

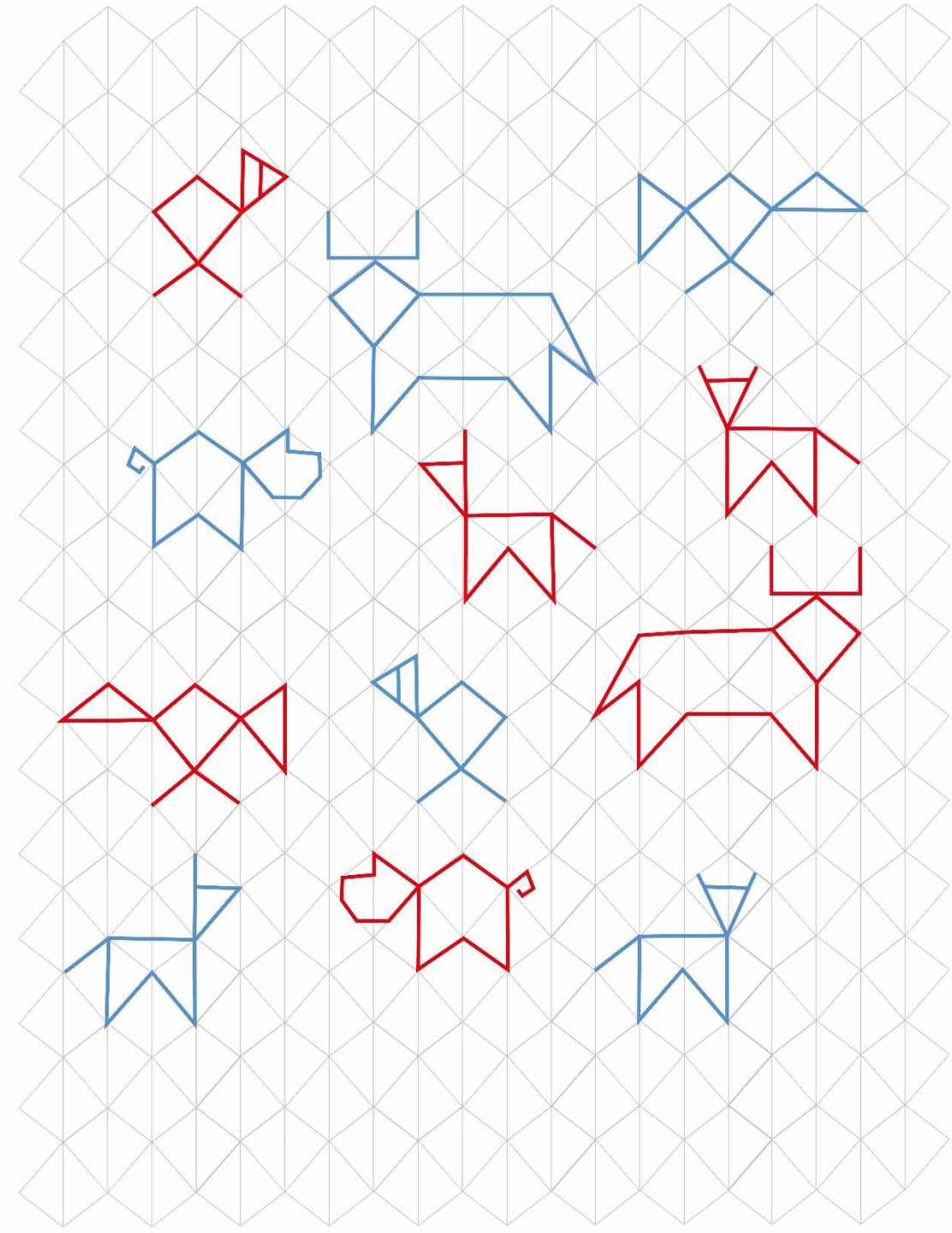
REGIONAL LABORATORY NETWORK (WELNET FMD) WORKPLAN 2023-2025 -Past and Future Activities-

Abdulnaci BULUT

Leader of WELNET FMD

Virologist/FMD Specialist

The ŞAP Institute, Ankara, Türkiye



Laboratory Network for West Eurasia: WELNET FMD



Scope

It was recommended to establish a laboratory network under the West Eurasia Roadmap Organization in the 1st Regional Roadmap Workshop held on Shiraz, Iran in 2008.

