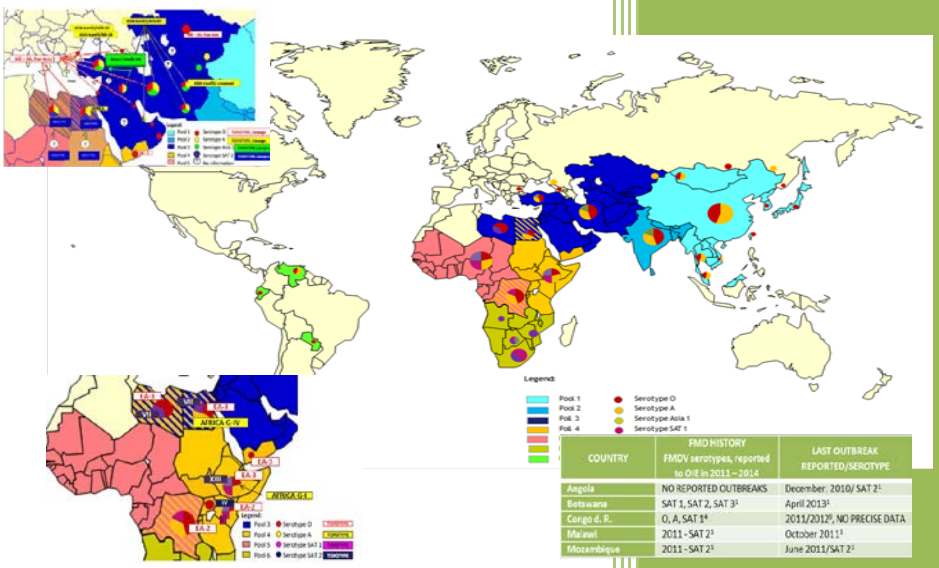
2014

Foot-and-Mouth Disease Situation
Monthly Report – MAY 2014



COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE 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

MAY 2014

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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

Guest Editor's Comments

General Overview:

First of all I would like to say thanks for the invitation to participate as Guest editor for this issue of EuFMD report. As I said in the accepting reply, this is not only an honour but also a huge responsibility.

Following the deep and clear overview of the previous guest editors and taking into account both the International recognition of FMD free new zones in the South American continent and its epidemiological status, where FMD outbreaks have not been reported for the past 29 months, whereas there are still regions around the world dealing with endemic situation of the disease, it will be interesting to add and share in this space which points have been important in the South American experience at the time of facing the control and eradication of this disease:

- A national livestock database must be developed and kept updated for Veterinary Services for the implementation of vaccination campaigns, post vaccination monitoring and national viral circulation sero-surveillance, based on the knowledge of the actual livestock population, age and gender of the animals, livestock movements, etc.

- Strong Official Veterinary Laboratory Services, capable in assuring not only a rapid diagnosis and characterization of the FMD strain circulating in the field but also a rapid assessment of the actual protection of the vaccine strains.

- An official Laboratory Veterinary Service, which assures the inocuity, purity, potency and long lasting immunity of all the FMD vaccines, used in the vaccination campaigns.

With the achievement of these important tools just described, the control and eradication of the disease should be faced as a regional concern knowing that the diseases do not respect countries frontiers. An example of this regional approach is the South American Commission for the fight against Foot and Mouth Disease (COSALFA) that since 1972 in its ordinary and extraordinary meeting the chiefs of Animal Health Services of South America countries, as well as, representatives of private sectors have joined to evaluate together the progress of ongoing National plans. This was always in the framework of a Regional approach that since 1988 has been consolidated as the Hemispheric Plan for FMD control and eradication (PHEFA) -whose goal in the period 2011-2020 is not only the eradication of the disease in the countries of South America but also the prevention of the disease's reintroduction into the Continent. Since 2013 some meetings have been held between representatives of Official Veterinary Services of the Region in order to discuss the implementation of a South American FMD Antigen/Vaccine Bank as well.

I. GENERAL OVERVIEW

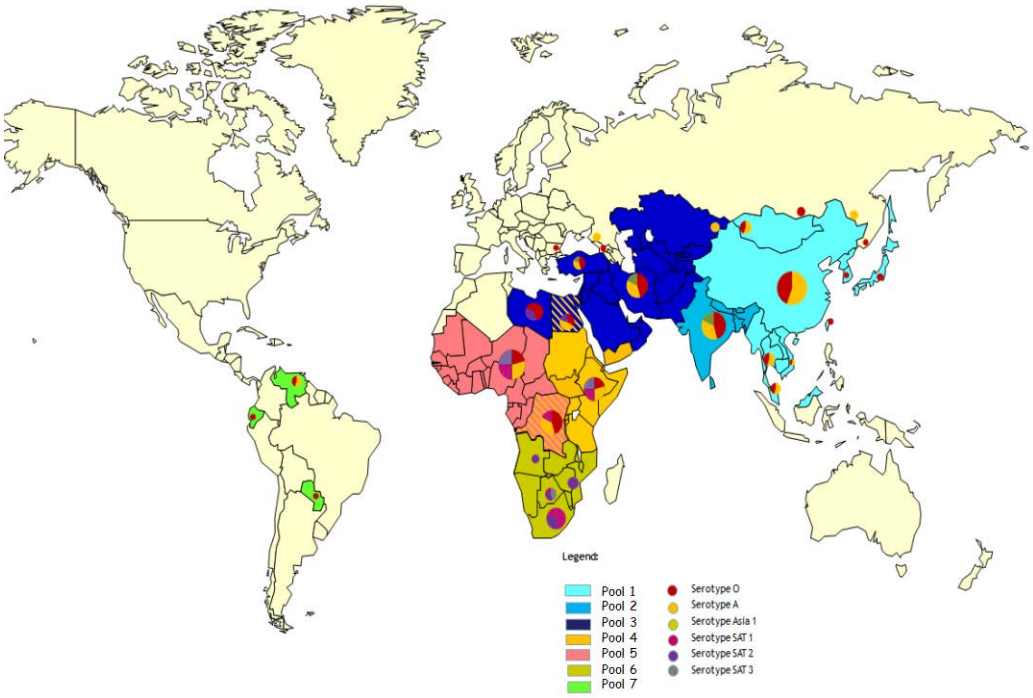
Pools represent independently circulating and evolving FMDV genotypes; within the pools, cycles of emergence and spread occur that usually affect multiple countries in the region. In the absence of specific reports, it should be assumed that the serotypes indicated below are continuously circulating 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** Cambodia, China (People's Rep. of), China (Hong Kong, SAR), China (Taiwan Province), Korea (DPR), Korea (Rep. of), Laos PDR, Malaysia, Mongolia, Myanmar, Thailand, Viet Nam	**O, A, Asia 1**
2	**SOUTH ASIA** Bangladesh, Bhutan, India, Nepal, Sri Lanka	**O, A, Asia 1**
3	**WEST EURASIA & MIDDLE EAST** 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** 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** 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** Angola, Botswana, Congo D. R., Malawi, Mozambique, Namibia, South Africa, Zambia, Zimbabwe	**{O, A}*, SAT 1, SAT 2, SAT 3**
7	**SOUTH AMERICA** 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

