotype A (A/ASIA/GVII); and since July 2015 Asia1 has not detected

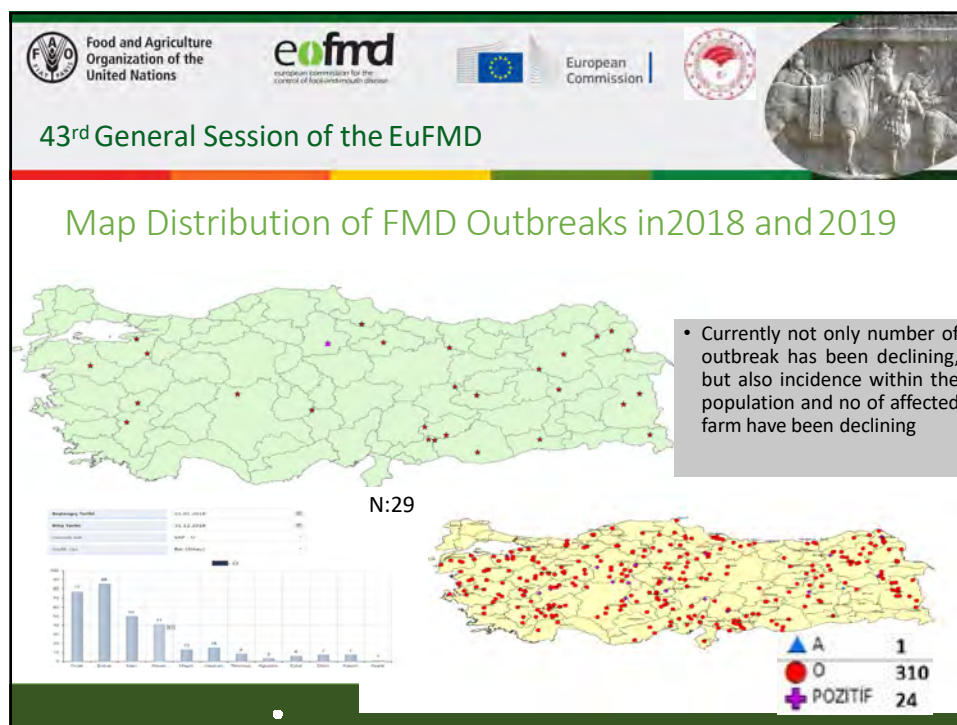
**Number of Outbreaks for 5 Five Years**


Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2014	44	39	48	48	27	10	11	5	3	12	3	3
2015	6	9	28	10	10	5	7	7	4	6	121	355
2016	76	21	25	123	136	47	61	21	34	45	35	31
2017	7	44	44	11	7	22	74	7	21	25	19	24
2018	86	106	69	50	24	11	12	3	6	7	7	1

**In 2019:**


- only 29 outbreaks due to serotype O (one is PCR(+)) were detected

• **Thrace region has been free of FMD with vaccination since May 2010**




- 


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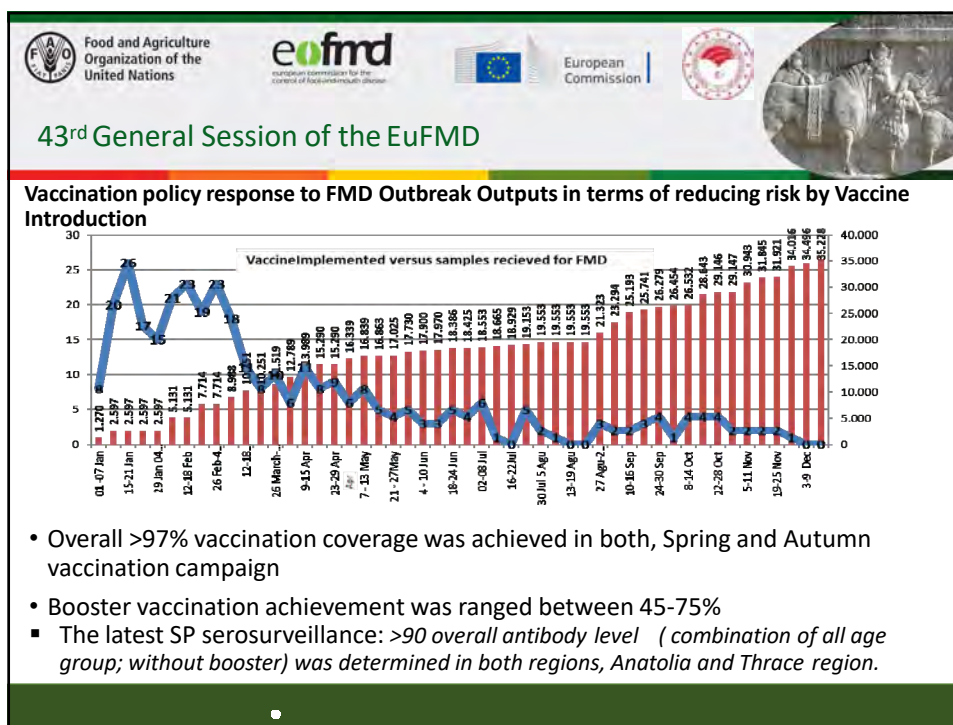



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- ### VACCINATION POLICY
- Preventive campaign vaccination :
    - In Anatolia; twice a year for LR;\_ (SR not included/only request by owner)
    - In Thrace: : twice a year for LR/once for SR
  - Ring Vaccination to response outbreak
    - In Surveillance zone of outbreak
  - Targeting vaccination for identified “Hotspot»
  - Small ruminant vaccination where risk identified
  - Booster vaccination introduced in country wide
  - Vaccination implemented based on risk assessment:
    - Early Spring: population assured protection before releasing grazing time
  - ***Şap Institute produces FMD vaccine sufficient capacity covered national population with >6PD50 potency vaccine used***





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**THE OTHER CONTROL MEASURES IMPLEMENTED, ADDITION TO VACCINATION**


- **Diagnosis, Genetic and Antigenic Characterization of Isolates**
- **Epidemiological investigation**
  - Active and passive surveillance
  - Outbreak investigation and case study
  - Sero-surveillance; NSP Prevalence estimation in Anatolia/Risk based surveillance Program for early detection in Thrace
  - *Clinical surveillance in provinces along to borderline*
- **Routine control measures in case of the outbreak**
  - Sampling, biosecurity, restriction, quarantine
- **Control of animal movements and markets**
  - Movement monitored by TURKVET requiring of received vaccine-(2times for young anm. and once for adult within last six month
  - Clinical examination in destination
  - Improvement on dealer certification and regulation as well as of vehicles of animal transportation
- **Training field vets and awareness activities for stakeholders**
- **Stamping out in Anatolia;** *will be introduced with time with different regions or sectors*



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**THE OTHER CONTROL MEASURES IMPLEMENTED, ADDITION TO VACCINATION**


- **Monitoring and Evaluation System has been already established**
  - Central (GD/FC)/Institute/Province level
  - This system administrates assessment and evaluation of the strategy
  - Additionally, steering committee and task force designated for the strategy monitors the plan
- **Routine Surveillance and sero-surveillance**
  - NSP Sero-surveillance: Assessment disease dynamics and identifying risk factors
  - Post vaccination sero-surveillance: Vaccination performance and antibody level
  - New clinical surveillance program & OI procedure
- **Reconstructed database with more functional and features**
  - Animal Registration System by TURKVET
    - LR/SR registered into the system with ear-tag; initiated replacement of electronic ear-tag
    - Animal movement managed and monitored by the system
  - Veterinary Information System (VIS)
    - Outbreak Management
    - Entering outbreak data all notifiable disease
    - Recording vaccination data
    - Sample Management System regulated by the database system
    - Recording surveillance questionnaire data



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## What is the new on the new strategy?

- Clinical surveillance in provinces along to borderline
  - This will be extended all area
- Stamping out in Anatolia
- Use extra high potency (10PD50) vaccine
  - in borderline provinces,
  - in response to outbreak- in surveillance zone, and
  - where the risk identified it crucial
- Booster vaccination
- Restriction of the movement
  - Requirement use identified road and check on the check points
  - Requirement vaccination two times within last six months
  - Automatic restriction by Turkvet
- Improvement infrastructure on movement and dealers
- *Collaboration and cooperation with neighbouring countries*



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## Summary

- *Vaccination is the main component of control policy implement in Turkey in addition to other control measures*
- *Due to effective control measures;*
  - *Vaccination coverage and protection level reach on desirable level*
  - *Number of outbreak has been decreased*
    - *Current outbreaks with low incidence rate*
  - *NSP prevalence, virus circulation, also has been declining*
  - *Budget allocated to control of the diseases particularly for FMD increased*



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## Summary

***To reach main goal of the strategy, new aggressive control measures also are put in place;***

**GOAL OF NEW STRATEGY**  
To contribute to the development of the livestock sector by achieving OIE status of FMD free with vaccination **by 2023**

2019 AchieveStage\_3 → 2021 AchieveStage\_4 → 2022 (end of) AchieveStage\_5

endorsed official control plan (OCP) for FMD in end of 2020

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## LUMPY SKIN DISEASE (LSD)

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### Background

- Eight years after being occurred in Israel, first LSD outbreak was detected in Turkey in August 2013
  - Index case was in Kahramanmaraş, province in cross border of Syria
- The disease were first spread dynamicaly around Kahramanmaraş, mainly East Mediterranean, South Eastern and East Central Anatolia regions and then spread throughout of Anatolia in second year
- Means by massive vaccination and stamping out, including the others control measures, it has been currently occurred in limited area in which it has been related to more likely insect activity




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### MAP DISTRIBUTION FOR LSD IN 2017-18-19

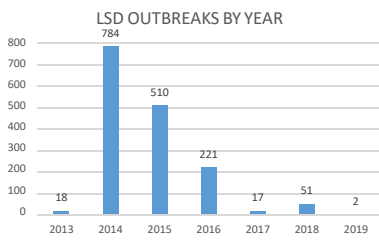
MAP DISTRIBUTION OF LSD OUTBREAKS IN TURKEY IN 2019




MAP DISTRIBUTION OF LSD OUTBREAKS IN TURKEY IN 2018



LSD OUTBREAKS BY YEAR

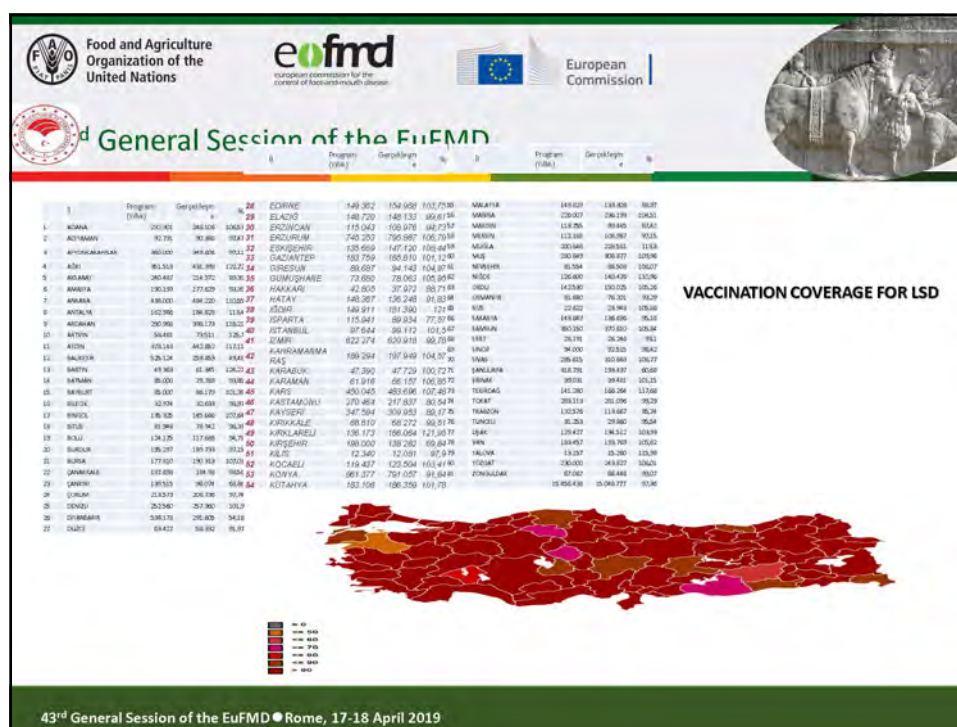


LSD outbreaks in 2017



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## LSD\_Control Policy

Routine control measures in response to outbreak

- Restriction, Quarantine, Ring Vaccination, Diagnosis
- Cleaning and Disinfection in outbreak areas-Biosecurity
- Insect control
- Stamping-out with compensation

•Control of animal movements

•Mass vaccination

- S&GP vaccine strain used as 3x doses of sheep&goat
- Vaccination implemented before session of starting insect activities; ONCE A YEAR

•Pendik Veterinary Control Institute is The National Reference Laboratory conducts diagnosis service

•SGP vaccine used against LSD produced by PVCI and other two private companies



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## LSD CONTROL PROJECT

**A new Project has been initiated for control of LSD:**

- The Project has been funded by EC with National budget contribution
- Aimed eradicated the disease
- Vaccination will be covered by the Project till next year
  - S&GPV vaccine strain (with 3times doses of sheep) used for Anatolia while Neethling based vaccine strain used in Thrace
  - This will be started next year, this year national budget used as before
- Compansation for stamping out covered by national budget
- A technical assistance Project will be conducted as part of the Project:
  - Capacity building of laboratory
  - Training
  - Awareness campaign
  - Surveillance and serosurveillance



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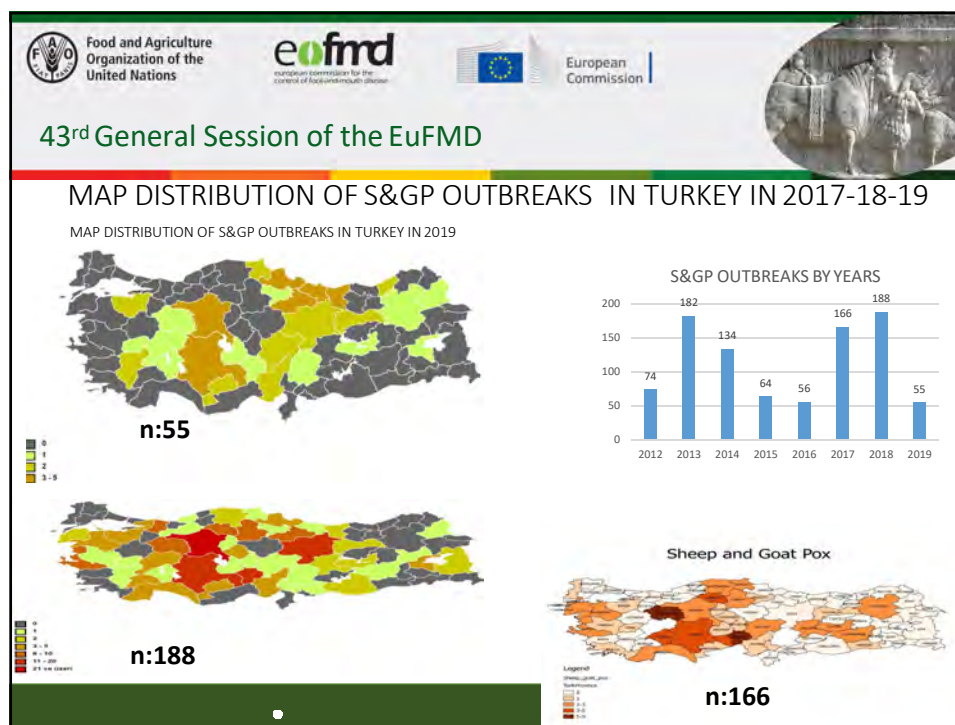


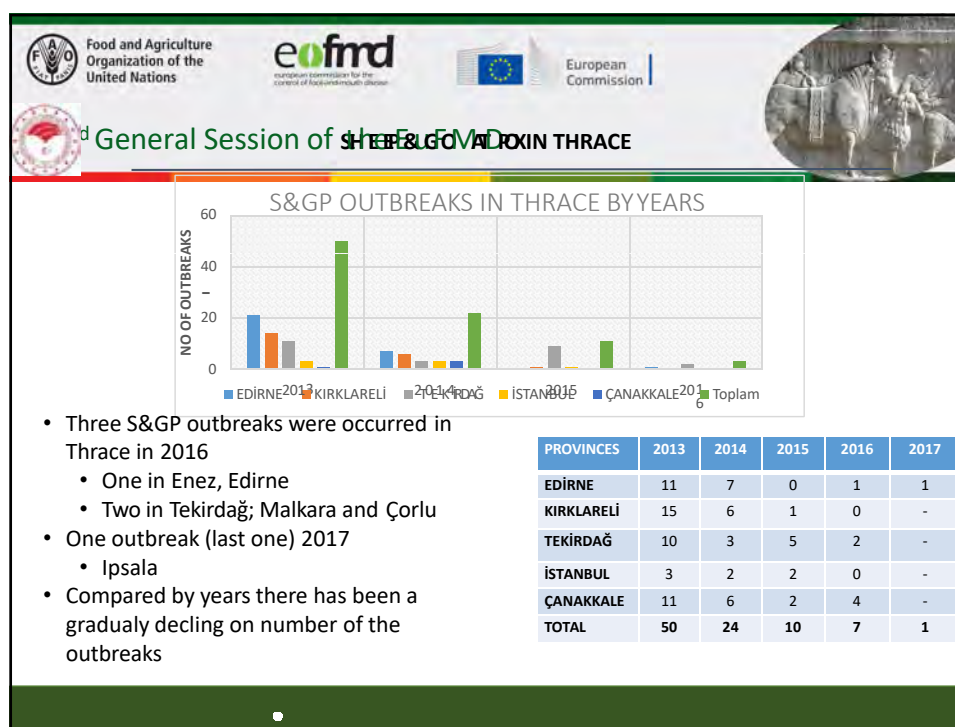
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## SHEEP&GOAT POX DISEASE (S&GP)









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### CONTROL POLICY

- Routine control measures in case of outbreak
  - Restriction, Quarantine, Ring Vaccination, Sampling, Diagnosis
  - Control of animal movements
  - Cleaning and Disinfection on outbreak areas
- **Current Vaccination Policy**
  - All small ruminants are vaccinated throughout Thrace
  - Small ruminants will be vaccinated in outbreak zone of Anatolia
  - Response to outbreak, all small ruminants vaccinated 2 years continuously in outbreak zone after occurrence
  - Vaccination is carried out before autumn and winter session that occur at high prevalence of the disease

#### Vaccination in Anatolia by years

YEAR	TARGETED	IMPLEMENTED	COVERAGE
2012	526.402	458.244	87
2013	839.486	650.128	77
2014	2.380.748	2.503.886	105
2015	2.242.482	1.764.441	79
2016	2.260.133	2.360.586	104
2017	3.445.100	3.768.443	109
2018	3.132.272	4.341.777	140

#### Vaccination in THRACE IN 2018

PROVINCE	TARGETED	IMPLEMENTED	COVERAGE
ÇANAKKALE	166.500	183.160	110,01
EDİRNE	335.276	340.459	101
İSTANBUL	155.675	153.400	100,00
KIRKLARELİ	341.500	346.943	98,66
TEKİRDAĞ	306.350	307.048	100



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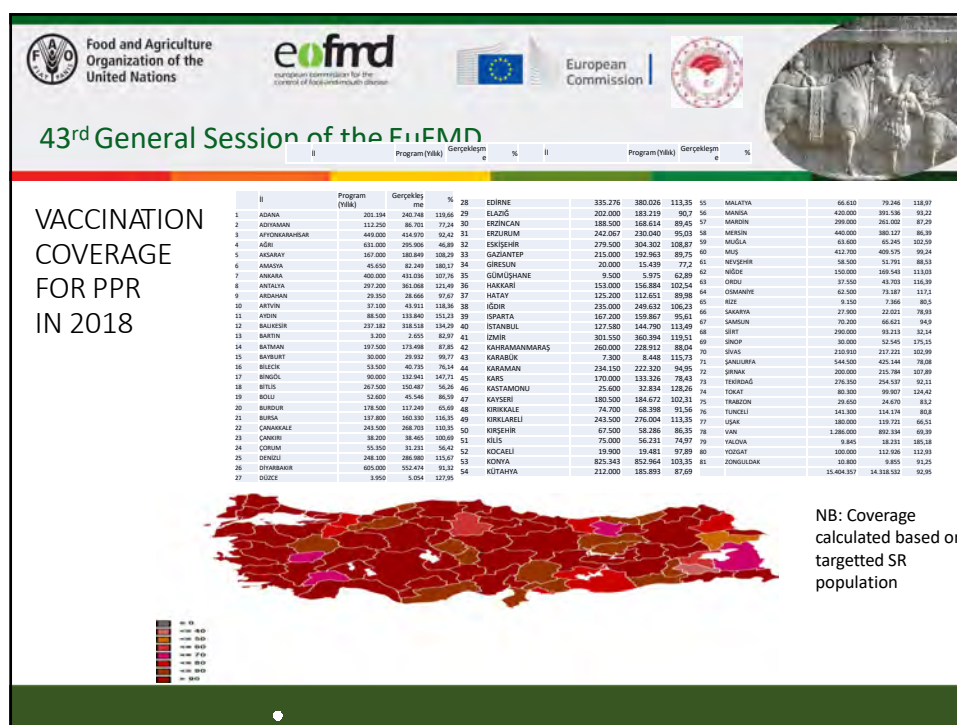
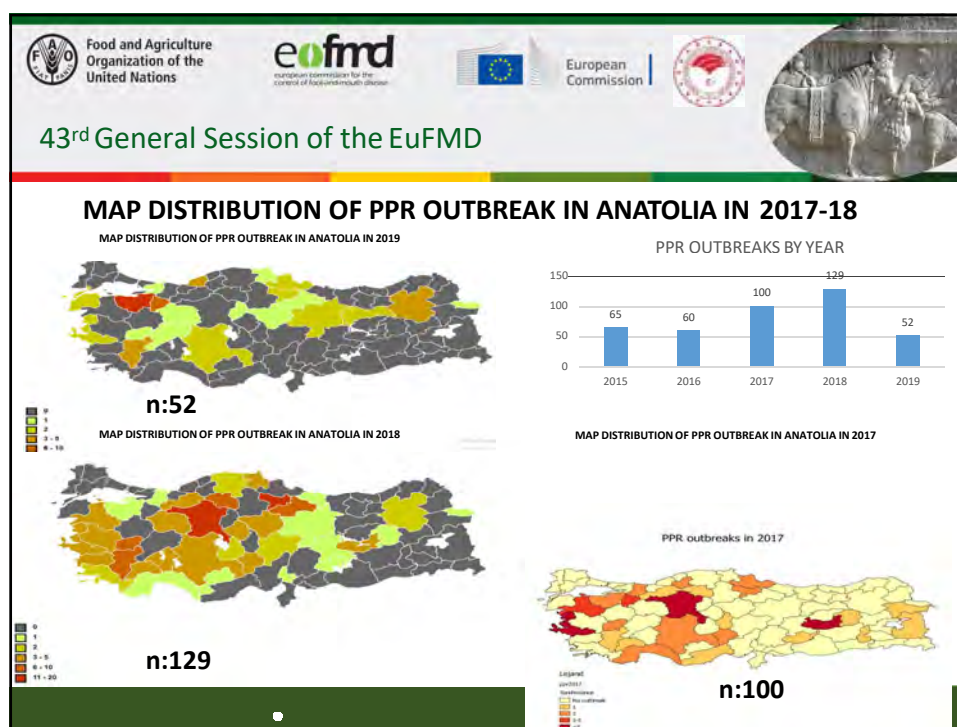
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### *PESTE DES PETITS RUMINANTS (PPR)*







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### CONTROL POLICY for PPR


- A strategy plan has been prepared and implemented since 2016 approaching with regional progressive eradication of the disease
- **ANATOLIA**
- Routine control measures in case of disease outbreak
  - Restriction, quarantine, ring vaccination, sampling, diagnosis
- Control of animal movements
- Unvaccinated animal not allowed for movement.
- Vaccination policy
  - all animals in response to outbreaks (ring vaccination),
  - As protective propose:
    - All new born and
    - Unvaccinated adults
- **THRACE**
- PPR has not been detected clinically in Thrace region since 2013
- Next year vaccination will be ceased
- Initiated the disease control program to achieve zonal free status
  - Control of animal movements strictly applied
  - Initiated serosurveillance activities
  - Continued clinical surveillance program integrated Thrace FMD RBSP




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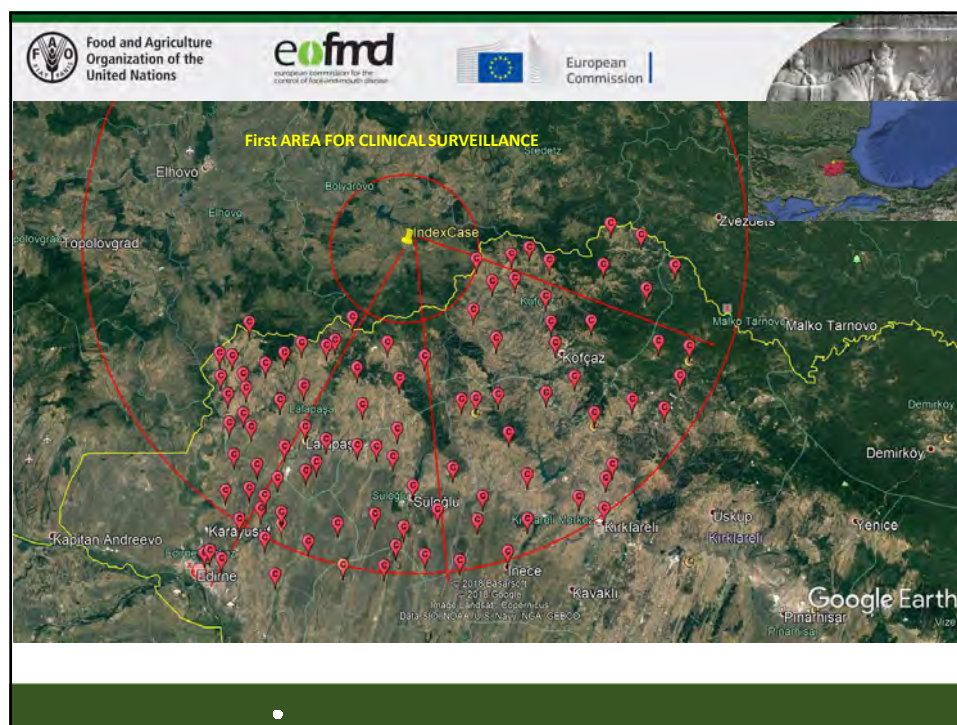
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### CLINICAL SURVEILLANCE RESPONSE TO BL PPR OUTBREAK







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## CLINICAL SURVEILLANCE


- Clinical surveillance for early detection to response PPR outbreak:
  - **Area** has been extended to 45km deeper from the border, instead of surveillance zone of the outbreak
  - **Location:** Edirne (central, Lalapaşa, süloglu and Havsa districts) and Kırklareli (central and kofçaz) provinces
  - **Epi-Units:** 90 villages
  - **Population size:** 89017 SR (80761 and 8256 Sheep and Goat respectively)
  - Target for clinical examination: 60 animal (for >100 /per epi-unit); all if exist <100/per epi unit
  - Almost all **farms** were visited for examination and totaly 3870 SR were examined
  - Any suspicion detected by the surveillance
  - Result recorded database; [PPR CLINICAL SURV EDNRN KRKLL JULY18.xlsx](#)
  - Data collection form; [PPR-KlinikSur\\_kayapa.jpg](#)




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# VACCINATION and Other Measures


- In addition regular annual vaccination achieved this year;
  - All SR were vaccinated in those two provinces, Edirne and Kırklareli
- Animal existed surveillance area were kept confidence inside the barns till 13<sup>rd</sup> July
- Animal movement and market were stanstilled up to finalizing clinical surveillance





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### DESIGN OF SEROSURVEILLANCE


- Used two stage sampling
  - Number of village (Epi-units)
  - Number of animal for sera sampling
- 108 epi-units
- 20 sera samples/per
- Age: young and young adult combination
- 1730 sheep and 325 goat (105 samples for sheep out)
- Mab Blocking ELISA used for test

### SAMPLING MAP DISTRIBUTION AND SAMPLING SIZE







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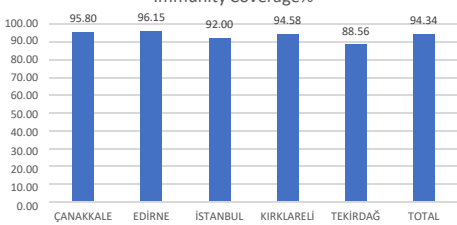
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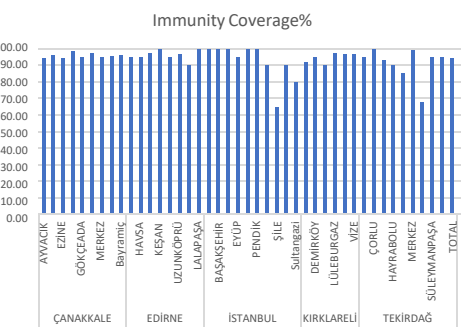
### IMMUNITY COVERAGE BY PROVINCES AND DISTRICTS

Immunity Coverage%

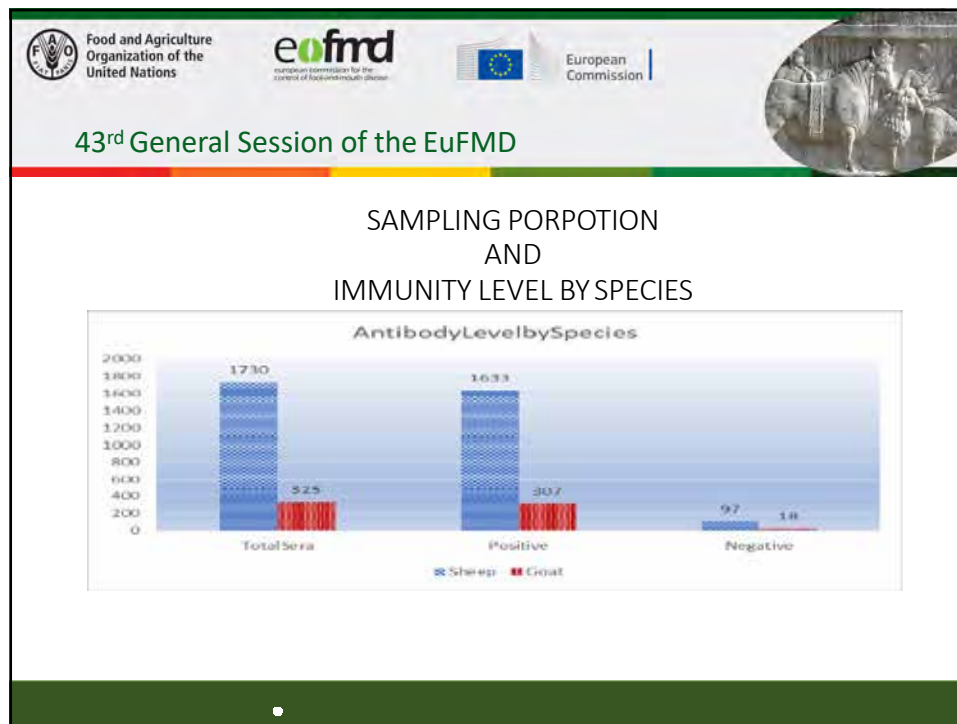


Province	Immunity Coverage%
ÇANAKKALE	95.80
EDİRNE	96.15
İSTANBUL	92.00
KIRKLARELİ	94.58
TEKİRDAĞ	88.56
TOTAL	94.34

Immunity Coverage%



District	Province	Immunity Coverage%
AVAKCI	ÇANAKKALE	~95
EZINE	ÇANAKKALE	~95
GÖKÇEADA	ÇANAKKALE	~95
MERKEZ	ÇANAKKALE	~95
Bayramiç	ÇANAKKALE	~95
HANSA	ÇANAKKALE	~95
KEŞAN	ÇANAKKALE	~95
UZUNKÖPRÜ	ÇANAKKALE	~95
LALAPAŞA	ÇANAKKALE	~95
BAŞAŞEHİR	EDİRNE	~95
EYÜP	EDİRNE	~95
PENDİK	EDİRNE	~95
ŞİLE	EDİRNE	~95
Sultangazi	İSTANBUL	~95
DEMİRKÖY	İSTANBUL	~95
LÜLEBURGAZ	İSTANBUL	~95
VİZE	İSTANBUL	~95
ÇORLU	EDİRNE	~95
HAYRABOLU	EDİRNE	~95
MERKEZ	EDİRNE	~95
SÜLEYMANPAŞA	EDİRNE	~95
TOTAL		94.34



## **Appendix 16**

### Israel update



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# FMD & TADS Threats in Israel




Dr. Tamir Goshen, Acting CVO.  
Israeli Veterinary Services & Animal Health

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# Israel

- Dairy Cattle – 200,000 (cows + replacement)
- Beef- Pasture – 50,000 (cows)
- Feedlot – 300,000 Calves, 300,000 lambs.
- Sheep – 500,000 (ewes)
- Goats – 100,000 (does)
- Pigs - 16,000 (sows)




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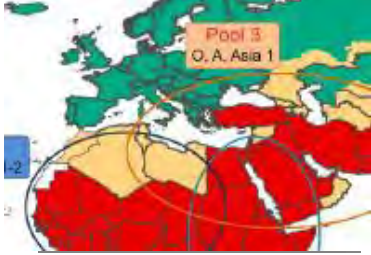
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## FMD


- Endemic region.
- Incursions close to the borders.
- Little/no warning from neighboring countries.