Main Objective

Promote better communication, improvement early detection, diagnostic capacity and performance of laboratories and also implementing a system for proficiency testing

• TERMS OF REFERENCE (TOR) of the WELNET FMD

1. Produces diagnostic reagents, SOPs and protocols
2. Provides training to national laboratories using train the trainers approach
3. Coordinates proficiency testing for the region (limited to screening tests)
4. Receives and processes samples for diagnostics from countries of the region_ **CREATING EARLY WARNING SYSTEM**
5. Ships samples to FAO/OIE reference centers for full characterization
6. Ensures and assist in regional procurement of essential diagnostic reagents for emergency release
7. Participates in regional laboratory network activities (potential leader)
8. Links with the regional epidemiology network

PAST ACTIVITIES ACHIEVED IN 2023-2024



SEROTYPE SAT2 OF FMDV DETECTION IN IRAQ

- 20 FMDV suspected samples were submitted to The ŞAP Institute under the Sample Submission Protocol for WE
 - Samples received on 26th January 2023
 - Serotype SAT2 was detected on 28th January
 - Genetical analysis done for some viruses
 - Based on genetic analysing, virus was found close to SAT2 Topotype XIV, circulated in Ethiopia in 2022
 - Those geotyping data was shared with WRL FMD
 - Antigenically found match with Eritrea 98 vaccine strain, although genetically distinct by 13%
 - A report was submitted to Iraq VS and also notified relevant institutionals
 - After detection of SAT2 virus incursion, a set of virüs samples were shared with WRL FMD for comparison of results by The ŞAP Institute
 - To evaluate immunity by new SAT2 vaccine and vaccine with Eritresa strain, some PV sera samples also were shared with WRL FMD

Report on FMDV SAT2 in Iraq in 2022, 2023
Batch: WRLMEG/2023/00006



Most Closely Related Sequences

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_52471	S41/Nineveh/Iraq/2023	cattle	100.0	0	SAT2	XIV		
viba_52459	S26/Baghdad/Iraq/2022	water buffalo	99.8	0	SAT2	XIV		
viba_52405	JOR/2023	cattle	99.4	0	SAT2	XIV		
viba_52463	S25/Baghdad/Iraq/2022	water buffalo	99.2	0	SAT2	XIV		
viba_51516	ETH/2/2022	bovine	98.8	0	SAT2	XIV		
viba_51520	ETH/3/2022	bovine	98.6	0	SAT2	XIV		
viba_3530	ETH/1/91	cattle	83.9	0	SAT2	XIV		
viba_3537	ETH/5/91	cattle	83.9	0	SAT2	XIV		
viba_724	ETH/2/91	cattle	83.9	0	SAT2	XIV		
viba_3533	ETH/2/91	cattle	83.9	0	SAT2	XIV		