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



II. HEADLINE NEWS

POOL 1

North Korea [1]- Samples have been collected from a cow suspected of FMD disease in North Korea.

Russia [1, 2, 3] **– A** FMDV serotype O has been reported on the 17th of May, 2013, in pig farms, in PRIMORSKIY KRAY, Russian Federation, further 2 outbreaks were again reported in the last week of May.

POOL 2

India [4] **-** PD-FMD at Mukteswar has reported FMDV serotype O.

POOL 3

Egypt [5]**–** The General Organisation of Veterinary Services has reported FMDV serotypes O, A, SAT2 as confirmed by WRLFMD.

Tunisia [1, 2, 3, 5] **–** FMDV serotype 0 is still being reported in sheep, goats and cattle in 13 different provinces of Tunisia.

Turkey [5, 6] - Şap Institute, Ankara, has reported FMDV serotypes O and A from outbreaks in Anatolia. FMDV positive cattle samples, sent be the National Reference Laboratory for FMD to the WRLFMD, have been confirmed as FMDV serotype A, Asia 1and FMDV serotype O, respectively.

POOL 4

Kenya [7]- National FMD Reference Laboratory, Embakasi has reported serotypes O and SAT-1

POOL 5

Cameroon[8] **-** LANAVET-Garoua has reported serotypes SAT1, SAT2, O, A

POOL 6

Zimbabwe [1, 3]**-** A FMDV serotype SAT 1 in domestic cattle has been reported in Masvingo, Zimbabwe.

POOL 7

No outbreaks reported

COUNTER

***** 29 MONTHS SINCE THE LAST OUTBREAK IN SOUTH AMERICA HAS BEEN REPORTED**
***** 116 MONTHS SINCE THE LAST SEROTYPE C OUTBREAK HAS BEEN REPORTED**

III. DETAILED POOL ANALYSIS

A. POOL 1 – Central /East Asia

North Korea [1]**:**

Samples collected from a cow infected with FMD in North Korea that will be sent to a laboratory of the World Organization for Animal Health in China for analysis.

In February 2013, the country culled 2900 pigs as a preventive measure to stop the spread of FMD and buried about 360 others that had died from the disease. However, due to a lack of vaccines, diagnostic means, and disinfectants the disease has continued to spread.

Russia [1, 2, 3]

On the 17th of May 2014, FMD was observed in PRIMORSKIY KRAY, on a pig farm consisting of 13695 animals with 10928 cases and 4196 deaths. A further outbreak was reported on the 25th of May on another pig farm while the last report of the month was on 30th of May referring to outbreaks on three other pig farms. The localities involved were Prokhory Spassky, Spassk-Dalny, Stary Kluch, Zelenodolskoye (Map 2), are all in the administrative unit of PRIMORSKIY KRAY. Details of the outbreaks are reported in Table 2.

The control measures, already applied, are stamping out, quarantine and movement control inside the country, screening and disinfection of infected premises/establishments. No vaccination is at the moment being carried out. The sources of the outbreaks are at present unknown.

The OIE's Reference Laboratory, All-Russian Research Institute for Animal Health (FGBI-ARRIAH) confirmed the diagnosis as FMDV serotype O. The tests, carried out on pig samples, were antigen detection ELISA, complement fixation test and reverse transcription - polymerase chain reaction.

The event is reported as continuing.

Map 2. Location (red dot) of FMD type O outbreak during May 2014, in PRIMORSKIY KRAY (WAHID-OIE).

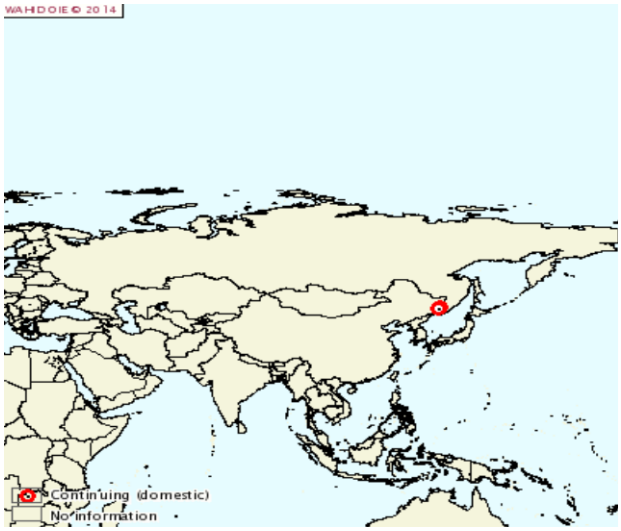


Table 2: Details of outbreaks of FMDV type O in May 2014 in PRIMORSKIY KRAY (WAHID-OIE).

