FAO Reference Centre - Annual report

(Thematic areas[1])

Title of FAO Reference Centre	**FAO Reference Centre for FMD and SVD**
Name of the Institution and contact details	**Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna (IZSLER), Brescia - Italy**
Director of Institute	**Dr. Giuseppe Merialdi**
Head of the FAO Reference Centre	**Santina Grazioli** **Giulia Pezzoni**
Name, title and function of reporting officer (if different from above)	
Reporting period	**2023**
Date of reporting	**19/02/2024**

[1] Applies to: Veterinary Epidemiology, VPH, Laboratory Biosafety and biocontainment, Veterinary drugs and vaccine control, Wildlife health, Human- animal -environment interface

Report activities 2023:

Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna (IZSLER)
Designation: FAO Reference Centre for Foot-and-Mouth Disease and swine vesicular disease
Technical Area: Foot-and-Mouth Disease (FMD)
Although the technical Area of the centre is FMD, laboratory activities on Swine Vesicular Disease (SVDV) and Lumpy Skin Disease Virus (LSD) are also briefly described in this report.

1. Test(s) carried out for FAO member countries

Foot-and-Mouth Disease

SEROLOGICAL TESTS (NSP-ELISA, SP-ELISAs for different serotypes, Virus Neutralization tests (VNT) with a variety of serotypes and strains.

Supporting activities related to field trials for the evaluation of vaccine quality and immune responses in vaccinated animals.
Testing of a total of 2967 sera, received from Lebanon and Libya and tested as follows:

- ✓ SP-ELISA: Titration (four dilutions, 1/10 three fold dilutions) of sera, to detect the Ab against SP ELISA to show the level of antibodies elicited by vaccination or infection
- ✓ NSP ELISA: DIVA test to differentiate infected animals from vaccinated/naive animals

Country	Purpose testing	NSP ELISA	SP ELISA FMDV type (end-point titration)				
			O	A	Asia 1	SAT 2	SAT 1
Lebanon	Serosurvey	1944	1944	1944	1944	//	//
	PVM	636	636	636	636	//	//
Libya	Immunogenicity study	387	387	387	//	387	387

Immunogenicity study in Jordan: A longitudinal cohort study was conducted to gain more understanding and to assess the efficacy of the used vaccine including the strains O Campos, A24 Cruz, A Arg 2001 and C 3 Ind in the introduction of herd immunity and protection from FMD circulating strain in the country.
According to FAO/WOAH guidelines, the approach was to select a cohort of animals which have been vaccinated and monitored over time (0 DPV, 14 DPV, 28 DPV, 56 DPV, 150 DPV, 180 DPV).
A total of 636 sera have been collected and tested as following described:

- ✓ SP-ELISA type O and A: Titration (four dilutions, 1/10 three fold dilutions) of sera, to detect the Ab against SP ELISA to evaluate the level of antibodies elicited by vaccination. The sera were analysed also for the detection of SP antibodies against FMDV SAT 2.
- ✓ NSP ELISA: DIVA to exclude the presence of virus circulation during the study
- ✓ VNT for detection of neutralizing antibodies against two different type O strains namely one homologous to the vaccine and one to the circulating strain).
  Due to the limited voulume of sera available VNT test were performed only against strains type O.

N. sera tested	NSP ELISA	SP ELISA FMDV type (end-point titration)			VNT (end-point titration)	
		O	A	SAT 2	O BFS	O/JOR/2021
636	636	636	636	464	636	636

VIROLOGICAL TESTS (Virus Isolation in BHK-21, IBRS-2 and LKBK; Ag detection and serotyping ELISA, VP1 sequencing)

Received samples for FMDV diagnosis from Libya (see details in the table).

Country	samples	Date of samples arrival	VI	Ag-ELISA	Pan-FMDV RealTime PCR	VP1 sequence
Libya	13 FTA card	24th March 2023	//	//	13 → 3D	1
	14 clinical lesions (5 pool)	17th May 2023	5	5	5 → 3D 5 → 5'UTR	5

Sequencing analysis followed by a phylogenetic analysis confirmed the circulation of serotype O which belongs to the EA-3 topotype.

The BLAST analysis showed that the most closely related viruses are the O/EGY/21/2017 (OM221225.1) and O/EGY/33/2017 (OM221221.1) with 94.8% identity.

Swine Vesicular Disease

In the framework of the activities of the WOAH Reference Laboratory for SVDV, no samples were received for serological and virological testing.

