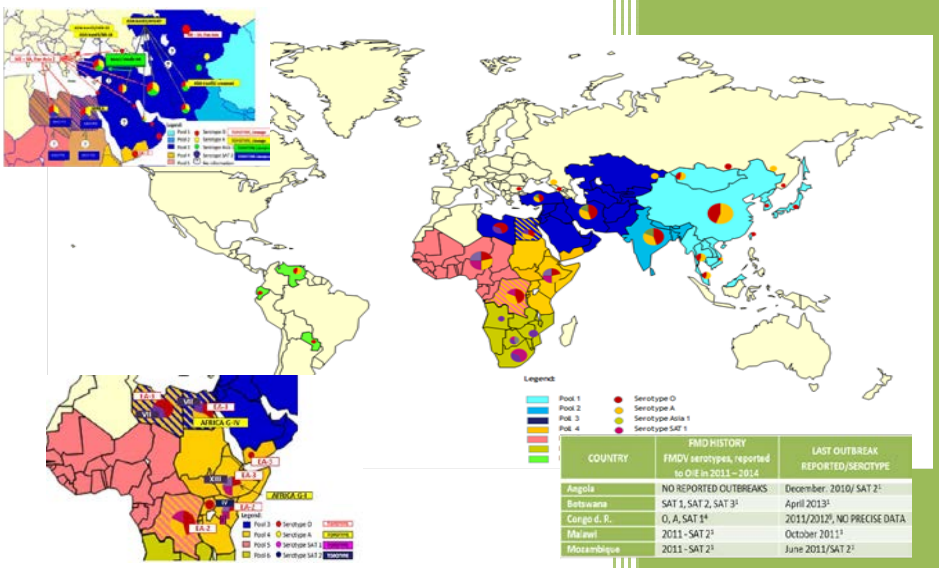
# 2014

# Foot-and-Mouth Disease Situation
# Monthly Report – JUNE 2014




| COUNTRY | FMD HISTORY FMDV serotypes, reported to O.I.E in 2011 – 2014 | LAST OUTBREAK REPORTED/SEROTYPE |
|---|---|---|
| Angola | NO REPORTED OUTBREAKS | December. 2010/ SAT 2[1] |
| Botswana | SAT 1, SAT 2, SAT 3[1] | April 2013[1] |
| Congo d. R. | O, A, SAT 1[4] | 2011/2012[9], NO PRECISE DATA |
| Malawi | 2011 - SAT 2[3] | October 2011[1] |
| Mozambique | 2011 - SAT 2[3] | June 2011/SAT 2[1] |

EuFMD

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

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

## June 2014

**Guest editor: Soren Alexandersen, Executive Director, National Centres for Animal Disease, Winnipeg-Manitoba and Lethbridge-Alberta, Canada**

**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.***

## Contents

I. GENERAL OVERVIEW ..... 4

II. HEADLINE NEWS ..... 5

III. DETAILED POOL ANALYSIS ..... 7

A. POOL 1 – Central /East Asia ..... 7

B. POOL 2 – South Asia ..... 10

C. POOL 3 – West Eurasia & Middle East ..... 11

D. POOL 4 – Eastern Africa ..... 16

E. POOL 5 – West / Central Africa ..... 18

F. POOL 6 – SOUTHERN AFRICA ..... 21

G. POOL 7 – South America[r] ..... 22

V. REFERENCES - Superscripts ..... 23

**Guest Editor's Overview:**

**It is a pleasure and an honor to be the guest editor for this June 2014 report and a great opportunity to comment on current developments and potential areas for further focus, encouragement and, if possible, further international efforts and support. Most of my comments are inserted into the report itself; please take them as an effort to facilitate progress on the global FMD control efforts and not in any shape or form as pointing fingers at anyone. I fully understand that all involved are working hard, doing what can be done and that resources very often are a limiting factor for what may be currently achieved. It is very encouraging to note the significant number of country reports included in the report overall, however, further improvements can be envisioned including full details of what is being done, what is detected and full details about vaccines used etc. as such information are clearly needed in order for the global efforts to be an overall success. World-wide events may influence the success of control efforts, for example unrest in parts of the world may lead to increased movement of people and goods without proper controls and in turn lead to an increased risk of cross-border spread. Similarly, increased travel and global trade combined with intensified and novel farming practices may also lead to increased risk of introduction or re-introduction of new strains followed by further rapid spread. Therefore, continued vigilance is as important as ever. This requires local efforts everywhere, but also a collaborative effort supported by international agencies and major funders.**

**I hope future monthly reports will contain additional details important for the collaborative efforts including all pertinent details of testing done, samples found positive, outbreak descriptions and of vaccines used etc. In turn, such information will improve the collective understanding of the true efforts made, the risks present and what may need to be done to make progress in the overall global control of FMD with a view towards eventual global eradication of FMD in livestock.**

## I. GENERAL OVERVIEW

*Pools represent independently circulating and evolving 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).*

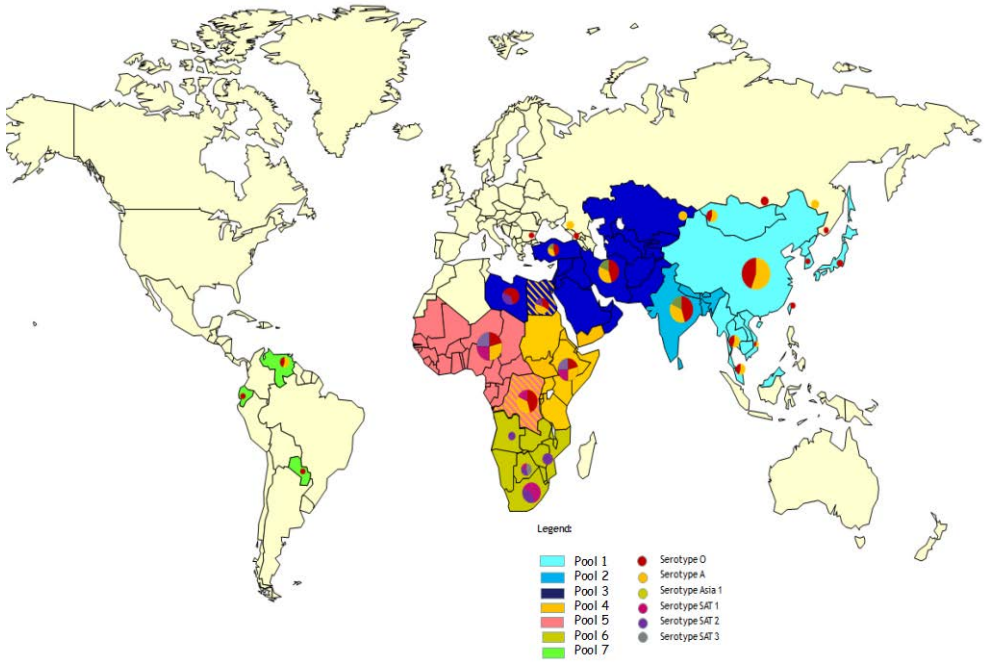
**Table 1:** List of countries representing each virus pool for the period 2010 – 2013

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

**Egypt** and **Libya** (highlighted in bold) are indicated as being in multiple pools, since they have evidence of FMDV originating from 2 or more pools in the past four years. * ONLY IN NORTH ZAMBIA AS SPILL-OVER FROM POOL 4

Guest Editor's Comment:
Paraguay became officially free of FMD with vaccination again in November 2013. Serotype O and A may in the absence of official reports be circulating in Venezuela. If circulating unreported in Ecuador it would potentially only be serotype O.

***Foot-and-mouth disease (FMD) virus pools: world distribution by serotype in 2011-2013*** *(Map 1)*




## II. HEADLINE NEWS

### *POOL 1*

**Cambodia, Myanmar, Malaysia, Thailand and Vietnam [1] – Previous outbreaks of FMDV serotype O in Cambodia, Mynamar, Malaysia and Vietnam and of FMDV serotype A in Thailand are reported as still active for June, 2014.**

**China (People's Rep. of) [2] – A FMDV serotype A outbreak was reported on the 23rd of June, 2014 on a pig farm in Suqian, JIANGSU.**

**Russia [2, 3] – The Regional Reference Laboratory for FMD (ARRIAH, Russia) reported that viruses received by the laboratory were identified as FMDV serotype O, topotype SEA, genetic lineage Mya-98.**
**Further outbreaks of FMDV serotype O were reported on the 28th of May 2014 on two farms in PRIMORSKIY KRAY.**

### *POOL 2*

**India [4] – The Project Directorate on Foot and Mouth Disease, Mukteswar, INDIA reported FMDV serotype O in clinical samples received by the regional laboratory.**

### *POOL 3*

**Egypt [5] – Vaccine matching strain differentiation tests conducted by the World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD), on two field isolates of serotype O from 2014, were confirmed to be matching with O 3039 and O Tur 5/09. Another isolate of serotype A from 2014 did not match with A Eri98, A Iran 2005, A22 Irq and A Tur06.**

Guest Editor's Comment:
From the vaccine matching it appears that the circulating serotype O FMDV is a match to regular PanAsia-2 vaccine while the type A appears to match poorly to regular Iran 2005 and A22 vaccines and that a proper vaccine needs to be carefully selected.