Year	Status	Serotypes	Administatative Unit	Locality Name	Observation Date	Report Date	Species Description	N° at Risk	N° of Cases	N° of Deaths	N° Destroyed	N° Slaughtered
2014	Confirmed	O	Primorskiy Kray	Zelenodolskoye	28/05/2014	30/05/2014	pig	3140	2765	0	0	0
				Spassk Dalny			pig	1	1	0	0	1
							cattle	5	0	0	0	0
				Stary Kluch			pig	384	230	0	0	0
							cattle	3	0	0	0	0
				Spassk Dalny	25/05/2014	28/05/2014	pig	169	50	8	0	0
				Prokhory Spassky	17/05/2014	21/05/2014	pig	13695	10928	4196	7275	0
							Totals	17397	13974	4204	7275	1

Table 3: Summary of the history of FMD Pool 1, 2011 – 2014, for geographic distribution see Map3 below.

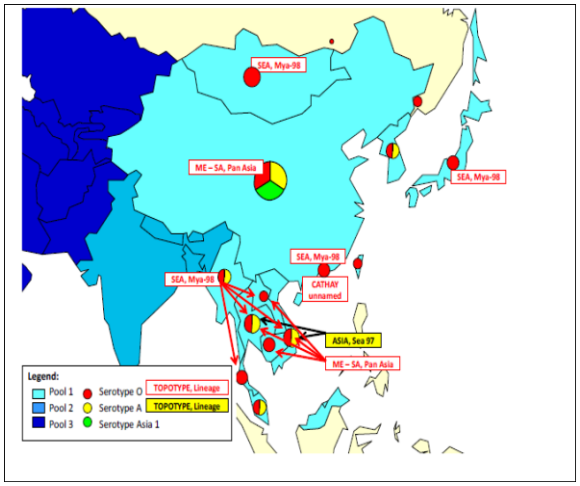
COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE in 2011 – 2014	LAST OUTBREAK REPORTED/SEROTYPE
Cambodia	NOT TYPED	Oct 2012/O
China (People's Rep. of)	A, O	Sep 2013/A, Apr2014/O
China (Hong Kong, Sar)	O	Nov 2012/O
China (Taiwan Province)	O	Jun 2013/O
Japan	FMD-free without vaccination	Jul 2010/O
Korea (DPR)	2014 - O	Mar 2014/O May 2014/not confirmed
Korea (Rep. of)	2011 - O	Apr 2011/O
Laos PDR	O	Mar 2013/O
Malaysia	O, A 2013 - NOT TYPED	Jan 2013/not typed

Mongolia	2012 - O	Sep 2013/A, Apr2014/O
Myanmar	2011 - O	Feb 2012/O
Russian Federation	2011 – 2012 - O 2014 - A	Feb 2014/A May 2014/O
Thailand	O, A	Oct 2012/A, O
Vietnam	2011 - O 2012 - A, O 2013 - A	Apr 2013/A Apr 2014/O

Map 3: FMD distribution by serotype and topotype in South East Asia, 2010 – 2013 (EuFMD).

Conjectured circulating FMD viral lineages in pool 1 during 2013[9]:

- 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)



B. POOL 2 – South Asia

India [4]*:*
The FMD Reference Laboratory for South Asia, PD-FMD at Mukteswar during April 2014, reported FMDV serotype O.

273 clinical samples were tested for antigen detection, 7 samples were genotyped and 4 field isolates of serotype 'O' FMD virus were subjected vaccine matching exercise. 761 serum samples of cattle and buffaloes were tested under National FMD serosurveillance programme. The diagnostic kits used were those developed at PDFMD, Mukteswar.

Other on-going activities reported were providing expert advice to Government services national/local authorities or other), research on FMD and collaboration with any international Organisations.

Table 4: Summary of the history of FMD Pool 2, 2011 – 2014, for geographic distribution see Map 4 below.

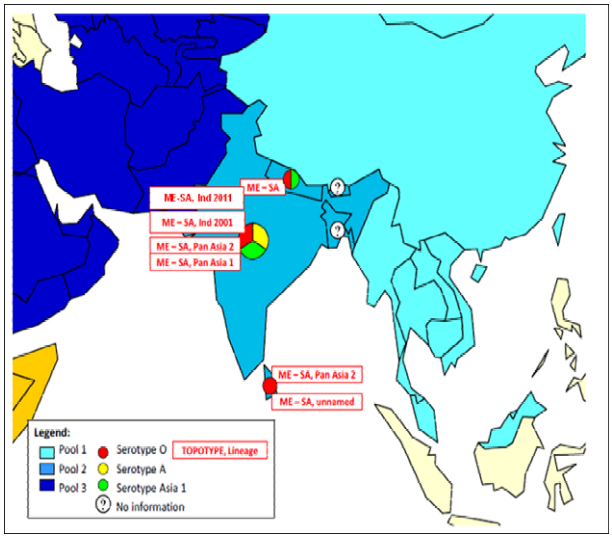
COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE in 2011 – 2013	LAST OUTBREAK REPORTED/SEROTYPE
Bangladesh	**2011 - O, A, Asia 1**	**Not available**
Bhutan	**2011, 2012 - O**	**Nov 2012/O**
India	**O, A, Asia 1**	**Sep 2013/ Asia 1 , May 2014/ O,**

Nepal	**O, A, Asia 1**	**Apr 2014/O**
Sri Lanka	**O**	**2012/O**

Map 4: FMD distribution by serotype and topotype in South Asia, 2011 – 2013 (EuFMD).

