Foot-and-Mouth Disease situation

Food and Agriculture Organization of the United Nations

Monthly Report

March 2012

Information sources used:

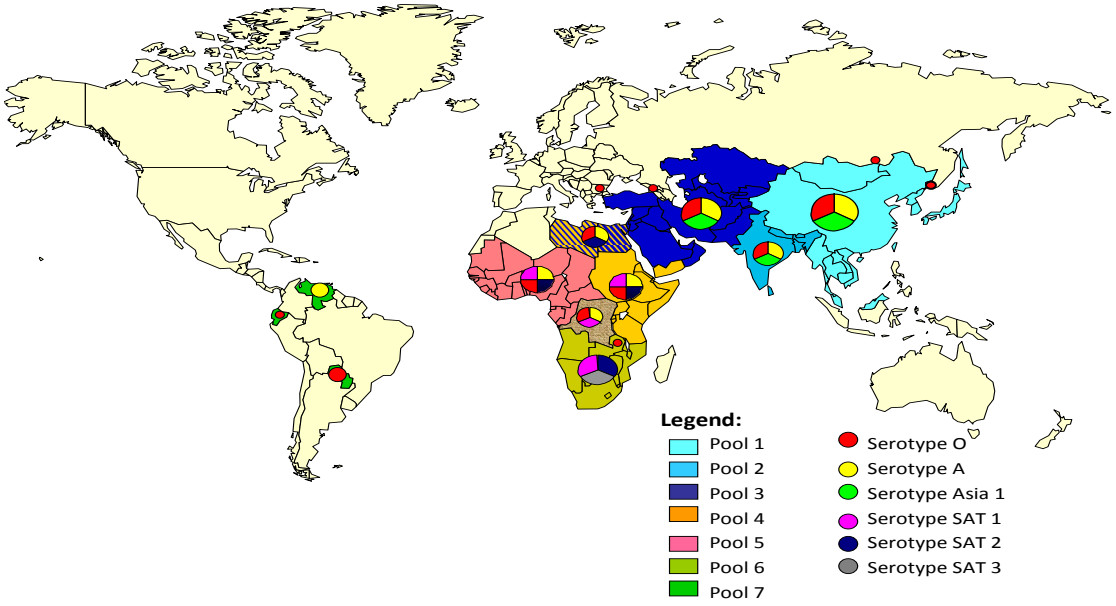
Databases:
Emergency Prevention System-Animal Health/Global Early Warning System (EMPRES-AH/GLEWS)
FAO EMPRES-i Global Animal Disease Information System
OIE WAHID World Animal Health Information Database

FAO World Reference Laboratory for FMD (WRLFMD)

Other sources:
FAO/EuFMD supported FMD networks (EARLN-FMD Eastern Africa, RESOLAB-FMD West Africa)
FAO/EuFMD projects and field officers
Crisis Management Centre-Animal Health (CMC-AH)

*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.*

Foot-and-mouth disease (FMD) distribution by Serotype and the seven virus pools, 2010-2012



HEADLINE NEWS

Pool 1:

- **Russian Federation[1]:** two Serotype O (PanAsia2) outbreaks in Primorskiy Kray, less than 50 km from the far southeastern border with China (Cattle and small ruminants affected).
- **China (Taiwan Province)[1]**: Serotype O (CATHAY topotype) outbreaks in pigs in continuing. Of note: Four outbreaks of Serotype O [Southeast Asia (SEA) topotype] recently occurred in Kinmen County, an island, under the authority of Taiwan Province and located just offshore from the China Mainland (this is the first time this topotype has occurred in Taiwan Province).
- **China (Mainland)[1]**: Serotype O outbreak in cattle in Central North China, Ningxia - vaccination in response to the outbreak. FMD Serotype O, topotype PanAsia, was also reported in Ningxia 16/10/11[1].

Pool 2: insufficient information received on the epidemic situation to suggest headlines.

Pool 3:

- **Western Turkey[3]:** Asia 1 epidemic (except for Turkish Thrace). Incursions of new genotypes A and O viruses detected.
- **Egypt[1], Libya[1] and Palestinian Autonomous Territories [the Gaza Strip][1]:** Serotype SAT 2, topotype VII, outbreaks in cattle (incursion from Pool 5).
- **Bahrain [1]:** Serotype SAT 2, topotype IV, (incursion from Pool 4).
- **Israel[1]:** Serotype O in sheep.

Pool 4:

- **Kenya[6]:** Serotypes O and SAT 2 outbreaks in cattle.

Pool 5:

- Boundaries of Pool 4 and Pool 5 are under review (WRL with FAO), reflecting the questions raised by the genotyping of the recent multiple SAT 2 Serotypes in North Africa and by the Eastern Africa FMD Laboratory Network Meeting in Nairobi.