**Pakistan [6] – A description of current activities being carried out in the country is reported.**

**Tunisia [2, 7] - FMDV serotype O outbreaks are still being reported in sheep, goats and cattle in 14 different administrative units of Tunisia.**

**Turkey [8] – Şap Institute, Ankara, reported FMDV serotypes O, A and Asia 1 from samples collected during outbreaks in Anatolia.**

### *POOL 4*

**Ethiopia [5, 9] – The National Veterinary Institute, Debre-zeit sent samples collected between 2012 and 2014, from cattle and pigs, to the WRLFMD for FMDV detection. Vaccine matching strain differentiation tests conducted by the WRLFMD on two strains, isolated in Ethiopia in 2010 have confirmed matching with SAT 2 Eri.**

**Kenya [10] – The National Foot-and-mouth Disease Reference Laboratory, Embakasi detected FMDV serotypes O and SAT 2.**

**Uganda [11] – On May 13th the CVO of Uganda announced that Nakapiripirit and Kotido districts were the initial epicentres for the current FMD outbreaks.**

### *POOL 5*

**Cameroon [12] – LANAVET-Garoua found evidence of FMDV circulation due to presence of antibodies to FMDV NSP detected in serum samples using mainly NSP ELISA.**

**Mali, Mauritania and Senegal [13] – A workshop on the epidemiological surveillance of FMD and strengthening laboratory capacity was held between the 3rd – 4th of June, organised by the FAO Representative in Senegal and ISRA/LNERV hosting the regional laboratory RESOLAB, to which personnel from ANSES, representatives of the National Veterinary Services and Laboratories of Mali, Mauritania and Senegal participated.**

**Nigeria [14] – The National Veterinary Research Institute reported the detection of FMDV serotypes O, SAT 1 and SAT 2.**

### *POOL 6*

**Botswana [2] - A suspected FMD outbreak was reported on the 19th of June 2014 in domestic cattle in the province of NGAMILAND.**

**Zimbabwe [2] – FMDV serotype SAT 1 outbreak in cattle is reported as continuing in MASVINGO.**

### *POOL 7*

**No outbreaks reported**

***COUNTER***

****** 30 MONTHS SINCE THE LAST OUTBREAK IN SOUTH AMERICA WAS REPORTED***

****** 117 MONTHS SINCE THE LAST SEROTYPE C OUTBREAK WAS REPORTED***

Guest Editor's Comment:
The situation in South America is very promising but continued vigilance is encouraged as FMDV may still be circulating at low levels in a few remote areas.
It is nearly 10 years ago that serotype C was officially detected/reported and in the opinion of the guest editor it is time for a collective decision to stop all vaccination against serotype C while maintaining vigilance to detect this serotype early if resurfacing and, importantly, to have antigen stores available in case such outbreaks should occur. Moreover, it is time to start discussing reducing/eliminating stocks of virulent serotype C virus, similar to discussions/efforts around reduction/elimination of rinderpest virus (the first animal virus eradicated world-wide), globally as FMDV serotype C essentially may be considered eradicated or at least within reach of eradication.

## III. DETAILED POOL ANALYSIS

### A. POOL 1 – Central /East Asia

**Cambodia, Myanmar, Malaysia, Thailand and Vietnam** [1] **–** no new outbreaks were reported in May and June, 2014, however those reported previously for FMDV serotype O in Cambodia, Mynamar, Malaysia and Vietnam and for FMDV serotype A in Thailand are still active.

**China (People's Rep. of)** [2]

A FMDV serotype A outbreak was reported on the 23rd of June, 2014, on a pig farm in Suqian, JIANGSU.
Source of the outbreak(s) or origin of infection is unknown or inconclusive. Summary of the animal species and number involved in the outbreak are reported in Table 2 and location of the outbreaks is reported in Map 2
Laboratory tests employing ELISA and virus isolation, are being conducted on the samples collected from the swine by the Lanzhou Veterinary Research Institute (LVRI), OIE's Reference Laboratory.
The following control measures have been adopted; stamping out, quarantine, movement control inside the country, screening, zoning, vaccination in response to the outbreak (s), disinfection of infected premises/establishment(s) and dipping / spraying.

Guest Editor's Comment:
It should be emphasised that reporting of a single outbreak with just 3 cases in the month of June are unlikely to be a reflection of the overall FMD situation in a large country such as China. Mass prophylactic vaccination is carried out at a very large scale with a billion or more doses of FMD vaccine used annually. Reported outbreaks are likely to be representing samples actually forwarded to the National Reference Laboratory rather than those being tested locally. It would be desirable, in a future monthly report if possible, to get an indication/details of ongoing national testing and prevalence/incidence of either positive virus or NSP antibody findings and whether any reported outbreaks are associated with vaccine failures or other special circumstances.

**Table 2**: Details of outbreaks of FMDV type A in June 2014, in Suqian, JIANGSU (WAHID-OIE).

| Species | Susceptible | Cases | Deaths | Destroyed | Slaughtered |
|---|---|---|---|---|---|
| Swine | 9 | 3 | 0 | 9 | 0 |

Map 2. Location (red dot) of FMD type A outbreak during June 2014, in Suqian, JIANGSU (WAHID-OIE).


**Russia** [2, 3]

The Regional Reference Laboratory for FMD (ARRIAH, Russia) has reported that 5 samples received by the laboratory were identified as positive for FMDV serotype O, belonging to topotype SEA, genetic lineage Mya-98. Vaccine matching tests revealed that the identified FMDV matched O1 Manisa, O PanAsia/2012, SEA, but did not match O/Russia/2000 (PanAsia) and PanAsia2 vaccine strains. The Laboratory also tested 1824 sera for post-vaccination monitoring and 372 sera from non-vaccinated animals.

Guest Editor's Comment:
The result of the vaccine matching indicated here is somewhat difficult to interpret as it indicates a match to O Manisa and PanAsia/2012 (supposedly PanAsia-2?) but not to an older PanAsia and a PanAsia-2 vaccine strain?

The Laboratory was also involved in the investigation of FMD outbreaks in the field.
New outbreaks of FMDV serotype O were reported on the 28th of May 2014 on two farms in Spasskoe and Voskresenka, Spassky, PRIMORSKIY KRAYPRIMORSKIY KRAY. Laboratory confirmation was carried out by ARRIAH, on samples collected from swine using antigen detection ELISA, Complement Fixation Test (CFT) and reverse transcriptase polymerase chain reaction (RT-PCR).
A summary of the animal species and number of animals involved for the two farms is reported in Table 3 and location of the outbreaks is presented in Map 3.
Source of the outbreak(s) or origin of infection is unknown or inconclusive. The following control measures are being adopted: quarantine, movement control inside the country, screening, disinfection of infected premises/establishments, no vaccination and no treatment of affected animals. Measures to be applied are vaccination in response to the outbreak (s) and modified stamping out.

**Table 3**: Details of outbreaks of FMDV type O in June 2014 in PRIMORSKIY KRAY (WAHID-OIE).

| Locality | Species | Susceptible | Cases | Deaths | Destroyed | Slaughtered |
|---|---|---|---|---|---|---|
| Voskresenka | Cattle | 10 | 0 | 0 | 0 | 0 |
| | Swine | 8 | 1 | 0 | 0 | 0 |
| Spasskoe | Swine | 42 | 29 | 0 | 0 | 0 |

Map 3. Location (red dot) of FMD type O outbreak during June 2014, in PRIMORSKIY KRAY (WAHID-OIE).