Conjectured circulating FMD viral lineages in pool 2 during 2013[9]:

- 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]:

FMD detection and serotyping results carried out by the WRLFMD on 31 samples (20 from cattle, 8 from buffaloes and 3 from sheep) received from the General Organisation of Veterinary Services give the following results:

- FMDV genome was detected by PCR in 28 samples, no virus genome was detected in 1 buffalo and 2 sheep samples.
- Samples were identified as positive for by serotyping cell culture/elisa for FMDV serotype O (9 cattle and 2 buffalo samples), for FMDV serotype A (1 cattle sample) and for FMDV serotype SAT 2 (3 cattle samples).

Further to this, samples collected from cattle on the 03/02/2014, at Abo Hussin, El Ganain, Suez, Egypt was identified by the WRLFMD as FMDV serotype SAT 2, Topotype: VII, Alx-12.

Tunisia [1, 3, 5, 10]**:**

During the month of May, 32 new outbreaks were reported in domestic sheep, goats and cattle, in 11 different administrative units, location is reported in Map 5 and details in Table 5b. The source of the outbreak is confirmed as due to the illegal movement of animals. The event is continuing.

Results of the WRLFMD of samples collected on the 26th May, 2014 are reported in Table 5a.

WRLFMD Ref No:	Species	Location	Collection date	Serotype	Topotype	Genotype/strain
TUN/1031/2014*	Cattle	Somaa, Tunisia	26/04/2014	O	ME-SA	Ind-2001d
TUN/1054/2014*		Sidi Bouzid, Tun	29/04/2014			

* sent by OIE/FAO Reference Lab for SVD and FMD, IZSLER, Brescia, Italy

Table 5a: –results of samples

OIE reports that further to quarantine and movement control of susceptible animals inside the country the following measures are being implemented:

- Crisis cells at national and regional levels,
- Burying of the fifth quarter and bones between two layers of lime,
- Disinfection of vehicles leaving the affected governorates,
- Vaccination points of susceptible species at the entrance of livestock markets,
- Epidemiological investigation to determine the origin of the infection,
- Communication plan.

Map 5. Location (red dot) of FMD type O outbreaks during May 2014, FMD in Tunisia (WAHID-OIE).

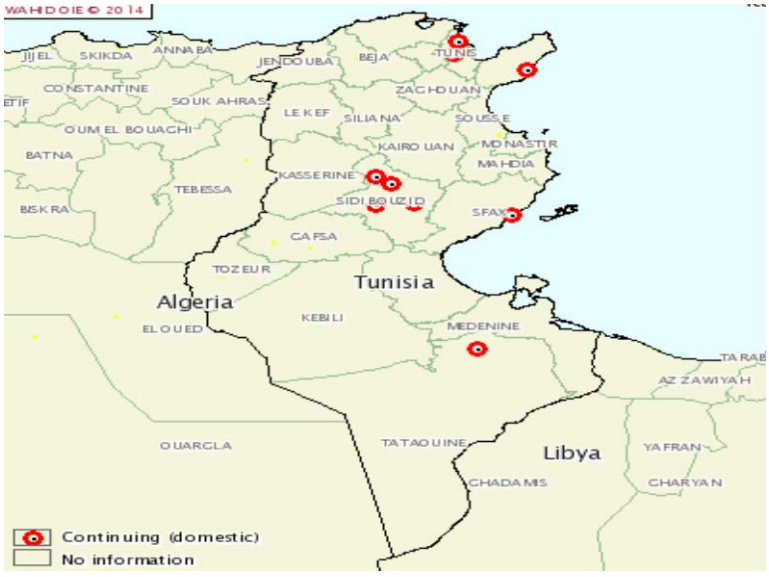


Table 5b: Details of outbreaks of FMDV type O in May 2014 in TUNISIA (WAHID-OIE)

Year	Status	Serotypes	Observation Date	Reporting Date	Admininistrative Unit	Locality Name	Species Description	N° at Risk	N° of Cases	N° of Deaths	N° Destroyed	N° Slaughtered
2014	Confirmed	O	20/05/2014	29/05/2014	Sidi Bouz	Hichria	sheep, cattle	211	17	3	0	0
					Tataouine	Samar	sheep	240	9	3	0	0
					Sidi Bouz	Gouleb	sheep	12	6	3	0	0
			18/05/2014		Sidi Bouz	Lessouda	sheep	300	44	3	0	0
					Nabeul	Boujrida	sheep, cattle, goats	64	11	3	0	0
			17/05/2014		Ariana	Zriba	sheep, cattle	19	1	3	0	0
					Sidi Bouz	Ghdir	sheep, cattle	135	3	3	0	0
			16/05/2014		Sfax	Sidi Abdelkafi	sheep, cattle	14	1	0	0	0
			15/05/2014	21/05/2014	Le Kef	Ain gsibba	sheep, cattle, goats	114	4	0	0	0
					Tataouine	Bir Amir	sheep,goats	340	50	0	0	0
					Sfax	Mejel Darej	cattle	12	2	0	0	0
			14/05/2014		Nabeul	Soliman	cattle	36	2	0	0	0
			13/05/2014		Gafsa	Bir Brad	sheep, cattle	183	1	0	0	0
					Sfax	Nadhour	sheep	13	2	0	0	0
			12/05/2014		Nabeul	Menzel Temim	cattle	10	1	0	0	0
					Nabeul	Menzel Temim	cattle	17	3	0	0	0
			09/05/2014		Le Kef	Sarkouna	sheep, cattle, goats	50	1	0	0	0
					Tataouine	Rogba	goats	23	3	0	0	0
			07/05/2014	13/05/2014	Sidi Bouz	Gouleb	sheep, cattle	52	2	0	0	0
					Nabeul	Amroun	sheep	7	1	0	0	0
			06/05/2014		Sidi Bouz	Bannour	cattle, sheep	38	4	0	0	0
					Nabeul	Turki	cattle	2	1	0	0	0
					Sidi Bouz	Lahouez	sheep, cattle	16	1	0	0	0
			05/05/2014	29/05/2014	Tunis	Elhmiret Birine	sheep, cattle	63	1	0	0	0
				13/05/2014	Kasserine	Sidi Mhammed	sheep, goats	275	20	0	0	0
			04/05/2014		Sidi Bouz	Edhraa	cattle	2	2	0	0	0
					Monastir	Touza	cattle	10	5	0	0	0
					Kasserine	Ome Ali	sheep	19	11	0	0	0
			03/05/2014		Sidi Bouz	Lahouez	cattle, sheep	12	1	0	0	0
			01/05/2014		Kairouan	Margellil	sheep	240	80	0	0	0
					Kairouan	Dima Oued lahjal	cattle	95	1	0	0	0
					Sidi Bouz	El Ogla	cattle, sheep	8	3	0	0	0
							Total	2632	294	21	0	0