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## FMD Outbreaks 2017-8



**FMDV A/G-VII**  
 May 2017  
 Aramtha, Qida

**FMDV O/EA-3**  
 Feb 2017  
 Nir-Yitzhak, Gaza Strip

**FMDV O/EA-3**  
 May-June 2017  
 Hubsan, Yafa, Ramallah (PAT)

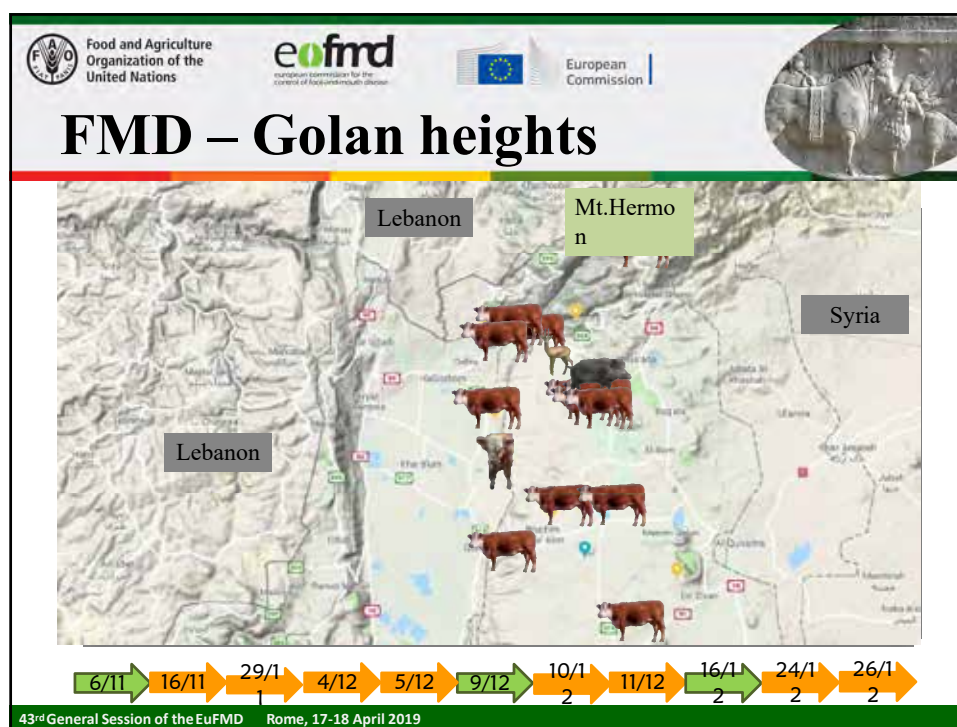
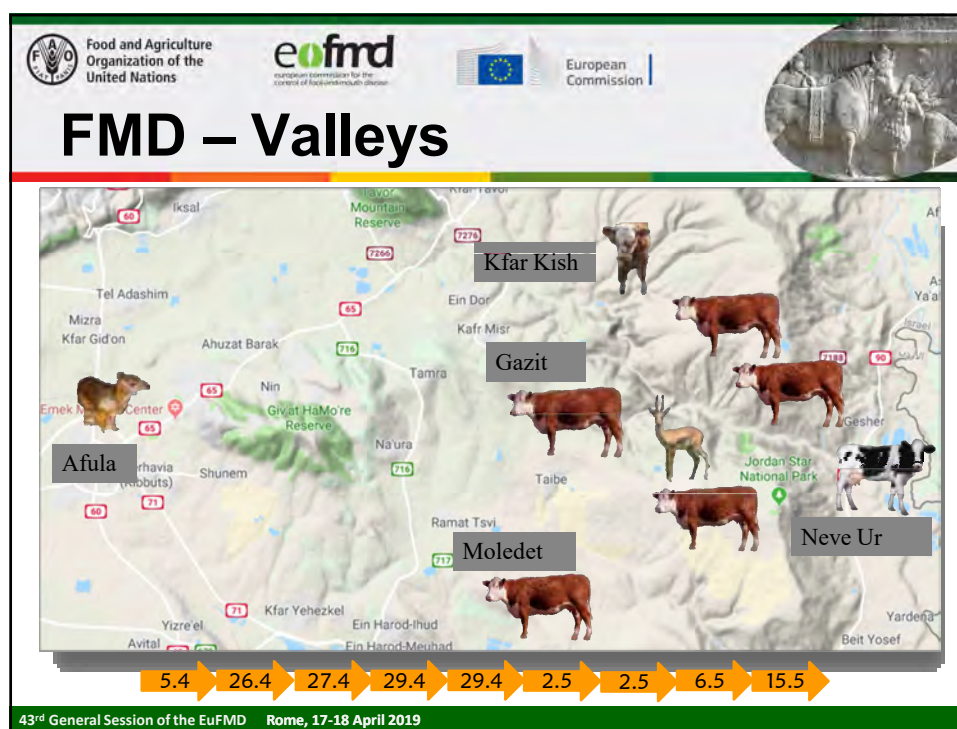
**FMDV O/EA-3**  
 Dec 2017  
 Hebron/ Yafsa  
 Jul 2018  
 Hebron


**FMDV O/ME-SA/PanAsia-2/ QOM-15**  
 Apr-May 2018  
 Gazit, Nahal Tavor, Hamadia, Neve  
 Ur, Kochav HaYarden, Moledet,  
 Alula, Kfar Kish  
 Jul 2018  
 Gaza - 1st  
 Sep-Dec 2018  
 Maghar, Sasa's, Mar'asa, Kfar Sali,  
 Wild boars, Sela, Tama


**FMDV**  
 June 2018  
 Sela, Ashdod, Ashdod, Ajlun,  
 Jaba (PAT) / Ungep


**FMDV O/ME-SA-panAsia-2**  
 March 2019  
 Bani-nadim


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## FMD - Control


- Annual vaccination. (O,A, ASIA-1)
- Asia-1 – last outbreak 1989.
- Nearest outbreak - Turkey 2015.
- Future vaccines – A+0 (ASIA-1 antigen bank).
- W/O early warning – vaccination campaign will continue.

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## TADS

- Emerging disease:
  - Ephemeral fever.
  - Simbu group viruses.
  - LSD.
  - EHD.
- RVF.


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## Bovine Ephemeral fever

- Disease caused by an arbovirus (Rhabdoviridae), affects cattle and buffalo.
- Fever ( $>40.5^{\circ}$ ), salivation, nasal discharges, lameness, tremor, respiratory distress, emphysema, milk yield ↓, recumbency, transient infertility & abortions.
- High morbidity/low mortality.


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## Bovine Ephemeral fever

- 1931, 1951, 1990-91, 1999-2001, 2004, 2008-2010, 2014-2015, 2018.

1990


1999

2004






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## Bovine Ephemeral fever

- Vaccines:
  - Inactivated – not produced, ineffective.
  - Attenuated – matching? Efficacy?


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## Simbu group viruses


- National monitoring.
- Mosquitos & midges monthly capturing.
- 6 ½ year old heifers – blood sampled monthly.
- Akabane, Aino, Shuni, Peaton




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## Simbu group viruses

- Akabane:
  - 1969-70.
  - 1985.
  - 2001-2003 (AKAV+AINO).
  - 2012.
  - 2014-2018.


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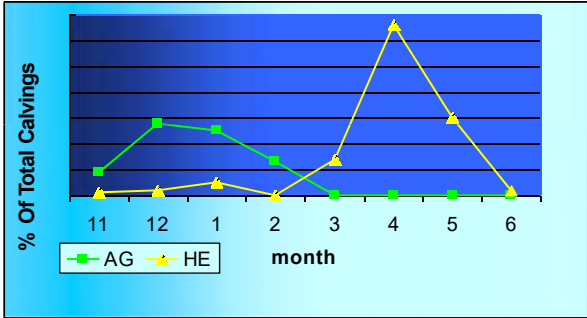


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## Simbu group viruses

- Abortions.
- Dystocia.
- Arthrogryposis & Hydranencephaly.



Month	AG (%)	HE (%)
11	~10	~5
12	~25	~5
1	~20	~10
2	~15	~5
3	~5	~15
4	~5	~45
5	~5	~25
6	~5	~5




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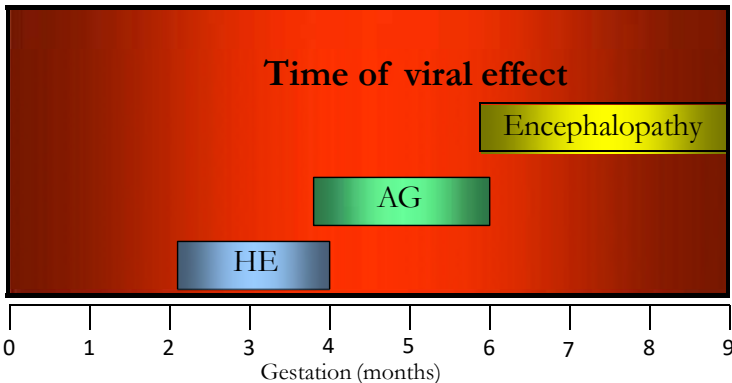
# Simbu group viruses



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# Simbu group viruses



Time of viral effect

Encephalopathy

AG

HE




0 1 2 3 4 5 6 7 8 9

Gestation (months)

Arthrogryposis = AG      Hydranencephaly = HE

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## Simbu group viruses

- Cows/Ewes – no clinical signs. (abortions?)
- No control measures.

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## Challenges

- Effective control measures.
- Vaccine availability.
- RVF.



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## **Appendix 17**

### Georgia update





## Georgia

**Lasha Avaliani**  
*Head of Veterinary Department, OIE Delegate,*  
*National Food Agency*

**Zurab Rukhadze**  
*National Food Agency*



**8th West Eurasia FMD Roadmap meeting • Shiraz, Iran • 4-6 March 2019**



## Objective of the FMD National Plan

**Goals – Reduce the risk of FMD infection in large and small ruminant populations and ensure maintenance the export capacity of animal and animal products of the country.**

**Strategic objective – To ensure full operation of FMD Risk Based Strategic Plan by 2019, reach PCP stage 4 by 2020 and reach FMD official free status with vaccination for candidate zone by 2022.**

**Candidate zone – Racha-Lechkhum Kvemo Svaneti & Mestia**

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რეგიონული კვლევის სარეგისტრაციო და მონიტორინგის მუხრებზე  
გთხოვთა მონივრული დაკვირვებისა და ინფორმაციის შეგროვების  
გთხოვთა სტრატეგია


საბაზო კვლევა 2019-2020




საბაზო მონიტორინგის დროშები - 21 კვლევი  
დასტავი # 1 (საბაზო კვლევის მონიტორინგის დროშები) - 6 კვლევი  
დასტავი # 2 (საბაზო კვლევის დროშები) - 2 კვლევი  
დასტავი # 3 (კომპლექსური) - 12 კვლევი  
კონკრეტული მონიტორინგის დროშები




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## Progress along Stage 3 - Component 1

- No FMD outbreaks detected
- 10 suspicious case was reported in 2018

Region	Period	Specious	# of samples	results
Racha Lechkhumi	May	LR	2	negative
Tbilisi	June	LR	2	negative
Mtskheta Mtianeti	July	LR	2	negative
Samtskhe Javakheti	July	LR	3	negative
Guria	September	LR	1	negative



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## Progress along Stage 3 - Component 1

NSP-SP Sero-survey 2018 in Georgia was held by four categories:

- Villages with high risk categories excluded Candidate Area;
- Villages with low risk categories excluded Candidate Area;
- Migrating animals in Eastern Georgia;
- Villages in Candidate Area;

In total 5 000 NSP and 1 000 SP samples were tested;

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## Serosurvey design

- Guidelines for field veterinarians and laboratory staff with all necessary paper forms has been elaborated
- Field and Laboratory information was entered in Electronic Integrated Disease Surveillance System (EIDSS)

**Field and Mouth Disease Sero-surveys (NSP- and SP-Ab surveys) in Georgia, 2015**  
DRAFT v.3

**General objectives**

- To obtain data for further FMD control, risk-based vaccination and surveillance.

**Specific objectives**

- To assess the prevalence of FMD virus in cattle and sheep.
- To assess the prevalence of FMD virus in cattle and sheep.
- To assess the prevalence of FMD virus in cattle and sheep.

**1. NSP-Ab antibody surveys in large & small ruminants**

**Objectives**

1. To determine the prevalence of FMD virus in cattle and sheep.
2. To determine the prevalence of FMD virus in cattle and sheep.

**Design**

- Simple random sampling will be used to estimate the level of FMD virus in cattle and sheep.
- The sampling will be carried out during several consecutive days.
- The sampling will be carried out during several consecutive days.

**Guidelines for sampling in non-ruminant species (PNS-SP)**

**Objective**

To obtain data for further FMD control, risk-based vaccination and surveillance.

**Specific objectives**

- To assess the prevalence of FMD virus in non-ruminant species.
- To assess the prevalence of FMD virus in non-ruminant species.
- To assess the prevalence of FMD virus in non-ruminant species.

**2. PNS-SP antibody surveys in non-ruminant species**

**Objectives**

1. To determine the prevalence of FMD virus in non-ruminant species.
2. To determine the prevalence of FMD virus in non-ruminant species.

**Design**

- Simple random sampling will be used to estimate the level of FMD virus in non-ruminant species.
- The sampling will be carried out during several consecutive days.
- The sampling will be carried out during several consecutive days.

**NSP-SP antibody survey form (For ruminant species)**

**General information**

Name of the animal owner: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

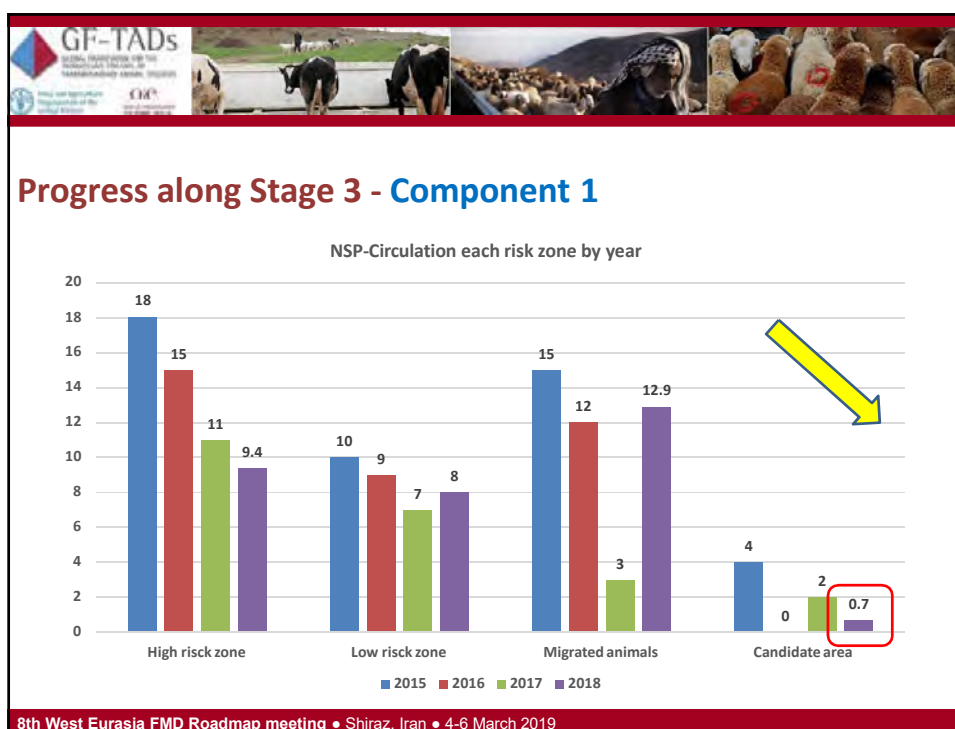
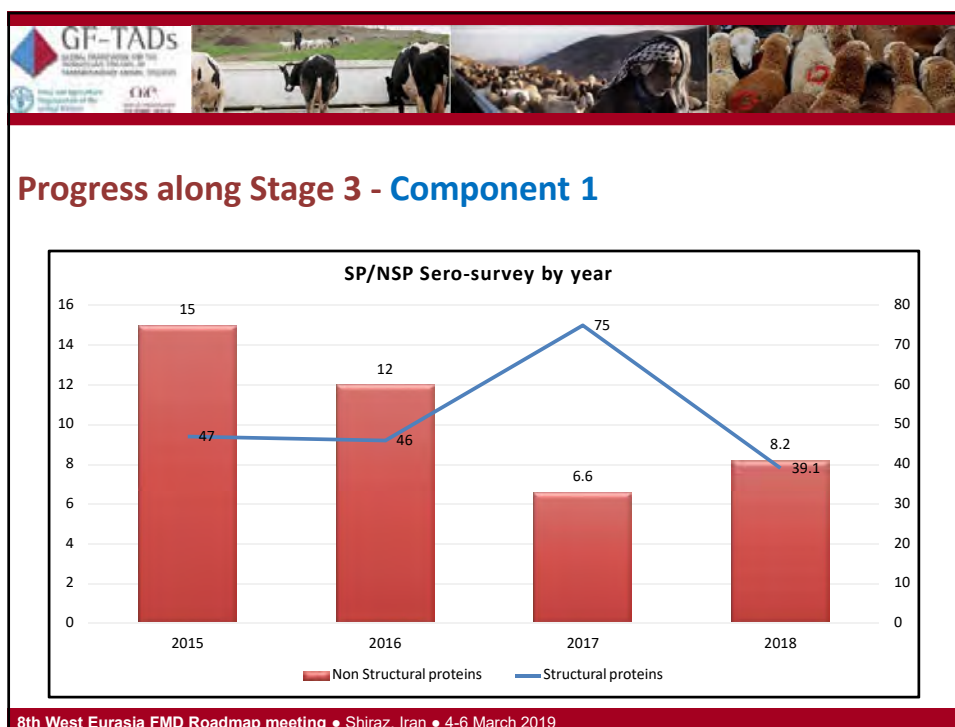
**Table 1: Data collection**

No	Animal species	Sex	Age	NSP-Ab	SP-Ab	Sample number (if any)
1	Cattle	♂	5	+	+	101
2	Sheep	♀	3	+	+	102
3	Goat	♂	2	+	+	103
4	Donkey	♂	4	+	+	104
5	Pig	♂	1	+	+	105

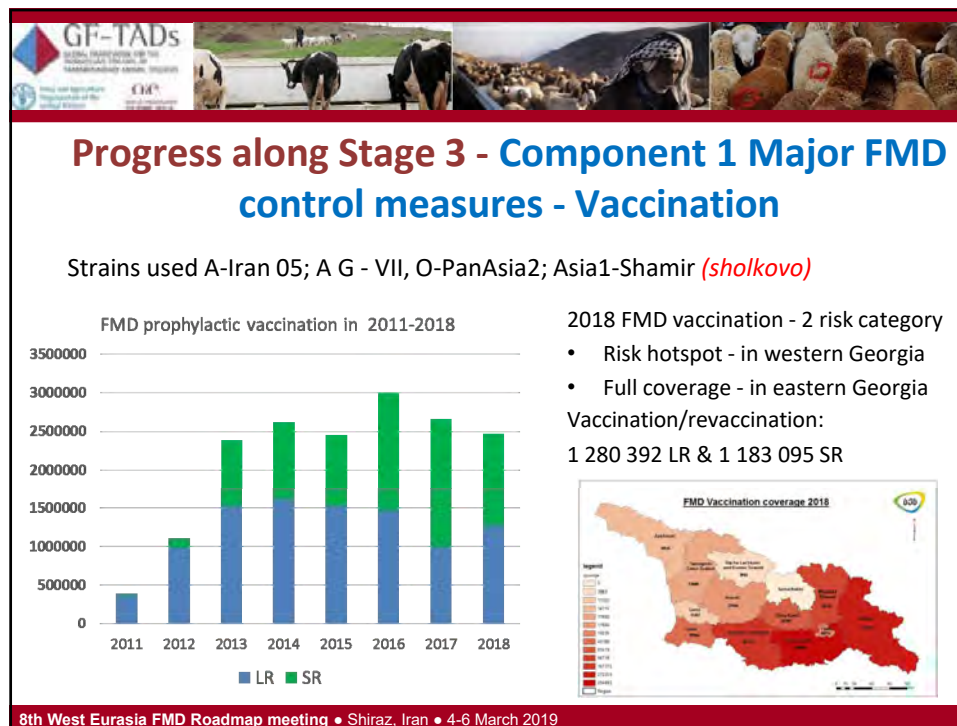
**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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**Progress along Stage 3 - Component 1 Major FMD control measures - monitored**

**Evaluation of vaccine quality and immune responses in naïve animals**

Duration	Specification of action	Date	Status	N of samples
Before the Vacc.	Collect 2x 10-ml blood for serum from each animal	09.10.2018	Completed	20 LR – 20 SR
Day 0	Vaccinate the vaccination groups (18 animal) with a single dose of vaccine as stated on the label	09.10.2018	Completed	
Day 14	Collect 2x 10-ml blood for serum from each animal	24.10.2018	Completed	20 LR – 17 SR
Day 28	Collect 2x 10-ml blood for serum from each animal	07.11.2018	Completed	20 LR – 17 SR
Day 60	Collect 2x 10-ml blood for serum from each animal	09.12.2018	Completed	18 LR – 17 SR
Day 90	Revaccinate 9 cattle/sheep with a single dose of vaccine. Collect 2x 10-ml blood for serum from each animal	08.01.2019	Completed	13 LR – 16 SR
Day 120	Collect 2x 10-ml blood for serum from each animal	03.02.2019	Completed	12 LR – 16 SR
Day 150	Collect 2x 10-ml blood for serum from each animal	03.03.2019	On going	
Day 180	Collect 2x 10-ml blood for serum from each animal	06.04.2019	On going	

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## Progress along Stage 3 - Component 1 Major FMD control measures - monitored

**Clinical investigation in candidate zone**

- Up to present 106 Villages and 3 074 Animals are investigated;
- Data is entered in the paper forms and in Epicollect 5;
- GPS coordinates/photos uploaded
- Samples were entered in EIDSS;



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## Progress along Stage 3 - Component 1 Major FMD control measures monitored

**Migration control:**  
**Veterinary Surveillance Points along animal migration route**






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**Progress along Stage 3 - Component 1 Major FMD control measures monitored**

**awareness campaigns:**



5,000

**Hot line - 1501**

2,000

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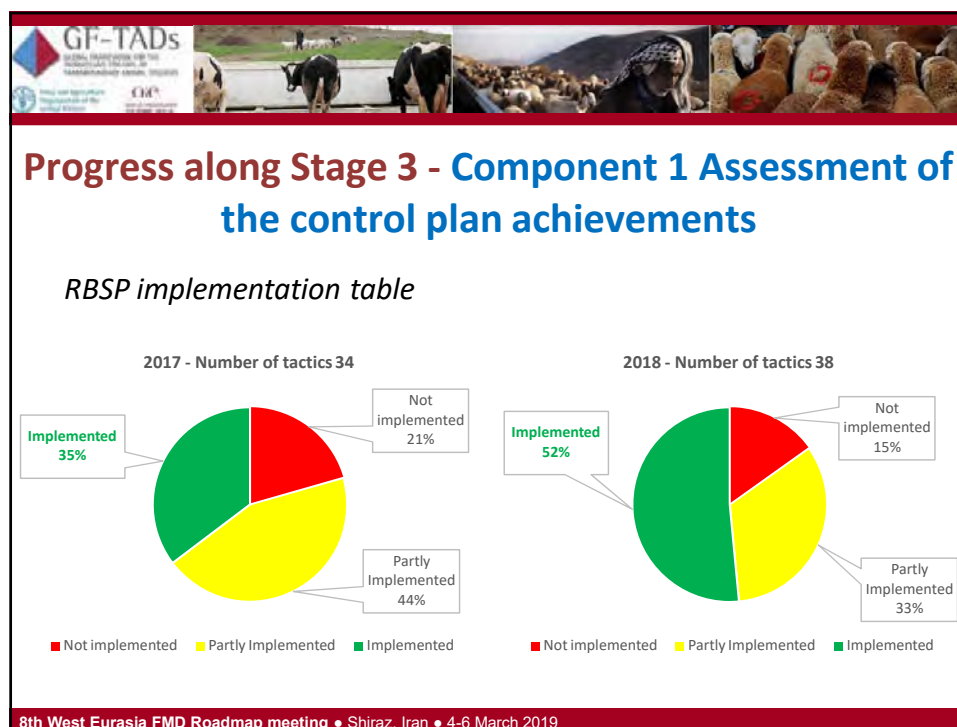
**Progress along Stage 3 - Component 1 Major FMD control measures monitored**

**Stakeholders support**

- FMD Training and awareness meeting for private veterinarians**



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**Progress along Stage 3 - Component 2**

**Activities to strengthen the veterinary services**

*PVS self assessment 2018*

Critical competencies relevant to PCP-FMD Stage 1	Score required	Current score (self-evaluation)	Comments (if any)
I.6.A. Internal coordination (chain of command)	3	3	
I.11. Management of resources and operations	3	3	
II.11 Emerging issues	3	2	Emergency response II.11
III.4 Accreditation / authorisation / delegation	3/4	3	
III.5.A. Veterinary Statutory Body authority	3/4	1	
III.5.B. Veterinary Statutory Body capacity	3	1	
II.6 Early detection and emergency response	3	2	
II.7 Disease prevention, control and eradication	3	3	
II.8B. Ante- and post mortem inspection at abattoirs and associated premises	3	2	
II.12.A. Animal identification and movement control	3	3	
I.7. Physical resources	3	3	
I.8. Operational funding	4/5	2	

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## Progress along Stage 3 - Component 3 Synergies to control other TADs



FMD control contributes to other major TADs

- Contracted veterinarians
- Passive surveillance
- RBSP similar approach – Brucellosis, Rabies, Anthrax (A.D.)
- Candidate zone – FMD, Brucellosis, PPR, TB...

Strengthening veterinary services contributes to control TADs

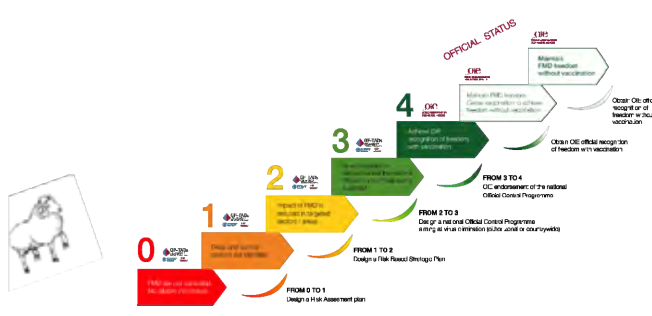
- Cold chain
- Guidelines/training

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## Provisional PCP-FMD Roadmap for {Georgia} 2019-2025

Country	2019	2020	2021	2022	2023	2024	2025
Estimation in 2019	3	4	4	Free with	Free with	Free without	????



**0** **Official status**  
FMD free area without vaccination

**1** **Official status**  
FMD free area without vaccination

**2** **Official status**  
FMD free area without vaccination

**3** **Official status**  
FMD free area without vaccination

**4** **Official status**  
FMD free area without vaccination

**FROM 0 TO 1**  
Design a Risk Assessment plan

**FROM 1 TO 2**  
Design a FMD-Roadmap Strategic Plan

**FROM 2 TO 3**  
Design of a national Control Programme aiming at a risk reduction prior and/or during

**FROM 3 TO 4**  
Design of the national Control Programme

**Official status**  
FMD free area without vaccination

**Official status**  
FMD free area without vaccination

**Official status**  
FMD free area without vaccination

**Official status**  
FMD free area without vaccination

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## Summary

***Main activities for future***

- *Finish clinical survey in Mestia (part of candidate zone)*
- *Strengthen movement control in candidate zone*
- *Advocate compensation policy to Ministry of Finances*
- *Finish contingency plan (General and for FMD)*
- *Strengthen National Animal Identification and Traceability*

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## Thank you for you attention

**Acknowledgment**


- EuFMD team
- FAO
- OIE
- CIB

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# **Appendix 18**

## Antigen banks







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## 43<sup>rd</sup> General Session of the EuFMD


# Report on the status of FMD antigen and vaccine banks in the European region and neighbourhood

Kiril KRSTEVSKI, EuFMD


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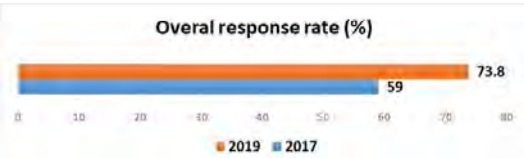
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### Background

- **March 2019** EuFMD circulated a questionnaire to all 39 EuFMD Member States and 3 countries from the European neighborhood
- **31 responses** received till publishing (30 EuFMD MS + 1 country from the European neighbourhood) ; and **1 more afterwards**




### Overall response rate (%)




Year	Overall response rate (%)
2019	73.8
2017	59

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### Summary of the survey

- **91%** of respondent countries **include emergency vaccination** in their FMD contingency plans (same as 2017)
- **89%** of these countries indicated that **have mechanism to support decision making** in relation to **whether to proceed with emergency vaccination and vaccination strategy**:
  - subject matter expert committees will support the decision making
  - models are used for this purpose (increased number compared to 2017)


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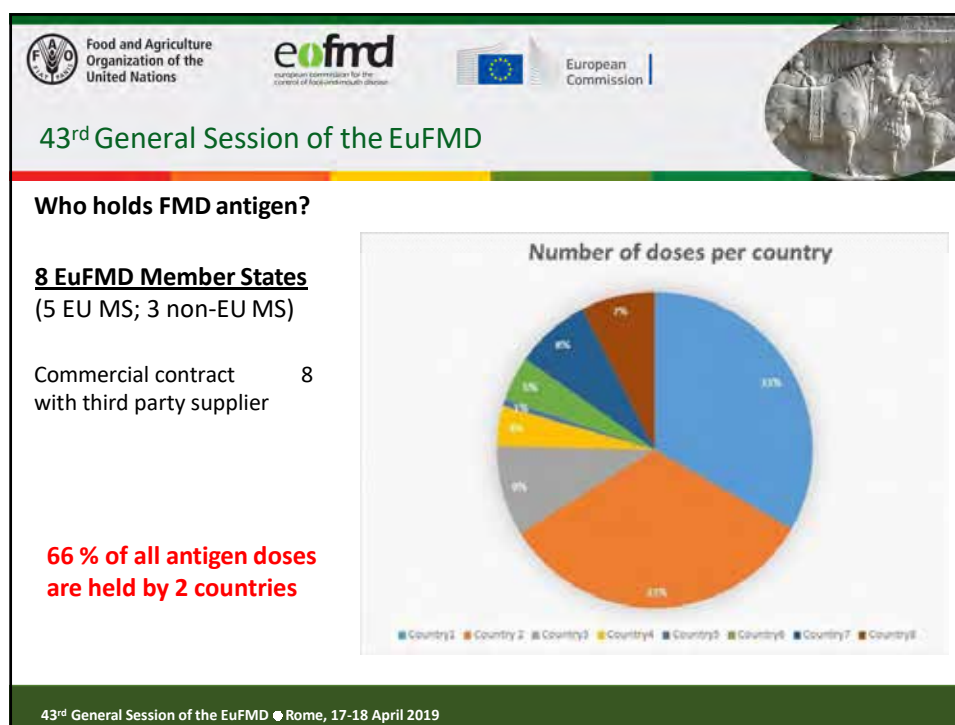
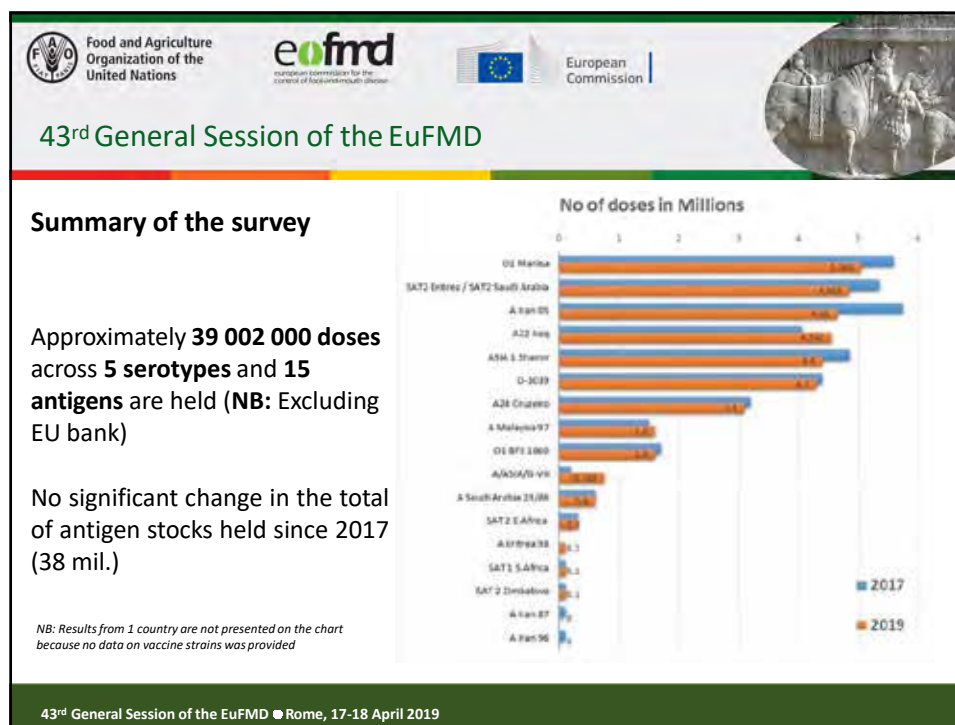