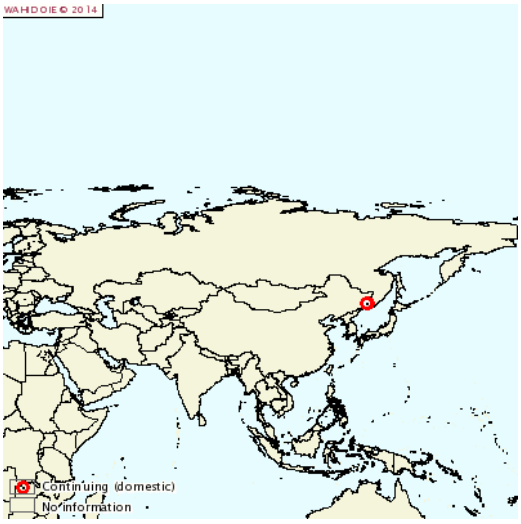


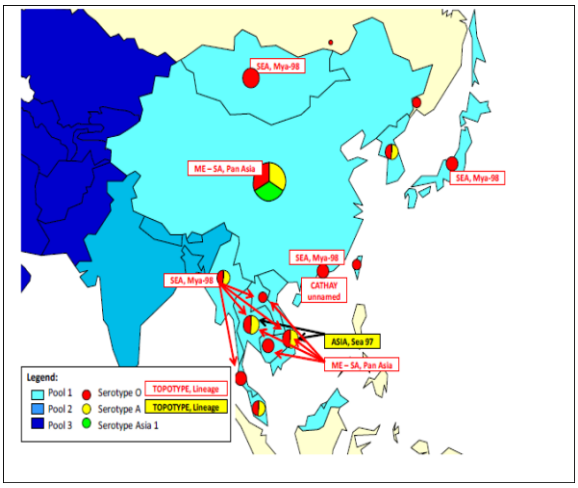

**Table 4:** Summary of the history of FMD Pool 1, 2011 – 2014, for geographic distribution see Map 4 below.

| COUNTRY | FMD HISTORY<br>FMDV serotypes, reported to OIE in 2011 – 2014 | LAST OUTBREAK REPORTED/SEROTYPE | Comment |
|---|---|---|---|
| **Cambodia** | NOT TYPED | Jun 2014/O | Genotyping needed |
| **China (People's Rep. of)** | O, Sep 2013A | Jun 2014/A,<br>Apr2014/O | Genotyping needed (LVRI to comment) |
| **China (Hong Kong, Sar)** | O | Nov 2012/O | |
| **China (Taiwan Province)** | O | June 2013/O | |
| **Japan** | FMD-free without vaccination | Jul 2010/O | |
| **Korea (DPR)** | 2014 – O | Mar 2014/O<br>May 2014/not confirmed | Confirmation required |
| **Korea (Rep. of)** | 2011 – O | Apr 2011/O | |
| **Laos PDR** | O | Mar 2013/O | |
| **Malaysia** | O, A<br>2013 - NOT TYPED | Jan 2013/not typed<br>Jun 2014/O | Genotyping needed |
| **Mongolia** | 2012 – O<br>2013 – A | Sep 2013/A,<br>Apr2014/O | |
| **Myanmar** | 2011 - O | Jun 2014/O | |
| **Russian Federation** | 2011 – 2012, 2014 - O<br>2014 - A | Feb 2014/A<br>June 2014/O | See text. |
| **Thailand** | O, A | Jun 2014 /A, Oct 2012O | |
| **Vietnam** | 2011 - O<br>2012 - A, O<br>2013 - A | Apr 2013/A<br>Jun 2014/O | Genotyping needed |

**Map 4:** FMD distribution by serotype and topotype in South East Asia, 2010 – 2013 (EuFMD).

Conjectured circulating FMD viral lineages in pool 1 during 2013 [17]:

- Serotype O: O/SEA/Mya-98, O/ME-SA/PanAsia, O/CATHAY
- Serotype A: A/ASIA/Sea-97
- Serotype Asia-1 (not detected in the region since 2005 (Myanmar) and 2006 (Vietnam, P.R. China)




Guest Editor's Comment:
It is important to emphasize that the swine adapted O Cathay lineage is still circulating in this pool. For example, FMDV in this lineage was included in the WRLFMD reports for samples from Taiwan in 2012/2013 and from Hong Kong collected in March 2014. This lineage has a significant sequence diversity with an almost 18% difference between current viruses and the first ones from 1970 and about 10% between currently circulating viruses and the one responsible for the devastating epidemic in Taiwan in 1997 (O/TAW/97). Consequently, vigilance in regard to this swine adapted lineage of FMDV is still important and having suitable vaccine antigens ready appear to still be of significant importance and could be a problem if currently circulating viruses are sufficiently antigenically different from traditional vaccine strains currently selected for this lineage for e.g. vaccine banks.
It is encouraging that serotype Asia 1 has not been reported in this region/pool since 2006, the question is whether this is a true reflection of the situation or lack of data/reporting?

### *B. POOL 2 – South Asia*

**India** [4]

The Project Directorate on Foot and Mouth Disease, Mukteswar, India reported the detection of FMDV serotype O antigen in 33 clinical samples received by the reference laboratory. Vaccine matching was performed for 5 field isolates of serotype O. Additionally, a total of 25,184 serum samples from cattle and buffaloes were tested under National FMD serosurveillance programme using diagnostic kits developed at PDFMD, Mukteswar.
During June, the Laboratory was involved in the investigation of FMD outbreaks in the field and provided expert advice to Government services as well as national/local authorities.
Research on FMD is being carried out by Project Directorate on Foot and Mouth Disease that is also involved in collaboration with international Organisations.

**Table 5:** Summary of the history of FMD Pool 2, 2011 – 2014, for geographic distribution see Map 5 below.

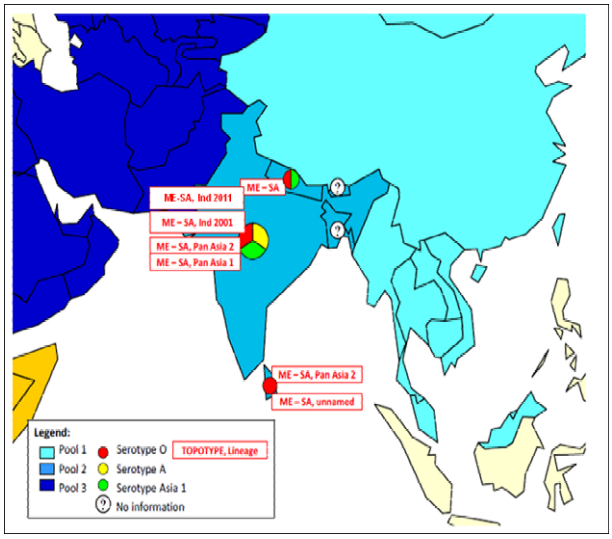
| COUNTRY | FMD HISTORY FMDV serotypes, reported to OIE in 2011 – 2013 | LAST OUTBREAK REPORTED/SEROTYPE | Comment |
|---|---|---|---|
| **Bangladesh** | **2011 - O, A, Asia 1** | **Not available** | **Follow –up needed – national situation unclear** |
| **Bhutan** | **2011, 2012 – O** | **Nov 2012/O** | |
| **India** | **O, A, Asia 1** | **Sep 2013/ Asia 1, Jun 2014/ O,** | **Genotyping needed – current type O samples** |

| | | | |
|---|---|---|---|
| **Nepal** | **O, A, Asia 1** | **Apr 2014/O** | **Genotyping needed** |
| **Sri Lanka** | **O** | **2012/O** | |

**Map 5:** FMD distribution by serotype and topotype in South Asia, 2011 – 2013 (EuFMD).

Conjectured circulating FMDV lineages in pool 2 during 2013 [17]:

- O/ME-SA/Ind-2001 (the O/ME-SA/Ind-2011 lineage that emerged during 2011 has not been recognized during 2012-13)
- O/ME-SA/PanAsia-2 (last detected in 2011 in Sri Lanka)
- A/ASIA/IND (genotype 18)
- Asia-1 (lineage C subdivided into Eastern and Western clusters)




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

**Egypt** [5]

Vaccine matching and strain differentiation testing conducted by the WRLFMD on two strains of serotype O, isolated in 2014 have confirmed matching with O 3039 and O Tur 5/09 but not with O Manisa.
An isolate of 2014 serotype A did not match with A Eri98, A Iran 2005, A22 Irq and A Tur06.

Guest Editor's Comment:
As mentioned earlier in the report, from the vaccine matching it appears that the circulating serotype O FMDV is a match to regular PanAsia-2 vaccine while the type A appears to match poorly to regular Iran 2005 and A22 vaccines and that a proper vaccine needs to be carefully selected.

**Pakistan** [6]

During the month of June, 72 FMD outbreaks were investigated and reported throughout Pakistan. In the context of a Project, free treatment of sick animals (183) and ring vaccination in 1475 animals by the field vets during- FMD outbreaks have been provided, which also has improved reporting of the disease in the country. Landhi Cattle Colony remained the hot spot for FMD in the country where 39 out of the total 72 outbreaks were reported.
Vaccination is carried out at selected farms in different production systems including dairy colony production system, market oriented rural dairy production system, desert farming system and animals being raised in summer pastures. Use of quality FMD vaccine according to the SOPs developed by the Project has provided protection to animals against the disease. This successful demonstration has convinced a large number of farmers to start vaccinating their animals particularly against FMD. During the reporting period, 10227 animals (including 4018 newly arrived animals) were vaccinated in dairy colonies in Karachi, Quetta and Mirpur (AJK). In rural dairy production system, 13185 animals (including 453 new entrants) were vaccinated. According to an Agreement with Karachi Dairy Farmers Association, 1068 animals at 43 farms were ear tagged and vaccinated on cost sharing basis. At Government Livestock Experimental Stations (LEC) in Punjab, 824 animals and in Khyber Pakhtunkhawa, 125

animals were vaccinated. No clinical case of the disease was recorded in vaccinated animals anywhere in the country.
NUST scientists visited NVL Islamabad, Disease Investigation Laboratory (DIL) Muzaffarabad and DIL Quetta. They have installed updates for filtering bio-surveillance results by labs to the bio-surveillance deployed at FAO-PAK and updated the server database according to the new changes.
Backstopping for the proper analysis of samples was provided to all ELISA labs. ELISA kits and other expendables were regularly provided for smooth running of activities at the laboratories
Technical field staff of Wildlife and Parks Department Punjab (24) was trained in the areas of FMD prevention and control, studies for the prevalence of FMD in wildlife were also planned.
In a meeting for the preparation of "National Control Strategy for FMD" held on the 7th of June 2014 at Islamabad, a Consultant from FAO presented a Risk Based Control Plan. Director Generals/ Directors from all provinces including AJK, FATA and Gilgit Baltistan participated. Scientist from PARC, NARC and Animal Husbandry Commissioner (AHC) were also present.
A documentary on control of FMD in Pakistan was launched in collaboration with US Embassy in Islamabad.

