Identification of risk hotspots for improved surveillance on vector-borne diseases

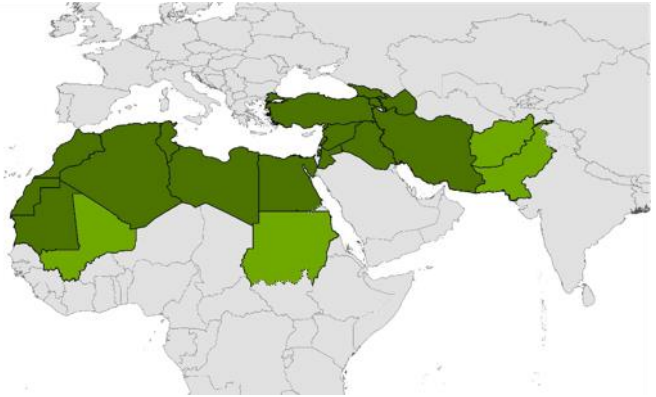
Nick Lyons (on behalf of the Pillar II team)

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

EuFMD and the European Neighbourhood

Pillar II of the EuFMD workplan (2019-2023)

- Reduced risk to Members from the European neighbourhood: Progressive Control in neighbouring regions
- **F**oot-and-mouth Disease **A**nd **S**imilar **T**ransboundary animal diseases (“FAST”)
    - FMD, LSD, RVF, SGP, BEF, PPR

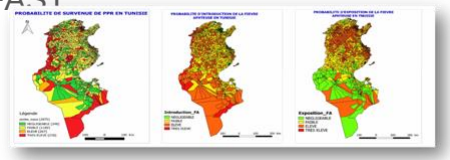


Risk mapping for improved FAST surveillance and early detection

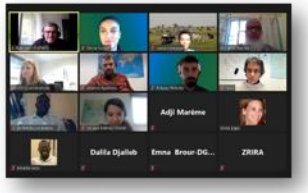
Objectives:

Improve the capacity of national VS in risk analysis and mapping, and their ability to design risk-based surveillance and control plans FAST diseases.

- Collaboration with CIRAD (partnership with EuFMD since 2017) who developed the **Spatial Qualitative Risk Analysis** methodology
- **Learning objectives**
  - Advanced skills and knowledge on GIS (data and spatial queries) applied to Spatial Qualitative Risk Analysis
  - Advanced skills in relevant tools and software (R software for social network analysis, mapMCDA tool, Lizmap tool)
  - Ability to adapt conventional surveillance according to the elaborated risk maps
  - Implement new skills to estimate the risk of introduction and risk of spread for a selected FAST disease
- **Expected outcomes**
  - Regularly updated national maps on risk of introduction & spread for a prioritised FAST disease



Risk mapping for improved FAST surveillance and early detection

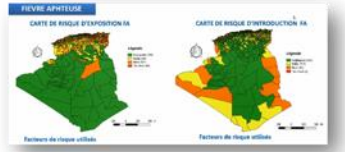


- **Training scheme**
  - **Induction course**: virtual learning over 3 weeks (1-2 hours work per day) using an online “Pedagogical Toolkit”
  - **Virtual workshop**: 6 days over a 2-week period (3-4 hours work per day)
  - Implemented in three Pillar 2 regions: (i) South East European Neighbourhood, (ii) the Middle East and (iii) North, West and Central Africa.
- **Data collection for selected risk factors**

FAST status of neighbouring countries, national & cross-border animal mobility, animal density, accessibility, presence of markets, border posts/check points, relevant environmental features etc.

- **Follow-up**

Regional meetings held quarterly to assess the progress on national roadmaps for risk maps, implementation of animal mobility studies and implementation of risk-based surveillance

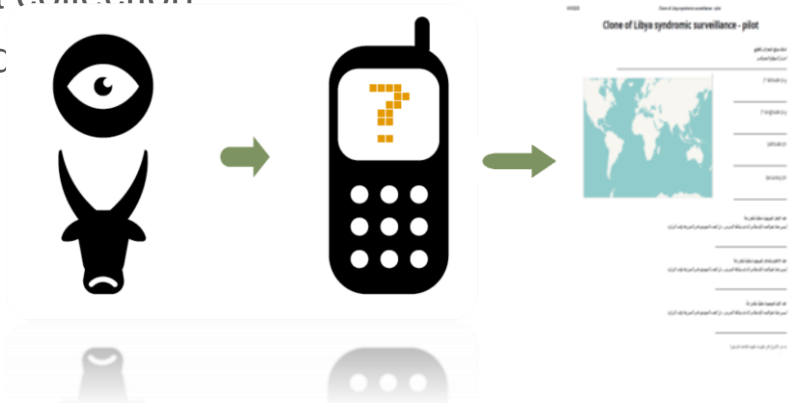


Rift Valley Fever in Libya

Syndromic Surveillance

- Supported the initial stages of a syndromic surveillance system
- Data will be collected using mobile phones and KoboToolbox
- Due to be piloted in 4 locations (Tobruk, Raqdalin, Ubari, and Al Kufrah)
- Field staff have been trained in data collection
- Plans to provide further training on d

KoBoToolbox



Rift Valley Fever in Libya

Serological confirmation of RVF circulation

- Identification of 8 hotspot locations (Tobruk, Al Marj, Ajdabiya, Misrata, Tripoli, Al Zawai, Gharyan and Hamada Al Hamra districts)
- In herds/flocks with reported abortions, serum samples taken to assess presence of RVF antibodies
- Sample collection ongoing (164 collected so far along border of Tunisia)

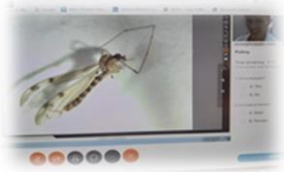
Entomological surveillance in Libya

Objectives:

- Strengthen surveillance, diagnostic and response capacities of veterinary services for RVF;
- Inform identification of hotspots areas (risk factors: suitable areas for vector, seasonal vector abundance, animal movements, etc) for RVF.