Iran [5]:

Vaccine matching strain differentiation results, reported by WRLFMD have given the following results:

- Field strains A Irn 02/14, A Irn 03/14 and A Irn 04/14 did not match with vaccine strains A Iran 2005 and A22 Irq, while A Irn 04/14 matched limitedly with vaccine strain A Tur 06.
- Field strains Asia Irn 15/13 did not match with vaccines strains Asia 1 Ind 8/79 and Asia 1 Shamir.
- Field strains O Irn 17/13 and O Irn 01/14 matched with vaccine strains O 3039, O Taw98 and O Tur 5/09 but not with vaccine strain O Manisa 15/05.

Turkey [6]:

In May 2014, 28 samples collected from outbreaks from Anatolia were tested using Multiplex Real Time rt PCR and Ag detection ELISA. The results are reported in the following table.

	N° of samples
O	14
A	7
Asia-1	2
Negative	5

Şap Institute genotyped 10 virus isolates, as belonging to serotypes A and O**.**

Of the 1725 serum samples received;

-869 sera were tested in NSP ELISA for Risk based Thrace surveillance program

-51 sera collected from outbreaks were also tested in the NSP

-51 sera were tested for serotyping in SP antibody ELISA

-418 sera were tested in vaccine potency trial by SP ELISA

- 336 sera were tested for vaccine monitoring.

The vaccine matching tests carried out on 4 samples confirmed that they matched with the vaccine strains, O Tur07 and A Tur11.

FMDV positive cattle samples collected between the of end of 2013 – 2014, and diagnosed by the National Reference Laboratory for FMD Institute, Ankara, Turkey have been sent to the WRLFMD and identified as FMDV serotype A, topotype Asia, genotype Iran-05^{SIS-10}, FMDV serotype Asia 1, topotype Asia, genotype Sindh – 08 and FMDV serotype O, topotype ME-SA, genotype Pan Asia-2 $^{FAR-09}$, respectively.

In May, three teams from the epi-unit and the Institute conducted field activities, investigating one and two clinical suspects on the eastern borderline. For the present, no breakthrough in immunity has been observed.

Expert advice has been provided to the General Directorate for the evaluation of risk based National Strategy. Research activities are still on going in the R&D plan on vaccine production and monitoring. Experts have conducted training courses for veterinarians on epidemiology and outbreak investigation to increase capacity in the field.

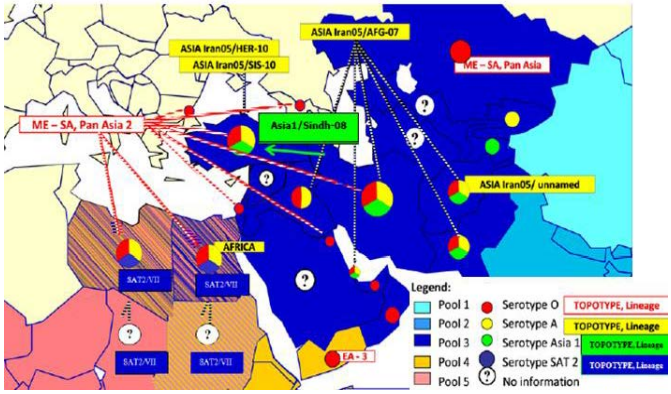
Table 6: Summary of the history of FMD Pool 3, 2011 – 2014, for geographic distribution see Map 6 below.

COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE in 2011 – 2013	LAST OUTBREAK REPORTED/SEROTYPE
Afghanistan	2011 - O, A, Asia 1	Dec 2011, Apr/A, O, Asia 1[10]
Armenia	NO REPORTED OUTBREAKS	Not available
Azerbaijan	NO REPORTED OUTBREAKS	June 2001
Bahrain	2011 - O, A, Asia 1 2012 - O	Mar 2012/O
Bulgaria	2011 - O	Apr 2011/O
Egypt	A, O 2012 - O, A, 2014 - SAT 2	May 2014/O, A, SAT2
Georgia	NO REPORTED OUTBREAKS	2002
Iran	O, A, Asia 1	Jun 2013/Asia 1, Apr 2014/O, A[10]
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[10],
Autonomous Territories **Palestine**	2011 - O, A, Asia 1 2012 - SAT 2; 2013 - A	Mar 2013/A Nov 2013/O
Qatar, 2011	NO DATA AVAILABLE	Not available
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	May 2014/O
Turkey	Asia 1, A, O	Mar Asia 1, May 2014/O, A, Asia1
Turkmenistan	NO DATA AVAILABLE	Not available
Uzbekistan	NO DATA AVAILABLE	Not available

Map 6: FMD distribution by serotype and topotype for West Eurasia and Middle East, 2011 – 2013 (EuFMD).