Guest Editor's Comment:
It is very encouraging that Pakistan is continuing their significant effort into progress onto the path of FMD control. However, it should be mentioned, that although significant, the efforts will need to be scaled up as more than 100 million buffalo, cattle and small ruminants are present in the country. Thus, organised treatment and vaccination of a few hundreds animals are an encouraging start, but needs to be scaled up many-fold, albeit as mentioned very encouraging and highly supported by this guest editor. More information about e.g. vaccines used as well as quality control on such vaccines would be very useful and further international support should be considered.

**Tunisia** [2, 7]

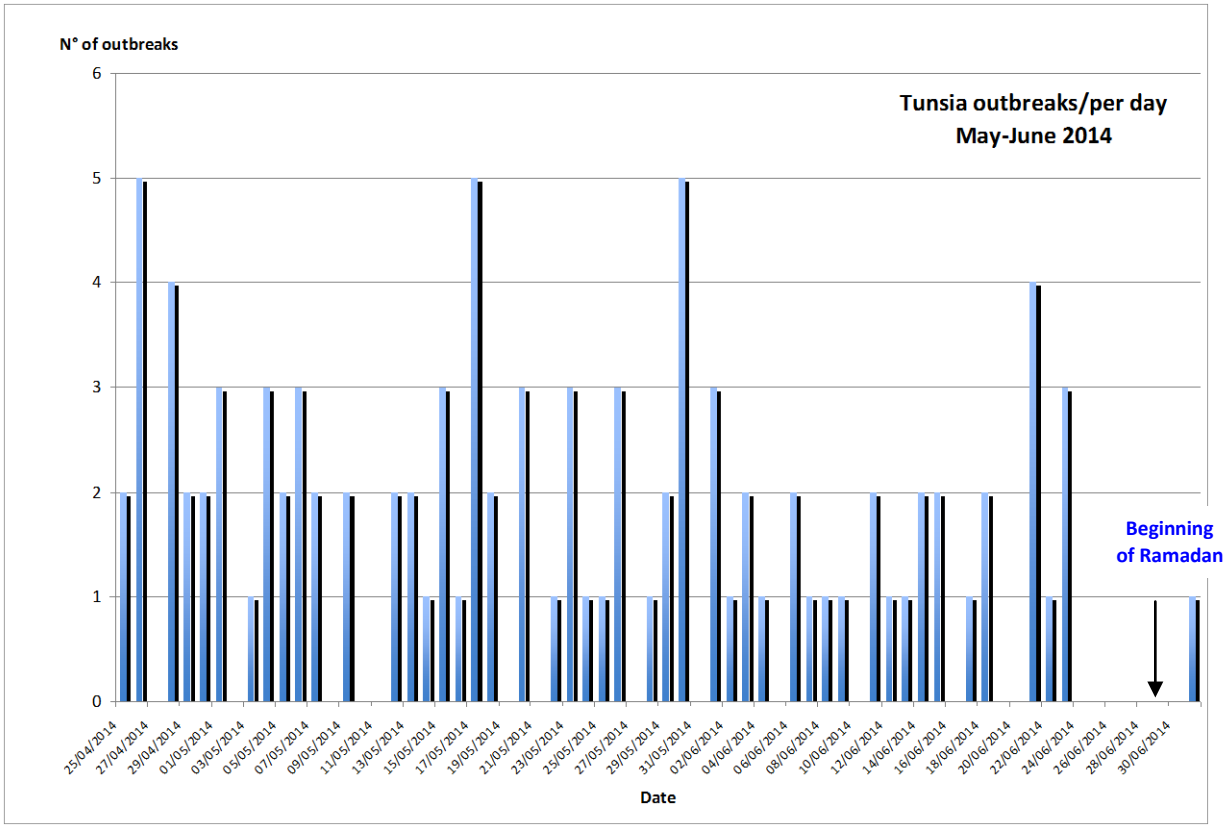
During the month of June, 28 new outbreaks were reported in domestic sheep, goats and cattle, in 14 different administrative units, details of these are presented in Table 6 and location is reported in Map 6. The source of the initial outbreak is reported to have been due to the illegal movement of animals. While the event is continuing; the noticeable sharp drop in reported cases since the start of Ramadan, 27th of June is noteworthy but it is not clear if this might be an artefact of the change in field activities possible in this period. Details of the trend of the outbreaks since the beginning of the episode are reported in Graph 1.
The Veterinary Research Institute, Tunis (National laboratory) carries out diagnosis using a pan FMDV reverse transcriptase Real Time PCR. Positive samples are retested using a PCR specific for O/ME-SA/Ind-2000 lineage. From the five samples forwarded to the Lombardy and Emilia Romagna Experimental Zooprophylactic Institute (IZSLER), Brescia (OIE's Reference Laboratory), VP1 sequencing was performed and the virus identified was confirmed to belong to the O/ME-SA/Ind-2000 lineage with a 99% homology with isolates from Libya 2013 (personal communication by Dr. Emiliana Brocchi – IZSLER).
The following measures are being adopted: quarantine, movement control inside the country, vaccination in response to the outbreak (s), disinfection of infected premises/establishment(s) and modified stamping out.

Guest Editor's Comment:
As mentioned by a previous Editor, the situation in Tunisia is worrying as the infection may risk spreading to other countries in the region including Algeria and Morocco (free of FMD with vaccination) or even Europe.

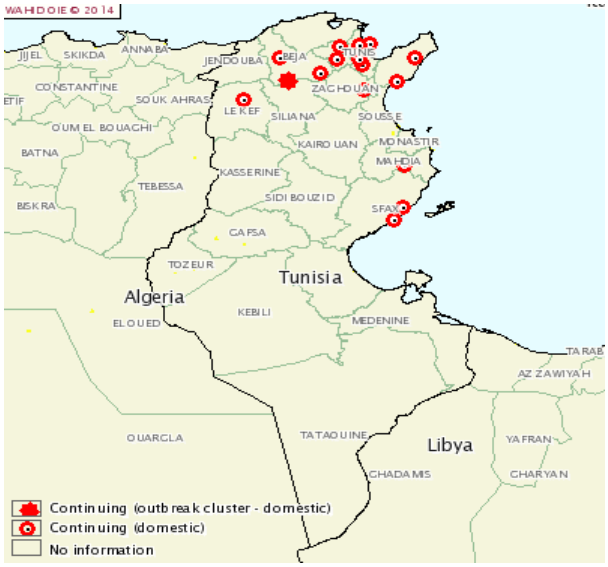
Table 6: Details of outbreaks of FMDV type O in June 2014 in TUNISIA (FAO EMPRES/WAHID-OIE)