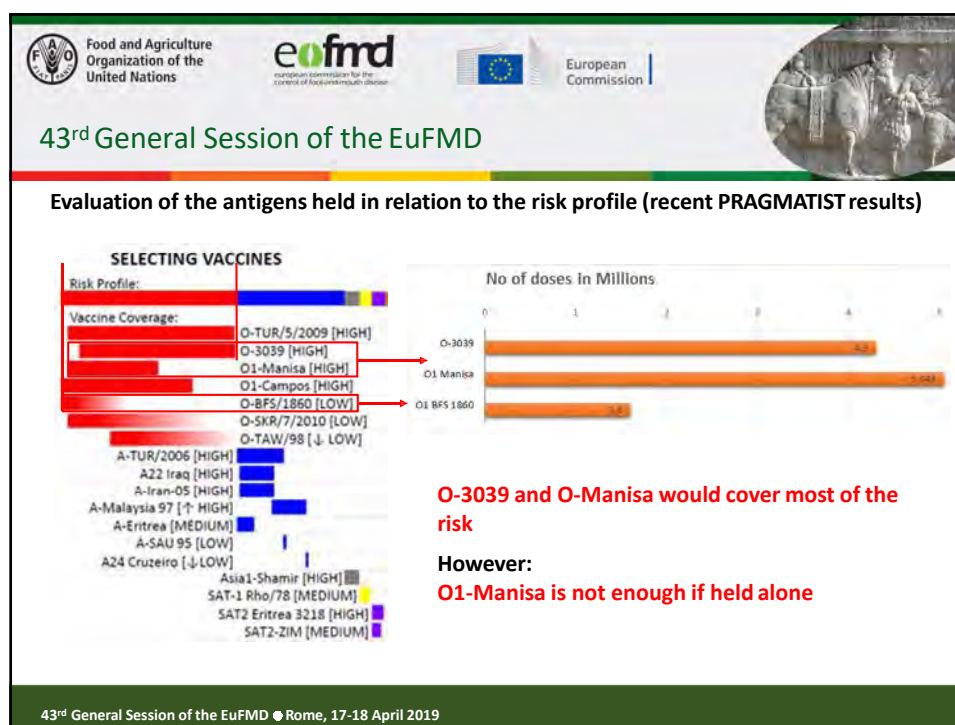
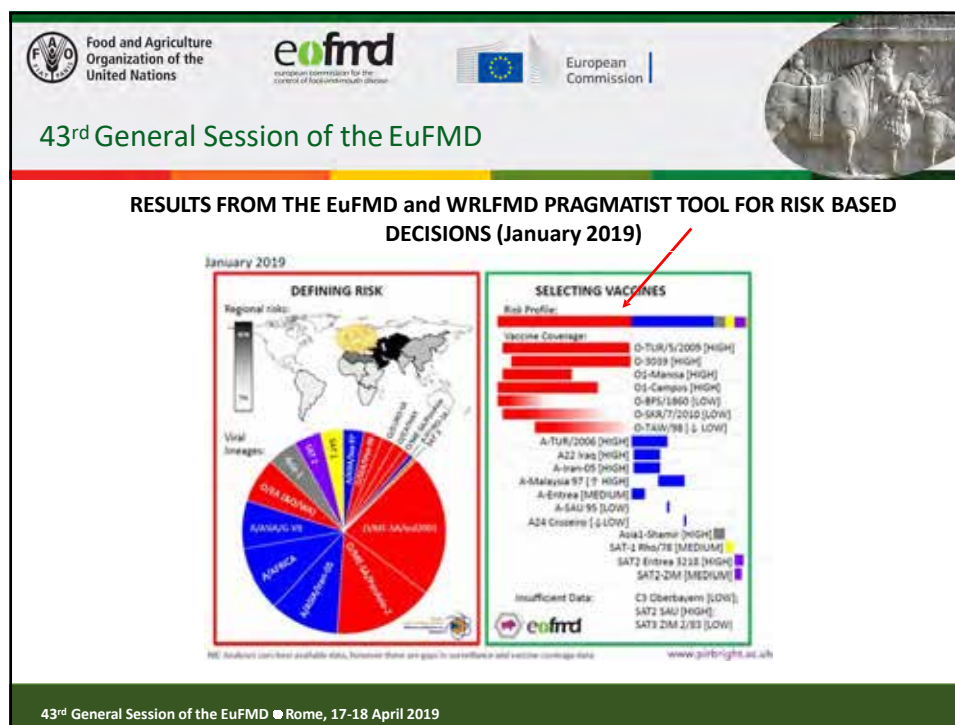
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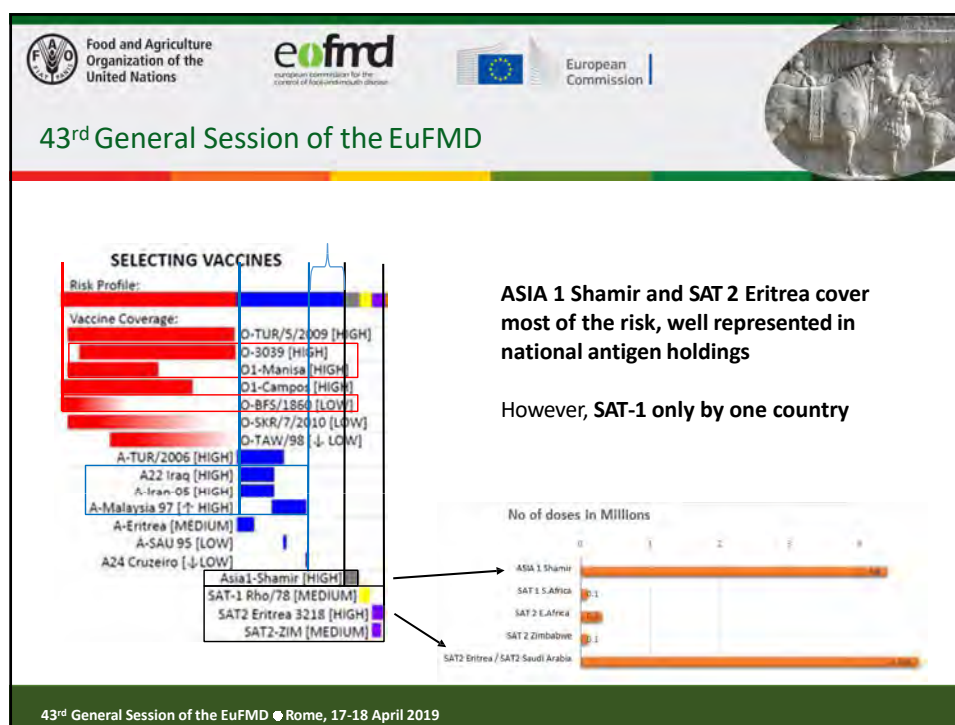
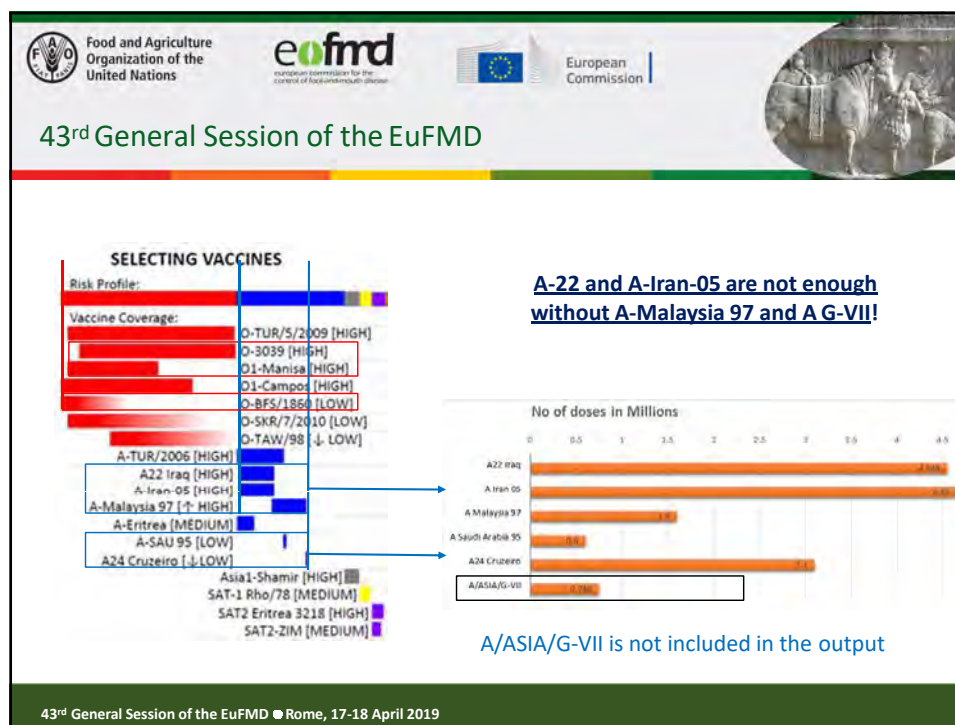
### Summary of the survey

- **The most important constraints** on the capacity to rapidly **implement an emergency vaccination**:
  - sourcing a suitable human resource pool to conduct vaccination
  - management of vaccinated animals, including post-vaccination monitoring and surveillance
  - biosecurity protocols and property-level risk assessment, including pre-vaccination surveillance.

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#### Overview of antigens held by country

A-22 and A-Iran-05 cover the same part of the risk, one would be sufficient

O1-Manisa is not enough if held alone!

A-22 and A-Iran-05 are not enough without A-Malaysia 97 and A G-VII

	O-3018	O1 Manisa	A Iran 05	A22 Iran	A Malaysia 97	A/ASM/G-VII	ASIA 1 Shunde	SAT2 G/linea
Country 1								
Country 2								
Country 3								
Country 4								
Country 5								
Country 6								
Country 7								
Country 8								
In the vaccine bank:								
NOT in the bank:								
	O 815	A Saudi Arabia 23/86	A Lintrea 98	A28 Cruzeiro	SAT 1 S.Africa	SAT 2 E.Africa	SAT 3 Zimbabwe	
Country 1								
Country 2								
Country 3								
Country 4								
Country 5								
Country 6								
Country 7								
Country 8								

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- **90%** of respondent countries indicated continued interest in, or joining **vaccination network**.
- **Priority discussion topics include:**
  - **Decision making** on vaccination strategies
  - **Operational planning for FMD emergency vaccination programs**
  - **Vaccinated animal management policies**

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**National vaccine banks or other arrangements (commercial contract) for the supply of vaccines for emergency use for other TADs**


- **6 countries** (3 national banks and 3 with commercial contracts)

Transboundary animal disease	Number of doses	Number of countries that hold vacc.
Bluetongue	3,000,000	1
Classical swine fever	2,960,000	3
Lumpy skin disease	750,000	2
Rabies	530,000	3
Rift Valley Fever	25,000	1


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### Conclusions

- Investment in antigen banks in Europe remain significant:  
**39, 002, 000 doses, 5 serotypes, 15 antigens.**
- Results from the PRAGMATIST tool can be used to determine the extent to which national antigen holdings sufficiently cover against exposure to risk.
- **Contingency plans and operational capacity** to implement **emergency vaccination** is a critical component of FMD emergency preparedness.

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# **Appendix 19**

## Report of the Standing Technical Committee





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43<sup>rd</sup> General Session of the EuFMD

Report of the Standing Technical Committee  
and its working groups

Eoin Ryan  
Chair, EuFMD Standing Technical Committee

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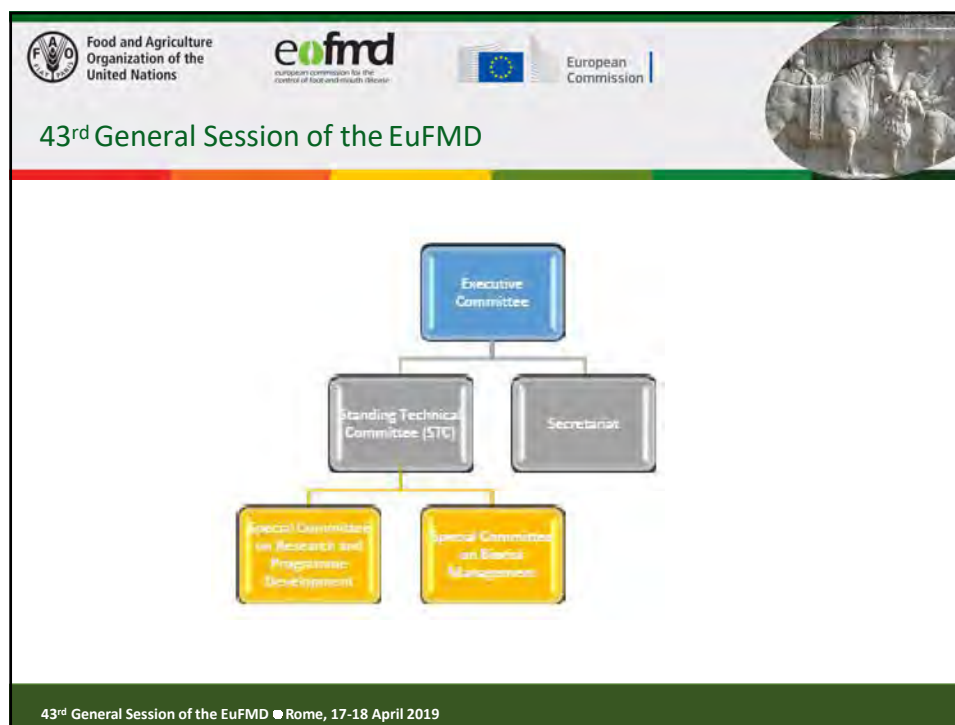


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**Role of the Standing Technical Committee**

- To provide advice and guidance to the Executive Committee and Secretariat on technical matters
- To steer the programme for the special committees
- Open Session conference
- To provide a link between the technical, scientific and policy spheres

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## Special Committee on Research and Programme Development

- Incorporates a broad range of knowledge and expertise across the European FMD landscape
- Members act as reviewers for applications to the Fund for Applied Research
- Provide support to the Open Session – chairs and rapporteurs
- Enables the STC and Executive Committee to draw on a depth of expertise in a range of disciplines

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## 43<sup>rd</sup> General Session of the EuFMD

### Establishment of the Special Committee on Biorisk Management





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## 43<sup>rd</sup> General Session of the EuFMD

- **BioRisk Management Network** launched at 2016 Open Session, Cascais
- 42<sup>nd</sup> GS, 2017: Establishment of a **Special Committee on Biorisk Management**


Membership:

- Experts on BRM from across the EuFMD
- Chair: **Kirsten Tjørnehøj**, National Veterinary Institute, Denmark


Terms of reference:

- Revision of the **minimum standards** for biocontainment of FMDV
- Identification of **training and support needs** for EuFMD member states
- Provision of technical **advice on biorisk management** to STC, ExCom and Secretariat


43<sup>rd</sup> General Session of the EuFMD • Rome, 17-18 April 2019




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## 43<sup>rd</sup> General Session of the EuFMD

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### Potential risk posed by diagnostic samples

- Samples coming into EU for diagnostic testing for FMD – process in place
- Other TADs: level of awareness of other potential pathogens in sample (e.g. FMDV) likely to be high
- Samples for non-TAD or non-infectious testing (e.g. genetics, nutrition): is there a risk of those samples being handled without regard to the FMDV/TAD risk?
- Solution: Awareness, training, communication

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### The Open Session: Borgo Egnazia, Italy, October 2018

- Hugely successful
- Almost 300 attendees
- Focus on vaccine security
- Provided a space for public-private partnership discussions on vaccine supply and related issues
- Side-meetings of GFRA and other technical groups, online discussions

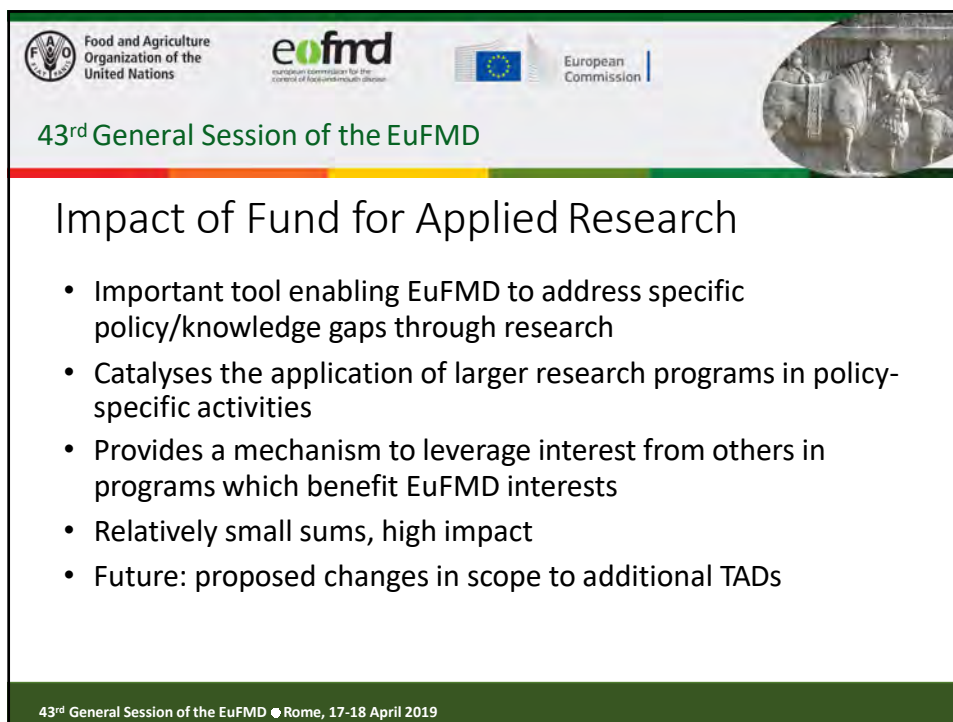


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The screenshot shows the EuFMD e-Learning platform. At the top, there are logos for the Food and Agriculture Organization of the United Nations (FAO), the European Commission for the control of foot-and-mouth disease (eufmd), and the European Commission. The title "43<sup>rd</sup> General Session of the EuFMD" is prominently displayed. Below this, the "eufmd e-Learning" logo is visible. A navigation bar includes links for Dashboard, Resources, Networks, Contact, and My Courses. The main content area features a banner for the "Open Session Online 2016" with a background image of a street scene. A "Navigation" sidebar on the left lists links to Home, Dashboard, My Courses, and specific training modules like "1. Risk Time Training" and "2. BMD Emergency Preparation". The main text area describes the Open Session, noting it is held every two years and is the largest technical and scientific meeting on FMD. It mentions the 2016 theme was "The practice of innovation" and that presentations were recorded for video and PDF access.

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The slide is titled "Impact of Fund for Applied Research". It features the same header as the previous slide, including the FAO, eufmd, and European Commission logos, and the session title "43<sup>rd</sup> General Session of the EuFMD". The main content is a bulleted list describing the impact of the fund. At the bottom, it repeats the session title and date.

### Impact of Fund for Applied Research

- Important tool enabling EuFMD to address specific policy/knowledge gaps through research
- Catalyses the application of larger research programs in policy-specific activities
- Provides a mechanism to leverage interest from others in programs which benefit EuFMD interests
- Relatively small sums, high impact
- Future: proposed changes in scope to additional TADs

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## 43<sup>rd</sup> General Session of the EuFMD

### Progress on projects funded under FAR call

- 4<sup>th</sup> EuFMD-FAR in February 2017: twelve project proposals were in-line with the priorities of the call and submitted for review, four were selected for funding
- 5<sup>th</sup> EuFMD-FAR in July 2017: three project proposals were selected as in-line with the priorities of the call and submitted for review, one selected for funding
- 6<sup>th</sup> EuFMD-FAR in December 2017: one project proposal selected as in-line with the priorities of the call and submitted for review, one selected for funding
- 7<sup>th</sup> EuFMD-FAR in April 2018: two projects identified for funding

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### What sort of work is funded?


- **European multi-country FMD Spread model (EuFMDiS)** - Project Lead Applicant: Dr Graeme Garner
- Validating the use of **bulk tank milk for surveillance of FMD** among commercial dairy farms in endemic settings - Project Lead Applicant: Dr Nicholas Lyons, The Pirbright Institute
- Evaluation in **field conditions of a safe and cost-effective protocol for shipment of samples** from FMD suspected cases for laboratory diagnostic – Dr Sandra Blaise-Boisseau, (ANSES)
- Validating multiplex real-time RT-PCR as a tool for **FMD detection in bulk tank milk** – Dr. Michael Eschbaumer, The Friedrich-Loeffler Institut (FLI)

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- **Alternative vaccine selection techniques** ; Dr. Ludi, The World Reference Laboratory for FMD (WRLFMD), The Pirbright Institute
  
- A project for **engaging para-veterinarians and animal health workers for FMD surveillance and sample collection** for FMD control services in Mali - Project Lead Applicant: Dr Abdoulaye Diaoure, Vétérinaires Sans Frontières Suisse (VSF-Suisse)
  
- **Wild boar interactions within the overall EuFMDis model** (Graeme Garner)
  
- A project to evaluate the potential of **environmental and air sampling of large pig farms** for informing control strategies and risk based control measures on-farm (Pirbright Institute)


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### Fund for Applied Research: current projects

Project	STC liaison/oversight
<b>EuFMDis</b>	K Staerk, R Bergevoet
<b>Environmental and air sampling (TPI)</b>	S Mortensen, E Ryan
<b>RiskmapS (CIRAD)</b>	S Mortensen
<b>Paravets and LFD sampling (VSF)</b>	E Ryan, K Schwabenbauer
<b>Field_Eval_Inact LFDs (ANSES)</b>	E Ryan
<b>Bulk milk PCR (TPI)</b>	S Zientara
<b>Bulk milk PCR (FLI)</b>	S Zientara
<b>Alternative vaccine techniques</b>	Joint oversight

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How are the results of FAR projects made available for policy decisions?

- Project reports provided to EuFMD, disseminated to relevant policy makers
- Papers presented at the Open Session
- Publication in peer-reviewed journals

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### 43<sup>rd</sup> General Session of the EuFMD

#### Advice to the Executive Committee

- EuFMD could and should play a role in supporting activities in relation to non-FMD transboundary animal diseases.
- Important points to resolve include
  - how to choose which diseases,
  - how to decide the extent to which EuFMD gets involved
  - how to balance the need for EuFMD to maintain a clear focus on its core work on FMD with a broadening scope
  - How to ensure coordination with other organisations

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### Thank you – any questions?

The Standing Technical Committee 2017-2019:

- Stephan Zientara
- Sten Mortensen
- Ron Bergevoet
- Katharina Staerk
- Karin Schwabenbauer
- Eoin Ryan (Chair)

• *Thanks to Keith, Nadia, Nick, Jenny, Fabrizio and the team*



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## **Appendix 20**

### Proposed revision of minimum Biorisk (...)

## Item 12/GS43

## MINIMUM BIORISK MANAGEMENT STANDARDS FOR LABORATORIES WORKING WITH FOOT-AND-MOUTH DISEASE VIRUS

Proposal for adoption at the 43rd GENERAL SESSION OF THE EUFMD COMMISSION, 17-18 APRIL 2019, ROME,  
ITALY

*A List of Changes from the current (2013) Standard is available and circulated  
alongside this version*

**Key to changes:**

Moved text is *indicated in italics*

Changed text [inserted and/or edited] is underlined thus

Deleted text is ~~indicated thus~~

### Note on the Version GS43/MBRMS/2

1. The EuFMD Special Committee on Biorisk Management (SCBRM) reviewed the current standard "Minimum Biorisk Management Standard for Laboratories working with foot-and-mouth disease virus", as had been adopted at the 40<sup>th</sup> General Session of EuFMD on 22-24 April 2013, and which superseded all prior Standards (1993, 1985 and 2009).
2. Their recommendations for changes to the Standard were contained in Version GS43/MBRMS/1, and were circulated in February 2019 to Biorisk managers of facilities handling live FMDV in EuFMD member states ("Tier D") and to Biorisk managers of representative "Tier C" laboratories in the European region.
3. Their written responses were then considered by the SCBRM and a final version (GS43/MBRMS/2) agreed by the SCBRM for proposal to the EuFMD member states on 12<sup>th</sup> March 2019, with responses invited in advance of the 43<sup>rd</sup> Session.
4. Points carried forward from the 2013 revision, specifically addressed in the 2019 version:
  - a) A clause on preventive maintenance (Romania): addressed, regarding sufficient resources for maintenance and servicing in specific requirements paragraph I.1 in both Tier C and Tier D.
  - b) The use of Safety Performance Indicators (UK).
  - c) Clarification of the role of the Biorisk Officer (CH): addressed in the final 2013 version.
  - d) Comprehensive updating of the Glossary (DG SANCO): addressed.
  - e) An Annex providing examples/guidelines for inactivation procedures for samples: not done.
  - f) The use of vaporized hydrogen peroxide for FMDV inactivation, following validation: not included.

Note that Development of standards covering Tier A and B was postponed but will be under the SCBRM workplan for 2019-2020.

## **MINIMUM BIORISK MANAGEMENT STANDARDS FOR LABORATORIES WORKING WITH FOOT-AND-MOUTH DISEASE VIRUS (MBRMS)**

### **TIER D.**

LABORATORIES WORKING WITH LIVE FOOT-AND-MOUTH DISEASE VIRUS  
IN VITRO AND IN VIVO

National and International FMDV reference laboratories working with infectious FMDV, including for the purpose of vaccine development and production, in FMD free countries

### **TIER C.**

LABORATORIES PERFORMING FMD DIAGNOSTICS WITHOUT USING LIVE FMDV

CATEGORIES:

- I. CONTINUOUSLY WORKING TIER C LABORATORIES:
  - National reference laboratory without permit to work with live FMDV
- II. CONTINGENCY LABORATORIES UNDERTAKING DIAGNOSTIC INVESTIGATIONS FOR FMD IN THE FRAMEWORK OF A NATIONAL CONTINGENCY PLAN (UPGRADED LOWER LEVEL OR NEW)
  - Regional laboratories supporting routine exclusion diagnostics with the option to be more involved during an outbreak
  - Emergency laboratories

The present document does not reflect the opinion of the European Commission (DG-SANCO)

## FOREWORD

In 1985 the European Commission for the Control of Foot-and-Mouth Disease (EuFMD) at the Food and Agriculture Organization (FAO) of the United Nations adopted a document entitled "*Minimum Standards for Laboratories working with FMDV in vitro and in vivo*". This document described a set of precautions to be taken by foot-and-mouth disease (FMD) laboratories to avoid an escape of virus. It was prepared at a time when the majority of countries on continental Europe employed systematic annual prophylactic vaccination of their cattle. Council Directive 90/423/EEC amending Directive 85/511/EEC on Community control measures for FMD made the above standards a condition for the approval and operation of laboratories handling live FMD virus (FMDV).

Although the above document dealt with all important aspects of FMD containment, it had been found necessary to review it with special reference to the need for more specific technical and general requirements as a consequence of the change in Europe to a policy of non-vaccination. The security standards as specified in the 1993 revision had to be considered as minimum requirements for FMD laboratories located in FMD-free countries with or without systematic prophylactic vaccination. Article 65 of Council Directive 2003/85/EC on Community measures for the control of FMD and repealing Directive 85/511/EEC makes the FMD-lab standards, as amended in 1993, a condition for the approval and operation of laboratories handling live FMDV.

Following the 2007 FMD outbreak in the UK that was ~~possibly~~ linked to *the research and commercial FMD vaccine manufacture establishments co-located at the Pirbright site*, EuFMD undertook to review, and where necessary to adapt, the aforementioned FMD-lab standards. The edition of the "Minimum Standards for Laboratories working with foot-and-mouth disease virus *in vitro* and *in vivo*" adopted at the 38<sup>th</sup> General Session of EuFMD on 29 April 2009 superseded the edition adopted by EuFMD in 1985 and revised in 1993.

In the years after the adoption of the 2009 version of the "Minimum Standards", and particularly during the 2009-2011 inspections by the former EU Food-and-Veterinary Office (FVO) of all EU national FMD reference laboratories, it became evident that not all European countries had laboratories that met the "Minimum Biorisk Management Standards for Laboratories working with foot-and-mouth disease virus *in vitro* and *in vivo*". Moreover, as facilities for work with live FMDV are expensive, set up for research and usually without high sample throughput capacity, in most instances, all diagnostic tasks in the framework of an FMD outbreak cannot be carried out at this level. Also, some countries in the European region have endemic presence of FMD and thus do not require the same level of containment laboratories for work with diagnosis of FMDV.

Therefore, the 2013 version introduced four Tiers for FMD laboratories with Tier D constituting high containment facilities with the ability to handle live FMDV *in vitro* and *in vivo*. Tier C laboratories included FMD Contingency laboratories restricted to tests not involving live FMDV (essentially RT-PCR and antibody ELISAs) but also national reference laboratories not using methods involving live FMDV.

The 2019 version further develops the Tier C laboratory concept and defines two laboratory categories:

- category I: national reference laboratories without a permit to work with live FMDV but maintaining a continually alert FMD biorisk management system including trained and vigilant biorisk officer, deputy biorisk officer and laboratory staff
- category II: FMD Contingency laboratories limited to performing FMD diagnostic tests on no risk or very low risk samples or not performing FMD diagnostics except in the framework of an FMD emergency

Tier C category I laboratories comprise national reference laboratories in countries that do not prioritize building and maintaining a Tier D FMD laboratory necessary for work with live FMD virus. The diagnostic methods employed in this type of laboratory could include serotype-specific molecular diagnostic methods that are currently being developed and published.

Tier C category II laboratories are FMD Contingency laboratories and can in the event of an FMD emergency be part of the contingency plans, as foreseen in Annex XV of Council Directive 2003/85/EC. FMD Contingency Laboratories must not work with any infectious FMDV - except for virus that might be present in field samples submitted for FMD diagnosis from the region or country where the laboratory is situated. This means there is no risk of escape unless there is an outbreak in the field – in which case the risk posed by infected holdings by far outweighs any escape risk posed by a laboratory operating according to Tier C.

In contrast to the expectations in 2009 and 2013, there is still no fully validated protocol for inactivation of FMD samples on the suspect premises. However, trained staff adding FMD sample material to lysis buffers in a biological safety cabinet (BSC) poses almost no additional risk, and this procedure was therefore included in Tier C in 2013.

Even testing of non-inactivated samples by antigen ELISA in a Tier C laboratory can be justifiable during an FMD emergency, provided the risk is controlled by e.g. restricting all liquid handling steps to a BSC. It allows these laboratories to supplement RT-PCR results, maintain a back-up method in case RT-PCR fails and determine FMDV serotype. The national competent authority (NCA/CA) decides whether a Tier C Laboratory can be authorized to carry out antigen ELISA. This approach was applied successfully during the 2011 FMD epidemic in Bulgaria.

The authorization of FMD Contingency Laboratories eliminates the complications of sending samples to an extra-territorial laboratory for diagnosis with expected difficulties regarding transportation, importation and language barriers. This combined with delayed and complicated communication between laboratory, field and official veterinarians, and national crisis centres, will easily jeopardize effective and swift control of the outbreak. The capacity of existing Tier C category II laboratories can also be used to substantially lower the psychological threshold for submitting samples for exclusion of FMD as a differential diagnosis when there is no FMD emergency. Several countries allow regular veterinary laboratories to carry out “routine exclusion testing”, e.g. by RT-PCR, in cases which are not considered “suspect cases of FMD” in the legal sense but where FMD is considered a possible differential diagnosis. Using the Tier C measures can also reduce the biological risk associated with this approach.