2. Update on accredited tests (list of tests)

FMD *Diagnostic tests – Indirect tests*	Accreditation status
Competitive ELISA – Structural Proteins (serotypes O, A, C, Asia 1, SAT1, SAT2)	ISO 17025
Virus Neutralization Test (all seven serotypes)	ISO 17025
NSP Ab ELISA (3ABC trapping ELISA)	ISO 17025
FMD *Diagnostic tests – Direct tests*	
Virus Isolation (IB-RS2, BHK21, LFBK)	in process of accreditation
Real-Time RT-PCR-3D gene	ISO 17025
Real-Time RT-PCR-5UTR region	ISO 17025
Ag detection and serotyping ELISA (MAbs based)	ISO 17025
Real-Time RT-PCR topotypes-specific protocol	lab internal
VP1 sequencing	lab internal protocol
Complete genome sequencing	lab internal protocol
SVD *Diagnostic tests – Indirect tests*	
Competitive ELISA (WOAH prescribed test for screening)	ISO 17025
IgG-specific ELISA	lab internal protocol
IgM-specific ELISA	lab internal protocol
Virus Neutralization Test	ISO 17025
SVD *Diagnostic tests – Direct tests*	
Virus Isolation (cell culture)	in process of accreditation
Conventional RT-PCR (3D-fragment)	ISO 17025
Real-time RT-PCR (3D-fragment)	ISO 17025
Sandwich ELISA (mAbs-based) based)	ISO 17025
Sequencing (3D region, IRES, VP1)	lab internal protocol
Complete genome sequencing	lab internal protocol
Capripox *Diagnostic tests – Direct tests*	
Real-time PCR	lab internal protocol
Seneca Valley Virus *Diagnostic tests -Direct test*	
Real-time RT-PCR	lab internal protocol

To ensure the reliability of the results of the diagnostic methods for FMDV and SVDV, listed above, every year the laboratory participates in Proficiency Tests (PT).

Participation in international Proficiency Tests

1. FMD/SVD Proficiency Test 2023, organized by the FMD-EURL, ANSES, France.
   It aimed to evaluate testing laboratory capability for early detection of FMD/SVD outbreaks using virological and serological methods. A total of two panels have been provided: panel 1 included live viruses (seven samples) for FMDV/SVD detection, typing and sequencing (tests applied: VI, Ag detection and serotyping ELISA, rtRT-PCR, VP1 sequencing with phylogenetic analysis); panel 2 consisted of 9 sera samples FMDV/SVDV serological tests (tests applied for FMDV NSP-Ab ELISA, SP-Ab ELISA, VNT, for SVDV 5B7 competitive ELISA, SVDV isotype-specific ELISA for IgG and IgM, VNT).
   Feedback: All reported results are consistent with the expected results
2. FMD Proficiency Testing Scheme 2023, organized by the WRLFMD.
   On 11th October 2023, the Lab received the PT 2023 organised by the Pirbright Insitute. The PT includes two panels focused on an outbreak scenario (Panel 1) and post-surveillance serology (Panel 2). The results of the testing were delivered to the PT provider in December

Organization of National Proficiency Tests

IZSLER organized the following PTs:

1. National Proficiency Tests for FMD addressed to maintain and practice preparedness of 10 regional laboratories to support the NRL in case of FMDV emergency.
   - Samples for serology: panel of 20 blind sera.
     Tests required: ELISA for SP type A Ab (by competitive ELISA IZSLER kit) and NSP ELISA
   - Samples for molecular assay: panel of 3 blind samples.
     Tests: 3D Real-time RT-PCR
2. National Proficiency Test for SVDV serology addressed to monitor the performance of the 5B7-competitive ELISA for SVDV Ab detection performed in 9 regional Laboratories. The panel included 9 blind sera to be tested in 20 replicates each to confirm the declared performance of repeatability and reproducibility.

The deadline for both PTs was 30th October 2023.

3. Production and distribution of diagnostic reagents

Calibrated reagents for the Competitive ELISA for SVDV antibody (WOAH prescribed screening test) were supplied to Rep. Czech and Polonia, in addition to the Italian network of regional laboratories for the conduction of serological testing (for approximately 20,000 sera testing in Italian regional laboratories and approximately 13,000 tests at the national reference lab).
During 2023, IZSLER produced and distributed 7 different typologies of ELISA kits for FMD diagnostic.
The table showing details of kit typology and global distribution is provided below.