| Year | Status | Serotypes | Administrative Unit | Locality Name | Observation Date | Reporting Date | Species Description | N° At Risk | N° Cases | N° Deaths | N° Destroyed | N° Slaughtered |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2014 | Confirmed | O | Zaghouan | El jouf Zriba | 23/06/2014 | 01/07/2014 | cattle | 3 | 3 | NR | NR | NR |
| | | | Ariana | Chotrana 1 Soukra | 22/06/2014 | | | 12 | 1 | NR | NR | NR |
| | | | Beja | Chikh elwedyen Goubellat | | | | 5 | 1 | NR | NR | NR |
| | | | Beja | Chikh elwedyen Goubellat | | | | 8 | 8 | NR | NR | NR |
| | | | Beja | Azra Beja nord | | | | 7 | 3 | NR | NR | NR |
| | | | Beja | El manchar Beja nord | 21/06/2014 | | cattle, sheep, goats | 105 | 13 | NR | NR | NR |
| | | | Tunis | Ghammart La marsa | 18/06/2014 | | | 34 | 1 | NR | NR | NR |
| | | | Ben Arous | Mghira centre Mghira | 17/06/2014 | | cattle, sheep | 9 | 2 | NR | NR | NR |
| | | | Nabeul | Mnaret Hamamet Hammamet | | | goats, sheep | 76 | 11 | NR | NR | NR |
| | | | Le Kef | Zaafran Le Kef est | 15/06/2014 | | cattle, sheep | 83 | 2 | NR | NR | NR |
| | | | Ben Arous | Khelidia Mornag | | | sheep | 55 | 15 | NR | NR | NR |
| | | | Sfax | Thyna | 14/06/2014 | | cattle, sheep | 51 | 5 | NR | NR | NR |
| | | | Sfax | Nakta Mahres | 13/06/2014 | | | 28 | 1 | NR | NR | NR |
| | | | Beja | Rihana Teboursok | 12/06/2014 | | cattle | 65 | 55 | NR | NR | NR |
| | | | Manouba | Jedaida | | | cattle, sheep | 48 | 2 | NR | NR | NR |
| | | | Manouba | Messaidine Borj el Amri | 11/06/2014 | | cattle | 4 | 3 | NR | NR | NR |
| | | | Mahdia | Mchelet El jem | 06/09/2014 | | | 2 | 2 | NR | NR | NR |
| | | | Nabeul | Fartouna El mida | 06/06/2014 | | cattle, sheep | 6 | 1 | NR | NR | NR |
| | | | Le Kef | Menzel salem | 08/06/2014 | 12/06/2014 | cattle, sheep, goats | 198 | 1 | 0 | 0 | 0 |
| | | | Beja | Bouhzam | 07/06/2014 | | | 182 | 1 | 0 | 0 | 0 |
| | | | Beja | Jimla | 06/06/2014 | | cattle, sheep | 101 | 2 | 0 | 0 | 0 |
| | | | Gafsa | Ouled Tlijen | 04/06/2014 | | cattle | 2 | 1 | 0 | 0 | 0 |
| | | | Nabeul | Bir drassen | | | sheep, cattle, goats | 65 | 4 | 0 | 0 | 0 |
| | | | Monastir | Berrohej | 03/06/2014 | | sheep, cattle | 145 | 9 | 0 | 0 | 0 |
| | | | Gafsa | Town Saada | 02/06/2014 | | sheep, goats | 90 | 10 | 0 | 0 | 0 |
| | | | Sidi Bouz | Khwag | | | | 90 | 10 | 0 | 0 | 0 |
| | | | Kasserine | Ain Hamada | | | sheep | 60 | 7 | 0 | 0 | 0 |
| | | | Sfax | Sidi Abid | 01/06/2014 | | sheep, cattle | 65 | 4 | 0 | 0 | 0 |
| | | | | | | | **Total** | **1599** | **178** | **0** | **0** | **0** |

**Graph 1: outbreak trends for Tunisia, May-June, 2014** (FAO EMPRES/WAHID-OIE)



**Map 6**. Location (red dot) of FMD type O outbreaks during June 2014, FMD in Tunisia (WAHID-OIE).




**Turkey** [8]

During June 2014, the Şap Institute tested 21 samples, collected from 18 outbreaks occurring in Anatolia, using Multiplex reverse transcriptase Real Time PCR and Ag detection ELISA. FMDV serotypes were detected as reported in the following table:

| Serotypes | N° of samples |
|---|---|
| O | 10 |
| A | 1 |
| Asia 1 | 2 |
| PCR positive | 2 |
| Unidentified | 2 |
| Negative | 4 |
| Total | 21 |

The same laboratory carried out genotyping on 4 samples. Vaccine matching tests were carried out on 3 samples, 2 for serotype O and 1 for serotype A: the isolates matched respectively with O Tur07 and A Tur11.

Vaccine matching strains used in these tests are as follows:

Serotype O: O Tur07 (O PanAsiaII)

Serotype A: A Tur11 (A Iran05/SIS10)

Serotype Asia1: Asia Tur11 (Asia1/Sindh08).

A total of 1325 sera were tested by different types of antibody detection ELISAs:

- 419: NSP ELISA for Risk-based Thrace Surveillance Program
- 10: NSP for sera from outbreak
- 10 sera for serotyping by SP antibody ELISA
- 118 for vaccine potency trial by SP ELISA
- 768 sera for vaccine monitoring

Other activities carried out by the Institute were represented by outbreak investigations. Furthermore, expert advice has been given to the General Directorate related to the FMD Risk based national Strategy.

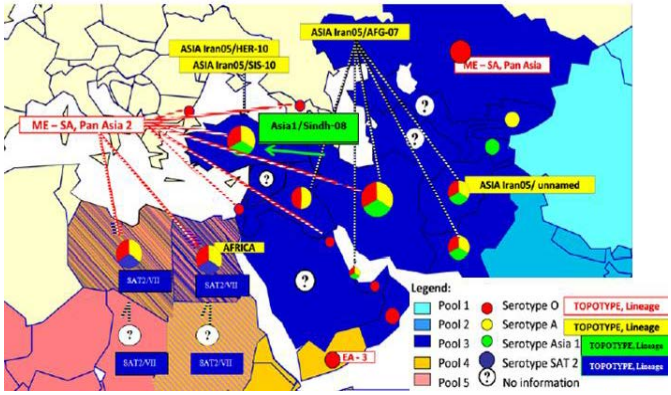
In the framework of Research and Development on vaccine production and monitoring, some research activities are continuing.

Experts have carried out training on Epidemiology and Outbreak Investigation for field vets to increase capacity in the field and were also involved in the Erzurum Real Time Training Course in collaboration with EuFMD.

**Table 7:** Summary of the history of FMD Pool 3, 2011 – 2014, for geographic distribution see Map 7 below.

| COUNTRY | FMD HISTORY FMDV serotypes, reported to OIE in 2011 – 2013 | LAST OUTBREAK REPORTED/SEROTYPE | Comment (Genotyping or vaccine matching tests needed for this pool) |
|---|---|---|---|
| **Afghanistan** | 2011 - O, A, Asia 1 | Dec 2011, Apr/A, O, Asia 1[10] | |
| **Armenia** | NO REPORTED OUTBREAKS | Not available | Follow –up needed – national situation unclear |
| **Azerbaijan** | NO REPORTED OUTBREAKS | Jun 2001 | |
| **Bahrain** | 2011 - O, A, Asia 1<br>2012 - O | Mar 2012/O | |
| **Bulgaria** | 2011 - O | Apr 2011/O | |
| **Egypt** | 2012 - O, A | May 2014/O, A, SAT2 | See text |
| **Georgia** | NO REPORTED OUTBREAKS | 2002 | |
| **Iran** | O, A, Asia 1 | Jun 2013/Asia 1, Apr 2014/O, A | Vaccine matching tests needed |
| **Iraq** | O,A | 2012/A | |
| **Israel** | O | Nov 2013/Mar 2012/O | |
| **Jordan** | NO REPORTED OUTBREAKS | 2006 | |
| **Kazakhstan** | O, A | Jun 2013/ A | |
| **Kuwait** | O | Feb 2012/O | |
| **Kyrgyzstan** | 2011 - O, A | Nov 2011/O, A | |
| **Lebanon** | NO REPORTED OUTBREAKS | 03/2010 | |
| **Libya** | 2011 - O; 2012 - O, SAT 2 | Oct 2013/O | |
| **Oman** | NO DATA AVAILABLE | Dec 2011 | |
| **Pakistan** | O, A, Asia 1 | Apr 2014 / A, O, Asia 1, Jun2014/(not typed) | Genotyping needed |
| **Autonomous Territories Palestine** | 2011 - O, A, Asia 1<br>2012 - SAT 2; 2013 - A | Mar 2013/A<br>Nov 2013/O | |
| **Qatar, 2011** | NO DATA AVAILABLE | Not available | Follow –up needed – national situation unclear |
| **Saudi Arabia** | O | Nov 2013/O | |
| **Syrian Arab Republic, 2011** | NO REPORTED OUTBREAKS | Mar/2002 | |
| **Tajikistan, 2011** | 2011 - Asia 1 | Nov 2011/Asia 1 | |
| **Tunisia** | 2014 | Jun 2014/O | See text – vaccine matching tests needed |
| **Turkey** | Asia 1, A, O | Jun 2014/O, A, Asia 1 | See text |
| **Turkmenistan** | NO DATA AVAILABLE | Not available | Follow –up needed – national situation unclear |
| **Uzbekistan** | NO DATA AVAILABLE | Not available | |

**Map 7:** FMD distribution by serotype and topotype for West Eurasia and Middle East, 2011 – 2013 (EuFMD).




Conjectured circulating FMDV lineages in pool 3 during 2013 [17]:

- O/ME-SA/PanAsia-2 (predominantly from ANT-10 and FAR-09 sub-lineages)
- O/ME-SA/Ind-2001 (recent incursion during 2013 from the Indian sub-continent)
- A/ASIA/Iran-05 (from SIS-12, SIS-10, FAR-11 and BAR-08 sub-lineages)Asia-1 (Sindh-08 lineage).