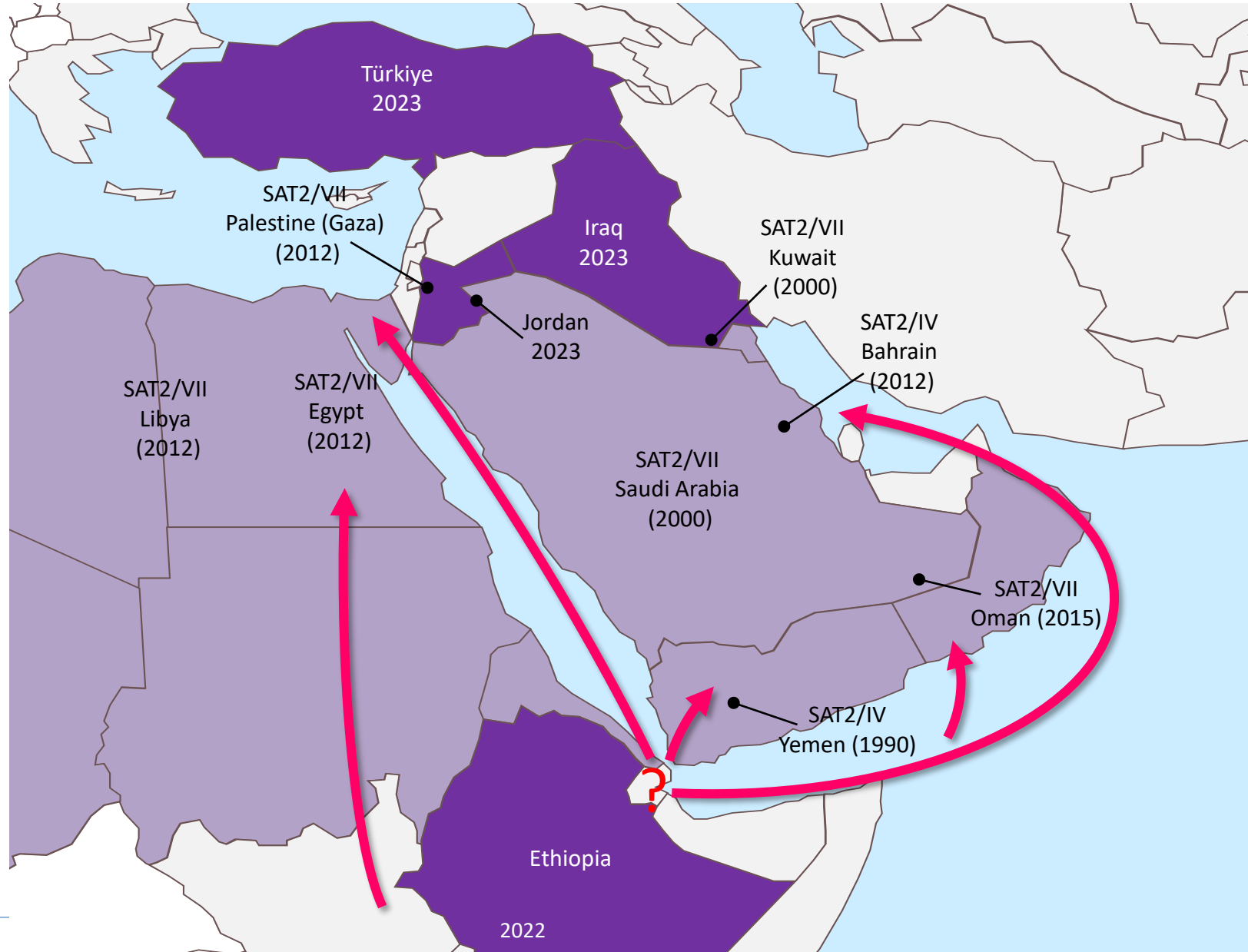
Most Closely Related Prototype Sequences

see <http://www.wrlfmd.org/fmdv-genome/fmdv-prototype-strains>

sequence	virus name	Host	% Id.	# Ambig.	serotype	topotype	lineage	sublineage
viba_724	ETH/2/91	cattle	83.9	0	SAT2	XIV		
viba_139	ETH/2/2007	cattle	75.5	0	SAT2	XIII		
viba_752	SA/1/06/59		75.0	0	SAT2	I		
viba_470	KEN/2/84	bovine	74.6	0	SAT2	IX		
viba_500	NIG/2/75	bovine	74.5	0	SAT2	V		
viba_111	MAL/1/2003	bovine	74.4	0	SAT2	I		
viba_183	ZIM/1/4/2002	bovine	74.2	0	SAT2	I		
viba_451	BOT/P3/98 VUM-29	African buffalo	74.0	1	SAT2	III		
viba_193	SUD/6/77		73.9	0	SAT2	XIII		
viba_750	ETH/1/91	cattle	72.9	0	SAT2	V		