Not all EuFMD member states are free of FMD, and the Minimum Biorisk Management Standard for FMD should reflect that. Therefore, a 4-Tier system is being implemented as follows:

Tier A: General diagnostic laboratories, in FMD endemic countries

Tier B: Laboratories working with infectious FMDV, in FMD endemic countries

Tier C: Laboratories undertaking diagnostic investigations for FMD without handling/using live FMDV; including both national reference laboratories without permit to work with live FMDV and FMD Contingency Laboratories

Tier D: National and International FMDV reference laboratories working with infectious FMDV, including for the purpose of vaccine development and production, in FMD free countries

Tiers C and D were part of the 2013 version and are further developed in this version, while Tiers A and B are still under development. Until the FMD MBRMS have been internationally adopted for Tiers A and



B, the biorisk managers responsible for the diagnostic laboratory system in FMD endemic countries in the European region are encouraged to apply the principles of the Tier C and D MBRM as far as can be reasonably achieved. In particular, exotic serotypes and topotypes of FMDV should be treated with the same precautions as FMDV in a country free of the disease.

#### FMD free country\*<sup>1</sup>

Activity	Biorisk Management Standard
Any handling of infective FMDV strains not present in the field	Tier D
National reference laboratories without permit to work with live FMDV	Tier C category I
Diagnostic investigations for FMD in the framework of a national contingency plan	Tier C category II
General diagnostic or research work on animal samples* <sup>2</sup>	No FMD-related requirements <i>(Principles and elements of Tier C Standard should be applied according to risk assessment)</i>

\*<sup>1</sup>The term “FMD free country” is used here for a country that has been recognized by the OIE as being free of FMD, with or without vaccination, even during the phase of trying to regain this status during or after an epidemic.

\*<sup>2</sup>The term “animal samples” is used here for samples of species susceptible to FMD.

#### FMD endemic country

Activity	Biorisk Management Standard
Any handling of infective FMDV strains not present in the field	Tier D Standard
Infection of animals and vaccine production with infective FMDV strains present in the field	Tier B Standard <i>(being drafted)</i> <i>(Principles and elements of Tier D standard should be applied depending on the stage of eradication reached)</i>
Handling on a regular basis, including propagation in small volumes, of infectious FMDV strains present in the field	Tier B Standard <i>(being drafted)</i>
General diagnostic or research work on animal samples* <sup>2</sup>	Tier A Standard <i>(being drafted)</i>

Tier D. Minimum biorisk management Standards for Laboratories working with live foot-and-mouth disease virus *in vitro* AND *in vivo*

## INTRODUCTION

Foot-and-Mouth Disease (FMD) is one of the most infectious diseases known, and manipulating the virus in the laboratory without adequate precautions is a risk of environmental release. It has been shown that as few as 10 TCID<sub>50</sub> can be infective to cattle by the airborne route. However, this is under experimental conditions and the low infective dose may relate to the relatively large size of aerosol droplets, which can be efficiently contained by HEPA filtration of air exhaust from facilities handling infective FMD virus (FMDV). As a consequence of the low infective dose, laboratories handling FMDV must work under high containment conditions, **in which the principal objective of the containment measures is to prevent release of virus that would give rise to animal infection outside of the laboratory (veterinary containment).**

The principles on which the containment measures are based are as follows:

- FMD virus is an animal health but not a human health hazard;
- containment measures for FMDV laboratories will differ in certain respects from those required of high containment facilities handling pathogens which present a significant human health hazard;
- effective implementation and maintenance of the containment measures will reduce the risk of an accidental release of virus to a level that can be considered acceptable in a risk management balancing those risks against the expected benefits of the services provided by such laboratory.

The containment measures were prepared on the basis of the documented evidence on the physico-chemical properties of FMDV, its inactivation kinetics, and the form and quantity of FMDV required to infect susceptible species.

Key factors in establishing and implementing a successful containment system include:

1. Physical and operational barriers to the release of FMDV that involve three containment layers and multiple fail-safe mechanisms as follows:

1.1. Primary containment layer:

- contain the live FMDV at source within closed containers or a class I, II or III biosafety cabinet (BSC), or
- in the case of infected animals, contain the live FMDV by physical containment in specially constructed rooms with treatment of all waste and the HEPA filtration of air; in this case the room is considered as primary containment.

1.2 Secondary containment layer:

- containing of FMDV infected materials and staff working with such materials within a closed and highly controlled physical environment, and
- subject exiting solids, fluids and air to a treatment by validated procedures that will remove or inactivate FMDV;

## 1.3. Tertiary containment layer:

- prevent contact between live FMDV and susceptible livestock outside containment by appropriate measures, such as quarantine restrictions placed on staff and visitors to such livestock.
- physical and/or procedural measures to control access
- procedures for final handling/disposal of decontaminated materials/waste based on risk assessment

## 2. Commitment by senior management:

- to provide the resources required to attain and maintain the containment measures, including the physical and human environment;
- to recognise the top priority of the management of the risks associated with facilities handling live FMDV;
- to establish and maintain a management system and a working culture in the facility that facilitates continual improvement in preventing possible release of virus, the effectiveness of containment processes and root cause analysis of possible release incidents so as to prevent their recurrence;
- to recognise and promote continual improvement;
- to ensure that users are provided with the necessary training;
- to comply with existing legal requirements and regulations.

**General requirements**

*FMD risk management system:* Each facility should establish, implement and maintain a FMD risk management system, appropriate to the level of risk associated with each of the mechanisms and routes by which FMDV could ~~escape or~~ be released.

*Policy:* The management of the facility should have in place a policy that clearly states the FMD risk management objectives and the commitment to improving the FMD risk management performance.

*Risk assessment:* To operate a FMD risk management system, a risk assessment system should be in place in order to:

- identify and address the risks (likelihood and extent of impact) of release or escape of FMDV by each facility (plant);
- define the circumstances which would trigger a new or revised assessment, for example plans to construct new or modify existing facilities, changes to the programme, changes to volume of activities, following incidents or as a result of elevated levels of biosecurity threats to the facility.

*Hazard identification:* The Hazard identification system should identify the situations, and other hazards, associated with the work of the facility that may impact on the risk of FMDV release, including emergencies (such as electrical failure, fire, flood, medical emergencies etc). The requirements in this standard do not necessarily identify all hazards that may occur, but are written to reduce the risk associated with the hazards in facilities handling live FMDV.

The main sources of FMDV are:

- diagnostic specimens,
- infected tissue cultures,
- infected small experimental animals, e.g. ~~baby~~ mice and guinea pigs,
- laboratory based physical and chemical processing of large quantities of virus, and
- infected large experimental animals, such as pigs, cattle, sheep, goats and other susceptible large animals

The principal routes by which the FMDV may escape or be released from laboratories include:

- personnel,
- air,
- liquid effluent,
- solid waste,
- equipment, and
- samples and reagents.

Although full-length RNA derived from FMDV may still be infectious under very specific conditions, for practical purposes samples can be considered “inactivated” after an approved treatment with an appropriate lysis buffer and a disinfection of the sample tube by an approved method. However, as a precaution, such samples should not be handled without appropriate risk management measures, which must, in particular ensure that such samples are at no stage of processing added to cell cultures or injected into animals, except in facilities meeting Tier D requirements.

*Risk control:* Under the direct responsibility of the management of each facility (plant), the hazards which could lead to a risk of FMDV escape should be identified, quantified, prioritised and control options identified. The requirements indicated in this Standard should be considered a minimum, and do not release the management of each facility from the responsibility to undertake a formal risk assessment process.

Special attention should be given to:

- replacement and reduction in use of live virus where possible;
- security and recording of access to the facility;
- reliability and competency of personnel handling live FMD virus;
- the responsible behaviour of personnel within and when they leave the laboratory, including the use of changing and showering facilities;
- the application of rules for primary containment;
- the maintenance of the physical containment including the air handling systems to ensure a negative air pressure where virus is manipulated and the effective particulate filtration of exhaust air;
- the decontamination of effluent and solid waste;
- the disposal of carcasses in a safe manner;
- the decontamination of equipment and materials before removal from the containment zone

*Use of alternative procedures:* The use of alternative processes or procedures for inactivation of FMD virus to those specified in this Standard is permissible provided that the information from the validation of the process has been examined and found equal or superior in performance to those currently specified. Decisions on equivalence of the proposed procedures must be evaluated by the EuFMD SCBRM, who can choose to include the EuFMD Standing Technical Committee.

*Residual Risk:* The residual risk is the risk of a ~~consequential~~ release of FMDV, after application of all control measures. The Biorisk Officer (BRO), management and ultimately the NCA or equivalent should consider the overall biorisk management system together with the hazard identification and risk control procedures, and identify if there are residual risks requiring either more effective controls to be put into place, or work to be suspended or modified.

#### **Authorization of laboratories in respect to FMD:**

In respect of work with FMDV, laboratories may be authorized by the competent authorities to carry out one or more of the following types of work:

- (1) infection of small and/or large experimental animals with FMDV;
- (2) manufacturing activities that involve the production of large amounts of infectious FMDV, e.g. large scale virus production for antigen banks or FMD vaccines at a capacity greater than 10 litres;
- (3) activities involving the propagation of infectious FMDV, but are limited to up to 10 litres for each batch, and during which the FMDV is enclosed in containers which can be effectively autoclaved or disinfected;
- (4) to test diagnostic samples for FMDV antigen by ELISA and related methods
- (5) to test diagnostic samples for FMDV genome by RT-PCR and related methods
- (6) to test diagnostic samples for antibody to FMDV by ELISA and related methods
- (7) to apply to the genome of FMDV methods of molecular biology that do not involve live FMDV manipulation.

Laboratories carrying out the type of work mentioned under points 1, 2 and 3 must comply with Tier D.

In accordance with EU legislation, and in most cases national legislation, the manipulation of live FMDV requires a mandatory authorisation by the competent authority.

The FMDV-associated risk of laboratories carrying out the type of work mentioned under points 5, 6 and 7 is usually much lower, while the risk associated with the activity mentioned under point 4 is intermediate.

However, in case the laboratory tests field samples of their own national origin, there is no FMDV related risk as long as the disease is not present in the country and samples are not submitted as suspect samples.

In case of an FMD outbreak, the main risk is posed by the infected holding and the risk of FMDV escaping from a laboratory must be controlled by appropriate measures (see Tier C).

## SPECIFIC REQUIREMENTS

The requirements below are intended to assist self-assessment, biorisk audit and inspection of facilities.

### *I. Management*

#### **Specific management requirements:**

1. *Biorisk policy, delegation of responsibilities and communication:* The management of a facility is ultimately responsible for biorisks (biosafety and biosecurity) of its premises. This also includes the provision of sufficient resources for sustainable maintenance and servicing of the facility. The management should therefore define and document roles, responsibilities and authorities related to biosafety and biosecurity management in a formal policy statement and communicate this to all staff members.
2. *Formal process of Risk assessment / threat assessment:* The management must ensure that a formal process is in place to conduct, review and update a risk assessment. The need for a structured security threat assessment should be considered for each facility.
3. *System for continual improvement:* The management should put a system in place to guarantee that biosafety and biosecurity procedures and elements are thoroughly reviewed and audited on a regular basis. Records of audit findings should be maintained, including root cause analysis, actions taken to comply with the containment policy and review of efficacy of actions taken.
4. *Standard operating procedure (SOP):* A system should be in place to maintain a complete set of SOPs for all operational processes that are considered critical to the containment of FMDV.
5. *Biorisk Officer (BRO):* It is the duty of the management to properly monitor the biosafety and biosecurity by appointing a BRO, arranging for a deputy or replacement, and creating the necessary framework conditions in the facility. To ensure that biosafety and biosecurity are given full consideration in their activities, the management should carefully define the status, duties and responsibilities of a BRO:
  - (a) The BRO should report directly to the top management representative (Director-General, site Director or similar) and should have authority to stop or modify the work in the facilities in the event that it is considered necessary to do so.
  - (b) The status of the BRO should ensure their independence and the absence of any potential conflict of interest.
  - (c) Adequate financial and personnel resources should be allocated to the BRO to carry out their duties.
  - (d) The BRO should have the possibility of a direct link to the competent authorities responsible for the enforcement of biosafety / biosecurity regulations within the country or geographical/administrative area.
  - (e) The BRO should have appropriate training in virology, containment techniques and procedures to fulfil their duties. It is to be expected that they would also have a broad based knowledge of the FMDV with particular respect to its physico-chemical properties, mode of transmission and other topics of relevance to their role. The BRO must have sufficient resources for regular further training.
  - (f) The BRO should review regularly both technical reports concerning the various containment facilities as well as data relating to their day to day operation and

monitoring. On the basis of such information, the BRO should inform management of any concerns they may have as they arise, as well as prepare an annual report on all relevant containment elements of the facilities.

6. *Accessibility to live FMDV*: Access to live FMDV should be limited to adequately instructed key personnel authorised by the management and should be part of a threat assessment (see Annex I, chapter III).
7. *Record keeping*: Detailed records of handling live FMDV (e.g. virus strains and dates used) should be kept and stored at least 5 years. Inventory lists including information on the location where a virus strain is stored should be maintained and periodically inspected and crosschecked. Laboratory books or other daily records of procedures by staff working with FMDV should be in place to enable retrospective analysis of activities for at least 12 months.
8. *Accident / incident reporting system*: Each facility should have an accident / incident reporting system in place, with a procedure for rating of the risk of the event and a decision making process for recording, reporting and remedial actions. An example of a risk rating system and associated decision tool is given in Annex I.
9. *Accident / Incident review system*: there should be a system in place to ensure each incident/accident is reviewed to ensure that the lessons learned have been identified, the type of failing in control measures is recognised (root-cause analysis), and adequate and proportionate remedial measures set in place. A statistic concerning accidents / incidents should be made available to the management at least annually.
10. *Systems to review biorisk changes*: changes to the design, operation and maintenance of a facility including biosafety / biosecurity procedures and risk assessment should be reviewed, verified, approved and documented through a formal change control process before implementation. Trigger points for review or drafting of new risk assessments should be identified.
11. *Emergency management plans* (contingency plans): all types of emergencies should be identified, including fire, flooding, loss of essential services, breakdown of equipment (e.g. autoclaves, waste treatment plants), security breaches and major events affecting integrity of buildings, and standard management procedures for each event developed, documented and made available to staff.
12. *Access to site*: management should implement and document a system for controlling access to areas of the site where the activities of the area pose a potential hazard. There should be physical security measures to restrict access.



Management should define the different zones on the site, taking into consideration the hierarchy of risk of activities in each zone. A suggested typology is:

<u>Containment zone</u> (e.g. RED)	<u>area where FMDV is manipulated and stored</u> and/or which contain infected animals
<u>Support zone</u> (e.g. ORANGE)	<u>Area outside containment including support services, technical area</u> and access to the Containment zone
<u>Clean zone</u> (e.g. GREEN)	general access and administration

It is necessary to clearly define and document the zones under control of the BRO, including definition of the outer perimeter of the site, lower risk areas for personnel and plant access, the location and barriers of the laboratories in which FMDV is handled, and the location and access points to waste treatment (including ventilation systems).

## **II. Training**

13. The organisation should ensure that personnel are competent for their designated roles and receive appropriate training on a regular basis. In particular, training requirements and procedures for biosafety and biosecurity related training of personnel should be identified (training programme) and established (training manual) and training records should be maintained.
14. Training content and training tools should be defined, taking into account the different target audiences and the individual learning differences within a facility. Training efficacy assessment should be considered wherever possible and appropriate. Training should be reviewed on a regular basis.

The BRO should be in charge of providing information and advice on biosafety and biosecurity to laboratory staff, cleaning personnel, visitors, contractors as well as to other persons working either in locations in which FMD is handled or adjacent facilities such as service areas. Personnel should be made aware of the responsibilities, the specific containment features and the risks associated with such activities.

15. Training should be provided on the specific properties of FMD, the primary and secondary containment features and the biosafety / biosecurity procedures pertinent to each facility.
16. All staff members must be appropriately informed and regularly trained in emergency evacuation procedures with special attention being given to biorisk requirements in cases of fire.

### III. Laboratory Biosecurity

*Note:* Additional considerations and notes are given in Annex I.

The objective of Laboratory biosecurity is to protect biological materials containing FMD virus against deliberate removal from the facility.

17. It is part of the duty of care of every facility handling FMDV to ensure that it minimizes the risk of virus misappropriation by intruders and people with access rights to the facility, through measures taken following a *formal threat assessment process*.

In a threat assessment, the critical assets of a facility should be identified and the facility's vulnerability to threats should be assessed. Based on the threat assessment, structural (e.g. building design, IT etc.), physical (cameras, fences, access etc.) and organisational (security policy, accessibility etc.) measures should be taken.

18. To comply with point 17, the minimum requirements are:

- (a) *Security system* that is appropriate to detect and alert security personnel to the presence of intruders, with a security plan in place for rapid response to intrusion.
- (b) *Entry Recording system:* Access to the facility should be recorded to provide an audit trail of who was in the facility at any given time.

19. *Threat reduction/control measures:* Due to the unpredictability of the actual threat, controls are required to reduce the risk to an acceptable level. These controls should consider structural, physical and organisational measures and must address at least the following scenarios:

- Intruder attempting to remove FMDV from the facility by forced or fraudulent entry;
- Staff member maliciously removing FMDV from the facility;
- Someone maliciously appropriating materials during shipment of virus containing materials.

### IV. Personnel

20. Control of entry into and exit from the Containment zone must take place only through changing and showering facilities. This means a complete change from private or Support area working clothes to dedicated Containment zone working clothes on entry and the reverse process on exit but with a full body and hair shower before leaving the Containment zone.

21. A code of FMDV containment practice, including instructions for entry into and exit from Support and Containment zones, must be available.

22. The FMDV containment rules and other relevant documents provided by the management must have been read and signed by relevant employees at the beginning of their employment and prior to accessing the support and containment zones. At this time, it should also be made clear to new staff that any violation of such and similar regulations may result in disciplinary actions by the management and the terms of employment should indicate this.

23. *Control of access to critical areas:* A level of security checks is recommended for all individuals with access to FMDV laboratories or critical plant/service areas of these laboratories. The performance of such checks will depend on the legislation of the country and procedures should have been developed in consultation with the relevant local and national agencies.

Access to FMDV containing materials in the laboratory should be restricted to trained staff on the basis of legitimate needs and must be authorised. The number of individuals with access to virus storage areas should be kept as small as reasonably possible.

24. *Visitors*: There must be rules in place governing the access to controlled zones by visitors, covering at least the record keeping and the possible use of background checks. The security system should verify the identity of visitors through use of unique identifiers including passport or ID card details. The reasons for each visit and the responsible person must be recorded.
25. Visitors must be instructed in the specific containment procedures of each facility before entering the Support / Containment zones. There must be a system of oversight in place that guarantees that these procedures are properly followed.
26. *Oversight (mentoring)*: A system for oversight of new personnel should be established, such that all new staff are assigned a member of Support or Containment zone staff for oversight who is competent and has sufficient understanding of the biosafety rules.
27. Management should establish procedures to support compliance with biorisk management procedures. Management should be equipped with appropriate tools to react correctly in difficult situations where compliance with the biorisk management procedures may be compromised. At the work place, such situations could include excess work load, bullying, bad management style or lack of oversight. Also on the level of individual employees, problems like substance abuse or mental conditions could compromise compliance with biorisk management rules, and policies must be in place to deal with these adequately.
28. Quarantine: each facility must define and apply quarantine periods for persons authorised to work in each category of Controlled Zone, to reduce the risk of personnel causing a release of FMD virus as a result of virus carriage on their body. A range of quarantine periods may be defined depending on the level of exposure to virus. Depending on the risk assessment, quarantine rules may be applied to other areas of a facility as well. For the Green Zone, usually no quarantine period is necessary.

Persons, including visitors, authorised to enter the Support and Containment zones must agree not to keep any animals which are susceptible to FMD, nor reside on premises where such animals are kept, and for the Containment zone must abide by minimum standards of quarantine, i.e. no contact with animals susceptible to FMD for at least 72 hours. For the support zone, the need for quarantine must be risk assessed and will depend on the activities in the area and the risk for virus escapes to the areas.

29. Personal protective equipment; regular supply of appropriate laboratory clothing for use within the Support and Containment zones.

**V. Containment Zone Design**

30. General construction of buildings and their surfaces, including ducting of the air conditioning system:

- maintain inward flow of air through doorways and other openings at all times (backflow prevention)
- properly maintained condition with a high standard of airtightness
- insect, rodent and bird proof.

31. Windows:

- Sealed, toughened and preferably double glazed, and able to withstand operating pressures and all but major impacts.
- Equivalent standard in animal rooms and at a height where animals are not able to break windows or damage seals.

32. Doors:

warning signs at entrances: (or equivalent in the local language)

<p><b>ACCESS FOR AUTHORISED PERSONNEL ONLY</b></p> <p><b>BIOLOGICAL HAZARD</b></p>
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- access through the doors restricted by access control systems that prevent the opening by unauthorised persons.
- airlocks provided with airtight doors which are interlocked to prevent opening of both doors simultaneously; this is particularly important for fumigation air locks
- doors to be equipped with inspection windows where appropriate (i.e. working areas, animal rooms etc.).

33. Walls, floors, ceilings:

- In many respects, the surfaces and materials appropriate to pharmaceutical facilities, respecting GMP standards, are also relevant to laboratories handling FMD virus. Notably, surfaces should be impervious, smooth, crevice free and easily cleaned and disinfected. Cavities within the fabric of the facility should be avoided (e.g. cavity walls) unless all penetrations of the walls, floors and ceilings are thoroughly sealed with suitable materials certified for this purpose. Crevices and joints between surfaces should also be sealed with similar materials. Continuity of seal should be maintained between floors and walls. A continuous cove floor finish up the wall is recommended in particular for areas where major spillages will occur, e.g. animal and post mortem rooms.
- Sealed (airtight) entry of service lines.

34. *Laboratory equipment:*

- *Benches shall be smooth, impervious and resistant to any chemicals used in the facility. The junction between horizontal and vertical surfaces should be radiused<sup>1</sup>*
- *Centrifuges, sonicators, homogenizers and other equipment must be designed so as to contain aerosols or be used within BSCs where any aerosols generated will not escape to the atmosphere of the restricted laboratory. When using equipment in BSCs, performance of BSC has to be ensured with the equipment in use by an appropriate test, e.g. using smoke pencil.*

35. *Communication:* All areas equipped with telephones or other means of communication and, in some areas, cameras, to ensure additional security outside of normal operations and allow staff to report issues including accidents and incidents without leaving work area.

36. *Emergency back-up power:* The laboratory facility should be equipped with a back-up source of electricity (e.g. an emergency generator) which starts with a delay of no more than a few minutes in the event of power failure and ensures supply to safety critical systems. The delay period that is permissible will depend on the design and the layout of the ventilation system and the airtightness of the key rooms in the facility where virus in aerosol form may be present. In the design of a Containment zone facility, special attention should be paid to the critical electrical supply circuits. There should be no possibility of the emergency supply being diverted from critical circuits by less important demand from non-critical equipment. The critical supply circuits include air handling systems, cold stores, BSCs and other equipment and installations relating to security and safety of the facility. An appropriately sized UPS should be considered for these safety critical systems. All backup systems should be tested at regular intervals and this process documented.

## VI. **Handling of FMD virus**

37. *Recording receipt of virus containing materials:* A documentation and recording system for the chain of custody should be in place for specimens and samples known or reasonably suspected to contain FMDV (reception, use, storage). The accompanying type and strain identification, or such information generated by the laboratory, should be recorded.

38. Except in cases when this is not technically feasible (e.g. during large animal experimental studies and post-mortem examinations), materials known or expected to contain FMD virus must either be kept within closed vessels or in devices that in combination with suitable operating procedures will function as primary containment. Such devices should be equipped with suitable filters, for example HEPA filters for which the requirements are defined in the Glossary, or equivalent off-gas or vent filters (primary containment). A suitable disinfectant must be kept close to the work areas such that a spillage can be rapidly dealt with.

39. In areas where less than 10 litres of virus is handled, liquids and suspensions containing FMDV must be inactivated by a validated procedure, for example, dilution in disinfectants, before disposal into the liquid waste system of the facility.

<sup>1</sup> Radiused: given a rounded form (to a corner or edge)

40. When large quantities of virus are processed (e.g. for vaccine production), it is necessary to transfer virus within a contained system of vessels, pipes and other equipment. To permit fluid transfers, air needs to enter and exit equipment and infectivity must be efficiently removed by a suitably validated procedure. Usually, this is done by filtration and a number of manufacturers supply filters capable of removing FMD virus with very high levels of efficiency. Procedures are also required for decontamination of vessels, pipes and other equipment after the process has finished and before the process is either repeated or items are opened or stripped down for cleaning or maintenance. Usually this will require a chemical decontamination stage followed by steam sterilization.
41. Inoculation of animals, maintenance of infected animals, euthanasia and post-mortem examinations must take place within the Containment zone in rooms (normally dedicated animal or post-mortem rooms, respectively) that in combination with suitable operating procedures function as a primary containment. Animals cannot be taken out from the Containment area alive. Personnel must wear appropriate and comprehensive protective clothing to minimise exposure of body surfaces to virus splashes and aerosols when handling virus suspensions and when inoculating or handling infected animals. On exit from animal and post-mortem rooms, protective clothes and footwear must be left inside these rooms or in ante-rooms to these rooms. In any case, a complete change of clothes and showering is required before personnel can exit the Containment zone.
42. Movement of materials known or expected to contain FMD virus out of one zone (e.g. laboratory), to another zone (e.g. animal rooms) on the same site must be governed by a standard operation procedure (SOP) that prevents possible loss or spillage of virus. As a minimum requirement, such materials are transported between the zones within a double leak proof container of which at least one has to be break proof. Staff making such transfers should be fully authorised to do so and be familiar with the emergency response procedures in the event of an accident or incident.
43. Laboratory facilities must be kept clean and tidy. Areas including equipment where live virus is handled must be cleaned and appropriately disinfected regularly. In particular, benches and other flat surfaces exposed to virus should be wiped down with an effective disinfectant as soon as open work has finished.

### **Removal of biological material**

44. *Before sending biological material to another laboratory that lacks the required level of containment, the necessary precautions must be taken to ensure that the material does not contain infectious FMDV.*

*Thus if the source of the biological material is the Containment zone, it is essential that it is subject to a validated test according to risk assessment (e.g. RT-PCR, cell culture) to demonstrate freedom from FMDV, or a validated treatment that destroys FMDV infectivity (see Annex I chapter VII).*

*The recipient laboratory must be informed about the potential risk of material coming from a laboratory manipulating FMDV. The recipient laboratory must further sign a statement that it is prepared to receive the material and that it will take the necessary precautions.*

45. For the shipment of FMDV-containing materials to other laboratories an innocuity test is not required if the material is sent to a high containment laboratory licensed to handle live FMDV.

*The laboratory which provides FMDV to another laboratory has a duty of care to ensure that the recipient laboratory is authorised to handle FMDV. Before shipment, it has to ask for a statement from the recipient laboratory that it is requesting the virus only for legitimate purposes and will not redistribute the virus to other laboratories without written consent. The sending of materials containing FMDV is subject to international regulations for shipping biological materials.*

*Note: If FMDV has been propagated in cell culture, it is mandatory to classify it as “Infectious Substance, affecting animals” (UN2900) and pack it accordingly (packing instruction P 620).*

#### **Removal of equipment and other material**

46. It is important to ensure that only the equipment and the materials that are needed are brought into the containment zone.

*Before removal from Containment zones, equipment and materials must be decontaminated according to the size and use of the equipment by a validated method. The method of choice for decontamination is autoclaving. Equipment or material that cannot be autoclaved can be chemically decontaminated as long as the method is validated (see Annex I, chapter VI). Before decontamination, dirt and organic material must be removed by thorough cleaning.*

### **VII. Air Handling – Live Virus Facilities**

*Note:* Additional considerations and notes are given in ANNEX I, chapter IV.

#### **Ventilation systems**

47. *Negative pressure ventilation system:* All facilities used for the handling of FMDV must operate under a negative pressure ventilation system with HEPA filtration of exhaust air and systems to prevent the escape of unfiltered air through the inlet supply.

*In areas where less than 10 litres of virus (in dilution or suspension) are handled, the minimum negative pressure relative to the ambient air should be 35 Pa but due consideration needs to be given to ensure a gradient from the periphery of the Containment zone to the area where virus is handled. From a practical perspective, it is difficult to achieve gradient steps of less than 10 Pa and this will tend to dictate the choice of pressure in the most negative part of the Containment zone.*

*For areas where larger quantities of virus are handled such as large scale virus production rooms and large animal rooms, the minimum negative pressure should be -50 Pa.*

*For small animal species, depending on the animal species, route and nature of infection and method of animal containment and handling, high titres of virus in relatively uncontrolled conditions might be produced. Consideration should be given to the appropriate negative air pressure requirements for small animal rooms, with 35 Pa negative pressure as the minimum.*

*A system should be in place to limit positive pressure occurring within the building due to failures of the Containment zone ventilation system.*



48. *Exhaust air filtration system:*

Laboratories: Double HEPA (H13 or H14) filtration of exhaust air. Use of a single HEPA filter may be acceptable, provided that it is demonstrated that open work with live virus is at all times restricted to within BSCs which have HEPA filtration of exhaust air, thereby maintaining an effective double HEPA filtration during open virus work.

Animal rooms Double HEPA filtration of exhaust air is obligatory.

Production laboratories (where volumes greater than 10 litres are produced):  
Double HEPA filtration of exhaust air is obligatory.

49. *Inlet air supply:* A system must be in place to prevent escape of unfiltered air via the inlet in case of ventilation shut-down. This may be achieved by a single HEPA filter or automatic dampers in the air inlet system.

50. The air pressures within the different rooms of a Containment zone should be continuously monitored and a system must be in place so that staff working in these areas are informed if significant loss of air pressure occurs so appropriate actions can be taken. Monitoring systems should indicate the working pressure and the minimum and maximum limits within which open virus work is permitted. Under any of these alarm conditions, the primary action is to cease all open virus work and secure the workplace by sealing virus containers and disinfection of surfaces and protective clothing. The opening of doors leading to the Containment zone or to rooms containing infected animals or carcasses should be avoided as far as possible until the pressure difference has been restored.

51. All critical filters (HEPA) should be incorporated into a preventative maintenance programme. In particular, the efficiency of the installed HEPA filters should be checked at least once per year, and in line with requirements of EN 14644.

52. When HEPA filters are installed or replaced, an *in-situ* efficiency test must be carried out by trained personnel with validated equipment. Replacement of HEPA filters must be performed in accordance with an authorised procedure (SOP). Strict precautions must be taken to prevent the spread of virus with used filters or contaminated air. Replacement of filters from outside the Containment zone must take place after decontamination "in situ" or in "safe change" air-handling units. Discarded HEPA filters must be autoclaved or incinerated on site.

Filter specifications and test results supplied by the manufacturer should be incorporated into the maintenance records but cannot replace *in-situ* testing because filters may have been damaged during transportation or may not have been fitted into the gaskets properly during installation.

53. Filters must be changed when the pressure difference exceeds certain limits in accordance with the instructions given by the manufacturer, or sooner if the filter fails one of the prescribed efficiency tests. Additionally, it may be necessary to change some filters more frequently if they are subject to high humidity or high particle challenge.

54. Animal rooms – pre-filters should be designed in a way that they can be changed without shut-down of the ventilation system.

55. The efficiency of the HEPA filters in BSCs must be checked at least once per year. Movement of BSCs must be accompanied by re-validation of the filter integrity due to possible flexing and movement on the filter cartridge or filter housing and operational issues in its new position.
56. Off-gas or vent filters require testing on installation and at least once per year.

#### **VIII. Waste management**

##### **Effluent**

57. Effluent from Containment zone laboratories and from facilities holding FMDV-infected or potentially infected animals must be treated in a manner, which ensures that there is no residual infectivity in the effluent using a suitable validated procedure. Both heat and chemical treatment may be used to process the effluent provided all of the material in the effluent is exposed to the specific treatment.
58. The treatment must be validated. The possibility that virus particles may be protected from inactivation by proteins or lipids, and/or by aggregation or precipitation, must be taken into account in the validation process.
59. The entire effluent treatment system must comply with high containment conditions. In every case, it must be ensured that no leakage from the primary containment system into the environment can occur. It is preferable to situate the effluent treatment system within the same building as the source of the effluent.
60. There must be sufficient storage capacity (tanks) for the storage of untreated effluent in order to safely finish work and shut down the Containment zone in the event of a break down of the treatment plant.
61. The equipment must have automatic monitoring systems to ensure proper function. These systems must ensure that the required conditions for inactivation of FMDV have been reached before the effluent is discharged. The systems should be continuously monitored and all critical data recorded. The system should be designed in a way that in case of any failure, the likelihood of a release of potentially infectious material is minimised.
62. Treatment options:

*Heat treatment:* FMD virus is sensitive to heat at 100°C for 1 hour or an equivalent heat effect that has been shown to be sufficient to inactivate FMDV in effluent to the extent that no residual infectivity can be detected. The treatment process should be monitored by multiple, automatic and continuous time and temperature measurements, combined with automatic measurement of flow rates or volumes. Any treatment system must ensure homogeneity of the effluent during the inactivation process. All data relevant to the inactivation process and the release of effluent must be recorded. Critical data measuring and logging equipment must be calibrated by qualified personnel at least annually.