### *D. POOL 4 – Eastern Africa*

**Ethiopia** [5, 9]

The National Veterinary Institute, Debre-zeit, sent 60 samples collected, from cattle and pigs between 2012 and 2014, to the WRLFMD for FMDV detection and serotyping. A summary of the results is reported in the following table:

| | Serotype Identified | | | |
|---|---|---|---|---|
| | **A** | **Sat 2** | **O** | **FMDV genome detected but not serotyped** |
| **N° of bovine samples** | 2 | 2 | 11 | 0 |
| **N° of swine samples** | 1 | 0 | 21 | 5 |

Vaccine matching and strain differentiation testing conducted by the WRLFMD on two strains, isolated in Ethiopia in 2010 have confirmed matching with Sat2 Eri but not with SAT 2 Zim.

Further to this, the National Animal Health Diagnostic and Investigation Center (NAHDIC) have detected FMDV serotype O in 40 tissue/swab samples using an antigen detection ELISA.

A total of 3829 samples were tested between 2013 and May 2014, while in June 300 samples were processed. The laboratory collaborates with the WRLFMD on referral laboratory special services and proficiency test samples provision.

Advice is regularly provided to the regional veterinary laboratory and also reported to the Center Director.

**Kenya** [10]

The National FMD Reference Laboratory, Embakasi detected FMDV serotype O in 6 samples and SAT 2 in 3 samples .The laboratory has also carried out vaccine potency assays and post vaccination monitoring.

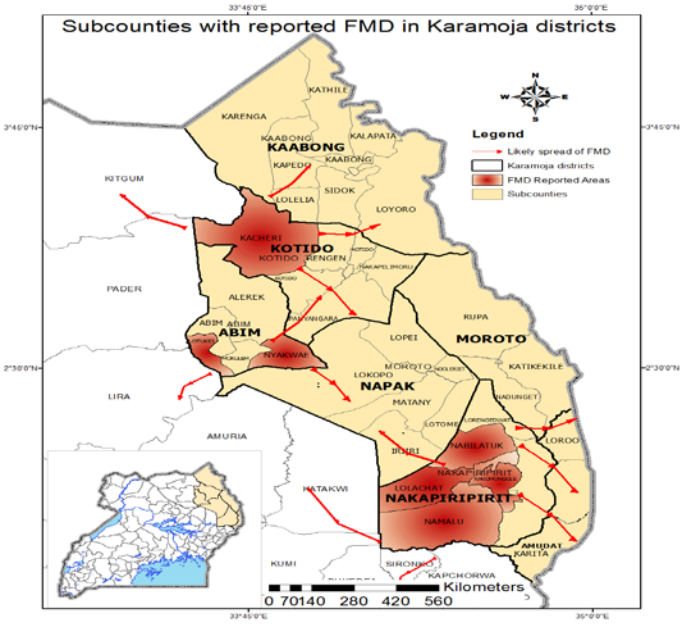
Guest Editor's Comment:
Further information regarding the potency testing and post vaccination monitoring mentioned would be useful and could hopefully be included in the next monthly report.

**Uganda** [11]

On May 13th the CVO of Uganda announced that Nakapiripirit and Kotido districts were the initial epicentres for the current FMD outbreaks. The government has placed quarantine restrictions on all affected districts. The infection has spread almost to the whole Karamoja region with a number of neighbouring districts reporting outbreaks on very frequent basis. Enforcement of quarantine restrictions have been ineffective due to the highly

transhumant pastoral farming system, with very porous borders. FAO has supported National Animal Disease Diagnostics and Epidemiology Centre to get to the Karamoja epicentres and collect fresh pathological samples for laboratory analysis at Entebbe and for submission to a reference laboratory for identification.

Map 8 [14] of Karamoja region and the surrounding districts under heightened threat –




Guest Editor's Comment:
The current FMD outbreaks in Uganda appear to be located in the north-eastern part of the country close to the border to South Sudan while earlier outbreaks in some situations have been in the southwest of the country close to the border to Tanzania. It is at present not clear to the guest editor whether FMD is currently localised to the region mentioned here or whether other "epicentres" such as those to the southwest also are still active? In any event, the effort and information done by the Ugandan team is appreciated and very encouraging.

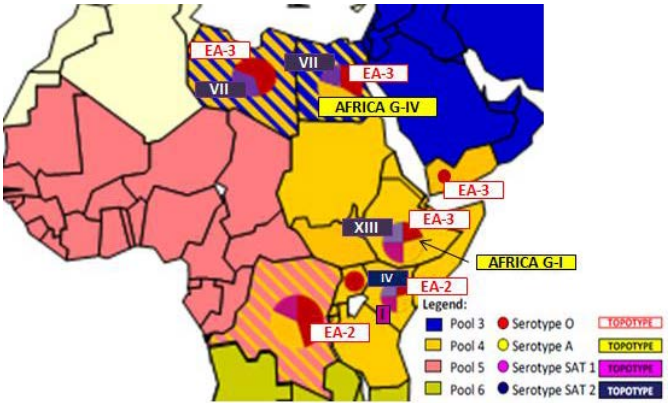
**Table 8:** Summary of the history of FMD Pool 4, 2011 – 2014, for geographic distribution see Map 9 below.

| COUNTRY | FMD HISTORY FMDV serotypes, reported to OIE in 2011 - 2013 | LAST OUTBREAK REPORTED/SEROTYPE | Comment |
|---|---|---|---|
| **Burundi** | O, A, SAT 1, SAT 2 | Aug 2013 / not available | Identification required |
| **Comoros** | NO DATA AVAILABLE | 2010 | |
| **Congo d. R.** | O, A, SAT 1 | Jun 2013/not typed | Genotyping needed |
| **Djibouti** | NO DATA AVAILABLE | Not available | Follow –up needed – national situation unclear |
| **Egypt** | 2011 - A, O<br>2012 - A, O SAT 2 | Jun 2012/SAT 2 | |
| **Eritrea** | O | Dec 2011/O | |
| **Ethiopia** | A, SAT 1,<br>2012/O | Jun 2014/A, SAT 2, O | Vaccine matching tests needed |
| **Kenya** | 2011 - O, A, SAT 1, 2013/SAT 2 | 2014/A, Jun/SAT2, Oct/SAT1, May, Jun 2014/O | |
| **Libya** | 2011 - O<br>2012 - O, SAT 2 | Oct 2013/ O, Sat 2/Apr 2012 | |
| **Rwanda** | ABSENTNOT TYPED | Nov 2012/not typed | Genotyping needed |

| | | | |
|---|---|---|---|
| **Somalia** | NO DATA AVAILABLE | 2011 | |
| **Sudan** | A, O | 2013/O, SAT2 | |
| **South Sudan** | O, SAT 1, SAT 2, A | 2011 | |
| **Tanzania** | 2011 - SAT 1(buffalo), SAT 2 (cattle), O, SAT3<br>2012 - A, O, SAT 1, SAT 2 | Mar 2013/O<br>Apr2013/ A, SAT 1, SAT2 | |
| **Uganda** | O, A, SAT 1, SAT 2, SAT3 | 2013/A, SAT2, Jun 2014/not typed | Genotyping needed |
| **Yemen** | NO DATA AVAILABLE | Not available | Follow –up needed – national situation unclear |

**Map 9:** FMD distribution by serotype and topotype for East Africa. 2011 – 2013 (EuFMD)

East Africa is known to be endemic for FMD, but current data are limited.




Conjectured circulating FMDV lineages in pool 4 during 2013 [17]:

- O/ME-SA/Sharqia-72 (detected in samples collected in Egypt in 2009)
- A/AFRICA (genotypes I (Kenya, Tanzania, D.R. Congo), IV (Sudan, Eritrea, Egypt) and VII (Ethiopia, Egypt))
- A/ASIA/Iran-05 BAR-08 sub-lineage (Egypt)
- SAT 1 (topotypes I (Kenya, Tanzania)
- SAT 2 (topotypes IV (Kenya, Tanzania), VII (Sudan, Egypt), XIII (Ethiopia, Sudan))
- SAT 3 (only detected in African buffalo in the south of the QENP, Uganda in 1970 & 1997)
- O (topotypes EA-2 (Kenya, Tanzania, DR Congo, Uganda), EA-3 (Ethiopia, Eritrea, Sudan, Egypt) and EA-4 (Ethiopia, Kenya, Uganda).

### *E. POOL 5 – <u>West / Central Africa</u>*

**Cameroon** [12]

LANAVET- Garoua reported FMD based on antibody detection in serum samples using mainly NSP ELISA. Serology testing is being carried out with ELISA kits provided by FAO. At present, the laboratory is collaborating on research activities with the Ohio state University and Plum Island Animal Disease Center –USA and has an ongoing FAO project (MTF/034/STF).