SAT 2 outbreaks in North Africa/Middle East

By Don King



KEY



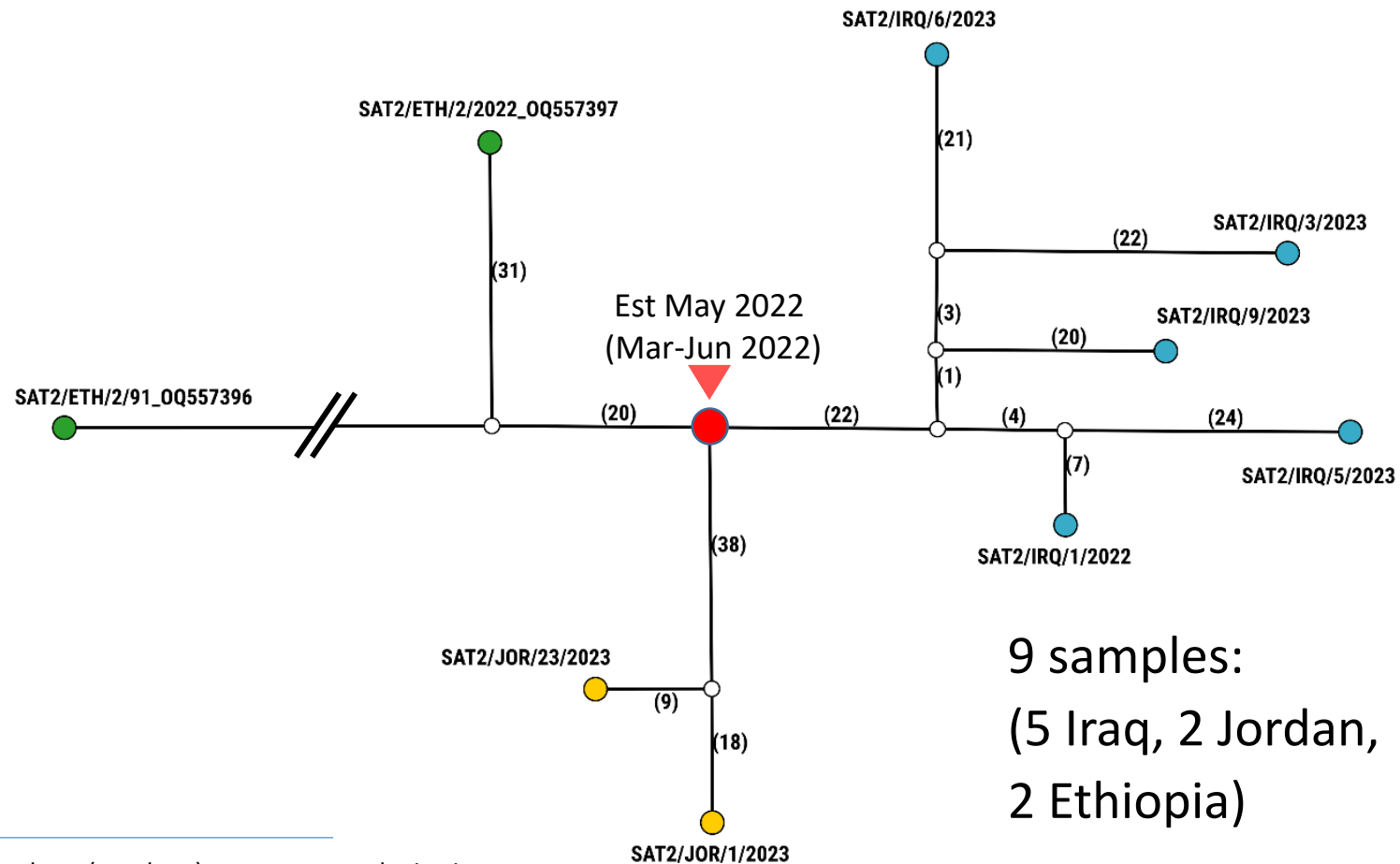
SAT2/XIV



Other SAT2 lineages

SAT2/XIV full genome sequencing

- Jordanian sequences are NOT interleaved with those from Iraq
- Date of IRQ/JOR ancestor (●) estimated by Bayesian analyses
- Missing (unsampled cases) from Iraq, Jordan - or elsewhere?





Quickly changing situation

Some points to consider....