*Chemical treatment:* FMD virus is sensitive to acidic and alkaline pH conditions. Alkaline treatment (e.g. NaOH or Na<sub>2</sub>CO<sub>3</sub>) at pH 12 for at least 10 hours has been shown to be sufficient to inactivate FMDV in effluent and is particularly effective because of its action on concentrated biological effluents. As with heat, thorough mixing of the materials must be ensured. The treatment process should be monitored by multiple, automatic and continuous time and pH measurements. When inactivated effluent is neutralized, precautions must be in place to prevent recontamination. All data relevant to the inactivation process and the release of

effluent must be recorded. Critical data measuring and logging equipment must be calibrated by qualified personnel at least annually.

**Solid waste** (animal carcasses, feedstuffs, laboratory waste etc.)

63. The principal requirement is on-site inactivation of FMDV in waste using a validated method.

64. These methods include:

- Inactivation by steam using a vacuum-assisted autoclave (at least 121°C for at least 15 minutes or equivalent heat effect). It is essential that the different autoclave load types (e.g. plastic waste, paper waste, waste liquids, and tissue) are each validated for the maximum load size with suitable recording devices, e.g. thermocouples, at different locations within worst case loads, including the centre of the load. Autoclaves should be double-ended so that treated waste does not re-enter the Containment zone. The efficacy of autoclaves should be retested at least annually and after maintenance by competent personnel. Depending on the national requirements, it may be necessary to dispose of the autoclaved waste by incineration on or off the site.
- Carcasses must be treated on site, in compliance with the requirements for category 1 animal by-products (Regulation (EC) No 1069/2009 and Regulation (EC) 142/2011).
- Incineration on site: The incinerators must comply with national legislation and current safety standards and be fitted with afterburners.

**IX. Decommissioning containment compartments for maintenance or renovation purposes.**

*Note:* Additional considerations and notes are given in Annex I.

65. Maintenance, renovation work or decommissioning that may compromise the integrity of the containment barrier, thus possibly allowing the escape of air or liquids, must be preceded by an assessment of the risk and a safety plan.

66. Decontamination of rooms/compartments/critical zones, to reduce the risks to an acceptable level, is required before these can be decommissioned permanently or temporarily, for example during renovation.

The efficacy of the decontamination methods must be demonstrated and documented.

67. Waste building materials generated by demolition and redevelopment and other potentially contaminated materials must be treated in a way that any residual infectivity is inactivated. If validated autoclaving or incineration is not feasible, building materials should be sprayed and/or fumigated to disinfect surfaces, and then stored on site for 6 months before removal.

## Glossary

**Biorisk (adapted from OHSAS 18001:2007):** combination of the likelihood of the occurrence of an adverse event involving exposure to biological agents and toxins and the consequence (in terms of accidental infection, toxicity or allergy or unauthorised access, loss, theft, misuse, diversion or release of biological agents) of such an exposure.

**Biorisk officer (BRO) or biorisk advisor (Biosafety / Biosecurity Officer):** a staff member of an institution (particularly Tier D laboratories and Tier C Category I laboratories) who has expertise in the biological risks encountered in the organisation and is competent to advise top management and staff on biorisk management issues.

**Biorisk responsible person (BRP):** a staff member of a Tier C Category II laboratory who has the (delegated) responsibility to maintain a biosafe and biosecure situation in the laboratory during an FMD contingency (outbreak). All BRPs must be trained and competent for this role. A BRP must be present in the laboratory whenever samples are being received and must be reachable whenever diagnostic activities are being carried out; it is therefore advisable to designate and train a sufficient number of BRPs ahead of time.

**Biosafety (adapted from: WHO/CDS/EPR/2006.6):** Laboratory biosafety describes the containment principles, technologies and practices that are implemented to prevent the unintentional exposure to biological agents and toxins, or their accidental release.

**Biosecurity (adapted from: WHO/CDS/EPR/2006.6):** Laboratory biosecurity describes the protection, control and accountability for valuable biological materials within laboratories, in order to prevent their loss, theft, misuse, diversion of, unauthorised access, or intentional release from the Facility)

**Competent authority (CA) or national competent authority (NCA):** The regulatory body with the legally delegated responsibility to ensure that the Management and operations of Tier C and Tier D facilities are in line with this Minimum Biorisk Management Standards for laboratories working with FMDV. Depending on the political organization of the member states, this can be a national, regional or local government or agency.

**Containment zone:** area of the facility, bounded by physical barriers to prevent air and fluid escape except through air filtration and waste treatment systems. Work with live FMDV and samples suspected to contain FMDV, including manipulation, storage, diagnostic testing involving live FMDV and inoculation of experimental animals must take place in the Containment zone for work with FMDV.

**Deputy biorisk officer (DBRO):** a staff member of an institution (particularly Tier D laboratories and Tier C Category I laboratories) who has expertise in the biological risks encountered in the organisation and is competent to assist the BRO.

**Facility:** (complex of) buildings including the Containment zone, Support zone and clean zones on a site with an outer security barrier or fence.

**FMD restricted zone:** dedicated zone in a Tier C laboratory where samples submitted for FMD diagnostic testing are manipulated or stored. Tier C Category II laboratories only have an FMD restricted zone in an outbreak situation. Routine exclusion testing of samples from FMD-free countries or areas by RT-PCR or antibody ELISA does not require an FMD restricted zone.

**HEPA filter:** High Efficiency Particulate Air filter: the classification of HEPA filters is on the basis of efficiency of removal of the most penetrating particle size. HEPA filter performance requirements are defined by EN1822 (manufacturer); installed filters need to be tested on site according the requirements

of EN14644. In the context of this minimum standard, all HEPA filters must at least meet H13 requirements; H14 filters can be used for increased the margin of safety.

**Management:** the administration of the organization, including the activities of setting the strategy of an organization and coordinating the efforts of its employees to accomplish its objectives through the application of available resources, such as financial, natural, technological, and human resources.

**Open virus work, or open work:** describes the handling of materials containing FMDV (usually liquids) in which exposure to room air occurs, for example during the pipetting of liquids into containers, and the subsequent exposure of the liquid handling object (pipettes etc.) to air.

**Primary containment:** measures that contain the live virus at source, within closed containers or within a class I, II or III biological safety cabinet, or for animals, by physical containment in specially constructed rooms with treatment of all waste including the HEPA filtration of air.

**Routine exclusion testing:** To ensure the earliest possible detection of an introduction of the disease into a previously free area, it is advisable to conduct laboratory testing also in cases where the presence of FMD (or another notifiable vesicular disease) is not suspected, but also cannot be excluded. Exclusion testing by molecular methods can be performed in any laboratory designated by the competent authority as per point 13 of Annex XV of the directive 2003/85/EC.

**SOP:** standard operating procedure.

**Support zone:** area within the outer security barrier or fence of the facility, containing the support services for the Containment zone, the technical areas and zones for access.

**Susceptible species:** All domestic cloven-hoofed animals (including cattle, sheep, goats, buffalo and pigs), all wild cloven-hoofed animals (including deer, antelope, giraffes and wild boar) as well as elephants and camelids. (Adapted from the OIE 'Technical disease card FMDV', available at [www.oie.int](http://www.oie.int)).

## Annex I

### *Additional Considerations and Examples*

#### ***Chapter I: Establishing an FMD incident risk rating system***

Each facility should establish a risk rating system and an associated set of incident management procedures, including reporting and responsibilities in the event that a high risk incident occurs.

Risk is the product of consequence and likelihood. The consequences of an FMDV escape into susceptible livestock (resulting in an outbreak) is huge.

In establishing a risk rating system, the following factors should be considered:

- Where does the incident occur? (for example in an animal room)
- What type of event? (for example a visitor leaving without showering)
- How much potential virus exposure or loss? (for example number of persons, time or volume)
- To where was the virus released? (for example outside of the high containment area, to ruminants, to areas within the perimeter of the facility).

Each facility should establish their own risk rating system, taking into consideration e.g. the history of incidents, estimations of likelihood, objective data, and computer simulations. The risk rating system and reporting requirements should be agreed at the level of the top management of the facility, and reviewed on a regular basis.

Once established, the risk rating system can be used in training of staff on their reporting requirements, setting out the types of event or that should be reported to the line manager and/or biorisk officer.

## Example of a risk rating system

Where		What		How much*		To where	
5	Animal room containing FMD infected pigs.	5	Potentially contaminated person, without showering	5	Unknown or very high or long time: > 1 L or Kg fluid or material/day. >10 days air. > 50 persons.	5	Outside containment, probable exposure of FMD susceptible animals.
4	Animal room containing FMD infected animals (not pigs).	4	Potentially contaminated waste.	4	High: 10 – 100 ml or gram fluid of material / day. 1 – 10 days leakage of air. 5 – 50 persons.	4	Outside containment, to Yard or farm with FMD susceptible animals.  In contact with other (not FMD) Vet.Bios.Level 3 and 4 susceptible animals.
3	Lab undertaking FMD virus work  Or  During the first half of the FMDV disinfection process of formaldehyde or steam autoclaves or EthyleneOxide sterilizers.	3	Potentially contaminated air.  Or  Potentially contaminated person, after showering	3	Moderate: 1 – 10 ml or gram fluid or material / day. 1 – 24 hour leakage of air. 2 – 5 persons.	3	Outside containment, to NON FMD susceptible animals
2	Lab not handling FMD virus but within common building/containment to labs handling FMDV  Or  During the second half of the FMDV disinfection process of formaldehyde or steam autoclaves or Ethylene Oxide sterilizer.	2	Potentially contaminated fluid.	2	Little: < 1 ml or gram fluid or material / day. <1 hour leakage of air. 1 person.	2	Outside high containment suite but on terrain of the institute



1	In engineering maintenance areas – HEPA filter replacement, etc	1	Other Potentially contaminated items	1	Very little << 1 ml or gram fluid or material / day. <<1 hour leakage of air.	1	In engineering maintenance areas – HEPA filter replacement, etc
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\* temperature, humidity, expired time will also have influence on this issue

Relative risk = where x what x how much x to where

Example

A person who was working in the laboratory where live FMDV is handled was observed to pass to the area outside of high containment, without taking a shower, but did not leave the perimeter of the facility.

Risk rating: 3 x 5 x 2 x 2 = 60

relative risk	≤20 is 'Acceptable'	21 – 60 is 'Low'	61 – 250 is 'Substantial'	>250 is 'Catastrophic'
decisions	Report to Biorisk Officer.	Report to Biorisk Officer. Report to Biorisk Committee. Report to General Manager.	Report to Biorisk Officer. Report to Biorisk Committee. Report to General Manager. Call together Crisis Team. Decision about the necessity to inform authorities.	Report to Biorisk Officer. Report to Biorisk Committee. Report to General Manager. Call together Crisis Team. Report to Regulatory authority/Chief Vet. Officer

## ***Chapter II: Improvement of biorisk management through analysis of incidents***

Management should take a high interest in learning from reported incidents. Each may be considered a form of failure or non-conformity to the expected performance of the risk control measures, and occur as a result of failure in the engineering controls and/or personnel related control measures.

The cause of each event may be categorised as:

Related to engineering:

- hardware (as facilities and equipment)
- design (as irrational lay-out and ergonomics)
- maintenance (as planning and availability)
- procedures (as standard operations and relevance)
- defences (as protective equipment and signals).

Related to personnel management:

- error-enforcing conditions (as occupational health and attitude)
- housekeeping (as tidiness and discipline)
- incompatible goals (as costs and safety)
- communication (as interpretation and point of time)
- organization (as responsibilities and authority)
- training (as knowledge and experience).

## ***Chapter III: Threat assessment***

In a threat assessment, at least the following should be considered:

1. The threat of criminal use of FMDV for any malicious purpose has to be carefully assessed to determine the additional risk that arises from operating FMDV facilities. FMDV laboratories have exclusively peaceful objectives concerned with development and implementation of control measures. They are critical for the technical cooperation with veterinary services around the world in order to minimize the economic impact of FMD on livestock and economies. The threat of criminal use of FMDV is subject to major change as the political agenda of terrorist group changes.
2. The threat and consequences of a terrorist attack will vary by country. Because of the transboundary nature of FMD, there is also the possibility that a deliberate release may occur in another, possibly neighbouring, country. For this reason, effective control measures must be consistently applied throughout all EU member states that operate FMD laboratories. As the motivation for a deliberate release may change unpredictably over a very short period, effective control measures need to be sustained at all times and be sufficiently flexible to allow an enhanced response if required.

Facilities permitted to handle FMDV are obliged to prevent illegal access and removal of the virus. As a consequence, such access to laboratory-held virus must be substantially more difficult than acquiring the virus in the field.

*Threat reduction/control measures:* due to the unpredictability of the actual threat, controls are required to reduce the risk to an acceptable level. These controls should consider structural, physical and organisational measures and must address the following:

3. Intruder attempting to remove FMDV from the facility by forced or fraudulent entry.  
Appropriate controls include 1) physical security measures restricting access to authorised staff and contingency plans in the event of intrusion, 2) secure storage of virus containing materials including maintenance of accurate inventories of stocks.
4. Staff member removing FMDV from the facility  
Appropriate controls include 1) vetting of persons before authorisation of access, and escorts for persons allowed temporary access when security clearance is not available; 2) restricted access to FMDV virus material in the lab to trusted staff on the basis of a legitimate need, 3) access to the facility is logged [and records maintained for at least two years] to provide an audit trail of who was in the facility at any given time. 4) Design of the laboratory or facility such that the number of staff needing to enter the secure areas is limited. E.g. some engineering aspects of the design of the facility can be arranged so that certain services can be maintained from outside of the security envelope.
5. Shipment of virus containing materials  
Appropriate controls include standard procedures before authorisation, including receipt of adequate information from the intended recipient of its authority to handle FMDV, and written agreement that the recipient laboratory will not redistribute the virus to other laboratories without applying the same risk assessment and will adhere to relevant national or international legislation relating to shipment and supply of dangerous animal pathogens. Individuals undertaking these activities must have received adequate training in this and ensure that their competency is maintained up to date.
6. Disruption of the running of the facility:  
Consideration should be given that all critical plants and control systems are adequately protected against malicious attack, which could lead to any disruption in support services and a consequential escape of FMDV. Special attention should be given to malicious attack on digital systems.

#### **Chapter IV: Air-handling**

1. Provisions must be in place to ensure that no overpressure is generated in the Containment zone. One approach is to interlock the inlet and extract fans so that the most that can occur is that the air supply and extract fails and the negative envelope pressure decays solely depending on the airtightness of the building. An emergency back-up extract fan is recommended so that the negative envelope can be restored in the event of the main extract fan failing and this should also be interlocked to the supply fan to avoid very high negative pressures which may cause damage to the fabric of the building. As an alternative, the air extraction plant can be divided into several parallel sections so that the negative pressure can be maintained if one section fails or is shut down.
3. It is advisable to have and maintain other filters within the air handling system, notably, pre-filters upstream of the HEPA filters. These additional filters will extend the life of the HEPA filters and reduce the need to change them at the annual maintenance interval. In properly maintained systems, it is relatively rare to change the terminal extract filter due to the efficiency of particulate removal by all of the filters upstream.

However, high levels of humidity will shorten the life expectancy of filters and large amounts of dust generated by nearby building works or other activities will soon blind filters even with efficient pre-filters up-stream.

4. Off-gas or vent filters: This type of filter is often steam sterilised and filter efficiency testing involves different approaches such as the water intrusion test. At the smaller scale, disposal cartridge filters may be appropriate as vent filters to allow gas exchange while preventing virus escape from the container to the laboratory environment.
5. Although not widely used, sterilisation of extract air may be done by heating the air as it passes through an in-line furnace.
6. To save energy, air extracted from a Containment zone may be partially recirculated into the same Containment zone provided it is passed through a HEPA filter before it re-enters the laboratory. However, the advisability of recirculation and the proportion of air recirculated will need to be considered against the quality of the air leaving and re-entering the work place and the activities within the workplace.
7. In the event that HEPA filters become blocked prematurely (i.e. prior to annual testing), this does not normally represent a problem in terms of the integrity of the affected filter(s), but it is probable that the increased resistance to airflow and consequent problems of balancing the pressures in the different rooms of the Containment zone will necessitate changing the affected filters.

#### ***Chapter V: Decontamination of compartments:***

The compartment must be made airtight to make fumigating possible, if necessary by means of temporary panels.

Formaldehyde procedure:

1. Check the compartment and accompanying drawings for connections with containment facilities that must be closed. Close down utilities such as gas, water, electricity, sewerage, steam and if possible ventilation.
2. Empty the compartment, for example by moving objects to other containment facilities. Remove porous material. Discard material via validated procedures like autoclaves and formaldehyde airlocks. Open non-removable installation parts to make them accessible to vapour.
3. Thoroughly clean the compartment and disinfect critical points which may be contaminated.
4. Prepare the fumigating equipment and shut the compartment airtight.
5. Disinfect (air)ducts and HEPA filters for example separately by injecting formalin.
  - Use a fumigating method in conformance with a validated procedure used for formaldehyde airlocks.
  - Use bioindicators, (preferably a rapid bioindicator system) to demonstrate the efficacy of the fumigating process.
  - Set restrictions for access such as clothing, quarantine for people and demolition material, in order to be able to make corrections in case of accidents.
6. Inspect the maintenance and renovation activities to be performed in the compartment. Maintain detailed records of the full process, which must be undertaken as a

collaboration between scientific staff, engineering/maintenance personnel and BRO or deputy.

7. Staff undertaking these activities must be suitably trained in order for these to be carried out safely and correctly. A risk assessment must be in place defining which precautions must be taken to protect staff and the environment from harm from the disinfection procedures.

#### **Chapter VI: Decontamination of equipment and other materials:**

*Before removal from the containment zone, equipment and material must be decontaminated:*

- *by steam sterilization within an autoclave*
- *after surface cleaning and disinfection, fumigation with formaldehyde (10 g/m<sup>3</sup> at 70 % RH) for at least 10 minutes or (3 g/m<sup>3</sup> for 24 hours or equivalent with other aldehydes, e.g. glutaraldehyde, or ethylene oxide (0.8 g/litre at 50°C for 1.5 hours )) or other fumigation methods that have been shown to be effective against FMDV. Equipment, for example contractors' tool boxes, laptops, etc. which is fumigated out of a Containment zone should be cleaned and be opened as much as reasonably possible to allow penetration of the gaseous fumigant; or*
- *thorough washing in an appropriate chemical disinfectant<sup>2</sup> such as:*
  - *4 % Sodium Carbonate anhydrate or 10% washing soda (Na<sub>2</sub>CO<sub>3</sub> Decahydrate);*
  - *0.5 % caustic soda (NaOH);*
  - *0.2 % citric acid;*
  - *4 % formaldehyde or equivalent with other aldehydes, e.g. glutaraldehyde*
- *a validated disinfection protocol with an alternative method that has been shown to be effective against FMDV.*

*Decontamination of clothing before removal from the Containment zone for laundry must include a wet heat treatment step. A laundry process without autoclaving is permitted if performed on-site in a double-ended pass-through laundry device. Such a laundry process must include a validated alternative inactivation step.*

*Documents should be sent out of the Containment zone preferably in electronic format. In case papers have to be taken out of the Containment zone, they must be treated by a validated procedure e.g. autoclaving, irradiation or ethylene oxide treatment.*

#### **Chapter VII: Inactivation of biological material:**

Before removing biological material from the Containment zone and sending it to a non-FMDV facility, the material must be inactivated by a validated method.

There are several methods that can be used for the inactivation of FMDV:

<sup>2</sup> *Note:* The efficiency of these chemical disinfectants is considerably improved by the addition of a non-ionic detergent. Some countries have national databases listing validated disinfectants.

- Binary ethylenimine (BEI): inactivates virus by alkylation of nucleic acids with minimal effects on proteins<sup>3</sup>.
- Formaldehyde fixation of tissues (4%): 24h per 1cm thickness of tissue
- Inactivation using  $\beta$ -Propiolactone (BPL): Suitable for solutions that contain little protein, e.g. cell culture supernatant; mechanism of action: BPL destroys the nucleic acids (alkylation)
- or a validated treatment with an alternative method.

## **TIER C. LABORATORIES PERFORMING FMD DIAGNOSTICS WITHOUT USING LIVE FMDV.**

### **TIER C LABORATORY CATEGORIES:**

- I. CONTINUOUSLY WORKING TIER C LABORATORIES:
  - NATIONAL REFERENCE LABORATORY WITHOUT PERMIT TO WORK WITH LIVE FMDV
- II. CONTINGENCY LABORATORIES UNDERTAKING DIAGNOSTIC INVESTIGATIONS FOR FMD IN THE FRAMEWORK OF A NATIONAL CONTINGENCY PLAN (UPGRADED LOWER LEVEL OR NEW)
  - REGIONAL LABORATORIES SUPPORTING ROUTINE EXCLUSION DIAGNOSTICS WITH THE OPTION TO BE MORE INVOLVED DURING AN OUTBREAK
  - EMERGENCY LABORATORIES

<sup>3</sup> Hans G. Bahnemann. 1975. Inactivation of Viruses in Serum with Binary Ethyleneimine. J. Clin. Microbiol. Vol. 3, No. 2, p. 209-210

## Introduction

The following Minimum Standards for laboratories undertaking diagnostic investigations, refers to the laboratories mentioned in Annex XV to Council Directive 2003/85/EC which are designated by the competent authorities as “national laboratories” or in point 13 of Annex XV as “other laboratories”. These laboratories would be licensed to undertake diagnostic tests, as part of national contingency plans, but only test field samples originating from the country where the laboratory is situated using assays which do not contain or require live FMD virus as reagents or controls and that do not amplify infective virus. Such “FMD Contingency Laboratories” must operate to standards that will result in inactivation of live virus if received in samples. During an outbreak, they may offer significant advantages in respect of speed and sample throughput as the number of laboratories fully meeting the “MBRM Standards for FMDV Laboratories” is very limited. In some “FMD Contingency Laboratories”, rooms equipped with an air handling system providing HEPA filtration of exhaust air may be available for the most critical activities.

**Real-time RT-PCR** has been introduced in many laboratories, e.g. regional veterinary laboratories. While the inactivation treatment prior to RT-PCR in principle may be carried out on the suspect premises, there currently is no validated and fully satisfactory procedure that could be used for this purpose and thus opening the vessels containing potentially infectious material in a BSC followed immediately by inactivation is considered a suitable alternative.

Furthermore, a national competent authority may decide to authorize a “FMD Contingency Laboratory” to test non-inactivated samples by **antigen ELISA** in order to allow these labs to supplement RT-PCR results, maintain a back-up method in case RT-PCR fails and to determine the serotype although this procedure poses a higher risk. The use of a **lateral flow device (LFD)**, either on the premise or in a “FMD Contingency Lab” in a BSC, is an alternative to antigen ELISA that poses a lower risk but currently does not allow serotyping.

Serology using commercially produced **FMDV-ELISA kits** can be performed in many laboratories, e.g. regional veterinary laboratories, which can process samples with a high throughput. In case of an outbreak, the NCA can include such laboratories to increase the throughput of diagnostic samples significantly, which will often be a crucial factor for successful disease control and timely recovery of the previous disease-free status. Serological samples should be opened and processed in a way that the generation of potentially infectious aerosols is minimized and air that might contain such aerosols should be directed through a HEPA filter as far as possible.

While due to the dynamic nature of an FMD epidemic samples coming from holdings without clinical signs may occasionally contain virus, samples from holdings with clinical signs suggesting the presence of FMD represent a higher risk and should be handled with special caution.



**SPECIFIC REQUIREMENTS:*****I: Management and responsibilities***

1. The management of a facility is ultimately responsible for biological risks (biosafety and biosecurity) on its premises. This also includes the provision of sufficient resources to manage the duties and responsibilities of a Tier C laboratory (both categories).
2. It is the duty of the management of Category I laboratories to properly monitor the biosafety and biosecurity by appointing a BRO (Biorisk Officer) and deputy (DBRO), while category II laboratories must designate a biorisk responsible person (BRP). When receiving suspect samples and during outbreaks, there must be a BRO/DBRO or BRP on-site at all periods in which samples are being received and contactable at all periods when diagnostic activities are ongoing.
3. The BRO/DBRO must have sufficient experience and technical training to enable assessment of FMD risk and risk management procedures. The management should carefully define the status, duties and responsibilities of the BRO/DBRO:
  - a. The BRO should report directly to the top management representative (Director-General, site Director or similar)
  - b. The status of the BRO should ensure his/her independence and the absence of any potential conflict of interest.
  - c. The BRO should have appropriate training in virology, containment techniques and procedures to fulfil his/her duties. It is to be expected that he/she would also have a broad based knowledge of the FMDV with particular respect to its physico-chemical properties, mode of transmission and other topics of relevance to his/her role.
  - d. Procedures for reception, handling, testing, storage and shipment of suspect and positive samples must be defined by the BRO. Moreover, the BRO must be involved in the technical running of the facility.
4. For category I laboratories, a biorisk policy and systems for incident recording, assessment and notification, risk and threat assessments, and emergency management plans described for Tier D must be in place.
5. Procedures for safely handling suspect and positive samples must be defined by the BRO for category I laboratories, and by the BRP for category II laboratories.
6. **When instituting category II laboratories during an FMD emergency, the national competent authority (NCA/CA) shall ensure that the laboratories implement Tier C standards.**

For category II laboratories, once a positive sample has been identified, all potentially contaminated areas are classified as Containment zone.

***II: Facility design and access***

1. There must be a designated FMD restricted zone used for the receipt, testing and storage of suspect sample material which is separated from other essential activities in the laboratory.
2. All potentially contaminated areas are classified as FMD restricted zones. Access doors should display a warning sign that access is restricted to authorised personnel only.
3. Controls must be in place to limit human and animal access, particularly people working with susceptible species.

4. Communications and reporting office space:
  - a. The laboratory must have an adequate provision of office space, computing and communications facilities (e.g. electronic communications, facsimile) to reduce the need to a minimum for staff, papers and physical records to exit the FMD restricted zone.
5. Rest rooms
  - a. The FMD restricted zone should have sufficient rest rooms and lavatory facilities in relation to the staff number expected at peak periods of activity to reduce the need to a minimum for staff to exit the FMD restricted zone.
  - b.

### ***III: Personnel and training***

1. Personnel must be authorised to enter and work in the FMD restricted zone by the BRO/DBRO or the BRP. For category I laboratories, authorised personnel working in the FMD restricted zone must be trained, their competencies maintained for their designated roles, and evidence of the training and competency recorded. The BRP for category II laboratories must ensure sufficient training of personnel before start of work in the framework of an FMD emergency. Where facilities for the inactivation of waste from the FMD restricted zone are located outside of this area, staff working with such waste must also be trained appropriately and evidence of the training recorded.
2. Authorised personnel must:
  - a. change all clothing before entering and when leaving the FMD restricted zone
  - b. sign an agreement stating that for at least 72 hours after leaving the FMD restricted zone they will not have any contact with animals of susceptible species, nor enter buildings or enclosed fields where animals of susceptible species are kept, and not handle items used in the care of susceptible species
  - c. the agreement of the authorised personnel to these conditions must be recorded and a reminder notice of these conditions placed in a visible location at the exit point of the FMD restricted zone
3. Entry and exit of personnel to the FMD restricted zone must be recorded.
4. Entry and exit points to the FMD restricted zone must be kept to the minimum – preferably a single point of entry/exit.
5. A step-over line, or other clearly demarcated boundary, shall indicate the exit point. This is the point where the change of all clothing should occur. Changing facilities and lockers are required to enable staff to deposit personal items outside the FMD restricted zone. All outer protective equipment worn in the FMD restricted zone must be packaged safely and stored in the FMD restricted zone until treatment.
6. Preferably, personnel should shower out at the exit point. If this is not possible, personnel must remove their outer protective equipment and wash their hands at the exit point and shower before leaving the laboratory premises. If showers are not available on the premises, personnel should shower as soon as possible.

**IV: Handling of samples**

1. Sample reception area:
  - a. The FMD restricted zone must contain a specified area for sample reception which must:
  - b. be easily disinfected in the event that leakage of samples occurs into packing materials or following opening of the packages
  - c. be equipped to enable repacking of samples into appropriate transport containers for dispatch to laboratories meeting the MBRM Standards for FMDV laboratories
  - d. have suitable facilities for waste disposal and have hand-washing facilities ~~at the exit points.~~
2. Sample preparation area
  - a. The FMD restricted zone must contain a specified area for serum separation and/or RNA extraction.
  - b. This area must have suitable facilities for surface disinfection and waste disposal and have hand-washing facilities ~~at exit points.~~
  - c. Samples originating from a holding with clinical signs indicating the possible presence of FMDV pose a higher risk. They must be opened, and the subsequent liquid handling steps be carried out in a biosafety cabinet (BSC). Centrifugation should be carried out in closed rotors or sealed centrifuge buckets, which can contain a spillage in case the primary vessel fails.
  - d. Infectivity of the samples must be reduced before further processing in all cases where this does not affect the intended diagnostic tests. E.g. by mixing with an effective lysis buffer containing chaotropic salts prior to RNA extraction, or by heating serum samples for 2h at 56°C. If suspension of lesion epithelium for RT-PCR or antigen ELISA is prepared using mortar and pestle or similar open method, this must take place in a BSC, the SOP for the procedure must reflect the high risk involved, and personnel should be aware of this high risk.
3. Testing area
  - a. The FMD restricted zone must contain a designated area for testing
  - b. This area must have suitable facilities for surface disinfection and waste disposal and have hand-washing facilities ~~at exit points.~~
  - c. The testing of serum samples originating from a holding with animals showing clinical signs indicating the possible presence of FMDV should if possible be carried out in a BSC.
  - d. Antibody ELISA testing of samples from a holding without clinical signs should be carried out in a way that aerosol generation and spread is minimized. In particular, the initial steps including the first washing step are critical.

- e. The testing of vesicular material for antigen e.g. by ELISA or lateral flow device (LFD) poses the highest risk of all activities carried out in Tier C Laboratories. It must be carried out in a way that all liquid handling steps are performed in a BSC. If an incubator is used to guarantee the required incubation temperature, plates should be sealed or placed in a suitable secondary vessel.
- 4. Sample storage area
  - a. The FMD restricted zone must contain a specified area for the storage of samples
  - b. This area must be secured from unauthorized access, and have suitable facilities for surface disinfection.
- 5. Packaging and shipment of samples
  - a. Samples must be put into watertight primary containers (e.g. plastic tubes) and the primary containers must be packed in watertight secondary packaging, which should be a strong crushproof and leak-proof container, with absorbent material that can absorb the entire contents of all the primary containers. The packaging process must include a disinfection of the secondary packaging. The packaging should comply with packing instruction P 650 and the European agreement concerning the international carriage of dangerous goods by road (ADR) - unless the requirements for transport by air or ship apply, which may be higher. Diagnostic samples with unknown infection status should be labelled as biological substance, category B (UN3373).

#### ***V: Waste management***

- 1. Location of autoclave
  - a. An autoclave should be present on the site, preferably vacuum-assisted and with sufficient capacity for throughput at the maximum operating capacity of the laboratory.
- 2. Liquid waste
  - a. Heat or chemical treatment of all waste water through a validated effluent treatment system is the preferred method, in compliance with requirements specified for FMD laboratories
  - b. Alternatively, or additionally, the laboratory may demonstrate that it has put in place a robust management system for inactivation of liquid waste that is potentially contaminated with virus or has been in contact with potentially infectious materials. If treatment of all liquid waste from the FMD restricted zone (including waste water from the showers) is not possible, at least the ELISA buffers and washing fluids must be collected and treated.
- 3. Solid waste
  - a. For biological, solid waste, and all solid disposable materials that have been in contact with potentially infectious specimens, treatment by autoclave within, at an exit point to the FMD restricted zone, or on site, is the preferred option.

- b. If such a treatment of all solid waste is not possible, handling of solid waste must be risk assessed by BRO/DBRO/BRP and discussed with management. Waste must be effectively chemically decontaminated, packaged into suitable leak- and break-proof containers and surface decontaminated by a validated method at the exit from the FMD restricted zone. Such packages must be transported in a controlled fashion as clinical waste under ADR regulations (UN 3291) for incineration at the closest authorized processing plant, or for autoclaving at another facility using a validated protocol for comparable material.

#### ***VI: Equipment and material***

1. Removal of equipment, materials and clothing from the FMD restricted zone:
  - a. Removal of any material and equipment from the FMD restricted zone shall be subject to authorisation by the BRO/DBRO or the BRP
  - b. The BRO/DBRO or BRP will ensure that materials and equipment which has been in contact with risk materials (specimens) will not be removed from the FMD restricted zone without a validated treatment to inactivate FMDV.
  - c. The reason for removal, date and destination will be recorded.