**Ghana** [15]

The Accra Veterinary Laboratory has remarked that there have not been any reported outbreaks of FMD in Ghana since January 2014. For this reason, the Laboratory recommended intensification of field monitoring and reporting activities. Furthermore, veterinary services management meetings have been held this year by the laboratory with the opportunity to alert colleagues of the lack of activity with respect to FMD monitoring and the inherent dangers arising from such a situation.

**Mali, Mauritania and Senegal** [13]

A workshop on epidemiological surveillance of FMD and strengthening laboratory capacity was held between the 3rd –4th of June, organised by the FAO Representation in Senegal and ISRA / LNERV hosting the regional

laboratory network RESOLAB, to which personnel from ANSES, representatives of the National Veterinary Services and Laboratories of Mali, Mauritania and Senegal participated.

Presentations on clinical, epidemiological and laboratory diagnostic aspects of FMD were given. The discussions from these presentations led to the interest of a sub-regional approach to eradicate and control FMD and the diagnostic needs to fight the disease more effectively.

As practical measures, all representatives of the three countries agreed on the value of a sub-regional approach for the evaluation of the epidemiological situation and control measures put in place making the results more effective. A serosurvey to determine the prevalence and a baseline of FMD will be undertaken at the same time in the three countries, between August and December 2014, during which the transhumance will be more limited.

The participants will design a proposal for a sampling protocol and data collection with Senegal as co-ordinator.

FMD interlaboratory tests were also considered for the definition of the diagnostic capabilities of the National laboratories of the three countries. The information provided during the two days by the participants is described below.

**Mauritania** - FMD is one of seven priority diseases included in the monitoring system based on their economic impact on health. The monitoring network was established in 1999 and is run by a central unit. Mauritania is part of REMESA network and wants to join the progressive approach for the control of FMD (PCP: Progressive Control Pathway for FMD).

There is clinical suspicion of FMD but too few samples are sent to the laboratory. Mauritania has one central laboratory and no regional laboratories for the diagnosis of FMD. Biosafety in the laboratory needs to be improved. The central laboratory has the capacity to perform ELISAs for antibody and antigen detection, conventional and reverse transcriptase Real Time PCR.

**Mali** - Targeted vaccination against FMD (unpurified vaccine produced in Botswana) is carried out. Mali has one central laboratory and no regional laboratories. The laboratory has the capability to perform ELISA and RT-PCR tests, but there is a lack of staff and reagents. The NSP ELISA was performed in 2014 on 90 sera collected in 2012. Biosecurity remains to be improved in the laboratory. No samples have been collected for routine FMD testing.

**Senegal** - FMD is under surveillance in the country since 1998. 15 suspected outbreaks of FMD were reported in 2012 and 13 in 2013. Targeted vaccination against FMD is carried out in dairy cows against A, O and SAT 2 . Senegal has a national laboratory (LNERV) nominated since 2007 as a regional reference laboratory for the diagnosis of all transboundary diseases including FMD (RESOLAB). There are also six regional laboratories, which do not currently have staff. Biosafety in the laboratory also needs to be improved. The LNERV has the capacity to perform all ELISA tests (antibody and antigen detection) and RT-PCR (conventional and Real-Time) as well as cell culture. The virology laboratory LNERV already has the RT-PCR and ELISA for FMD. The LNERV has samples collected in 2008, 2012 and 2013 throughout Senegal that it wishes to analyse.

At the end of the meeting, the strong points identified were that the National Laboratories of the three countries already have the capacity to perform ELISA and RT-PCR for the diagnosis of FMD, while the points to improve were: availability of samples, availability of kits, reagents and consumables, support for sending samples to a reference laboratory, strengthening of staff, training in diagnostic methods, organization of inter-laboratory tests for implementation and targeted training.

**Nigeria** [14]

During June 2014, the National Veterinary Research Institute detected FMDV serotypes O, SAT 1 and SAT 2.

A total of 270 bovine sera were tested using NSP ELISA. Of these, 201 were positive.

A representative number of the positive sera were tested by SPCE and gave the following results - (sample positive for serotype A = 40, serotype O = 60, serotype SAT 2 = 50). Of the 450 swine samples examined using NSP ELISA, 4 tested positive. Kits used were provided by FAO.

Further to the laboratory activities, personnel were also involved in FMD outbreaks investigations and in the provision of expert advice to officials and authorities. The Laboratory is also collaborating with international Organisations.

Guest Editor's Comment:
It appears that several of the countries in this region rely on detection of antibodies to FMDV NSP for determination of virus circulation/outbreaks. As such reactions may be the result of multiple vaccinations with unpurified FMD vaccines it is important to get information as to the extent, origin and quality controls done on any vaccines used in the area.

**Table 9:** Summary of the history of FMD Pool 5, 2011 – 2014, for geographic distribution see Map 10 below.

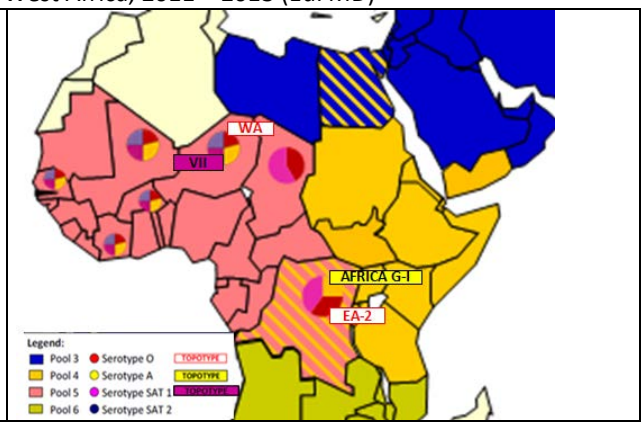
| Country | FMD history FMDV serotypes, reported to OIE in 2011 – 2013 | Last outbreak reported/serotype | Comment (Genotyping would be useful for this region) |
|---|---|---|---|
| **Benin** | 2011 - A, O, SAT 1, SAT 2 | Dec 2011/O, A, SAT 1, SAT 2 | |
| **Burkina Faso** | O, A, SAT 2 | 2013/ not available | Follow –up needed – national situation unclear |
| **Cameroon** | 2011 - O, A, SAT 2 | 2013/O, SAT 2; Apr2014/O, A, SAT 2, May 2014/SAT 1, Jun 2014 | Genotyping needed |
| **Cape Verde** | No data available | Not available | Follow –up needed – national situation unclear |
| **Central Afr. Rep.** | No data available | Not available | |
| **Chad** | 2011, 2012 - A, SAT 1 | Not available | |
| **Congo D. R.** | 2011, 2012 O, A, SAT 1 | Jun 2013/not typed | Genotyping needed |
| **Congo R.** | No data available | Not available | Follow –up needed – national situation unclear |
| **Cote D'Ívoire** | 2011 - SAT 1, A, O, SAT 2 | 2011 | |
| **Equatorial Guinea** | No data available | Not available | Follow –up needed – national situation unclear |
| **Gabon** | No data available | Not available | Follow –up needed – national situation unclear |
| **Gambia** | O, A, SAT 2 | 2012/O | |
| **Ghana** | O, A, SAT 1, SAT 2 | 2013/not available | Genotyping needed |
| **Guinea Biss.** | No data available | No data available | Follow –up needed – national situation unclear |
| **Guinea** | No data available | No data available | |
| **Liberia** | A, SAT 2 | 2011/2012, no precise data | Genotyping needed |
| **Mali** | O, A, SAT 1, SAT 2 | 2011/2012, no precise data | See text |
| **Mauritania** | No data available | Not available | See text |
| **Niger** | O, A, SAT 1, SAT 2 | 2013/not available | Genotyping needed |
| **Nigeria** | O, A, SAT 1; SAT 2 | Jun 2014/O, A, Jun SAT 1, Jun SAT 2 | See text – genotyping needed |
| **Sao Tome Principe** | No data available | Not available | Follow –up needed – national situation unclear |
| **Senegal** | O, A, SAT 1, SAT 2 | 2012/O, A, SAT 1 | See text |
| **Sierra Leone** | No data available | Oct 1958 | Follow –up needed – national situation unclear |
| **Togo** | O, SAT 1 | 2012/O | |

**Map 10:** FMD distribution by serotype and topotypes for West Africa, 2011 – 2013 (EuFMD)

FMD is endemic in West Africa.