Conjectured circulating FMD viral lineages in pool 3 during 2013[9]:

- 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

Kenya [7]:

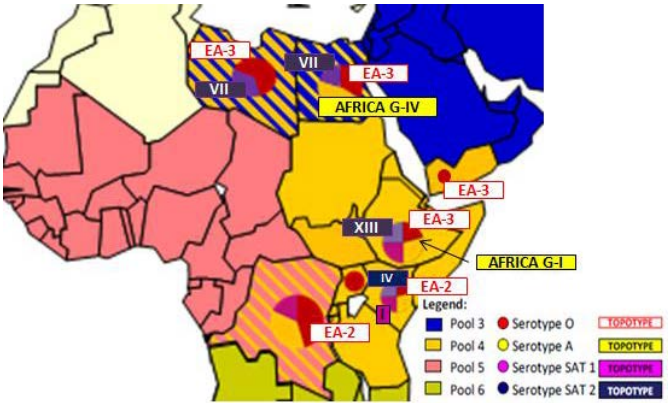
The National FMD Reference Laboratory, Embakasi reported the presence of the FMDV Serotypes O in 6 samples and SAT2 in one sample. The laboratory is also carrying out vaccine potency assays and post vaccination monitoring. The Laboratory was involved in the investigation of FMD outbreaks in the Ngong area.

Table 7: Summary of the history of FMD Pool 4, 2011 – 2014, for geographic distribution see Map7 below.

COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE in 2011 - 2013	LAST OUTBREAK REPORTED/SEROTYPE
Burundi	O, A, SAT 1, SAT 2	Aug 2013 / not available
Comoros	NO DATA AVAILABLE	2010
Congo d. R.	O, A, SAT 1	Jun 2013/not typed
Djibouti	NO DATA AVAILABLE	Not available
Egypt	2011 - A, O 2012 - A, O SAT 2	Jun 2012/SAT 2
Eritrea	O	Dec 2011/O
Ethiopia	A, SAT 1, O	2012/O
Kenya	2011 - O, A, SAT 1, SAT 2	Oct 2013/SAT2, SAT1 May 2014/A, O
Libya	2011 - O 2012 - O, SAT 2	O, Oct 2013/Apr 2012
Rwanda	ABSENT NOT TYPED	Nov 2012/not typed
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 2012 - A, O, SAT 1, SAT 2	Mar 2013/O Apr2013/ A, SAT 1, SAT2
Uganda	O, A, SAT 1, SAT 2, SAT3	2013/A, SAT2
Yemen	NO DATA AVAILABLE	Not available

Map 8: 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 (Map 8).



Conjectured circulating FMD viral lineages in pool 4 during 2013[9]:

- 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)
- (topotypes EA-2 (Kenya, Tanzania, DR Congo, Uganda), EA-3 (Ethiopia, Eritrea, Sudan, Egypt) and EA-4 (Ethiopia, Kenya, Uganda).

E. POOL 5 – West / Central Africa

Cameroon [8]:

The LANAVET laboratory in Garoua has detected the FMDV serotypes SAT1, SAT2, O, A. Samples have been submitted to the WRLFMD for sequencing. The Laboratory is continuing testing for FMDV antibodies using kits provided by FAO. Field investigations of outbreaks have also been carried out.

The Laboratory is continuing its collaboration with Plum Island laboratory and Ohio state laboratory on research on FMD as also with other Organisations (FAO: MTF/STF/034 project)

Table 9: Summary of the history of FMD Pool 5, 2011 – 2014, for geographic distribution see Map9 below.

Country	FMD history FMDV serotypes, reported to OIE in 2011 – 2013	Last outbreak reported/serotype
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
Cameroon	2011 - O, A, SAT 2	2013/O, ,SAT 2; Apr2014/O, A, SAT 2, May2014/SAT 1
Cape Verde	No data available	Not available
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
Congo R.	No data available	Not available
Cote D'Ívoire	2011 - SAT 1, A, O, SAT 2	2011
Equatorial Guinea	No data available	Not available
Gabon	No data available	Not available
Gambia	O, A, SAT 2	2012/O
Ghana	O, A, SAT 1, SAT 2	2013/not available
Guinea Biss.	No data available	No data available
Guinea	No data available	No data available
Liberia	A, SAT 2	2011/2012, no precise data

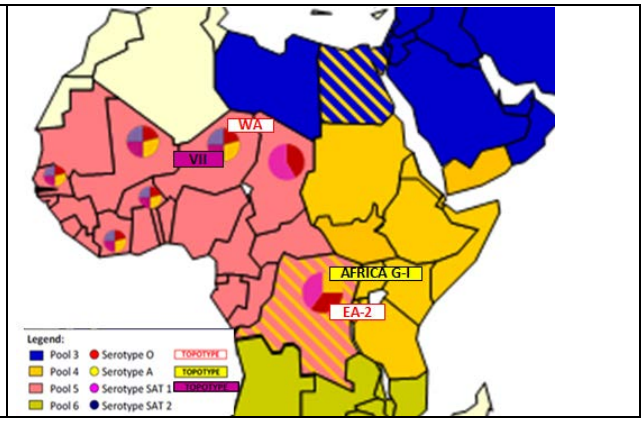
Mali	O, A, SAT 1, SAT 2	2011/2012, no precise data
Mauritania	No data available	Not available
Niger	O, A, SAT 1, SAT 2	2013/not available
Nigeria	O, A, SAT 1; SAT 2	2013/O, A, SAT 1, SAT 2
Sao Tome Principe	No data available	Not available
Senegal	O, A, SAT 1, SAT 2	2012/O, A, SAT 1
Sierra Leone	No data available	Oct 1958
Togo	O, SAT 1	2012/O

Map 9: FMD distribution by serotype and topotypes for West Africa, 2011 – 2013 (EuFMD)

FMD is endemic in West Africa. The FMDV topotypes presented in the region are given in Map 9.