Type of reagent		Quantity	Recipient of the reagent (Laboratories / Countries)
FMDV Ag detection ELISA type O, A, C, Asia1, SAT1-2		171	Distributed in 51 countries
	NSP Ab ELISA KIT (3ABC)	69	
SP-Antibody ELISA Kit	FMDV O	169	
	FMDV A	178	
	FMDV Asia 1	106	
	FMDV SAT 1	44	
	FMDV SAT 2	123	
	TOTAL	860	

In 2023 we observed a decrease of 20% of the kits distributed due to the decrease in demand for SPCE for type O, and viceversa the supply of the SPCE for type SAT2 increased compared with last year (123 kits in 2023 vs 43 in 2022) due to the SAT2 emergency occurred in ME at the beginning of 2023.

Supply of Lateral Flow Device (LFD1 e LFD2) for detection and typing of FMDV as support of:

- EuFMD → to be used during the Real Time Training organised in Kenya for international cooperation
  N. 33 LFD1 (typing O, A, Asia 1 and Pan-FMD) and N. 33 tissue extraction kits
- Endemic countries for field diagnosis or validation purposes
  Iraq: N. 27 LFD1 (typing O, A, Asia 1 and Pan-FMD), N. 40 LFD2 (typing SAT 1 and SAT 2, Pan-FMD) and N. 10 tissue extraction kits
  Syria: N. 6 LFD1 (typing O, A, Asia 1 and Pan-FMD), N. 6 LFD2 (typing SAT 1 and SAT 2, Pan-FMD) and N. 10 tissue extraction kits
  Jordan: N. 10 LFD2 (typing SAT 1 and SAT 2, Pan-FMD)
  Jordan: N. 10 LFD2 (typing SAT 1 and SAT 2, Pan-FMD) and N. 10 tissue extraction kits
  Iran: N. 10 LFD2 (typing SAT 1 and SAT 2, Pan-FMD) and N. 10 tissue extraction kits
  Comoros: N. 10 LFD1 (typing O, A, Asia 1 and Pan-FMD) and N. 10 tissue extraction kits
  Uganda: N. 30 LFD1 (typing O, A, Asia 1 and Pan-FMD), N. 30 LFD2 (typing SAT 1 and SAT 2, Pan-FMD) and N. 60 tissue extraction kits
  Pakistan: N. 100 LFD1 (typing O, A, Asia 1 and Pan-FMD)

In the framework of the SEE reagent bank collaborative project with EUFMD, IZSLER provided to 10 Balkans countries the reagents which were used for the proficiency test organized by the EURL. The reagents included a ready-to-use master mix to perform the 3D pan-FMDV real-time RT-PCR, an RNA extraction kit, a positive control for molecular tests consisting of inactivated FMD virus and the IZSLER ELISA kits.

4. Provision of expertise to FAO or FAO member countries (please list countries, type and duration of expertise)

Dr. Grazioli as a member of the "Special Committee on Biorisk Management (SC-BRM)" in 2023 participated in the following meetings :

1. 08th February 2023 (on line h.13.00-14.30) to finalise the revision of the MBRSM to be presented at the 46th General Session scheduled for May 2023.
2. 22nd March 2023. (on line h.14.00-h 17.00).
3. 14th-15th November 2023 - "Special Committee on Biorisk Management (SC-BRM)". HQ FAO Rome. Dr. G. Maccabiani participated as an observer
   Main topics covered at the meetings:
   FMD MBRMS revision,
   SCBRM TORs,
   Matrix of Disinfection Methods,
   Biorisk Training, LFD/FTA inactivation and shipment.

Participation in the Special Committee for Surveillance and Applied Research (SCSAR)
23rd February 2023 (online h.9.00-17.00)

Meeting objective:
Diagnostic capacity to respond to crisis and mechanisms for scaling up resources
Implementation of integrated surveillance in high-risk locations of Member nations and neighbourhood
FAST Applied research results and research networks
Enhanced confidence in risk information and risk monitoring tools.
FAST prioritization according to risk

The activities, started in 2022, to remotely assist and technical support to the colleagues of North West Syria for elaborating and interpreting the results of samples collected in the post-vaccination monitoring for foot-and-mouth disease using the IZSLER kits, were continued in 2023. It is ongoing the drafting of a paper that should be finalized in 2024.