#### ***VII: Declassification***

1. Declassification of the FMD restricted zone:
  - a. The FMD restricted zone can only be declassified after decontamination according to a plan agreed with the national competent authority (NCA/CA).
  - b. If heat treatment or scanning of all paper from the FMD restricted zone is not possible, they should be packed into suitable containers, which should be disinfected and kept under lock for at least two years. If the containers have to be opened before, this has to be done in a FMD restricted zone meeting the Tier C standards.
  - c. All clinical specimens handled in the FMD restricted zone during a period when potentially infectious FMDV material was handled, should be considered as potentially contaminated with FMDV and should be destroyed before the declassification of the FMD restricted zone. Alternatively, the material needs to be tested and certified free from FMDV or undergo a validated inactivation process and surface decontamination in order to be released (see Annex 1, chapter VII). Samples may also be shipped to tier D laboratories according to international regulations for shipment of biological materials. These samples and processes must be approved by the BRO or BRP and/or the NCA/CA. Relevant documentation on these samples must be maintained according to national and international law.

## **2019 Revision of the Minimum Standards<sup>4</sup> for work with FMDV.**

The “Minimum Biorisk Management Standards for Laboratories working with foot-and-mouth disease virus” (MBMS) have been thoroughly reviewed and text updated with the purpose to make it easier to read by improving the logical flow and to minimize the number of repetitions.

This means that a number of points and sentences have been moved in both in Tier D and Tier C.

Moreover, the Tier C laboratory concept has been further developed to reflect that it caters to two different laboratory categories:

- category I: national reference laboratories without a permit to work with live FMDV but maintaining a continually alert FMD biorisk management system including trained and vigilant biorisk officer, deputy biorisk officer and laboratory staff
- category II: FMD Contingency laboratories limited to performing FMD diagnostic tests on no/very low risk samples or not performing FMD diagnostics except in the framework of an FMD emergency

The changes comprise three categories:

- **Moved text:** listed below – but not indicated in the document
- **Changed text:** listed below and indicated in the document
- **Removed text:** listed below – but generally not indicated in the document

### **Introductory page 1, description of revision process:**

- Changed to reflect the current (2018-2019) revision process.
- Tasks from 2013 version:

### **List of general changes made for consistency – not marked in the text:**

1. Names of document and document parts:
  - a. More consistent use of “Tiers” – e.g. Removed “Sections” in the foreword, on pg. 2 and on the front pages of Tier D and Tier C. and used “Tiers” instead
  - b. Changed descriptions/names of Tiers C and D to focus on the difference: if the laboratory works with live FMDV or not: on Pg. 2 and first pages of Tiers D and C:
  - c. More consistent use of the names for the entire document and for the Tiers C and D
  - d. Tier C subdivided in two categories: national reference laboratories and contingency laboratories
  - e. Restricted zone changed to Containment zone in Tier D – and to FMD restricted zone in Tier C, as most Tier C laboratories do not have Tier D containment measures
2. Microbiological safety cabinet and MSC changed to biological safety cabinet and BSC throughout the document
3. Biosafety officer (BSO) changed to Biorisk officer (BRO) because for FMDV this role covers both biosafety and biosecurity
4. ANNEX changed to Annex
5. Some clean-up of words: which/that, principle/principal, TCID changed to TCID<sub>50</sub>
6. Laboratory animals changed to small experimental animals and large experimental animals
7. Tier D specific requirements V.34-IX.67 (previously V.34-X.71): numbers of points adjusted due to moved points/text for improved logical flow in the document
8. PCR changed to RT-PCR

### **List of SPECIFIC changes – marked in the text:**

<sup>4</sup> MINIMUM BIORISK MANAGEMENT STANDARDS FOR LABORATORIES WORKING WITH FOOT-AND-MOUTH DISEASE VIRUS

[http://www.fao.org/fileadmin/user\\_upload/eufmd/Lab\\_guidelines/FMD\\_Minimumstandards\\_2013\\_Final\\_version.pdf](http://www.fao.org/fileadmin/user_upload/eufmd/Lab_guidelines/FMD_Minimumstandards_2013_Final_version.pdf)

**Key to changes.**

The colour coded changes listed below are shown in the proposed Standard as italics, underlined or strike-through

Moved text is indicated in the Proposed Standard (not this document) in italics

Changed text [inserted or edited] is underlined thus

Deleted text is ~~indicated~~ thus

**Tier D:****General requirements:**

1. Introduction:
  - a. Removed ~~possibly~~
  - b. Full FMD facilities changed to facilities for work with live FMDV
  - c. Fitted for research changed to to set up for research
  - d. Changed confirm RT-PCR to supplement RT-PCR
  - e. Changed exclusion diagnosis to routine exclusion testing
  - f. Inserted "In the European region" to emphasize that the encouragement to apply principles of the Tier C and D as far as reasonably is for laboratories in the endemic part of the European region
  - g. Added explanatory note in 1.1 Primary containment layer
  - h. Specified that solids, fluids and air are exiting subjects
  - i. 1.3 Tertiary containment layer:
    - i. Inserted quarantine for visitors
    - ii. Added two measures
2. General requirements:
  - a. Removed ~~escaped or~~
  - b. Removed ~~baby~~ from baby mice
  - c. Inserted full-length
  - d. Risk control:
    - i. Special attention points:
      1. Security check of personnel changed to Reliability and competency of personnel
      2. Solid waste added to decontamination of effluent (missing)
  - e. Use of alternative methods:
    - i. processes added
    - ii. Decisions about alternative methods is moved from National competent authority to SCBRM, who can include the Standing Technical committee
  - f. Residual risk:
    - i. ~~consequential~~ removed
    - ii. Regulatory body is changed to NCA or equivalent (see also glossary)
    - iii. Added the option to modify the work
3. Authorization of laboratories:
  - a. Points (2) and (4): border line for Manufacturing activities simplified to up to 10 litres for each batch, which means 10 litres at any step of production
  - b. Refers to Tiers C and D instead of Sections
  - c. Sharpening description of situation where there is no risk (including routine exclusion testing)

**Specific requirements:**

4. Requirement I.1: added sentence regarding provision of sufficient funds for maintenance and servicing
5. Requirement I.3: added and review of efficacy of actions taken



6. Requirement I.5: biorisk officer replaces biosafety officer – for FMD facilities both biosecurity and biosafety are important
7. Requirement I.5 (a): added or modify
8. Requirement I.5 (e): added requirement for funds for further training of BRO
9. Requirement I.5 (f): senior management changed to management: definition of management layers are up to the facilities
10. Requirement I.6: added reference to threat assessment
11. Requirement I.9: explanatory remark inserted
12. Requirement I.11: items for contingency plans added break down of equipment with examples autoclaves and waste treatment plants (previous Requirement VIII.61 integrated).
13. Requirement I.12: Access to site – it was realized that though the color-codes may be useful for understanding, they derived from one facility and are not implemented at all FMD facilities. For this reason, the SCBRM discussed and agreed on new names for zones, while keeping the colors codes as examples. The new zone names have been included in the glossary.
  - a. Remark on Red, Orange and Green zone constituting the Controlled zone which is within the outer security barrier or fence has been removed. This is covered in Laboratory Biosecurity in requirement 17 as part of threat assessment.
  - b. Explanation of Support zone is added area outside containment, including and technical area
  - c. The minimum requirements are changed to It is necessary to
14. Requirement II.16: security changed to biorisk (includes both biosafety and biosecurity)
15. Requirement III.17: removed sentence allowing the option to decide to not undertake threat assessment
16. Requirement III.19: concept maliciously inserted
17. Requirement IV. 20:
  - a. remark on code of practice made available to all employees and guests was repeated in IV.21 and IV.25, and has thus been removed from IV.20.
  - b. specified full body and hair shower
18. Requirement IV.22:
  - a. “each employee” changed to “relevant employees”.
  - b. Specified that the documents must be read and signed before access can be given
19. Requirement IV.23: “Control of access to controlled zones and critical areas” has been changed to “Control of access to critical areas”.
  - a. Personnels access to FMDV containing materials has been changed from “trained and dedicated staff” to “trained staff”, and instead access must be authorized. It is up to the facilities how they arrange the authorization.
  - b. To reflect different organization in different European countries, “the police and relevant government agencies” has been changed to “relevant local and national authorities”.
20. Requirement IV.25: visitors should not carry out decontamination, so this example is removed. “of oversight” has been inserted.
21. Requirement 26: specified that it has to be a competent member of Support or Containment zone staff who have oversight
22. Requirement IV.27: Human resources department changed to “Management”.
  - a. Requirement rephrased to two sentences to improve ease of understanding.

23. Requirement IV.28:
  - a. Restricted zone changed to **Containment and Support zones** (also in IV.29).
  - b. **Three days changed to 72 hours for Containment zone.**
  - c. **For the support zone, the need for quarantine must be risk assessed and will depend on the activities in the area and the risk for virus escapes to the areas**
24. V. Heading changed from Facility Design to **Containment Zone Design**
25. V.30: **“(backflow prevention)” added.**
26. V.32:
  - a. **“(or equivalent in the local language)” added**
  - b. **Door access control system description changed** to allow different systems in different facilities/countries
  - c. Airlocks – sentence regarding gaseous decontamination changed to: **this is particularly important for fumigation air locks** –
  - d. Windows in doors changed to **where appropriate** – e.g. doors to and from changing rooms are not a good place to have windows.
27. Requirement V.33: changed suitable sealing material such as silicone mastic to **suitable materials certified for the purpose**
28. **From requirement V.34: number of requirements adjusted** due to moving of requirements/text to improve logical flow in the document.
29. Requirement V.34:
  - a. requirements IX.62 and IX.63 about benches and centrifuges, sonicators etc. moved here to new requirement V.34 for better logic.
  - b. Added **When using equipment in BSCs, performance of BSC has to be ensured with the equipment in use by an appropriate test, e.g. using smoke pencil.**
30. Requirement V.35 (previously V.34): added sentence about **other means of communication.**
31. Requirement V.36 (previously V.35): Emergency back-up power: **Rephrased to allow other means of emergency power** depending on risk assessment based on the design of the facility and the work to be carried out in the facility (how airtight, +/- animal work, etc.).
  - a. **Repeated text removed**
  - b. **Appropriately sized UPS mentioned**
  - c. Added requirement for **testing and documenting systems at regular intervals.**
32. Requirement VI.37 (previously VI.36): **added documentation for the chain of custody** to recording system.
33. Requirement VI.39 (previously VI.38): **cell culture removed** as in the General point about Authorization of laboratories. Amount of virus specified.
34. Requirement VI.41 (previously VI.40):
  - a. **Euthanasia added**
  - b. Added sentence specifying that **Animals cannot be taken out from Containment areas alive**
  - c. **last sentence rephrased** without losing meaning.
35. Requirement VI.42 (previously VI.41): prevention of spill should be in both contained and non-contained area, thus **“in the non Restricted zone of the facility” removed.**
  - a. **Description of leak- and break-proof double container rephrased.**

36. Requirement VI.43 (previously VI.42):
- suitable disinfectant changed to **effective** disinfectant.
  - requirements for cleaning, tidying and disinfection specified.**
37. Requirement VI.44-45 (previously IX.67-68): requirements moved to FMD handling to improve logical flow of document.
- Viable changed to **infectious**
  - Changes to text: **“innocuity test” is changed to “a validated test according to risk assessment (e.g. PCR, cell culture)”.**
  - Refers to Annex I chapter VII for** validated treatment that destroys FMDV infectivity.
  - “requirements governing transportation of dangerous foods” changed to “regulations for shipping biological materials”.**
  - Note on FMDV cell culture shipped as UN2900 moved here from Tier C.
38. Requirement VI.46: Removal of equipment and other material moved from IX.64-66:
- One new general sentence about **limiting transportation of materials and equipment into the Containment zone to the essentially needed.**
  - Two general introductory lines from Requirement IX.64 - **added the requirement for validated methods.**
  - New general paragraph specifying autoclaving as the method of choice, and referring **decontamination for materials/equipment that cannot be autoclaved to procedures described in Annex I, chapter VI:**
    - which includes the specific methods for inactivation of materials/equipment, clothing, paper that was previously described in Requirements IX.64-66.
    - Specific reference to formaldehyde and ethylenoxide removed from main text.
  - Added sentence specifying that dirt and organic material have to be removed by thorough cleaning before decontamination.**
39. Requirement VII.47 (previously VII.43):
- Specified that it is escape **of unfiltered air** through the inlet supply.
  - Cell culture removed** from definition of border line for small quantities of virus – and **definition changed** (as in General requirements under Authorization of laboratories).
  - Minimum negative pressure now defined relative to ambient air.**
  - Foot note on definition of 1 Pa removed since Pa is an internationally recognized unit.
  - Added **relative to ambient air.**
  - Paragraph about airhandling in small animal rooms moved from Annex 1, chapter IV.
  - In recognition that positive pressures cannot be completely avoided, phrasing is changed from “prevent positive pressure” to “limit positive pressure”.**
  - “failures or faults of the ventilation system” collapsed to “failures of the ventilation system”.**
- >10l.
40. Requirement VII.48 (previously VII.44):
- rephrased from “following open work” to **“during open virus work”**
  - Production laboratories added **explanatory note**
41. Requirement VII.49 (previously VII.45): **air specified as “unfiltered air”.**
42. Requirement VII.50 (previously VII.46):
- “by manometer” removed** to reflect that new Tier D facilities will rely on continued electronic monitoring of air pressures. The change allow for manometers in older facilities and as choice in new facilities.
  - Text changed to make sense:** “so appropriate actions can be taken.”
43. Requirement VII.51 (previously VII.47): **specified that it is the installed HEPA filters** that should be tested annually (in situ test).

44. Requirement VII.52 (previously VII.48): inserted sentence regarding disposal of Discarded HEPA-filters – burnt changed to incinerated.
45. Requirement VII.53:
  - a. Added The efficiency of the HEPA.
  - b. Added and operational issues in its new position.
46. Requirement VIII.58 (previously VIII.54): the specification for the highest virus load in the most difficult matrix removed as a result of recognizing that it is not possible to fill neither the buffer tank nor the boiling tank with the highest possible virus load in the most difficult matrix. It is thus up to the individual facility to design a scheme for validating the effluent treatment plant according to risk assessment.
47. Requirement VIII.59 (previously VIII.55): added sentence specifying that it is preferable to have the effluent system in the building where the effluent is produced.
48. Requirement VIII.60 (previously VIII.56): added sentence specifying purpose of having sufficient storage capacity for effluent.
49. Requirement VIII.62:
  - a. Heat treatment: validated changed to calibrated.
  - b. : Chemical treatment:
    - i. NaOH and Na<sub>2</sub>CO<sub>3</sub> only mentioned as examples - changed to general: Alkaline treatment –
    - ii. The sentence specifying that when inactivated effluent is neutralized, precautions must be in place to prevent recontamination. The background is that some current facilities have their neutralization plants in the contained area.
    - iii. Validated changed to calibrated.
50. Requirement VIII.64 (previously VIII.60):
  - a. Sterilization changed to inactivation
  - b. Autoclave specified as vacuum-assisted
  - c. Autoclave cycle changed from “at least 115 dgr C for 30 minutes” to “at least 121 dgr C for at least 15 minutes” – maintained “or equivalent heat effect”.
  - d. Tissue added to examples of loads.
  - e. Specified that validation of each load type should be for worst case loads.
  - f. Typical length of autoclave periods removed as these will range from 20 minutes for simple loosely packed loads to 4-6 or more hours for larger pieces of tissue/carcasses or compressed bedding.
  - g. Annual revalidation of autoclaves by experienced personnel has been changes to retesting of efficacy of autoclaves annually and after maintenance by competent personnel.
  - h. Rendering of carcasses has been changed to treatment of carcasses, since there are now more reliable methods.
  - i. Regarding incineration on site, national legislation has been added.
51. Previous Requirement VIII.61 regarding Emergency procedures has been integrated into Requirement 11, and has thus been removed.
52. Previous IX Equipment and Materials Requirements IX.62-68 have been moved and thus removed:
  - a. Previous IX.62-63: benches and aerosol producing equipment moved to V Facility Design V.34 – no change of text – one remark added to previous IX.63.
  - b. Previous IX.64-66: removal of equipment and other materials moved to VI Handling of FMD virus together with removal of biological material. IX.64-66 collapsed to VI.46 and description of specific methods moved to Annex 1, chapter VI.

- c. Previous IX.67-68: Removal of biological material moved to VI Handling of FMD virus VI.44-45 – text only changed to allow for test by PCR following risk assessment – and change from requirements governing transportation to regulations for shipping biological materials.
- 53. Requirement IX.65 (previously X.69): First line added decommissioning instead of separate sentence for decommissioning – this was done to emphasize that also maintenance and renovation work requires in-depth risk assessments and safety plans.
- 54. Requirement IX.66 (previously X.70):
  - a. Critical zones added to include the permanent decommissioning of an entire facility (also the Support zone spaces need to be evaluated).
  - b. Standard treatment procedure fumigation with formaldehyde removed – instead more open phrasing calling for demonstration and documentation of the efficacy of the decontamination methods.
- 55. Requirement IX.67 (previous X.71): validated incineration included as method + or changed to and/or to indicate that spraying followed by fumigation is also an option.

## **Glossary:**

### **Revisions:**

- **Changes to the following items:** Biorisk officer, Containment zone, HEPA filter
- **New items:** Biorisk responsible person, Competent authority, Containment zone, Deputy biorisk officer, Facility, FMD restricted zone, Management, Routine exclusion testing, SOP, Support zone, Susceptible species
- **All marked with yellow in the Minimum biorisk management standard for FMDV**
- HEPA filters: remark about H14 changed from recommendation to statement
- 

## **Annex 1:**

### **Chapter III:**

- first line: added “at least”.
- 3. Added accurate
- 5. Added: Individuals undertaking these activities must have received adequate training in this and ensure that their competency is maintained up to date
- Added a point 6. Disruption of the running of the facility

### **Chapter IV:**

- Point 1: about air-handling in small animal rooms: moved to Tier D, requirement 47
- Point 2-3: few clean ups in words – no change of meaning –

### **Chapter V:**

- Point 6: added Maintain detailed records of the full process, which must be undertaken as a collaboration between scientific staff, engineering/maintenance personnel and BRO or deputy
- Added new point 7: Staff undertaking these activities must be suitably trained in order for these to be carried out safely and correctly. A risk assessment must be in place defining which precautions must be taken to protect staff and the environment from harm from the disinfection procedures.
- 

### **Chapter VI:**

- Specific methods for decontamination of equipment and other materials moved from previous requirements IX.64-66

- Inserted “cleaning and” and “or other fumigation methods that have been shown to be effective against FMDV”
- Specified the Sodium carbonate and washing soda
- Alternative methods specified as: that has been shown to be effective against FMDV.

## Chapter VII:

- New chapter with inactivation methods for biological material

## Tier C:

### Not marked in text:

1. Structure changed to reflect structure of Tier D:
  - o Headlines for seven sections (I-VII) have been introduced
  - o The consecutive order of the sections differ between Tier C and D – this could not be rectified before the deadline January 20<sup>th</sup>, but may be done before February 15<sup>th</sup> if accepted by EuFMD

Section	Tier D	Tier C
I	Management	Management and responsibilities
II	Training	Facility design and access
III	Biosecurity	Personnel and training
IV	Personnel	Handling of samples
V	Facility design	Waste management
VI	Handling of FMD virus	Equipment and materials
VII	Air handling	Declassification
VIII	Waste management	-
IX	Decommissioning	-

### Introduction:

2. Last two paragraphs regarding packaging and shipment of samples moved to Requirement IV.5 Packaging and shipment of samples.
3. **Specific requirements:**
4. Requirement I.1: new requirement regarding management, including provision of sufficient resources
5. Requirement I.2: Management has duty to appoint BRO for category I labs – and BRP for category II labs – reflecting difference between lab categories
6. Requirement I.3: Added sentence and bullet points regarding the BROs status, duties and responsibilities.
7. Requirement I.4: moved from previous Requirement 11 and directed to category I laboratories that must have these systems in place at all times. Added biorisk policy, threat assessment and emergency management plans as in Tier D.
8. Requirement I.5: new requirement defining responsibility for procedures for suspected and positive samples

9. Requirement I.6: During FMD emergency, NCA shall ensure that category II labs implements Tier C standards (including systems mentioned in Requirement I.4) – last half of previous Requirement 12 + responsibility for category II standards placed with NCA.
10. Requirement II.1: fusion of previous Requirement 3 and first part of previous Requirement 12.
11. Requirement II.2: second half of previous Requirement 12.
12. Requirement II.3: limit access of humans – added animals: fusion of previous Requirement 3 and first half of Requirement 14. Last half of previous Requirement 14 regarding separation of vehicles removed. According to the national contingency plans, vehicles do not present a risk, as veterinary authorities at the infected premises will have ensured that the vehicles have not been in the infected part of the premise – or they have been disinfected before leaving the premise.
13. Requirement II.4-5: previous Requirements 20-21 – text unchanged.
14. Requirement III.1: previous Requirements 4 and 5, with specification of difference between category I and II laboratories.
15. Requirement III.2: previous Requirement 6 with few words changed – quarantine specified in hours rather than days –.
16. Requirements III.3-4: previous Requirements 7-8 with few words changed.
17. Requirement III.5: fusion of previous Requirements 9 and 13, and added a specification of changing point. Moreover, second sentence of previous Requirement 10 is included.
18. Requirement III.6: most of previous Requirement 10 regarding showers and previous Requirement 15 in the sense that it has been removed as it is implicit in this new Requirement III.6. The shower requirement has been arranged as a 3-step option depending on availability of a shower facility and emphasizing that showers are important:
  - a. Preferably shower at exit point
  - b. If not possible, shower elsewhere at facility
  - c. If not possible shower elsewhere as soon as possible
  - d. It should be considered if these could be made mandatory for category I laboratories ?
19. Requirements IV.1-4: previous Requirements 16-19 - a few words changed and requirement for hand-washing facilities being placed at the exit points removed (should consider if this is also relevant for category I laboratories ?).
  - e. Requirement IV.2 d:
    - i. inactivation of samples changed to reduction of infectivity
    - ii. appropriate buffer changed to effective lysis buffer
    - iii. Sentence of risk of preparing suspension of epithelium using mortar and pestle and how to handle this.
  - f. Requirement IV.3 c: must be carried out changed to should if possible be carried out.
  - g. Requirement IV.3: subpoints d. and e. swapped to improve flow – antibody ELISA finalized first – then vesicular material.
  - h. Requirement IV.4 b: requirement for secured from unauthorized access added for sample storage.
20. Requirement IV.5 Packaging and shipment of samples: moved from Introduction.
  - a. Few words changed.
  - b. Remark about air transportation changed.
  - c. Note on cultured FMDV to be shipped as UN2900 moved to Tier D, since there will be no cultured samples in a Tier C laboratory.



- 
21. Requirement V.1: previous Requirement 22. Preferably vacuum-assisted inserted.
  22. Requirement V.2: previous Requirement 23.
  23. Requirement V.3: previous Requirement 24. Added chemical decontamination before packaging of waste. And condition for transportation for incineration of site and autoclaving at another facility (validated cycle for comparable material). BRO/DBRO/BRP risk assessment.
  24. Requirement VI.1: previous Requirement 26 (Requirement 25 not used in the 2013 version).
  25. Requirement VII.1: previous Requirement 27 with added option to test samples free and to ship samples/materials to Tier D laboratory. Sentence on documentation shortened and referring to national and international law.

## **Appendix 21**

Presentation Proposed revision  
of minimum Biorisk (...)

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# Revision 2019

## EuFMD Minimum BioRisk Management Standard

**Kirsten Tjørnehøj**, Chair EuFMD SCBRM  
Biosafety officer  
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## EuFMD SCBRM:

- EuFMD **S**pecial **C**ommittee for **B**io**R**isk **M**anagement
- **Biorisk officers** (BRO/biorisk professionals/duty holders) from FMD containment facilities in the European area
- **Currently from:** UK, The Netherlands, Switzerland, Spain, Sweden, Italy, Israel, Germany, Denmark
- **Background:** Agronomists, Microbiologists, Engineers, Veterinarians
- Most have a general BRO role for their institutes, also covering other agents – involvement in research varies


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## FMD laboratory biorisk management legal basis:

**FAO EuFMD:**


**Minimum Biorisk Management Standards For Laboratories Working With Foot-and-mouth Disease Virus (EuFMD MBMS)**

- Version GS40/4.2bis as adopted by the 40TH GENERAL SESSION OF THE EUFMDCOMMISSION, 22-24 APRIL **2013**, ROME, ITALY
- **EU: implemented through ANNEX XII to COUNCIL DIRECTIVE 2003/85/EC:**
  - "..... must operate **at least in accordance with** Section I of the 'Minimum biorisk management standards for laboratories working with foot-and- mouth disease virus in vitro and in vivo' .... 2013...."


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## EuFMD SCBRM tasks:

- Revision and development of the EuFMD MBRMS
- Training in biorisk management
- Annex/database with accepted inactivation/disinfection methods
- Evaluate alternative methods
- Opinions on biorisk related matters for EuFMD


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### EuFMD MBRMS – quick summary:

- Defines the roles, duties and responsibilities of the management and the biorisk officers
- Institutes biorisk, risk assessment (RA) and hazard identification
- Has 70 specific points covering management, personnel, training, biosecurity, facility design, handling of live FMDV, air, waste, effluent and materials, biological materials across barriers and shipment, commissioning and decommissioning,
- The EuFMD MBMS are regularly reviewed by the EuFMD SCBRM

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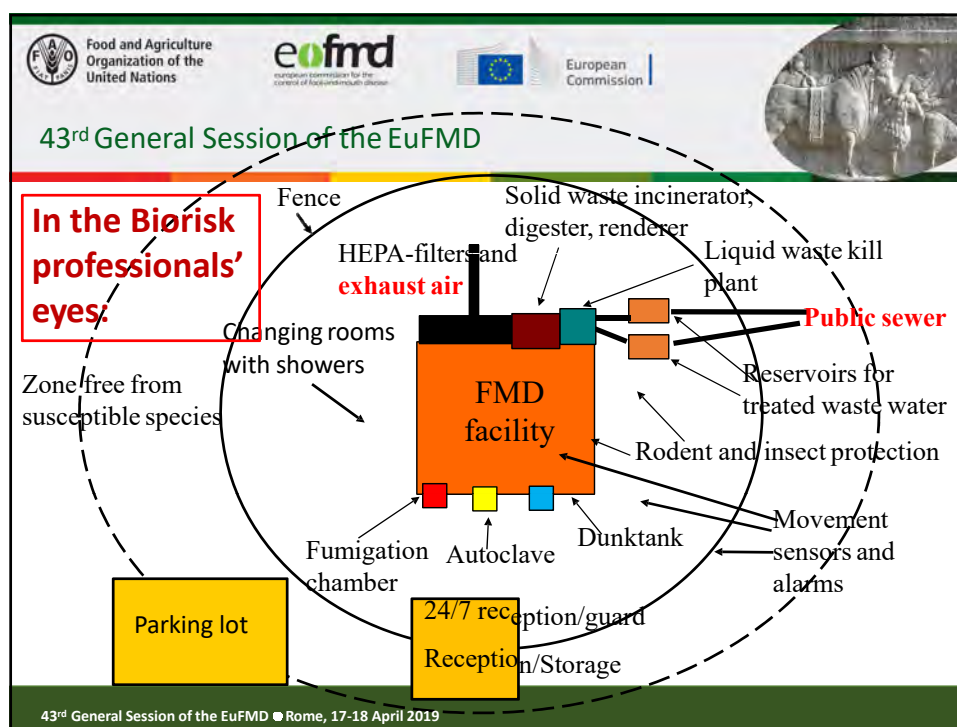
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### How a FMD facility may look to the people working in it:






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### Participants in revision process:

- **SCBRM:** Cesare Berneri, IZSLER, Brescia, Italy
- Douwe Kuperus, WBVR, Lelystad, The Netherlands
- Gonzalo Pascual, Spain
- Kathrin Summermatter, IVI, Switzerland
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- Ulrika Allard Bengtsson, SVA, Sverige
- **FAO:** Keith Sumption
- Eoin Ryan
- **Additional experts:** Kiril Krstevski, EuFMD, FAO
- Patrick Houston, WRL/ERL FMDV, Pirbright, UK
- **Observers:** Graeme Harkess, BSO, WRL/ERL, Pirbright, UK
- Katharina Stärk, Switzerland
- Nicolas Proeschel, Boehringer- Ingelheim
- Paul Guntram, MSD

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2019 Revision goals:

- **Improve logical flow and minimize repetitions:**
  - moved text in both Tier D and Tier C
- **Implement technological improvements**
- **Tier C divided into two laboratory categories:**
  - **Category I:** National reference laboratories without live FMDV permit
    - continuously alert FMD biorisk management system
    - trained and vigilant biorisk officer/deputy biorisk officer/laboratory staff
  - **Category II:** FMD Contingency laboratories
    - Continuous: limited to FMD diagnostic tests on no/very low risk samples
    - FMD emergencies: only FMD diagnostic tests in the framework of an outbreak
- **Adapt chronology in Tier C to chronology in Tier D**

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2018-2019 Revision process:

- **Workshops:**
  - Palermo March 2018: SCBRM, invited experts from UK, EuFMD
  - Zürich January 2019: BROs from most Tier D labs and 2 vaccine producers
- Telephone meetings
- 24/1: review by biorisk managers from 17 Tier D and 20 Tier C labs
- March: review by EU, CVOs of MS and other affected countries, as well as vaccine industry
- April 2019: presented at the General Assembly of the Eufmd Commission in Rome

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Response biosafety professionals Jan. 2019:

Laboratories	SENT for review	Replied		Accepts	Comments
Tier D	17	14	82,4%	5	9
Tier C	20	12	60,0%	10	2
<b>TOTAL</b>	37	26	<b>70,3%</b>	15	11

Altogether approx. 140 comments

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Changes of content - I:

- **Tier C and D:**
  - Facility management to ensure sufficient resources for:
    - Sustainable maintenance/servicing of facility
    - Biorisk Officer training
  - Approval of alternative procedures:
    - SCBRM - can consult STC/others
    - National competent authority kept informed
  - Supervisors need tools for difficult people situations
  - Glossary updated
  - Numbers of some points changed
- **Tier D:**
  - Not only phones acceptable
  - Magnahelix not compulsory – other means of measuring with alarms acceptable

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### Changes of content II:

- **Tier D:**
  - Other plans for emergency power acceptable – UPS mentioned
  - Depending on RA: PCR can be used to test free for removal of biological material
  - Methods for inactivation of biological materials moved to Annex 1, chapter VII
  - If neutralizing inactivated effluent, care must be taken to prevent recontamination
  - Autoclaving changed to 121 dgr. C for at least 15 minutes or equivalent
  - Decommissioning:
    - Efficacy of method must be demonstrated and documented
    - Incineration added

43<sup>rd</sup> General Session of the EuFMD • Rome, 17-18 April 2019

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European Commission

43<sup>rd</sup> General Session of the EuFMD

### Changes of content III:

- **Tier C:**
  - Two laboratory categories
  - Structure from Tier D adopted
  - A number of management measures introduced for category 1 laboratories
  - National competent authority responsible for implementing full Tier C if activating category 2 laboratories during outbreak – Biosafety responsible person (BRP) at lab responsible for training
  - Shower requirement specified:
    - At exit point
    - If not possible: elsewhere at laboratory premise
    - If not possible: as soon as possible

43<sup>rd</sup> General Session of the EuFMD • Rome, 17-18 April 2019

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European Commission

43<sup>rd</sup> General Session of the EuFMD

### Changes of content IV:

- **Tier C:**
  - Solid waste:
    - Autoclave preferred
    - RA by BRO/DBRO/BRP:
      - For incineration at closest site
      - Autoclaving at other facility
  - Declassification – clinical specimens etc.:
    - Destroyed
    - Tested free
    - Validated inactivation method
    - Shipped to Tier D labs

43<sup>rd</sup> General Session of the EuFMD • Rome, 17-18 April 2019

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### SCBRM future work:

- Continued development of the MBRMS, including Tiers A and B
- Training in biorisk management
- Annex/database of accepted inactivation/disinfection methods
- Evaluate alternative procedures
- Opinions on biorisk related matters for EuFMD

43<sup>rd</sup> General Session of the EuFMD • Rome, 17-18 April 2019

## **Appendix 22**

### **Proposal for STC and Special Committees**



 A presentation slide with a header bar containing logos for EUFMD, the European Union, eufmd e-learning, and others. The main content area is white with the title "The proposed revision of the Terms of Reference (2019) of the STC" in bold black text. Below the title is a numbered list of three points.
 