Conjectured circulating FMD viral lineages in pool 5 during 2013[9]:

- 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 – <u>SOUTHERN AFRICA</u>

Zimbabwe [1, 2, 3]:

On the 16th of May, FMD serotye SAT 1 was reported to the OIE the by Department of Livestock and Veterinary Services, Harare, Zimbabwe. The Zimbabwe Central Veterinary Laboratory (National laboratory) confirmed the diagnosis has been confirmed by on samples from cattle using antibody detection ELISA and polymerase chain reaction.

Three outbreaks occurred in domestic cattle, in Masvingo. These occurred in adjoining farms close to a wildlife conservancy with wild buffaloes. Evidence of fence breakages on the conservancy perimeter fence may have resulted in mixing of cattle and buffaloes. Control measures applied are the following:

- Control of wildlife reservoirs
- Quarantine
- Movement control inside the country
- Zoning
- Vaccination in response to the outbreak (s)
- Disinfection of infected premises/establishment(s)
- No treatment of affected animals

On the 29th of May further actions were reported consisting of weekly inspection of the affected premises and of all properties within a 20-km-radius zone is ongoing. Up to that date, a total of 35 farms and dip tanks, including 8 farms in Matebeleland South province that are within the 20-km-radius intensive surveillance zone, were inspected. A total of 27639 cattle have been vaccinated in the affected premises and in all properties within a 20-km-radius zone. The whole district of Mwenezi is still under quarantine.

Summary of the events are reported in Table 10 No new outbreaks of infection were detected but a total of 164 new cases were seen in the affected cattle herds at the three outbreaks.

Table 10: Details of outbreaks of FMDV type O in May 2014 in Zimbabwe (WAHID-OIE).

Year	Status	Serotypes	Administative Unit	Locality Name	Observation Date	Report Date	Species Description	N° at Risk	N° of Cases	N° of Deaths	N° Destroyed	N° Slaughtered
2014	Confirmed	SAT1	Masvingo	Fauna ranch Rutenga	25/04/2014	16/05/2014	domestic, cattle	672	105	7	0	0
				Kayalami dip tank Rutenga	24/04/2014		domestic, cattle	1746	150	0	0	0
				Alko ranch Rutenga Mwenezi	14/04/2014		domestic, cattle	722	368	0	0	0
							Total	3140	623	7	0	0

Map 10: Location (red dot) of FMD type O outbreaks during May 2014, FMD in Zimbabwe (WAHID-OIE)

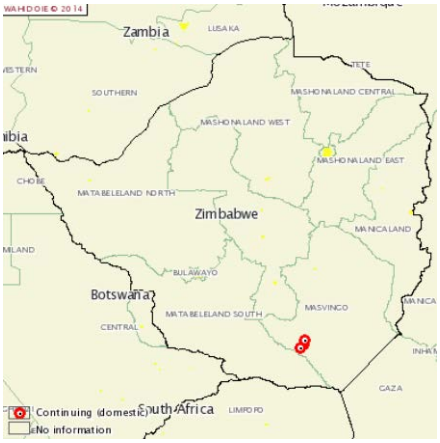


Table 11: Summary of the history of FMD Pool 6, 2011 – 2014, for geographic distribution see Map11 below

COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE in 2011 – 2013	LAST OUTBREAK REPORTED/SEROTYPE
Angola	NO REPORTED OUTBREAKS	Dec 2010/ SAT 2
Botswana	SAT 1, SAT 2, SAT 3	Apr 2013
Congo D. R.	O, A, SAT 1	2011/2012, NO PRECISE DATA
Malawi	2011 - SAT 2	Oct 2011
Mozambique	2011 - SAT 2	Jun 2011/SAT 2
Namibia	SAT 1	Aug 2013/ NOT AVAILABLE
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, May 2014/SAT 1,

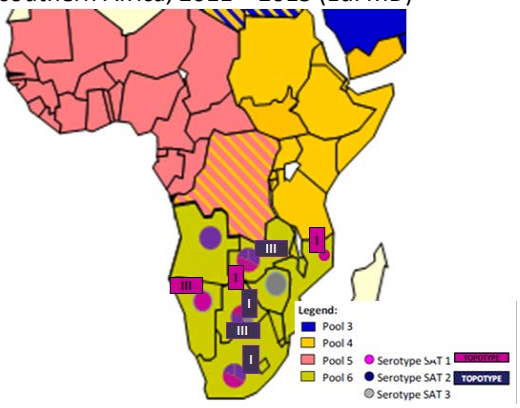
Swaziland and Lesotho are free from FMD without vaccination. There is a zone in both Botswana and Namibia which is FMD free without vaccination, since 2010 and 1997 respectively (Map 11).

FMD history between 2011 - 2013 for southern Africa is given in Table 11.

Conjectured circulating FMD viral lineages in pool 6 during 2013[9]:

- 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 11: FMD distribution by serotype and topotype for southern Africa, 2011 – 2013 (EuFMD)



G. POOL 7 – South America

South America [9, 13]:
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 12 and Map 12).