Mission in Jordan carried out the 8th-9th of March 2023 by Dr. Grazioli and Dr. Foglia with the supervision of the WOAH Representative for the Middle East Dr. Ghazi Yehia, following the incursion of the FMDV type SAT 2 in the country.

5. Involvement in FAO project or activity preparation, implementation or assessment (please list project name, country and main activities and attach pertinent documents, if applicable)

The study "Validation of Lateral Flow Devices (LFD) for detection and serotyping of Foot and Mouth Disease Virus (FMDV) and antigenic detection of Lumpy Skin Disease Virus (LSDV)" was selected for funding in the framework of the 10th Call – EuFMD Fund for Applied Research (EuFMD-FAR) – 2022.
Duration of study: 7th October 2022 – 30th September 2023

The concluded study evaluated the performances of the newly developed LFDs, which, thanks to their easiness and portability, could be strategic tools for the detection and control of FMD and LSD, especially in developing countries where the diseases are endemic, and the general lack of expertise and adequately equipped laboratory make difficult to control them.

- The LFDs for the detection and serotyping of FMDV demonstrated good performances, showed to be able to correctly detect and serotype various lineages and strains of virus and confirmed to be comparable to Ag-ELISA in correctly recognising samples positive for serotype O, A and Asia1, giving better results for the detection of FMDV serotypes SATs. Finally, they showed great results in serotyping, comparable to or better than those observed with Ag-ELISA for serotypes O, A and Asia1 but lower for serotypes SATs.
- The LFD for the detection of LSDV showed an overall good performance on skin biopsies from experimentally infected animals while swabs showed not to be the ideal sample to be tested with LFD. No field samples were available for testing.

6. Involvement in other non-FAO technical assistance projects or activity

Continuous remote assistance and advice are regularly provided to various Member countries for elaboration and interpretation of results recorded with the diagnostic kits supplied for FMD diagnosis and serology.

Provision of capacity building activities to personnel of FAO member countries or other countries (please list countries, type/area of capacity building, number of persons etc)

a) Participation of IZSLER staff as trainers

- Training title: Laboratory training on FMD diagnosis
  Organization of residential training addressed to four vets (Two from Jordan and two from Iraq) supported by EuFMD
  Duration: 15-26 May 2023
  Topics covered during the training:
  - Overview of epidemiology and Laboratory Diagnosis of FMD;
  - Concepts for the differentiation between FMDV vaccinated and infected animals;
  - FMDV NSP-ELISAs for anti-NSP Antibody detection: test execution and results interpretation;
  - Detection of Antibodies to FMDV Structural Proteins (SP) by Solid Phase Competitive ELISA (SPCE): test execution and results interpretation;
  - Penside test for FMD diagnosis and Ag detection ELISA: sample preparation, testing and results interpretation;
  - Concepts of Biosecurity for FMD Laboratory;
  - Demonstration of VNT, VNT reading and interpretation;

- Demonstration of FMDV RNA extraction by affinity columns and FMDV pan Real-time RT-PCR based on 3D gene; Execution of FMDV RNA extraction and Real-time RT-PCR;
- Discussion of the results obtained from the Real-time RT-PCR;
- Introduction to FMDV sequencing and phylogenetic analysis

Trainers: FAO Reference Centre Staff

- 17 March 2023: training day as part of the training, two weeks long, organised at IZSLER for veterinary colleagues from the KFVA (Food and Veterinary Office of Kosovo) focusing on the following topics:
  - Laboratory contingency plan
  - Biosafety Level 3+ laboratory management
  - FMD: disease, epidemiology and basic principles for managing an outbreak. The example of the contingency plan according to the Animal Health Law.

  Trainers: Dr. Maccabiani and Dr. Trogu
- 27 September 2023: training day as part of the training, two weeks long, organised at IZSLER "Training on Biorisk management" supported by IAEA and addressed to three vets from the University of Skopie focused on:
  - Minimum Biorisk Management Standards for foot-and-mouth disease laboratories in IZSLER.
    i. Specific management requirements
    ii. Presentation of the Manual for BRM
    iii. Presentation of Laboratory procedures to handle the FMDV suspect samples or FMDV infectious viruses
    iv. Visit of BSL3 Laboratory (Ventilation systems, waste management, etc)