1. SAT2/XIV is spreading in naïve animals without any immunity conferred by previous infection/vaccination
2. Reports of mortality associated with SAT2/XIV infection (or secondary infection) and corresponding disease severity particularly in large ruminants (cattle/buffalo) – similar to reports in Egypt in 2012 associated with SAT2/VII outbreaks?
3. Source (and timing) of the virus in the region is currently still being investigated as well as the risk pathways by which SAT2/XIV has been introduced into the region
4. Transmission pathways within affected countries (and within region) are not well understood
5. There is uncertainty about the status of neighbouring countries in the region (wrt SAT2/XIV)



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SAT2/XIV: control via vaccination?

- SAT2 vaccines are not widely used to control FMD outbreaks in the region (except Türkiye)
- Quick and cost-effective laboratory assessment of the antigenic relationship between **field** and **vaccine** viruses

Isolate	SAT2 Eritrea 98 (BI)		SAT2 ZIM 7/83 (BI)	
	neut	r ₁ value	neut	r ₁ value
SAT2/ETH/2/2022	1.62	0.81	2.17	0.54
SAT2/ETH/3/2022	1.66	0.49	1.70	0.15
SAT2/IRQ/2/2022	1.75	0.73	2.04	0.38
SAT2/IRQ/5/2023	1.61	0.53	2.33	0.74
SAT2/IRQ/9/2023	1.51	0.42	1.95	0.31
SAT2/JOR/11/2023	1.69	0.58	1.74	0.20
SAT2/JOR/20/2023	1.85	0.83	1.81	0.24
SAT2/JOR/26/2023	1.86	0.66	1.94	0.32

- Serum samples representative of other vaccines will be tested in VNT using SAT2/XIV viruses
- ***NB: Although vaccine matching test results Show that local isolates were matched with Eritrea 98, field data Show that very poor immunity by heterologous vaccine strain even if high potency vaccine used***

By Don King

PAST ACTIVITIES ACHIEVED IN 2023-2024 (2)



2. ONLINE LABORATORY COORDINATION MEETINGS

- *Series meeting with Iraq, Iran, Pakistan and Türkiye leading by FAO and EuFMD after SAT2 detection in 2023*
 - *Review progress epidemics situation due to SAT2 as well as other serotypes*
 - *Sharing information*
 - *Organizing delivered diagnostic kits for SAT2 from diagnostic bank of EuFMD*
 - *Ag and AB detection ELISA_Iraq, Iran and Türkiye*
 - *PCR reagents and primers_Iraq and Iran*

3. COLLABORATIVE QUATRIPARTITE MEETING BY TÜRKİYE, IRAQ, IRAN AND PAKISTAN

- *This initiative has been started as bilateral between Türkiye and Iran leading by EuFMD*
- *Iraq and Pakistan also integrated this collaboration later*
- **Objective:** *Sharing information and data routinely and review spread Dynamics for FAST diseases including discuss control plan implemented*
- *Name of WELNET FMD, participated the meetings held six month interval in 2023 and 2024*

PAST ACTIVITIES ACHIEVED IN 2023-2024 (3)



4. PARTICIPATION FOR GROUP OF VACCINE ADVICE FOR FAST DISEASES IN SEEN REGION

- *Two meeting have been conducted for GVA in 2023 and beginning of 2024*
 - *Small Scale Immunogenicity Study (SSIS) Results were discussed*
 - *Future SSIS were planned*
 - *Advice vaccination policy and PVM methodology*
 - *Sharing latest vaccine matching results*

5. PARTICIPATION PROFICIENCY TEST SCHEME

- WRL and ANSES currently have organized PTS regularly.
- Currently EuFMD supports PTS panels for four countries/Türkiye participates ANSES
- Funding can be made available to FAO to cover the cost of preparing the panels and shipping.
- This year teating stage of PTS have already completed and analysing of results has been ongoing.