Conjectured circulating FMDV lineages in pool 5 during 2013[17] :

- Serotype O (topotypes WA and EA-3 (Nigeria))
- Serotype A (topotype AFRICA, genotypes IV and VI)
- Serotype SAT 1
- Serotype SAT 2 (topotype VII)

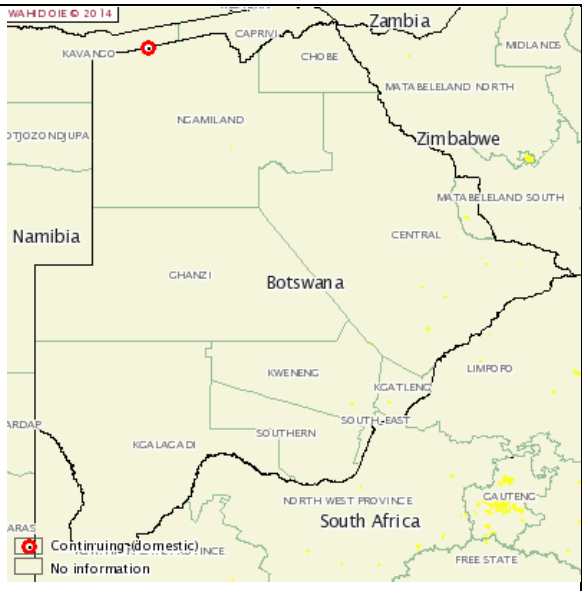


### *F. POOL 6 – SOUTHERN AFRICA*

**Botswana** [1]

A suspected outbreak of FMD was reported on the 19th of June involving 51 of a total of 1500 regularly vaccinated domestic cattle in the province of NGAMILAND. The outbreak occurred in the Northern part of zone 2A with a cattle population of 23,000 (Map 11). Natural barriers are present around the outbreak, including cordon fences on the North, North East and East and the Okavango delta on the South and South West. Lameness was reported in routinely vaccinated cattle in two crushes of Mohembo and Xaukwe in zone 2A. Subsequent clinical investigations revealed clinical signs highly suggestive of FMD. Epidemiological investigations of this event are continuing and virus isolation by the Botswana Vaccine Institute (OIE's Reference Laboratory) is pending. Transmission could have occurred through contact with wild species. Zoning has already been applied while other control measures that will follow are: control of wildlife reservoirs, quarantine, movement control inside the country, vaccination in response to the outbreak (s) and dipping/ spraying.

**Map 11**: Location (red dot) of FMD type O outbreaks during June 2014, FMD in Botswana (WAHID-OIE)




**Zimbabwe** [1]

FMDV serotype SAT 1 outbreak is reported as continuing in MASVINGO. Control measures in place around the outbreaks include inspection of the affected premises and all properties within a 20-km-radius zone. While no new outbreaks of infection were detected, a total of 25 new cases were seen in the affected cattle at Fauna Ranch. The whole district of Mwenezi is still under quarantine. A check-point has been setup along the highway to prevent spread into neighbouring Masvingo district.

**Table 10:** Summary of the history of FMD Pool 6, 2011 – 2014, for geographic distribution see Map 12 below

| COUNTRY | FMD HISTORY FMDV serotypes, reported to OIE in 2011 – 2013 | LAST OUTBREAK REPORTED/SEROTYPE | Comment |
|---|---|---|---|
| **Angola** | NO REPORTED OUTBREAKS | Dec 2010/ SAT 2 | |
| **Botswana** | SAT 1, SAT 2, SAT 3 | Jun 2013 | See text |
| **Congo D. R.** | O, A, SAT 1 | 2011/2012, NO PRECISE DATA | Follow –up needed – national situation unclear |
| **Malawi** | 2011 - SAT 2 | Oct 2011 | |
| **Mozambique** | 2011 - SAT 2 | Jun 2011/SAT 2 | |

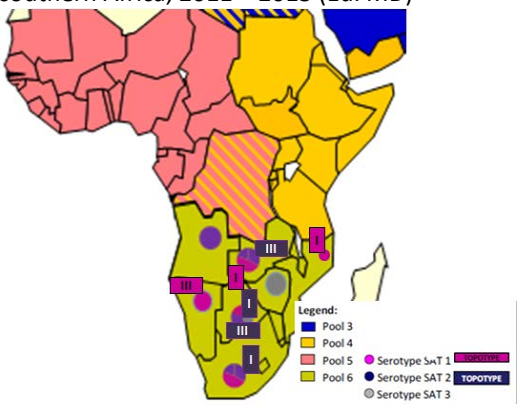
| | | | |
|---|---|---|---|
| **Namibia** | SAT 1 | Aug 2013/ NOT AVAILABLE | Genotyping needed |
| **South Africa** | SAT 1, SAT 2 | Aug 2013/SAT 1; Mar2014 SAT 2 | |
| **Zambia** | SAT 1, SAT 2 | Jan 2013/SAT 1, SAT 2 | |
| **Zimbabwe** | SAT 1, SAT 3 | Jun 2013/SAT 3, Jun 2014/SAT 1, | See text |

Swaziland and Lesotho are free from FMD without vaccination. There is a zone in both Botswana and Namibia, which has been FMD free without vaccination, since 2010 and 1997 respectively.

Conjectured circulating FMDV lineages in pool 6 during 2013 [17]:

- Serotype SAT 1 (topotypes I, II and III)
- Serotype SAT 2 (topotypes I, II and III)
- Serotype SAT 3 (topotypes I, II and III)

**Map 12:** FMD distribution by serotype and topotype for southern Africa, 2011 – 2013 (EuFMD)




### *G. POOL 7 – South America*

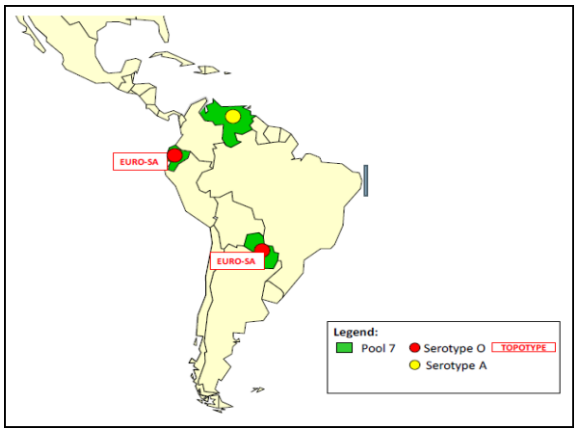
***South America***:
No new outbreaks have been reported for this period of time.

Most South American countries are FMD free with (Uruguay) or without (Chile, Guyana) vaccination or with free zones with vaccination (Argentina, Bolivia, Brazil, Colombia, Peru) or without vaccination (Argentina, Bolivia, Brazil, Colombia, Peru). Small areas of the continent are considered as endemic but clinical cases are rare (Table 11 and Map 13). The FMD history between 2011 –2013 is given in Table 11.

**Table 11:** Summary of the history of FMD Pool 7, 2011 – 2014, for geographic distribution see Map 13 below

| COUNTRY | FMD HISTORY FMDV serotypes, reported to OIE in 2011 2013 | LAST OUTBREAK REPORTED/SEROTYPE | Comment |
|---|---|---|---|
| **Ecuador** | O | Aug 2011/O | National situation needs verification |
| **Paraguay** | O | Dec 2011/O | |
| **Venezuela** | O, A | 2011/O, A | National situation needs verification |

**Map 13:** FMD distribution by serotype and topotype for South America, 2011 – 2013 [17] (EuFMD)




## *IV. OTHER NEWS:*

**Nepal** [16] **–** FMD has been reported to continue in cattle dying in Barchhain and Ghangal VDCs of Doti in the past month that still has to be confirmed.

## V. REFERENCES - Superscripts

1. SEAFMD, http://www.arahis.oie.int/reports.php?site=seafmd
2. WAHID Interface – OIE World Animal Health Information Database http://web.oie.int/wahis/public.php?page=home
3. Regional Reference Laboratory for FMD (ARRIAH, Russia) - (Dr. S. Fomina)
4. Project Directorate on Foot and Mouth Disease (PD-FMD), Indian Council of Agricultural Research, Mukteswar, India (Dr B. B. Dash)
5. World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD), www.wrlfmd.org
6. Progressive Control of Foot and Mouth Disease in Pakistan, GCP/PAK/123/USA - (Dr. Manzoor Hussain, National Project Director and Dr. Muhammad Afzal, Project Coordinator)
7. FAO EMPRES-AH, http://www.fao.org/ag/againfo/programmes/en/empres/home.asp
8. WELLNET Laboratory, Sap Institute, Turkey (Dr Naci Bulut)
9. National animal health diagnostic and investigation center (NAHDIC), Ethiopia (Dr Daniel Gizaw)
10. National FMD Reference Laboratory, Embakasi, Kenya (Dr Abraham Sangula)
11. FAO Teleconference: AGAH-ECTAD Nairobi- Uganda, June 30th 2014
12. LANAVET-Garoua, Cameroon (Dr Simon Dickmu Jumbo)
13. EUFMD/FAO - Rapport de mission -Atelier sur l'épidémio-surveillance de la fièvre aphteuse et le renforcement des capacités du laboratoire (Dakar, 3-4 juin 2014)
14. FMD Research Centre, Virology Research Department, National Veterinary Research Institute, Vom, Plateau State, Nigeria (Dr. Ularamu Hussaini)
15. Accra Veterinary Laboratory, Ghana (Dr. Joseph ADONGO AWUNI)
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