  Trainers: Dr. Maccabiani and Ing. Greco

b) Participation of IZSLER staff at courses/training/workshops as trainees

Title of the training: The impact of the Nagoya Protocol on vaccine security for Foot-and-Mouth Disease research and development: options for a solution
Provider: EuFMD
Location: online h.13.00-h. 16.00

Title of the training: "Preparing to use emergency vaccination for fast animal diseases in european countries". The aim is to provide the tools to evaluate the use of vaccination in an emergency. Foot-and-mouth disease was used as a model, but the principles are applicable to any FAST disease.
Location: online
Participant: Dr. Trogu

Title of the training: Real-Time Training, Nakuru (Kenya).
Provider: EuFMD
Location: February Nakuru (Kenya)
Participant: Dr. Trogu

Title of the training: GF-TADs meeting organizzato da FAO/WOAH (hybrid event). PPR Blueprint Consultation and FMD Roadmap meeting for Economic Cooperation Organisation (ECO)/West Eurasia countries
Provider: FAO/WOAH
Location: 25th – 27th April 2023
Participant: Dr. Grazioli (only sections focused on FMD) .

Title of the training: Introduction to the FMD Minimum Biorisk Management Standards
Provider: EuFMD
Participants: Dr. Maccabiani e Dott.ssa Trogu.

21 November 2023: residential course addressed to IZSLER staff authorised to enter into Tierd D Lab, based on open-access course released by EuFMD, Introduction to the FMD Minimum Biorisk Management Standards

Title of the course: Simulation Exercises for Animal Disease Emergencies
Provider: EuFMD.
Location: 02nd June 2023
Participant: Dr. Trogu

Title of the course: Webinar "WDA - Africa and Middle East Webinar: The dynamics of Foot-and-Mouth Disease at the wildlife livestock interface by Dr Francois Maree"
Provider: Wildlife Diseases Association.
Location: 21st September 2023
Participant: Dr. Trogu

Title of course: International Veterinary Biosafety Workgroup (IVBW).
Provider: IVBW (agenda at the website https://ivbw.camp9.org/)
Participants: Dr. Grazioli, Dr. Maccabiani, Ing. Greco

7. Participation in international, regional scientific collaborative studies or projects (please mention partners and/or organisation, country, objectives and activities)

IZLSER participated in the research activities described in the Research agreement active until June 2026 between IZSLER and The Pirbright Institute.
Research activities in 2023 were mainly focused on:

- the project programme 'Development of assays for foot-and-mouth disease vaccine quality using VP4 as a marker for intact antigen', due to the great international interest in this topic, promising preliminary results were presented at the GFRA meeting in Uganda in November;
- development of prototype ELISA tests for antibodies and antigen detection based on MAbs, to fill gaps in the FMDV-SAT 3 diagnostic.

The research activities will continue in 2024 and they will also include a study to determine the "protective" cut-off for IZSLER's serological assay kits.

8. Organisation/participation in international, and regional scientific meetings

a) Participation in scientific meetings with an oral contribution

1. Title of event: FAO LFD symposium.
   Duration: 14, 15, 16 March 2023
   The objective of the event was to provide scientists with a platform to present and discuss their most updated findings on a wide range of LSD and LSDV-related topics. In case of an LSD outbreak occurrence, these data would enhance the preparedness of competent national authorities and provide them with science-based, state-of-the-art tools to design and implement effective disease management, control and eradication policies against LSD.
   The meeting covered the following topics:
   Current status and advances in epidemiological knowledge on LSD;
   Combatting LSD in different farming scenarios (transmission pathways and risk monitoring and challenges);
   Vaccines, vaccination strategies, diagnostics.
   Location: - Hybrid event / FAO Headquarters in Rome (Italy)
   Oral presentation: "Development of a pen-side test for the detection of LSDV based on monoclonal antibodies " (Dr. Pezzoni).

2. Title of the event: 17th WOAH/FAO FMD Laboratory Network Meeting.
   Date and location: 10th- 12th October 2023. Winnipeg (Canada).
   Role: WOAH/FAO Lab expert.
   Work presented: Updates from the WOAH/FAO reference lab-IZSLER (Dr. Grazioli S).

b) Participation in scientific meetings without an oral contribution

Participation at the meetings organised by EuFMD at least monthly, for a continuous update on the epidemiological situation regarding the incursion of the FMDV serotype SAT2 in the Middle East. The meetings are organised by Dr. Carsten Poetzsch (EuFMD consultant) and are regularly attended by countries from South East Europe, Iraq, Turkey as well as colleagues from European laboratories as experts in order to support diagnostic activities.

online meetings with colleagues from Syria (Dr. Ayam Abdlkader, Dr. Baiomy Shahin, Dr. Dayub Jaffan) and Dr. Kees Van Maanen to analyse serological results on sera collected for the PVM in North West of Syria.