PAST ACTIVITIES ACHIEVED IN 2023-2024 (3)



6. PARTICIPATION FOR WOA/FAO FMD REFERENCE LABORATORY NETWORK ANNUAL MEETING

As Representative of WELNET FMD, it has been participated WOA/FAO FMD Reference Laboratory Network meeting as online on October

- *Laboratory activities data for WE was shared*
- *FAST diseases spread dynamics also submitted*
- *Data for latest vaccine matching was shared*
- *Opportunity to obtaining global and regional base data relating to laboratory diagnosis*

7. PARTICIPATION Statement of Intention Meeting

- *Provide latest surveillance data*
- *Contribute new Sol work plan*
- *Worked on Surveillance Tools for Early Warning System*

8. LECTURES PROVIDING TO PARTICIPANTS FROM WE COUNTRIES

- **Lectured on**
 - **Outbreak Investigation, control strategy, vaccine and vaccination policy, Lab diagnosis of FMD and requirement of zonal free status gaining**
 - **For three Group of Veterinarians from Kirgizstan, Ozbekhistan and Pakistan**

FUTURE WORKPLAN FOR 2024 and 2025



Based on TERMS of REFERENCE for WELNET FMD

1. Diagnostic reagents, SOPs and protocols and Provides training to national laboratories using *train the trainers approach*

- The ŞAP Institute is ready to provide all kind of laboratory diagnosis training as charge of free
- Help on providing some antisera and antigen for diagnosis methods

2. *Receives and processes samples for diagnostics from countries of the region_ **CREATING EARLY WARNING SYSTEM***

- Through the protocol, The Şap Institute proposes sample submission from MS in favour of early detection
 - At least two times a year a set of FMD samples from suspected
 - Samples can be delivered from BIP from cross border countries
 - Provide serotyping and genotyping results in a week and couple weeks respectively
 - Some of samples also tested for vaccine matching
 - Provide a final report

FUTURE WORKPLAN FOR 2024 and 2025 (2)

3. Ensures and assist in regional procurement of essential diagnostic reagents for emergency release

In case of emergency situation, delivering of diagnostic kits or reagents will be organized like last year for SAT2

- EuFMD or FAO diagnostic bank will be used depend on the condition
- Based on availability, The Şap Institute will also provide some ELISA reagents

4. Participates in regional laboratory network activities (potential leader)

Continued following up participation of MS to PTS every year

5. Continued participation to WOA/FAO Reference Laboratory Network Annual meeting

As representative of WELNET FMD, it will be participated the network meeting and preparing required report including submitting questionnaire

6. To contribute early detection trough the vision of WELNETFMD, it will be continued participation of relevant meetings and workshops under the EuFMD workplan

- GVA meeting two times a year
- Quarterpartite collaboration meeting and Sol meeting
- Providing FAST report
- Conduct Online Field Investigation Training Course (FITc) as Turkish language through EuFMD elearning platform
 - 7th Edition FITc will be conducted date between 15th Nov and 2st Dec in this year
 - Not identified date for next year yet

- A Outbreak Investigation and Epidemiology Training for Participants from Iraq will be conducted this year

Developing Protocol on Sample Submission

- A protocol on the FMD Sample Submission was developed by ŞAP Institute and EuFMD
- **Objective:**
 - a. Description of FMD samples to be submitted
 - b. Procedures for Sample preparation and packaging
 - c. Procedures for transportation of the sample
 - d. Definition of diagnostic methods to be performed for submitted samples
 - e. Manner and timeline of the reporting
- **Benefit and advantage for the member countries in WE**
- Practical solutions to overcome the difficulties of IATA rules Built up diagnosis capacities in the collaborated countries,
 1. Enhance opportunity of sharing information in favour of detection of the risk,
 2. Creating an early warning mechanism by diagnosis the sample in real time concept
 3. Obtain valuable information and data for identifying of suitable vaccine to use in the region
 4. Launched system will be maintained developing and improving of the national control strategy in favour of eradication of the disease
 7. Reduce the risk to Europe from Neighbourhood of West Eurasia



Benefits to collaborative partners
Aims
Description of FMD samples to be submitted
Procedures for sample preparation and packaging
Procedures for transportation of the sample

Definition of diagnostic methods to be performed for submitted samples
Manner and timeline of testing and the reporting
Budget to be needed



Food and Agriculture
Organization of the
United Nations



World Organisation
for Animal Health
Founded as OIE



Thank you very much for your attention!

• ***Acknowledges***

- ***The Şap Institute***
- ***General Directorate for Food and Control (GDFC)***
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- ***Etlik Central Veterinary Research Institute***