Online training course in collaboration with IZSAM and EFRAN

Covered collection methods and trapping systems for mosquitoes; management of entomological samples; identification of vectors; pool sorting and analysis for virus detection

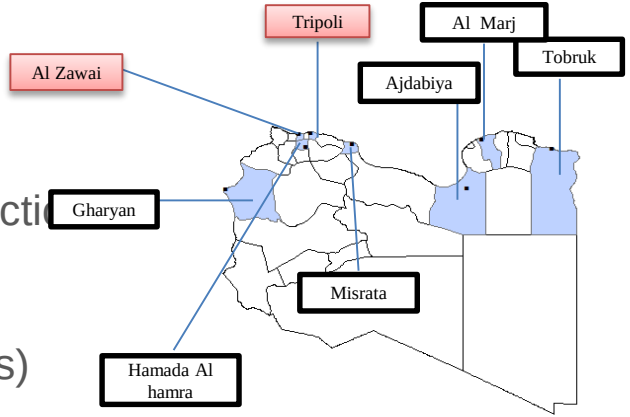


Four participants from NCAH, NCDC, Omar Al-Mukhtar University (OMU) and the University of Tripoli (UOT).

Outcome:

- Implementation of training to help identify risk areas

Entomological surveillance



Implementation

- Phase 1: Two locations identified to initiate mosquito collecti (Tripoli and Al Zawai) from risk locations
- Traps (light and UV) have been set and data collected
- *Culex pipiens* identified (in addition to sad flies and midges)

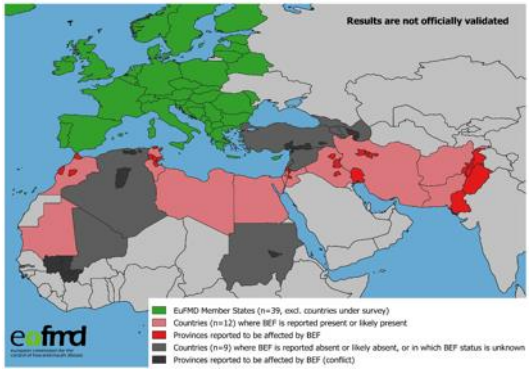
- Still in early stages, but it is hopes that the training model can be applied elsewhere in the region

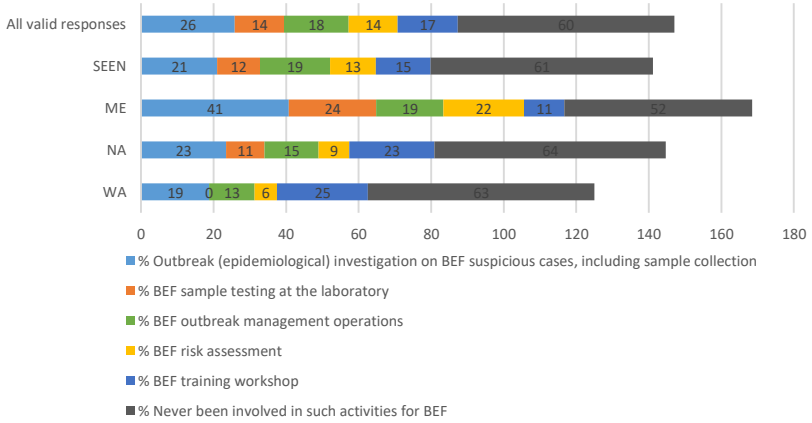
Thanks to Dr Hanan from NCDC

Bovine Ephemeral Fever

Survey

- Many unknowns about BEF in terms of impact and likely under-rated
- Survey in January 2020 for European Neighbourhood countries, among EuFMD's online training community
- Objective: Gain a better understanding of the BEF situation, surveillance, and control in EU neighborhood between 2015 and 2019.
- General conclusions - attention given to BEF was not sufficient in their services – poor knowledge on BEF epidemiology, diagnosis and control - low level of awareness on BEF
- Economic and epidemiological (surveillance) studies needed





Credits

- **EuFMD** colleagues who contribute to the activities of Pillar II (Abdenacer Bakkouri, Shahin Baiomy, Carsten Pötzsch, Etienne Chevanne, Fabrizio Rosso, Silvia Epps, Filippo Pedulla, Abdunaser Dayhum, Ibrahim Eldaghayes, Karima Ouali, Bouda Ahmadi, Kees van Maanen, Shankar Yadav, Maria Teresa Scicluna)

- **CIRAD, UMR Astre** (Cécile Squarzoni-Diaw, Andrea Apolloni, Elena Arsevska, Facundo Munoz, Sylvain Falala, Francesca Fagandini-Ruiz)

- **IZSAM** (Paolo Calistri, Annamaria Conte, Gian Mario Cosseddu, Silvio Gerardo d'Alessio, Matteo De Ascentis, Francesca Di Nicola, Maria Goffredo, Federica Monaco, Michela Quaglia, Massimo Scacchia, Adriana Santilli, Chiara Albanello and Barbara Alessandrini)

OS20 / FASTER

December 8, 10, 15, 17

Conclusion February 2021

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Thank you !

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

FAST Foot-and-mouth And Similar Transboundary animal diseases

Hold-FAST Strategy plan