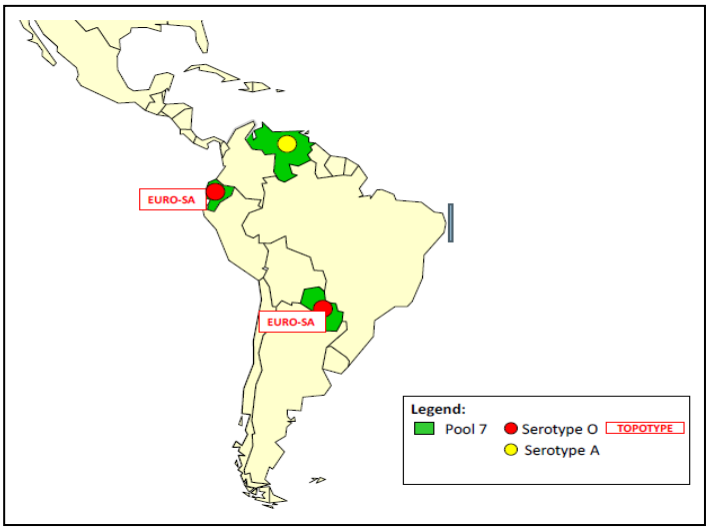
The FMD history between 2011 –2013 is given in Table 12.

Table 12: Summary of the history of FMD Pool 7, 2011 – 2014, for geographic distribution see Map11 below

COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE in 2011 2013	LAST OUTBREAK REPORTED/SEROTYPE
Ecuador	O	Aug 2011/O
Paraguay	O	Dec 2011/O
Venezuela	O, A	2011/O, A

In the annual report of the OIE/FAO Foot-and-Mouth Disease Reference Laboratory Network it was reported that South America is making now concrete progress of the regional control programme to achieve FMD-free status since no clinical cases due to FMD have been reported in 2013, and it is now two years since any outbreaks have been reported across the entire continent (last reported outbreak in Paraguay in 2012). During 2013, no samples have been collected from suspect field cases and sent to FMD reference laboratories.
In the 82nd OIE General Session held in May 2014, Bolivia has been recognized as FMD free country (with areas with and without vaccination), Argentina has been granted the recognition of a new zone, Patagonia Norte A, as FMD free where vaccination is not practiced and Ecuador official control program of FMD has been approved. Sero-surveys not only have been undertaken in Ecuador, Bolivia and Paraguay but also in other countries of the Region as Argentina, Brazil, Uruguay, Peru, etc.

Map 12: FMD distribution by serotype and topotype for South America, 2011 – 2013 (EuFMD)



IV. OTHER NEWS:

Cambodia, Myanmar, Malaysia, Thailand and Vietnam[11] **–** no reports of new outbreaks have been reported in May, 2014, however those reported previously for FMDV serotype O in Cambodia, Mynamar, Malaysia and Viet Nam and for FMDV serotype A in Thailand are still ongoing.

Botswana [2]**-** Following mass vaccination of cattle in NGAMILAND due to FMDV Serotype SAT 2 outbreaks, first reported on the 12th of June, 2012, the country has reported the episode as closed.

New Zealand [13] - The country has joined the well-established Australian FMD training programme in Nepal, which has engaged the FAO to provide veterinarians and key livestock industry representatives the opportunity to experience FMD in the field."

Nigeria[14] – During the month of May, Dr. Ularamu Hussaini has been for 3 weeks on training for FMD at the World Reference Laboratory for Foot-and-Mouth Disease, Pirbright, UK.

North Korea[3] - Democratic People's Republic of Korea (DPRK)
Following the numerous outbreaks reported in DPRK in the 1st quarter of 2013, on 13 March 2013 a team from the Emergency Prevention System for Animal Health (EMPRES-AH) at FAO led a week-long mission to DPRK to support the Government's response to FMD outbreaks were it assessed the FMD outbreaks and reviewed the control measures and diagnostic procedures taken by DPRK authorities in order to provide advice on how to improve these measures and laboratory procedures.

In the future, FAO will assist the Government of DPRK to develop an action plan for managing short- and medium-term control measures in providing tools to control the situation autonomously.

At present, the outbreak sources remain unclear but the low biosecurity levels may have contributed to the resurgence of the disease since the last outbreak in 2011. Limited means and a lack of active surveillance data since 2011 have impeded a rapid and efficient response to the outbreak.

Diagnosis is conducted on clinical basis while the national reference laboratories are not equipped for a laboratory diagnosis of the disease and virus typing is sent to an international reference laboratory, for which FAO provides sample collection and shipping materials. Furthermore, an efficient vaccination and virus strain typing is also

necessary. Since the country currently lacks available vaccine to prevent the disease, OIE will provide some from its vaccine bank.

The FAO team has discussed an action plan with the DPRK CVO and his staff, advising on the need to:

- implement control and surveillance guidelines detailed in 2011 to isolate farms and stop all traffic of animals and animal products in larger areas;
- continue to raise awareness and promote early detection; maintain isolation measures in pig farms for two to four months after the last FMD signs have been observed;
- collect more samples and dispatch as soon as possible for test and analysis; and
- implement strategic vaccination in the event of more vaccine becoming available in the future.

Recommendations have also been given to protect the still FMD-free area by "freezing" within clusters the outbreaks for at least three months by control of animal movement, increasing awareness and adoption of basic bisoecurity among farmers.

Other recommendations given by the FAO were that the Government of DPRK participates as observer in the Southeast Asia and China FMD campaign. As a result of this mission, FAO is considering a new emergency Technical Cooperation Project (TCP) to enhance laboratory, biosecurity and epidemiological capacities in DPRK.

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