**The proposed revision of the Terms of Reference (2019) of the STC :**

- 1. To maintain an overview of the risks of FMD and similar transboundary diseases** ("FAST diseases", as defined below) that are not normally present in the majority of member states, for European livestock (large and small ruminants, pigs and wildlife), and **advise the Executive Committee** on appropriate policies or programmes that the Commission should consider provide on the basis of an in depth understanding of the risks of entry and the options available and practicable for veterinary authorities, and the likely consequences of any actions proposed.
- 2. To maintain an overview** of relevant initiatives related to international surveillance and risk assessment **and provide guidance** on how the EuFMD programme can add –value or synergise with such initiatives.
- 3. To keep in close communication with the work of the Special Committees**, referring such matters to the Committees as are consistent with their TORs and with the feasibility that they can provide a well- considered scientific opinion, **and ensuring the resultant opinions are communicated to the Executive.**

## Procedure for future election of STC members (GS44, 2021)

The proposal is to continue the current (2017-19) number of members (6) but with a revision in the procedures to be followed before each General Session:

- At least three months In advance of the Session, the Secretariat ensures the member states are aware of the vacancies to be filled;
- The current practice of the outgoing Chairperson and Officers preparing the list for proposal is continued;
- That three of the six members would normally stand-down at each Session
- That members of the STC would not normally continue for more than two Sessions (4 years), without a break;
- That a geographic and political balance is maintained between members of EU and non-EU, such that non-EU countries and those from most immediately at risk of FAST diseases are represented.
- At the Session, the Commission's Rules of Procedure (ROP) are to be followed, and the election process is supervised by the FAO Department that will ensure alignment with standard FAO Governance procedures.

### **PROPOSAL TO ESTABLISH THE SPECIAL COMMITTEE FOR SURVEILLANCE AND APPLIED RESEARCH (SCSAR)** **IN** **REPLACEMENT OF THE SPECIAL COMMITTEE FOR RESEARCH AND PROGRAMME DEVELOPMENT (SCRPD)**

The new TORs will reflect the needs for:

1. Guidance to the STC and Secretariat on surveillance and applied research priorities for FMD and similar TADS (FAST diseases)
2. Reference Centre and other technical expertise to guide the programme, the training to be developed
3. Technical expertise to provide specific assistance to NRLs in the neighbourhood to undertake aboatory confirmation or specialised studies
4. A network of expertise to assist in scaling up support on FAST diseases according to risk.
5. Expertise to review proposals for applied research projects

## *Competences needed in the Special Committee*

Specific technical expertise recognized at European /Global level on epidemiology and surveillance for one or more FAST diseases. Centres – or Experts would have one or more competence from the following

1. Expertise in the epidemiology and laboratory diagnosis of schedule 1 or 2 FAST diseases and strong working connections with EU-RL or competent laboratories to support activities.
2. Expertise in potential vaccines for assessment of their potential use against FAST in Europe, and/or studies on the performance of vaccines against one or more FAST diseases.
3. Expertise in specialised disciplines that are considered critical for planning or response to FAST diseases, such as surveillance and control in wildlife.

Assumed these Centres/experts have a working knowledge of contingency plans and control measures applicable in the EU for the disease specialisation, and are engaged in relevant research and therefore have a very good understanding of the research gaps and priorities.

## *Membership - Special Committee*

1. Maximum of 20 members : from EuFMD MS
2. Proposal that the name of the Centre providing the expertise is endorsed - by Default the name of the Technical Director
3. FMD: all of the current FAO, OIE and EU-RL
4. FAST diseases: additional Centres of expertise that include the OIE/FAO/EU-RLs for PPR, capripox viruses and such additional centres as are needed for expertise on Category 2 risks (RVF, BEF and emerging diseases in the neighbourhood).

### **Additional expertise - a FAST Network**

**Annex 1 : a proposal for funding (200,000€) of the FAST Network. This proposal should ""bridge"" between EuFMD –SCSAR and expertise from REMESA /neighbourhood**



## **Appendix 23**

### Financial proposal

# **ITEM 14 FINANCIAL POSITION AND BUDGET - BIENNIUM 2020-2021**

**PAPER ON THE FINANCIAL POSITION AND BUDGET:  
ADMINISTRATIVE (MTF/011) FUNDS  
BIENNIUM 2020-2021**

**2020 and 2021 budgets (US\$) for approval by the 43<sup>rd</sup> General Session**

**For decision**

1. The proposal to index the biennial budget contributions of member states, for each category level of contributions to a standard measure of inflation (the consumer price index (CPI) as recorded by the Organisation for Economic Cooperation and Development (OECD)).
2. As the CPI differs between the Eurozone and the EU countries, and expenses of the Commission are in all EU countries and others in the region, the index to be applied is proposed to be the *mid-point between the CPI for the eurozone countries and that of the European countries. The index should use the OECD data for the CPI change in the 2 year period of the previous two full calendar years before each Session (thus 2019-2020 for the 44<sup>th</sup> Session in April 2021, and 2021-2022 for the 45<sup>th</sup> Session in 2023).*
3. To apply this index at every Session, with the following exceptions where there have been unforeseeable impacts of change in exchange rates between the USD and Euro, since budget contributions are set in USD and the major expenditure from the MUL/011 is effectively in euro.
4. To maintain a periodic review of the categories in which countries are placed for contribution, considering that changes in GDP and livestock populations will occur over time. As the last review was in 2015, a review period of every 6 years is proposed (therefore at the Session of 2021).
5. The budget for the biennium 2020-2021, as proposed in Table 1 , on the basis of the mid-point CPI (Eurozone and EU28) of 4.5% for the 4 full calendar years from 2015-2018.
6. The proposed expenditure from the Administrative Fund based on the proposed total annual contributions of US\$ **643,725**.

## **EuFMD Administrative Fund – MTF/INT/011/MUL**

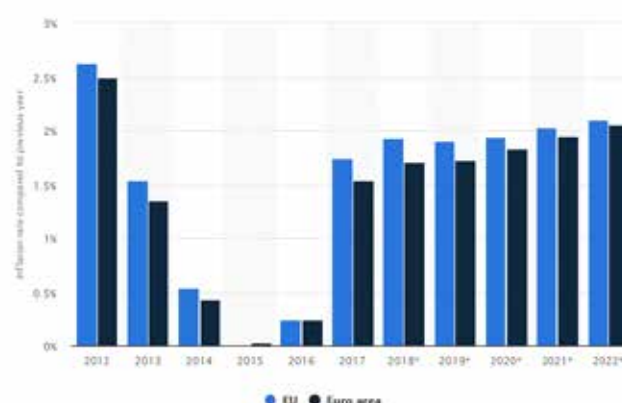
### **Background to the Administrative Fund and to the Categorisation of Contributions**

1. The Secretariat manages three Trust Funds, for the Administration of the Secretariat (MTF/INT/011/MUL, with contributions from the Member States,), the delivery of the EC Funded Work Program (MTF/INT/003/EEC) and an Emergencies and Training Fund into which additional voluntary contributions have been received for provision of training (MTF/INT/004/MUL).
2. In fulfilment of the commitment made by Member States on entry into membership, the member states must contribute to supporting the Secretariat through an annual contribution, the amount of which is agreed at the regular General Sessions of the Commission.
3. Each regular Session must on its Agenda consider the financial position, review the Budget for expenditure for the coming biennium and agree upon the scale of contributions needed to support the administration of the programme.
4. The current scale of contributions was adopted at the 41<sup>st</sup> General Session in 2015, with five categories, based on a formula for classification agreed by the Commission in 1997, which used two equal criteria, a) the FAO contribution and b) livestock population (formula – 1 for cattle, 0.5 for pigs, 0.2 for sheep and goats). The data used in the assessment is given in Table 3 in this paper.
5. The Executive, at its 97<sup>th</sup> Session in Rome in January 2019), considered the questions arising from the 41<sup>st</sup> General Session on categorization and recommended that if the member states that had raised questions in 2015 could propose a solution that would not reduce the overall contributions, they were encouraged to do so.
6. The need for review of categories in which countries arises from changes in the GDP of the country and of its share of the European livestock population at risk. It is therefore proposed that the General Session of 2021 reviews the rankings of countries using the established formulae, providing that a member state or the Executive Committee proposes this to occur.

### **Budget Contributions proposed: 2020-21**

7. At the 41<sup>st</sup> Session in 2015, both the scale of contributions was agreed as well as a change from 4 to 5 categories for contribution. As Inflation rates in European and EU area were very low before the 2015 General Session the overall change was mainly in terms of categories rather than an overall increase in budget.
8. Inflation rates since 2015 have been higher (Figure 1), therefore the Executive Committee considered at the 97<sup>th</sup> Session the need for an increase and also on how in future the level of contributions may be linked to that of inflation.
9. The 42<sup>nd</sup> General Session agreed to maintain the overall budget of 606,997 USD in contributions, based on the tight control of expenditure in 2015 and 2016, avoiding an increase in the current biennium (2018 and 2019).

**Inflation rate in the European Union and the Euro area to the previous year)**



**Financial position at the end of 2018**

10. The official balance in the Administrative Fund at 1<sup>st</sup> January 2019 was USD 310,167, after contributions of USD 612,100 and expenditure of USD 934,444.
11. It must be noted the expenditure includes hard commitments to staff whose contracts continue in to 2019 and therefore when corrected for only expenditure within the calendar year 2018, the corrected balance would be **USD 557,700**, effectively a reduction of circa USD 80,000 in the balance held.

Balance	01-01-2018	<b>USD 632,511</b>
MS contributions received	31-12-2018	<b>USD 612,100</b>
Total expenditure committed Effective Expenditures 2018	31-12-2018	<b>USD 934,444</b> (of which USD 252,241 Exp.19 Salaries Cons. lines) <b>USD 686,911 (effective Exp. year 2018)</b>
Balance	01-01-2019	<b>USD 310,167 (including Commitment 2019)</b>
Balance Year End effective 2018		<b>USD 557,700</b>

The commitments are in line with the budget allocated. Closure of the financial year 2018 in February 2019, the re-allocation of unspent funds from year 2018 to year 2019 will be processed.

12. The Financial Statement provided by the FAO on the expenditure in 2018, and an updated table of the Outstanding Contributions, will be provided at the 43<sup>rd</sup> Session.
13. The principal categories for expenditure in 2018 were in the Budget Lines of Professional Salaries of persons on time-limited basis ("project post professionals") (USD 298,927) and personnel on temporary contracts (in FAO term these are "consultants") (USD 576,819). As mentioned previously, the cost of hard commitments to temporary staff shows in the year of the commitment (2018) even though it covers a longer period (into-2019).
14. In 2018, The Secretariat staff positions supported under the Administrative Fund were the key positions for the Administration of the Work Programme as well as the normal Secretariat functions. By agreement with the EC, operational staff delivering the activities were supported from the EC through a separate Fund.)

**Supported under the Administrative Fund in 2018 (underlined are Consultants)**

Executive Secretary	(P5)	Keith Sumption
Communications and Networks Officer	(P2)	Nadia Rumich
Chief Operations Officer	(Cons)	<u>Cecile Carraz</u>
Pillar I Co-ordinator:		<u>Mark Hovari (from 8/2018 Maria de la Puente)</u>
Pillar II Supervisor/Deputy Executive secretary		<u>Fabrizio Rosso (part-time)</u>
Pillar III Supervisor		<u>Nicholas Lyons (part-time)</u>
Online training programmes Manager		<u>Jenny Maud</u>
Risk management support Officer		<u>Graeme Garner (from 8/2018, Koen Mintiens)</u>
Short Term Placements (STPs) supporting the administration of the Training and THRACE/Balkans Programmes		<u>Rodrigo Nova Chavez (UK/Chile) (STP)</u> <u>Daniel Donachie (UK) (STP)</u> <u>Kiril Krstevski (N.Macedonia) (STP)</u>

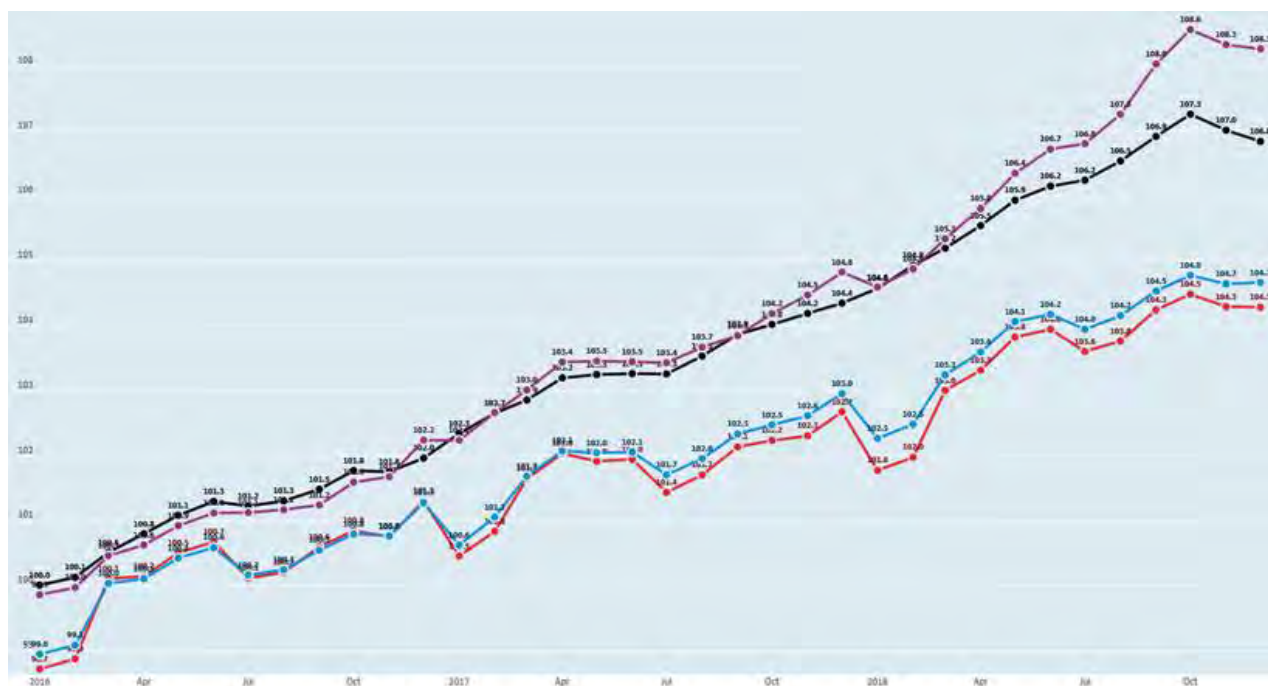
15. Previous Sessions have recommended a reserve (balance) of at least USD 200,000 on all occasions and closer to USD 500,000 in the year that the EC Contract is up for renewal since the member states expect the programme to continue even during the negotiation phase and given that the first payment from EC may occur 12 months after the programme has been agreed to initiate. The administrative fund thus acts as a buffer in this situation to enable continuity.
16. The outstanding contributions at 31<sup>st</sup> December 2018 were only USD 73, 333 (Albania, Belgium, Greece, Romania and Serbia). This is lower than in previous years thanks to the efforts to ensure the situation is well communicated to CVOs and good levels of action on their part to address the issues.

#### **Policy on linkage of change in levels of Contributions to Inflation**

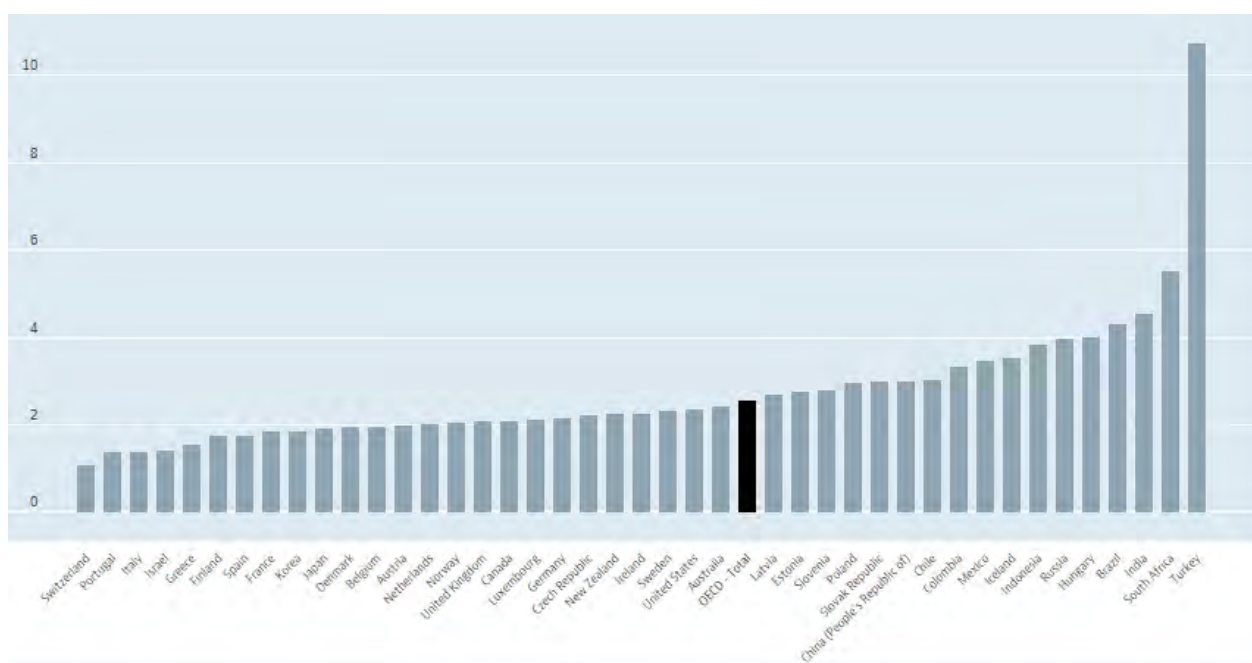
17. The Executive considered the recent levels of inflation (CPI between 1.5 and 2%) and projected inflation (OECD) in 2020 (Figure 3), of closer to 2%.
18. They considered this would have a significant impact if uncorrected by contributions, and leaving an increase until 2021 could result in a requirement of a corrective increases of far higher than annual inflation, unlikely to be agreeable to the MS.
19. They therefore requested the Secretariat to review the OECD data on consumer price index (CPI) for the Eurozone countries and for the EU as whole, and prepare a proposal based upon these official figures for CPI.
20. The 2015 General Session was the last time that the contributions were increased after a period of more than 8 years without a change. Given the OECD data (Figure 2), and with the year-end of 2015 set at 100, the CPI change to the 4th quarter of 2018 was 104.3, 104.7, and 108.3 respectively, for EU zone (red), the 28 countries of the EU (blue), and the OECD Europe members (purple). The last figure is affected by Turkey and a few other countries which experienced very high inflation.
21. Considering that **the basis for the increase based on CPI is that :**  
Our costs are mainly those of working in Italy, therefore to apply the Eurozone inflation maybe appropriate, but the EU28 inflation rate is also relevant since our costs (travel, meetings, etc.) are not only in Italy but across Europe.
22. The policy proposed is that the increase in contributions be based on a mid-way point between Eurozone and EU28 rates, in this case an index of 104.5 (representing a 4.5% rise over 4 years since 2015).
23. For subsequent sessions the proposals should be based upon:

*The change in the CPI, for the previous full 2 year period (thus 2019 and 2020, at the 44<sup>th</sup> Session, and so on), to the end of year preceding the Session.*

**Figure 2.** Change in CPI in the 48 month period between Quarter 4 2015 and Quarter 4 of 2018  
(Source OECD <https://data.oecd.org/price/inflation-cpi.htm>, accessed February 18<sup>th</sup> 2019)



**Figure 3.** The CPI projection for 2020 is shown below, and for most of the EU is between 1.5 and 2%.  
Source OECD <https://data.oecd.org/price/inflation-cpi.htm>, accessed February 18<sup>th</sup> 2019





**Proposed Budget for 2020-201**

24. The Executive Committee considered the above financial position and the proposal of the Secretariat in respect of composition of staffing of the administrative and technical team, taking into account the agreement with the EC relating to their maximum level of support for project operations.
25. The following is proposed for funding under the Administrative Fund:
- **Professional positions**, as follows:
    - The position of Executive Secretary (P5), on an unchanged basis, with overall responsibility to the Commission for delivery of the Strategy and as Budget Holder, and with specific responsibility for oversight of the GF-TADS (Pillar 3) programme ;
    - To support 20% of the position of Communications and Networks Officer (P2), with expectation the remainder would be supported under the EC (003) programme as per agreement with EC;
    - A new position of Deputy Secretary/Lead Technical Officer for the HOLD-FAST work programme, at a P4 level, with expertise in risk management in the European neighbourhood and in Member States, to manage the extensive co-ordination and programme management of the Pillar I and II programmes;
  - **Temporary (<11 month) positions to support administration and programme delivery:**
    - Pillar 1 coordinator, to manage the Pillar I programme development and delivery (this position is a continuation of a current job position 2017-19 )
    - Work programme Operations coordinator with responsibilities to manage the administrative team and operational delivery of the EC and Commission work plans (continuation of existing job position since 2017)
    - Operations assistant to the Coordinator
    - One or more **Short Term Placements (STP), on the same basis of secondment of three to six months** to the Secretariat, of junior-mid level veterinary officer from member states, **on same basis as operated in 2013-19**; the number and affordability of these will be decided at the first Executive Committee after the General Session, and are not shown in the budget table
26. On the above basis, and income from contributions of USD 643,725 per year in 2020 and 2021, the expenditure budget is proposed as follows:

**Table 1 – Proposed Budgets for 2020 and 2021**

	PROPOSED budgets for MTF/INT/011/MUL			
	2019	2019	2020	2021
	Agreed 42nd	Proposed	Proposed	Proposed
Salaries (P Officers)	392,801	392,801	455,349	455,349
Temporary Staff ("Consultants") and Short Term Placements (STPs)	282,115	300,000	186,660	186,660
Contracts				
Travel	10,000	10,000	40,000	40,000
Training				
Expendable equipment				
Hospitality				
Gen Operation Expenses				
<b>Total</b>	<b>684,916</b>	<b>702,801</b>	<b>682,009</b>	<b>682,009</b>
Income from MS Contributions	<b>606,997</b>	<b>616,005</b>	<b>643,725</b>	<b>643,725</b>

27. Impact on the financial reserve: the above contributions (income) and expenditure plan will see a reduction over the period of the balance to circa USD 390,000 (at 31<sup>st</sup> December 2021). However the balance might be much lower than this as a result of any delay in EC Phase V agreement, or as a result of financial deductions at the closure of the Phase IV (there is usually a level of expenditure not accepted by EC, that must then be settled by use of the Administrative fund, to close with a balance of 0). The plan for expenditure is thus conservative, and Executive Committee will be in a position from mid-2020 to decide on further cuts or possibly, additional spend..

28. Note that

- If the increase in Contributions based on the CPI is not approved, the balance will fall to below USD 300,000 (when effect of inflation rate of 2% is taken into consideration) and this is unlikely to be a sufficient reserve to bridge between EC programme financing agreements so activities may be forced to cease/be put on hold.
- In the upcoming period, all other administrative costs would be charged to the programmes relating to the EC (where eligible) or Emergency and Training activities.

29. Table 2 indicates the Level of Contributions per category and for each MS, for 2020-21.

**EMERGENCY AND TRAINING FUNDS –MTF/INT/004/MUL**

30. In addition to the Administrative Fund, the Commission has managed additional Trust Funds through which funds have been received from member states and others, and disbursed for activities which are agreed with the Commission at its General Sessions or Executive Committee. The Fund current known as MTF/INT/004/MUL started in the first years of the Commission and in particular was important in the management of contributions for the fight against FMD in Thrace, before a specific fund was established with the EEC to relieve the burden on the EEC/EU members.
31. Since 2012, contributions to cover the costs of additional training courses requested by member states and others have been received and disbursed through MTF/INT/004/MUL and the use of funds will be reported to the Session, together with a projection of the committed and predicted contributions in 2017-19 and the outgoing expenditure expected.
32. On the basis of commitments to support the management of future training courses, for the Governments of Australia and New Zealand and others, and the benefits these courses provide in terms of cross-subsidising the training support for the Member States, and on the basis that the Fund is not predicted to be overspent as a result of the activities, the Secretariat proposes to extend the “not-to-exceed” (NTE) date of the EMERGENCY AND TRAINING FUND (004) to 31<sup>st</sup> December 2021.
33. The Full Paper for the Session will include Annexes with certified expenditures, and projected contributions and outgoing expenses until 2021.

**Table 2. Budget Contributions 2010 to 2019– and with proposal for 2020-2021 based on 4 year change in Consumer Price Index (CPI)**

Member Country	1997 Rank	2015 Rank	1997 cat. level	2010-11 contrib.	2012-13 contrib.	2015-15 (40GS) contrib.	2016-17 contrib.	2015 category	2017 category	2019 category	2018-19 (42 <sup>nd</sup> GS)	2020-2021  +1.125% (=4.5% over 4 years)
GERMANY	1	1	1	42,374	42,374	42,374	46611	1	1	1	46611	<b>48708</b>
FRANCE	2	2	1	42,374	42,374	42,374	46611	1	1	1	46611	<b>48708</b>
U.K	3	3	1	42,374	42,374	42,374	46611	1	1	1	46611	<b>48708</b>
ITALY	4	4	1	42,374	42,374	42,374	46611	1	1	1	46611	<b>48708</b>
SPAIN	5	5	2	21,260	21,260	21,260	23386	2	2	2	23386	<b>24438</b>
TURKEY	6	6	2	21,260	21,260	21,260	23386	2	2	2	23386	<b>24438</b>
NETHER.	7	7	2	21,260	21,260	21,260	23386	2	2	2	23386	<b>24438</b>
POLAND	8	8	2	21,260	21,260	21,260	23386	2	2	2	23386	<b>24438</b>
BELGIUM	9	9	2	21,260	21,260	21,260	23386	2	2	2	23386	<b>24438</b>
DENMARK	10	10	2	21,260	21,260	21,260	23386	2	2	2	23386	<b>24438</b>
SWEDEN	11	14	2	21,260	21,260	21,260	23386	2	2	2	23386	<b>24438</b>
SWITZ	13	12	2	21,260	21,260	21,260	23386	2	2	2	23386	<b>24438</b>
ROMANIA	12	16	2	21,260	21,260	21,260	15,650	3	3	3	15,650	<b>16354</b>
AUSTRIA	14	13	3	12,786	12,786	12,786	15,650	3	3	3	15,650	<b>16354</b>
IRELAND	15	11	3	12,786	12,786	12,786	15,650	3	3	3	15,650	<b>16354</b>
GREECE	16	15	3	12,786	12,786	12,786	15,650	3	3	3	15,650	<b>16354</b>
NORWAY	19	17	3	12,786	12,786	12,786	15,650	3	3	3	15,650	<b>16354</b>
FINLAND	17	19	3	12,786	12,786	12,786	13,809	4	4	4	13,809	<b>14430</b>
CZECH REPUBLIC	18	20	3	12,786	12,786	12,786	13,809	4	4	4	13,809	<b>14430</b>

Member Country	1997 Rank	2015 Rank	1997 cat. level	2010-11 contrib.	2012-13 contrib.	2015-15 (40GS) contrib.	2016-17 contrib.	2015 category	2017 category	2019 category	2018-19 (42 <sup>nd</sup> GS)	2020-2021
												+1.125% (=4.5% over 4 years)
SERBIA	20	23	3	12,786	12,786	12,786	13,809	4	4	4	13,809	<b>14430</b>
PORTUGAL	21	18	3	12,786	12,786	12,786	13,809	4	4	4	13,809	<b>14430</b>
HUNGARY	22	21	3	12,786	12,786	12,786	13,809	4	4	4	13,809	<b>14430</b>
SLOVAK R.	24	24	3	12,786	12,786	12,786	13,809	4	4	4	13,809	<b>14430</b>
ISRAEL	26	22	4	4170	4170	4170	13,809	4	4	4	13,809	<b>14430</b>
BULGARIA	23	29	3	12,786	12,786	12,786	4,504	5	5	5	4,504	<b>4707</b>
LITHUANIA	25	25	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
ALBANIA	27	30	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
CROATIA	28	26	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
LATVIA	29	32	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
SLOVENIA	30	28	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
ESTONIA	31	34	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
FYROM	32	36	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
LUXEMBOURG	33	33	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
CYPRUS	34	35	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
BOSNIA-H	35	31			4170	4170	4,504	5	5	5	4,504	<b>4707</b>
ICELAND	36		4	4170[2]					5	5	4,504	<b>4707</b>
MALTA	37	37	4	4170	4170	4170	4,504	5	5	5	4,504	<b>4707</b>
GEORGIA	Not ranked	27	4			4170	4,504	5	5	5	4,504	<b>4707</b>
MONTENEGRO									5	5	4,504	<b>4707</b>
TOTAL											616005	<b>643,725</b>

**Table 3.** Livestock Populations (2013), Converted to Total Units (TU) by 1997 formula, % Contribution of the countries to UN system and position in the European scale based on an average of both (final column)

Area Code	Region	Area Name	Cattle 2013 (Heads)	Goats 2013	Sheep 2013	Pigs 2013	Buffalo 2013	Total Units (1997 formula)	%TU in Europe (A)	UN Contrib 2015	%European Cont FAO (B)	(A plus B)/2
125	E	Liechtenstein	6,350	368	4,000	1,800	-	8,124	0.00	0	-	<b>0.00</b>
64	E	Faroe Islands	2,300	-	70,000	-	-	16,300	0.01	0	-	<b>0.00</b>
134	E	Malta	15,220	4,598	10,930	49,450	-	43,051	0.01	0.016	0.04	<b>0.03</b>
273	E	Montenegro	84,000	-	207,000	18,000	-	134,400	0.04	0.005	.01	<b>0.03</b>
99	E	Iceland	68,014	877	463,807	26,033	-	173,967	0.06	0.027	0.06	<b>0.06</b>
154	E	N. Macedonia	238,333	75,028	731,828	167,492	640	483,450	0.16	0.008	0.02	<b>0.09</b>
146	E	Rep. of Moldova	191,200	128,900	695,100	410,400	-	561,200	0.18	0.003	0.01	<b>0.10</b>
50	E	Cyprus	57,000	243,130	347,000	357,900	-	353,976	0.12	0.047	0.11	<b>0.11</b>
63	E	Estonia	261,400	4,900	81,900	358,700	-	458,110	0.15	0.04	0.10	<b>0.12</b>
256	E	Luxembourg	193,623	4,456	8,582	87,518	-	239,990	0.08	0.082	0.20	<b>0.14</b>
1	E	Armenia	661,003	29,020	645,711	145,044	531	868,471	0.28	0.007	0.02	<b>0.15</b>
119	E	Latvia	393,000	13,300	83,600	355,200	-	589,980	0.19	0.047	0.11	<b>0.15</b>
80	E	Bosnia and Herzegovina	446,893	69,369	1,019,782	529,644	-	929,545	0.30	0.017	0.04	<b>0.17</b>
3	E	Albania	498,000	810,000	1,808,000	158,000	120	1,100,600	0.36	0.01	0.02	<b>0.19</b>
27	E	Bulgaria	526,112	293,639	1,361,545	30,945	9,212	1,122,621	0.37	0.017	0.04	<b>0.20</b>
198	E	Slovenia	460,063	26,351	114,152	296,097	-	636,212	0.21	0.101	0.24	<b>0.23</b>
73	E	Georgia	1,128,800	54,400	688,200	204,300	18,000	1,379,470	0.45	0.007	0.02	<b>0.23</b>
98	E	Croatia	442,000	69,000	620,000	1,110,000	-	1,134,800	0.37	0.047	0.11	<b>0.24</b>
126	E	Lithuania	729,200	13,600	82,800	807,500	-	1,152,230	0.38	0.074	0.18	<b>0.28</b>
199	E	Slovakia	471,091	34,823	409,570	631,464	-	875,702	0.29	0.172	0.41	<b>0.35</b>
113	E	Kyrgyzstan	1,404,168	960,391	4,680,823	51,777	-	2,558,299	0.84	0.002	0.00	<b>0.42</b>
208	E	Tajikistan	2,043,725	1,772,982	2,959,495	662	15,000	2,990,551	0.98	0.003	0.01	<b>0.49</b>
272	E	Serbia	913,144	225,073	1,616,000	3,144,215	-	2,853,466	0.93	0.04	0.10	<b>0.51</b>

Area Code	Region	Area Name	Cattle 2013 (Heads)	Goats 2013	Sheep 2013	Pigs 2013	Buffalo 2013	Total Units (1997 formula)	%TU in Europe (A)	UN Contrib 2015	%European Cont FAO (B)	(A plus B)/2
105	E	Israel	465,000	100,000	540,000	176,900	-	681,450	0.22	0.398	0.96	<b>0.59</b>
52	E	Azerbaijan	2,444,500	651,115	7,979,424	6,495	260,889	4,173,855	1.36	0.04	0.10	<b>0.73</b>
97	E	Hungary	760,000	89,000	1,185,000	2,989,000	-	2,509,300	0.82	0.268	0.64	<b>0.73</b>
167	E	Czech Republic	1,352,822	24,042	220,521	1,586,627	-	2,195,048	0.72	0.388	0.93	<b>0.82</b>
67	E	Finland	911,847	4,509	135,546	1,300,385	-	1,590,051	0.52	0.522	1.25	<b>0.89</b>
213	E	Turkmenistan	2,250,000	2,290,000	14,000,000	29,000	-	5,522,500	1.80	0.019	0.05	<b>0.92</b>
174	E	Portugal	1,471,000	398,000	2,073,000	2,014,000	-	2,972,200	0.97	0.477	1.14	<b>1.06</b>
57	E	Belarus	4,367,000	73,200	59,900	4,242,900	-	6,515,070	2.13	0.056	0.13	<b>1.13</b>
162	E	Norway	849,984	62,800	223,661	848,063	-	1,731,308	0.57	0.856	2.05	<b>1.31</b>
183	E	Romania	2,009,135	1,265,676	8,833,830	5,234,313	-	6,646,193	2.17	0.227	0.54	<b>1.36</b>
84	E	Greece	679,000	4,250,000	9,520,000	1,077,000	1,750	3,971,500	1.30	0.642	1.54	<b>1.42</b>
210	E	Sweden	1,496,526	-	576,769	1,398,875	-	2,311,317	0.76	0.965	2.32	<b>1.54</b>
11	E	Austria	1,955,618	73,212	364,645	2,983,158	-	3,534,768	1.15	0.802	1.92	<b>1.54</b>
230	E	Ukraine	4,645,900	664,800	1,073,400	7,576,700	-	8,781,890	2.87	0.1	0.24	<b>1.55</b>
211	E	Switzerland	1,563,214	90,000	410,000	1,487,704	-	2,407,066	0.79	1.053	2.53	<b>1.66</b>
108	E	Kazakhstan	5,851,227	2,362,824	15,197,780	922,296	10,000	9,824,496	3.21	0.122	0.29	<b>1.75</b>
104	E	Ireland	6,902,600	8,700	5,110,600	1,552,000	-	8,702,460	2.84	0.42	1.01	<b>1.93</b>
54	E	Denmark	1,614,644	-	151,300	12,075,750	-	7,682,779	2.51	0.679	1.63	<b>2.07</b>
255	E	Belgium	2,454,704	40,473	114,407	6,592,978	-	5,782,169	1.89	1.004	2.41	<b>2.15</b>
235	E	Uzbekistan	9,966,600	2,681,500	14,077,500	94,500	-	13,365,650	4.37	0.015	0.04	<b>2.20</b>
173	E	Poland	5,859,541	81,727	249,481	11,162,472	-	11,507,019	3.76	0.926	2.22	<b>2.99</b>
150	E	Netherlands	3,999,220	412,550	1,033,570	12,212,300	-	10,394,594	3.40	1.663	3.99	<b>3.69</b>
223	E	Turkey	13,916,924	8,357,286	27,425,233	2,986	107,435	21,074,921	6.88	1.335	3.20	<b>5.04</b>
203	E	Spain	5,696,910	2,609,990	16,118,590	25,494,720	-	22,189,986	7.25	2.989	7.17	<b>7.21</b>
106	E	Italy	6,091,500	891,604	7,015,700	8,661,500	402,659	12,003,711	3.92	4.472	10.73	<b>7.33</b>



Area Code	Region	Area Name	Cattle 2013 (Heads)	Goats 2013	Sheep 2013	Pigs 2013	Buffalo 2013	Total Units (1997 formula)	%TU in Europe (A)	UN Contrib 2015	%European Cont FAO (B)	(A plus B)/2
185	E	Russian Federation	19,930,354	2,118,697	22,061,282	18,816,357	6,002	34,174,528	11.16	2.451	5.88	8.52
229	E	United Kingdom	9,844,000	98,000	32,856,000	4,885,000	-	18,877,300	6.17	5.207	12.50	9.33
68	E	France	19,095,797	1,291,028	7,233,720	13,487,588	-	27,544,541	9.00	5.623	13.49	11.25
79	E	Germany	12,587,020	165,000	1,641,000	27,690,100	5,000	26,793,270	8.75	7.18	17.23	12.99
		<b>TOTALs</b>	<b>162,267,226</b>	<b>35,989,938</b>	<b>218,191,684</b>	<b>186,043,808</b>	<b>837,238</b>	<b>306,125,454</b>	<b>100.00</b>	<b>41.67</b>	<b>100.00</b>	<b>100.00</b>

## **Appendix 24**

### Financial statements

**OFFICE MEMORANDUM**

TO: K. Sumption  
Secretary, EUFMD

DATE: 3 April 2019

FROM: David McSherry  
Head, Trust Fund Liaison Group

SUBJECT: MTF/INT/011/MUL etc. – Reports and Status of Contributions as at 31 March 2019

As requested, please find for your information Project Status Reports for:  
MTF/INT/003/EC (TF. No. 617197), MTF/INT/004/MUL (TF. No. 909700),  
MTF/INT/004/MUL Baby 01 (TF. 620745) and MTF/INT/011/MUL (TF No. 904200)  
At 31 March 2019.