25th January 2023: 3rd GVA for FAST diseases in Middle East (h 09.00-13.00), Group for Vaccination Advice, Guidance and Consultation (GVA) for Foot-and-mouth And Similar Transboundary (FAST) diseases in the Middle East. Organised by EuFMD
The objectives of the meeting are to:

- provide an update on the Foot-and-mouth and Similar Transboundary animal diseases (FAST) situation in the Middle East (most recent events);
- provide an update on the implementation of the GVA workplan over the last year (achievements, challenges, and recommendations);
- discuss plans/proposals for small-scale or larger scale Post-Vaccination Monitoring (PVM) studies;
- agree on an annual GVA action plan for 2023.

4th-5th May 2023: Participation at 45th General Session of the EuFMD - Green Room at FAO HQ in Rome, Italy

Title of the event: EURL for FMD - 2023 Workshop
Date and location: 24th-25th October 2023. Ghent Belgium
Role: NRL Lab expert
Participation: Dr. Pezzoni

9. Publication and dissemination of information relevant to the work of FAO including the list of scientific publications, internet publishing activities, presentations at international, regional conferences

a) Articles published in peer-reviewed journals

1. Stefano Baselli, Giulia Pezzoni, Marcella Sabino, Santina Grazioli, Janika Wolff, Bernd Hoffmann, Valentin Shtefni, Lorenzo Capucci, Emiliana Brocchi
   Serological ELISA methods based on monoclonal antibodies as diagnostic tools for lumpy skin disease Transboundary and Emerging Diseases Volume 2023, Article ID 8378153, 13 pages https://doi.org/10.1155/2023/8378153.

2. Jacquelyn Horsington, Elke Abbeloos, Labib Bakkali Kassimi, Kingkarn Boonsuya Seeyo, Alejandra V. Capozzo 6, Eunice Chepkwony, Phaedra Eblé, Sabrina Galdo-Novo, Daniel Gizaw, Lizelle Gouverneur, Santina Grazioli, Livio Heath, Pascal Hudelet, Joseph M. K. Hyera, Martin Ilott, Alasdair King, David J. Lefebvre, David Mackay, Samia Metwally, Frank N. Mwiine, Charles K. Nfon, Min-Kyung Park, Edviges Maristela Pituco, Fabrizio Rosso, Francisco Simon, Hussaini G. Ularamu, Paul Vermeij, Wilna Vosloo and Donald P. King Application of the Nagoya Protocol to veterinary pathogens: concerns for the control of foot-and-mouth disease. Frontiers in Veterinary Science November 2023 Volume 10 - 2023 https://doi.org/10.3389/fvets.2023.1271434

3. Simone Cavalera, Eugenio Alladio, Efrem Alessandro Foglia, Santina Grazioli, Barbara Colitti, Sergio Rosati, Chiara Nogarol, Fabio Di Nardo, Thea Serra, Valentina Testa, Claudio Baggiani, Giampietro Maccabiani, Emiliana Brocchi, Laura Anfossi
   Experimental design for the development of a multiplex antigen lateral flow immunoassay detecting the Southern African Territory (SAT) serotypes of foot-and-mouth disease virus. Microchimica Acta (2024)191:9 https://doi.org/10.1007/s00604-023-06090-6

b) International conferences:

Title of event: 2023 Scientific Meeting of the Global Foot and Mouth Disease Research Alliance (GFRA)

Date and location: 8– 10 November, Kampala, Uganda
Work presented:

1. Foglia EA, Maccabiani G, van Maanen C, Tranquillo V, Trogu T, Bennour EM, Hashem M, Osman NA, Khalifeh M, Al Ameer MS, Bintarif MSF, Salah SA, Baiomy S, Ambrosini F, Rosso F, Grazioli S. Post Vaccination Monitoring (PVM) to assess the efficacy of the FMD vaccine used in Jordan.
2. Mioulet V, Baguisi J, Henry E, Bull H, Wood B, McCarron A, King D, Foglia EA, Grazioli S, Bentham A, Mitchell K, Wakeham A. Lateral flow devices for the rapid detection of FMDV.
3. Paton D, Ludi A, King D, Wilsden G, Browning C, Belgrave S, Knowles N, Di Nardo A, Nwankpa N, Chitsungo E, Rahamatou C, Boukary M, Melesse GA, Bodjo SC, Grazioli S, Foglia EA, Brocchi E. Selection and use of a reference antigen panel to assess the regional relevance of foot-and-mouth disease vaccines in East Africa.
4. Foglia EA, Mioulet V, Baguisi J, Bull H, İnel Turgut S, Sangula A, Anfossi L, Nogarol C, Cavalera S, Henry L, Pezzoni G, Rosati S, Bulut A, King D, Brocchi E, Grazioli S. Preliminary validation of multiplex Lateral Flow Devices LFD1 and LFD2 for on-field identification and serotyping of Foot-and-Mouth Disease viruses.

c) National conferences:

Title of event: XXII National Congress organised by Sidilv – Italian Society of Veterinary laboratory diagnostic
Date and location: 11-13 September 2023, Brescia Italy
Work presented:

1. Diagnostica point-of-care: valutazione di un metodo veloce ed economico basato su dipstick per la purificazione di RNA virale di afta epizootica. Anna Castelli, Elena Facchini, Manuel Corsa, Roberto Benevenia, Giampietro Maccabiani, Santina Grazioli, Divine Ekwem, Tiziana Lembo, Giulia Pezzoni.
2. Messa a punto di una reazione isotermica RT-RPA (Reverse Transcription - Recombinase Polymerase Amplification) per la rilevazione in campo del virus dell'afta epizootica. E. Filippini, G. Pezzoni, E.A. Foglia
3. Recupero del virus integro dell'afta epizootica e del suo genoma da test rapidi di campo di tipo Lateral Flow Devices (LFD). E. A. Foglia, E. Filippini, G. Pezzoni, S. Grazioli

10. Any major change in staff or institution, including governmental institution(s), during the reporting period

In March 2023 Dr. G. Maccabiani took over the role of D-BRO for the IZSLER high containment facility.

From 11th April – 11th October 2023 Dr. Tiziana Trogu, veterinarian at the NRL Centre in Brescia, participated in a Short Term Placement at the EuFMD in Rome as ' FMD laboratory and epidemiological surveillance expert'.
Countries from North Africa, the Near Middle East and the South-West Asian belt are of strategic importance to prevent FMDV from entering Europe. Increasing their level of knowledge and preparedness for foot-and-mouth disease is crucial. For this purpose, several activities were conducted: the procurement and shipment of reagents for serological and molecular diagnosis; studies to monitor vaccine efficacy and immunogenicity studies to assess the immune response; support of the SAT2 emergency in Turkey, Jordan and Iraq; organization of laboratory training for Jordan and Iraq to implement laboratory capacities; collection of data on outbreaks in the FAST report.
As can be deduced from the main activities listed, the experience of short-term participation has been fruitful for IZSLER in strengthening its relations with the European Commission and in forging new ones with countries that are difficult to contact, opening up the possibility of new collaborations.

11. Other activities indicated in areas of collaboration

INTERNATIONAL COOPERATION AGREEMENT

Amendment FAO:
28th July 2023: Signature of the Amendment to Letter of Agreement (LoA) active between FAO and IZSLER from October 2022.
The Services detailed in the Amendment include Immunogenicity studies and diagnostic support for SEEN and ME countries; delivery of two residential training, support and provision of diagnostic kits and reagents for the SAT 2 emergency in ME. (IZSLER document: Decreto N. 263/2023).

Signature of:
N. 2 Material Transfer Agreement (MTA) for sharing Mabs against FMDV with ANSES, Maisons-Alfons France (IZSLER document: N. 23773 of 09/11/2023) and with The Pirbright Institute (IZSLER document: 20134 of 08/09/2023)
N. 2 Material Transfer Agreement (MTA) for sharing diagnostic reagents for Lumpy Skin Disease detection and control with Friedrich-Loeffler-Institut (FLI) (IZSLER document: N. 23774 of 09/11/2022) and Sciensano – Belgium (N. 8489 of 07/04/2023)

Reporting: Dr. Santina Grazioli & Dr. Giulia Pezzoni

Documento prodotto in originale informatico firmato digitalmente ai sensi del "Codice dell'Amministrazione Digitale" D.Lgs. 82/2005 e s.m.i.