Thank you and regards.

CSFE 0368/19

FN 9/2 – MTF/INT/003/EC (TF. No.617197 )  
MTF/INT/004/MUL & MTF/INT/004/MUL Baby 01  
MTF/INT/011/MUL

cc: Rumich AGAH  
Carraz, AGAH  
Pedulla AGAH  
LiCastro AGAH  
Rijavec, CSFE  
Scanlon, CSFE  
TF Unit Chrono

**Financial Statements and Report**  
**31 March 2019**

FOOD AND AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS

EUROPEAN COMMISSION  
FOR THE CONTROL OF FOOT-AND-MOUTH-DISEASE

The European Commission for the control of Foot-and-Mouth Disease is a body established under Article XIV of the Organization's constitution for the purpose of promoting and coordinating national and international action for the control of foot-and-mouth-disease in Europe and its final eradication. The funds are handled as a Trust Fund under financial Regulation 6.7, with the symbol MTF/INT/011/MUL.

**FUNDS**

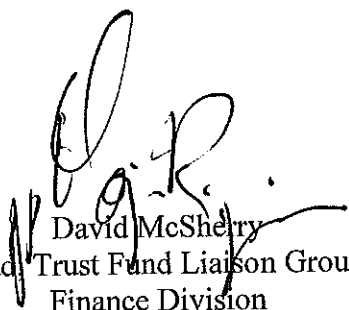
The Organization does not maintain separate bank accounts for each Trust Fund, but instead manages and invests Trust Fund monies combined in pooled bank accounts. The provisional balance of funds held by the Organization on behalf of the European Commission for the Control of Foot-and-Mouth Disease as at 31 March 2019 amounted to USD 115,681.

**INCOME AND EXPENDITURE**

Contributions to the Commission's Trust Fund amounting to USD 135,149 were received from Member countries of the Commission up to the 31<sup>st</sup> of March 2019.

Outstanding contributions at 31 March 2019 amount to USD 593,225.

The Commission's Trust Fund expenditures up to the 31<sup>st</sup> of March 2019, amounted to USD 554,353.

  
David McSherry  
Head Trust Fund Liaison Group  
Finance Division

**TRUST FUND No. 9042.00 - MTF/INT/011/MUL -  
Inter-Regional - European Commission for the Control of Foot-and-Mouth Disease**

Status of Contributions as at 31 March 2019  
(expressed in USD)

ORACLE CODE: TF-AGADD-TFAA97AA89122

Member Governments	Outstanding 1/1/2019	Contribution due for 2019	Received up to 31/03/2019	Outstanding 31/2032019
ALBANIA	9,008.00	4,504.00		13,512.00
AUSTRIA	0.00	15,650.00		15,650.00
BELGIUM	23,386.00	23,386.00	23,386.00	23,386.00
BOSNIA	0.00	4,504.00		4,504.00
BULGARIA	0.00	4,504.00		4,504.00
CYPRUS	0.00	4,504.00		4,504.00
CROATIA	0.00	4,504.00		4,504.00
CZECH REPUBLIC	0.00	13,809.00	13,809.00	0.00
DENMARK	0.00	23,386.00		23,386.00
ESTONIA	0.00	4,504.00		4,504.00
FINLAND	0.00	13,809.00		13,809.00
FRANCE	0.00	46,611.00		46,611.00
GEORGIA	0.00	4,504.00		4,504.00
GERMANY	0.00	46,611.00		46,611.00
GREECE	15,650.00	15,650.00		31,300.00
HUNGARY	0.00	13,809.00		13,809.00
ICELAND	334.00	4,504.00		4,838.00
IRELAND	0.00	15,650.00	15,650.00	0.00
ISRAEL	0.00	13,809.00		13,809.00
ITALY	0.00	46,611.00		46,611.00
LATVIA	0.00	4,504.00		4,504.00
LITHUANIA	0.00	4,504.00		4,504.00
LUXEMBOURG	0.00	4,504.00		4,504.00
FYR of MACEDONIA	0.00	4,504.00		4,504.00
MALTA	0.00	4,504.00		4,504.00
NETHERLANDS	0.00	23,386.00		23,386.00
NORWAY	0.00	15,650.00		15,650.00
POLAND	0.00	23,386.00		23,386.00
PORTUGAL	0.00	13,809.00		13,809.00
ROMANIA	31,300.00	15,650.00	31,300.00	15,650.00
SERBIA	13,809.00	13,809.00	27,618.00	0.00
SLOVAK REPUBLIC	0.00	13,809.00		13,809.00
SLOVENIA	0.00	4,504.00		4,504.00
SPAIN	0.00	23,386.00		23,386.00
SWEDEN	0.00	23,386.00		23,386.00
SWITZERLAND	0.00	23,386.00		23,386.00
TURKEY	23,386.00	23,386.00	23,386.00	23,386.00
UNITED KINGDOM	0.00	46,611.00		46,611.00
<b>TOTALS</b>	<b>116,873.00</b>	<b>611,501.00</b>	<b>135,149.00</b>	<b>593,225.00</b>

2019 UNITED NATIONS OPERATIONAL RATES OF EXCHANGE							
Currency Name	Code	1-Jan-19	1-Feb-19	1-Mar-19	1-Apr-19	1-May-19	1-Jun-19
Euro	EUR	<b>0.871</b>	<b>0.876</b>	<b>0.879</b>			
		15-Jan-19					
		0.876					
		1-Jul-19	1-Aug-19	1-Sep-19	1-Oct-19	1-Nov-19	1-Dec-19

Average Rate:

January

0.871

0.876

Total:

1.747

Average rate:

0.873

0.873 Jan rate

0.876 Feb rate

0.879 March rate

April rate

May rate

June rate

July rate

August rate

Sep rate

Oct rate

Nov rate

Dec rate

2.628 Total

0.876 Average ROE

STATEMENT 1

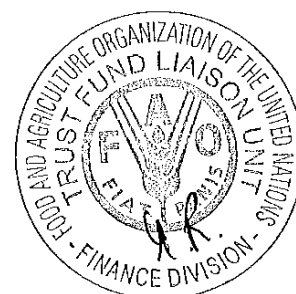
MTF/INT/011/MUL - TF number 904200

## EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

Financial Report from 1st January to 31 March 2019

	USD	USD	EUR	EUR
<b><u>Balance as at 1 January 2019</u></b>		534,885		494,559
Interest received	0			0
Contributions from member countries and institute	135,149		118,311	0
Project Income Earned (Child)	0		0	0
<b><u>Expenditure</u></b>				
Salaries	257,440		241,517	
Consultant	277,607		241,184	
Contracts	12		11	
Duty Travel	14,584		12,715	
Locally Contracted labour	0		0	
Training	306		258	0
Hospitality	0		0	
General Operating Expenses	2,838		2,458	0
Internal Common Services and Support	174		153	
Expendable Equipment	298		251	
Non-Expendable Equipment	1,094		955	
<b>Total Expenditure</b>		<u>554,353</u>		<u>511,145</u>
<b>Provisional Balance as at 31 March 2019</b>		<b><u>115,681</u></b>		<b><u>87,740</u></b>

The Financial Statements of the Commission are maintained in US Dollars in accordance with the accounting policies and administrative systems of FAO. The amounts stated in Euros, including the opening balance, have been converted from US Dollars at the average monthly UN Operational Exchange Rates for 2019. The average monthly UN Operational Exchange rate applicable for period to 31 March 2019 is USD 1: EUR 0.876







Food and Agriculture Organization of the United Nations

## TF Project Status Report (Aggregate Values)

Up to Period: '2019-03'

FAO Total FAO Organizations (Total)

TFAA97AA89122 904200 MTF /INT/011/MUL European Commission for Control of Foot-And-Mouth Disease (Project)

	Prior Years			Current Year: 2019 up to 2019-03			Cumulative up to 2019-03			Future Years			Project Total		
	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance
<b>Funds Received</b>															
3051 TF Contributions Received (Child)	0	(13,289,766)	13,289,766	0	(135,149)	135,149	0	(13,424,915)	13,424,915	0	0	0	0	(13,438,427)	13,438,427
3052 TF Interest Earned (Child)	0	(134,812)	134,812	0	0	0	0	(134,812)	134,812	0	0	0	0	(134,812)	134,812
3053 Project Income Earned (Child)	0	(10,140)	10,140	0	0	0	0	(10,140)	10,140	0	0	0	0	(10,140)	10,140
3054 Refund to Donors and transfer of project funds (Child)	0	16,835	(16,835)	0	0	0	0	16,835	(16,835)	0	0	0	0	16,835	(16,835)
<b>Total Funds Received</b>	<b>0</b>	<b>(13,417,884)</b>	<b>13,417,884</b>	<b>0</b>	<b>(135,149)</b>	<b>135,149</b>	<b>0</b>	<b>(13,553,033)</b>	<b>13,553,033</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>(13,566,545)</b>	<b>13,566,545</b>
<b>Expenditure</b>															
5011 Salaries Professional (Parent)	6,015,578	6,015,578	0	380,079	257,440	122,639	6,395,656	6,273,018	122,639	73,957	0	73,957	6,469,613	6,273,018	196,596
5012 Salaries General Service (Parent)	1,479,112	1,479,112	0	0	0	0	1,479,112	1,479,112	0	0	0	0	1,479,112	1,479,112	0
5013 Consultants (Parent)	1,458,904	1,458,904	0	401,917	277,607	124,311	1,860,822	1,736,511	124,311	48,374	0	48,374	1,909,196	1,736,511	172,685
5014 Contracts (Parent)	944,386	963,386	(18,999)	0	12	(12)	944,386	963,398	(19,011)	(16,023)	0	(16,023)	928,363	963,398	(35,035)
5020 Locally Contracted Labour (Parent)	28,904	28,904	(0)	0	0	0	28,904	28,904	(0)	0	0	0	28,904	28,904	(0)
5021 Travel (Parent)	1,557,842	1,547,542	10,300	10,000	14,584	(4,584)	1,567,842	1,562,125	5,716	(34,393)	0	(34,393)	1,533,449	1,564,787	(31,338)
5023 Training (Parent)	33,261	33,261	0	0	306	(306)	33,261	33,567	(306)	14,353	0	14,353	47,614	33,567	14,047
5024 Expendable Procurement (Parent)	66,866	66,867	(0)	0	298	(298)	66,866	67,165	(298)	32,121	0	32,121	98,987	67,165	31,823
5025 Non Expendable Procurement (Parent)	20,221	20,221	0	0	1,094	(1,094)	20,221	21,315	(1,094)	(1,094)	0	(1,094)	19,127	21,315	(2,188)
5026 Hospitality (Parent)	17,308	17,307	0	0	0	0	17,308	17,307	0	313	0	313	17,621	17,307	313
5028 General Operating Expenses (Parent)	893,113	893,108	5	0	2,254	(2,254)	893,113	895,362	(2,249)	3,175	0	3,175	896,288	895,362	926
5029 Support Costs (Parent)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5040 General Operating Expenses - external common services (Parent)	34,165	34,171	(6)	0	584	(584)	34,165	34,755	(590)	(2,748)	0	(2,748)	31,417	34,755	(3,338)
5050 Internal Common Services and Support (Parent)	324,638	324,638	(0)	0	174	(174)	324,638	324,813	(175)	222	0	222	324,416	324,813	(396)
<b>Total Expenditure</b>	<b>12,874,299</b>	<b>12,882,999</b>	<b>(8,700)</b>	<b>791,996</b>	<b>554,353</b>	<b>237,643</b>	<b>13,666,295</b>	<b>13,437,352</b>	<b>228,943</b>	<b>(17,813)</b>	<b>0</b>	<b>(17,813)</b>	<b>13,784,108</b>	<b>13,440,013</b>	<b>344,095</b>

Organization level = 'FAO' TF Activity level = 'PROJECT' Expense Account level = 'PARENT ONLY' Liability Account level = 'CHILD'  
 Organization value = 'all' TF Activity value = 'TFAA97AA89122' Expenses Include = 'Actuals + Hard CMTs' Include ODG = 'YES'

Run Date: 03-Apr-2019

Rep. No. FI 142a | Page 1 of 2

**STATEMENT 2****MTF/INT/003/EEC - TF number 617197****EU Funded Activities (Phase IV: 2015 - 2019) carried out by the FAO European Commission for the Control of Foot-and-Mouth Disease (EUFMD)**Financial Report from 1 January to 31 March 2019

	USD	USD
<b><u>Balance as at 1 January 2019</u></b>		(791,737)
Interest received	0	
Contribution received	0	
Refund to donor		0

**Expenditure**

Salaries Professional	105,452	
Consultancy	561,198	
Contracts	108,731	
Locally Contracted Labour	0	
Duty Travel	196,047	
Training	63,366	
Hospitality	0	
Technical Support Services	0	
General Operating Expenses	117,825	
Expendable Equipment	14,009	
Non-Expendable Equipment	1,094	
Internal Common Services and Support	451	
Support Costs 7%		11,826
Less: Total Expenditure		<u>1,156,348</u>
<b>Balance as at 31 March 2019</b>		<b>1,948,085</b>

EUR	EUR
	(551,541)
	0
	0
	0
105,452	
561,198	
108,731	
0	
196,047	
63,366	
0	
0	
117,825	
14,009	
1,094	
451	
0	11,826
	<u>1,156,348</u>
	<b>1,948,085</b>

The Financial Statements of the Commission are maintained in US Dollars in accordance with the accounting policies and administrative systems of FAO. The amounts stated in Euros, including the opening balance, have been converted from US Dollars at the average monthly UN Operational Exchange Rates for 2019. The average monthly UN Operational Exchange Rate applicable for the period to 31 March 2019 is USD 1: EUR 0.876





Food and Agriculture Organization of the United Nations

## TF Project Status Report (Aggregate Values)

Up to Period: '2019-03'

## FAO Total FAO Organizations (Total)

TFEU97AA16304 617197 MTF /INT/003/EC EU Funded Activities (Phase IV: 2015 - 2019) carried out by the FAO European Commission for the Control of Foot-and-Mouth Disease (EUFMD) (Project)

	Prior Years			Current Year: 2019 up to 2019-03			Cumulative up to 2019-03			Future Years			Project Total		
	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance
<b>Funds Received</b>															
3051 TF Contributions Received (Child)	0	(5,276,409)	5,276,409	0	0	0	0	(5,276,409)	5,276,409	0	0	0	0	(5,276,409)	5,276,409
3052 TF Interest Earned (Child)	0	(16,827)	16,827	0	0	0	0	(16,827)	16,827	0	0	0	0	(16,827)	16,827
<b>Total Funds Received</b>	<b>0</b>	<b>(5,293,236)</b>	<b>5,293,236</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>(5,293,236)</b>	<b>5,293,236</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>(5,293,236)</b>	<b>5,293,236</b>
<b>Expenditure</b>															
5011 Salaries Professional (Parent)	342,698	342,698	0	83,708	105,452	(21,744)	426,406	448,150	(21,744)	20,023	0	20,023	446,429	448,150	(1,721)
5013 Consultants (Parent)	2,125,393	2,125,393	0	471,432	561,198	(89,766)	2,596,825	2,686,591	(89,766)	(66,334)	0	(66,334)	2,530,491	2,686,591	(156,100)
5014 Contracts (Parent)	1,598,371	1,598,371	(0)	353,971	108,731	245,240	1,952,342	1,707,102	245,240	(64,507)	0	(64,507)	1,887,835	1,707,102	180,733
5021 Travel (Parent)	1,090,067	1,089,329	738	305,450	196,047	109,403	1,395,517	1,285,376	110,141	233,553	0	233,553	1,629,070	1,286,210	342,860
5023 Training (Parent)	178,840	178,840	0	122,670	63,366	59,304	301,510	242,206	59,304	352,574	0	352,574	654,084	242,206	411,878
5024 Expendable Procurement (Parent)	176,769	176,769	0	130,113	14,009	116,104	306,882	190,778	116,104	362,929	0	362,929	669,811	190,778	479,033
5025 Non Expendable Procurement (Parent)	10,109	10,109	0	0	1,094	(1,094)	10,109	11,203	(1,094)	(2,188)	0	(2,188)	7,921	11,203	(3,282)
5026 Hospitality (Parent)	161	161	0	0	0	0	161	161	0	0	0	0	161	161	0
5027 Technical Support Services (Parent)	0	0	0	84,705	0	84,705	84,705	0	84,705	8,377	0	8,377	93,082	0	93,082
5028 General Operating Expenses (Parent)	142,849	142,849	(0)	83,301	117,602	(34,301)	226,150	260,451	(34,301)	201,810	0	201,810	427,960	260,451	167,509
5029 Support Costs (Parent)	398,111	398,111	0	114,474	(11,826)	126,300	512,585	386,285	126,300	72,812	0	72,812	585,398	386,285	199,113
5040 General Operating Expenses - external common services (Parent)	1,855	1,855	0	0	223	(223)	1,855	2,078	(223)	(159)	0	(159)	1,695	2,078	(383)
5050 Internal Common Services and Support (Parent)	20,488	20,488	0	0	451	(451)	20,488	20,940	(451)	(5,902)	0	(5,902)	14,586	20,940	(6,353)
<b>Total Expenditure</b>	<b>6,085,711</b>	<b>6,084,973</b>	<b>738</b>	<b>1,749,824</b>	<b>1,156,348</b>	<b>593,476</b>	<b>7,835,535</b>	<b>7,241,321</b>	<b>594,214</b>	<b>1,112,989</b>	<b>0</b>	<b>1,112,989</b>	<b>8,948,524</b>	<b>7,242,155</b>	<b>1,706,369</b>
<b>Balance</b>		<b>791,737</b>			<b>1,156,348</b>			<b>1,948,085</b>			<b>0</b>			<b>1,948,919</b>	

Organization level = 'FAO' TF Activity level = 'PROJECT' Expense Account level = 'PARENT ONLY' Liability Account level = 'CHILD'  
 Organization value = 'all' TF Activity value = 'TFEU97AA16304' Expenses Include = 'Actuals + Hard CMTs' Include ODG = 'YES'

Run Date: 03-Apr-2019

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**STATEMENT 3**

MTF/INT/004/MUL - TF number 909700

**Foot and Mouth Disease - Emergency Aid Programme**Financial Report from 1 January to 31 March 2019

	USD	USD	EUR	EUR
<b><u>Balance as at 1 January 2019</u></b>		(4,172)	0	(3,855)
Interest received			0	0
Contribution received	0		0	0
Refund to donor		0		0
<b><u>Expenditure</u></b>				
Salaries Professional			0	0
Consultancy	5,527		4,917	0
Contracts	12		11	0
Locally Contracted Labour	0		0	0
Duty Travel		42,870		37,314
Training			0	0
Common Services and Support	0		0	0
Technical Support Services	0		0	0
General Operating Expenses	5,042		4,417	0
Expendable Equipment			0	0
Non-Expendable Equipment			0	0
Support Costs 6%		5,295	0	4,654
Less: Total Expenditure		<u>37,585</u>		<u>31,964</u>
<b>Balance as at 31 March 2019</b>		<b>33,413</b>		<b>28,350</b>

The Financial Statements of the Commission are maintained in US Dollars in accordance with the accounting policies and administrative systems of FAO. The amounts stated in Euros, including the opening balance, have been converted from US Dollars at the average monthly UN Operational Exchange Rates for 2019. The average monthly UN Operational Exchange Rate applicable for the period to 31 March 2019 is USD 1: EUR 0.876





Food and Agriculture Organization of the United Nations

## TF Project Status Report (Aggregate Values)

Up to Period: '2019-03'

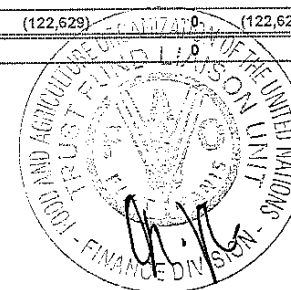
FAO Total FAO Organizations (Total)

TFAA970089127 909700 MTF/INT/004/MUL Foot and Mouth Disease - Emergency Aid Programme (Activity)

	Prior Years			Current Year: 2019 up to 2019-03			Cumulative up to 2019-03			Future Years			Project Total		
	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance
<b>Funds Received</b>															
3051 TF Contributions Received (Child)	0	(1,039,419)	1,039,419	0	0	0	0	(1,039,419)	1,039,419	0	0	0	0	(1,039,419)	1,039,419
3052 TF Interest Earned (Child)	0	(60,566)	60,566	0	0	0	0	(60,566)	60,566	0	0	0	0	(60,566)	60,566
<b>Total Funds Received</b>	<b>0</b>	<b>(1,099,985)</b>	<b>1,099,985</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>(1,099,985)</b>	<b>1,099,985</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>(1,099,985)</b>	<b>1,099,985</b>
<b>Expenditure</b>															
5011 Salaries Professional (Parent)	17	17	0	0	0	0	17	17	0	0	0	0	17	17	0
5013 Consultants (Parent)	32,843	26,742	6,100	0	5,527	(5,527)	32,843	32,269	574	(11,301)	0	(11,301)	21,541	32,269	(10,728)
5014 Contracts (Parent)	53,219	53,219	0	0	12	(12)	53,219	53,230	(12)	(42,240)	0	(42,240)	10,978	53,230	(42,252)
5020 Locally Contracted Labour (Parent)	142	142	0	0	0	0	142	142	0	(142)	0	(142)	0	142	(142)
5021 Travel (Parent)	145,399	136,638	8,761	0	(42,870)	42,870	145,399	93,768	51,631	(64,933)	0	(64,933)	80,466	93,768	(13,302)
5023 Training (Parent)	(5,551)	(8,551)	3,000	0	0	0	(5,551)	(8,551)	3,000	(174)	0	(174)	(5,725)	(8,551)	2,826
5024 Expendable Procurement (Parent)	648,735	650,796	(2,061)	0	0	0	648,735	650,796	(2,061)	6,670	0	6,670	655,405	650,796	4,609
5025 Non Expendable Procurement (Parent)	20,099	4,099	16,000	0	0	0	20,099	4,099	16,000	(4,039)	0	(4,039)	16,060	4,099	11,961
5027 Technical Support Services (Parent)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5028 General Operating Expenses (Parent)	226,316	226,316	0	0	5,042	(5,042)	226,316	231,358	(5,042)	1,024	0	1,024	227,340	231,358	(4,018)
5029 Support Costs (Parent)	15,858	13,826	2,032	0	(5,295)	5,295	15,858	8,531	7,327	(6,941)	0	(6,941)	8,916	8,531	385
5040 General Operating Expenses - external common services (Parent)	342	342	0	0	0	0	342	342	0	(14)	0	(14)	328	342	(14)
5050 Internal Common Services and Support (Parent)	571	571	0	0	0	0	571	571	0	(537)	0	(537)	34	571	(537)
<b>Total Expenditure</b>	<b>1,137,990</b>	<b>1,104,158</b>	<b>33,832</b>	<b>0</b>	<b>(37,585)</b>	<b>37,585</b>	<b>1,137,990</b>	<b>1,066,572</b>	<b>71,417</b>	<b>(122,629)</b>	<b>0</b>	<b>(122,629)</b>	<b>1,015,361</b>	<b>1,066,572</b>	<b>(51,211)</b>
<b>Balance</b>		<b>4,172</b>			<b>(37,585)</b>			<b>(33,413)</b>						<b>(33,413)</b>	

Organization level = 'FAO' TF Activity level = 'ACTIVITY' Expense Account level = 'PARENT ONLY' Liability Account level = 'CHILD'  
 Organization value = 'all' TF Activity value = 'TFAA970089127' Expenses Include = 'Actuals + Hard CMTs' Include ODG = 'YES'

Run Date: 03-Apr-2019



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**STATEMENT 4****MTF/INT/004/MUL - TF number 909700 Baby 01 Australia****Foot and Mouth Disease - Emergency Aid Programme****Financial Report from 1 January to 31 March 2019**

	USD	USD
<b>Balance as at 1 January 2019</b>		112,410
Interest received	0	
Contribution received	210,891	
Refund to donor		0

**Expenditure**

Salaries Professional		
Consultancy	83,908	
Contracts	12	
Locally Contracted Labour	0	
Duty Travel	5,704	
Training	34,546	
Common Services and Support	0	
Technical Support Services	0	
General Operating Expenses	2,082	
Expendable Equipment	8,121	
Non-Expendable Equipment	2,188	
Support Costs 6%	3,015	
Less: Total Expenditure		139,576
<b>Balance as at 31 March 2019</b>		<b>183,725</b>

EUR	EUR
0	112,410
210,891	0
0	0
0	
73,953	
12	
0	
4,727	
34,546	
0	
0	
1,824	
7,121	
1,917	
2,041	
	139,576
	183,725

The Financial Statements of the Commission are maintained in US Dollars in accordance with the accounting policies and administrative systems of FAO. The amounts stated in Euros, including the opening balance, have been converted from US Dollars at the average monthly UN Operational Exchange Rates for 2019. The average monthly UN Operational Exchange Rate applicable for the period to 31 March 2019 is USD 1: EUR 0.876





Food and Agriculture Organization of the United Nations

## TF Project Status Report (Aggregate Values)

Up to Period: '2019-03'

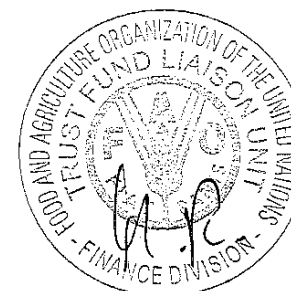
FAO Total FAO Organizations (Total)

TFAA970189127 909700 MTF /INT/004/MUL Australia Foot and Mouth Disease - Emergency Aid Programme (Activity)

	Prior Years			Current Year: 2019 up to 2019-03			Cumulative up to 2019-03			Future Years			Project Total		
	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance	Budget	Expenses	Balance
<b>Funds Received</b>															
3051 TF Contributions Received (Child)	0	(1,470,996)	1,470,996	0	(210,891)	210,891	0	(1,681,887)	1,681,887	0	0	0	0	(1,681,887)	1,681,887
<b>Expenditure</b>															
5013 Consultants (Parent)	490,243	490,243	0	147,825	63,908	63,917	638,068	574,152	63,917	0	0	0	638,068	574,152	63,917
5014 Contracts (Parent)	66,942	66,942	(0)	12	12	0	66,953	66,953	(0)	0	0	0	66,953	66,953	(0)
5021 Travel (Parent)	255,033	255,033	0	53,145	5,704	47,441	308,178	260,737	47,441	0	0	0	308,178	260,737	47,441
5023 Training (Parent)	361,001	361,001	0	80,310	34,546	45,764	441,311	395,547	45,764	0	0	0	441,312	395,547	45,765
5024 Expendable Procurement (Parent)	77,136	77,136	0	17,389	8,121	9,268	94,525	85,257	9,268	0	0	0	94,525	85,244	9,281
5025 Non Expendable Procurement (Parent)	5,596	5,596	0	0	2,188	(2,188)	5,596	7,784	(2,188)	0	0	0	5,597	7,784	(2,188)
5027 Technical Support Services (Parent)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5028 General Operating Expenses (Parent)	15,653	15,654	(0)	26,558	2,082	24,476	42,211	17,735	24,476	1	0	1	42,212	17,735	24,477
5029 Support Costs (Parent)	76,901	76,901	0	19,596	3,015	16,581	96,497	79,916	16,581	0	0	0	96,497	79,916	16,581
5040 General Operating Expenses - external common services (Parent)	5,768	5,768	0	1,357	0	1,357	7,125	5,768	1,357	0	0	0	7,125	5,768	1,357
5050 Internal Common Services and Support (Parent)	4,313	4,313	0	0	0	0	4,313	4,313	0	0	0	0	4,313	4,313	0
<b>Total Expenditure</b>	<b>1,358,586</b>	<b>1,358,586</b>	<b>(0)</b>	<b>346,192</b>	<b>139,575</b>	<b>206,617</b>	<b>1,704,778</b>	<b>1,498,162</b>	<b>206,617</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1,704,780</b>	<b>1,498,149</b>	<b>206,631</b>
<b>Balance</b>		<b>(112,410)</b>			<b>(71,315)</b>			<b>(183,725)</b>			<b>0</b>			<b>(183,737)</b>	

Organization level = 'FAO' TF Activity level = 'ACTIVITY' Expense Account level = 'PARENT ONLY' Liability Account level = 'CHILD'  
 Organization value = 'all' TF Activity value = 'TFAA970189127' Expenses Include = 'Actuals + Hard CMTs' Include ODG = 'YES'

Run Date: 03-Apr-2019



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