Pool 6:

- **South Africa[1]:** Serotype SAT 2 outbreaks in cattle.

Pool 1. CENTRAL / EAST ASIA

Country	Data WRL FMD[4] 2011	Data from field officers[3] 2011	Reported serotype/outbreaks in OIE 2012[1]*		Reported serotype/outbreaks in OIE 2011[1]*		Reported serotype/outbreaks in OIE 2010[1]*	
			Serotype	No of outbreaks	Serotype	No of outbreaks	Serotype	No of outbreaks
Cambodia	O		...		?	88	O	138
China (People's Rep. of)		Asia 1?	O	1	O	8	O, A	20
China (Hong Kong, SAR)	O		...		...		O	4
China (Taiwan Province)			O	11	O	9	O	4
Japan			...		Reported as absent.		O	292
Korea (DPR)	O		...		O	104	...	
Korea (Rep. of)	O		...		O	155	O,A	89
Lao PDR	O		...		...		O	1
Malaysia	O		...		O, A	28	O, A	51
Mongolia			...		2010 event resolved 01/09/2011		O	9
Myanmar			...		23/03/2011 – report confirming no new outbreaks		O, A	10
Russian Federation			O	2	O	1	O	2
Thailand			...		O, A	48	O, A	35
Viet Nam	O, A		...		O	449	O, A	280

Note: Molecular evidence indicates Asia 1 circulates for long periods in Southeast Asia/China with gaps between reporting/isolation, with big epidemics seen less frequently than for O and A. Absence from reports does not equal evidence of absence.

* See Annex 1 at the end of this report for Legend for new codes used regarding OIE outbreaks in this and subsequent tables.

New events in Pool 1

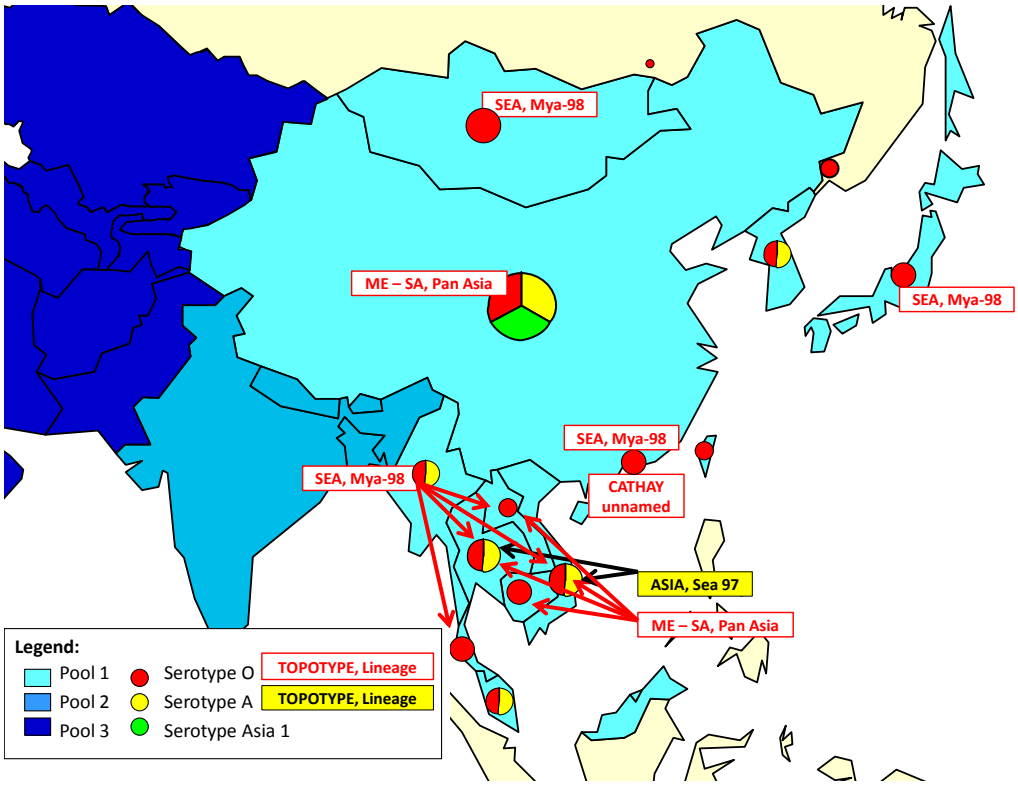
Russian Federation: Far East Federal District – two outbreaks involving clinical signs in cattle and small ruminants, sited less than 50 km from the border with China. The area is part of the Russian Federation "buffer zone", therefore all animals are vaccinated routinely, twice a year, against FMD. The results of nucleotide sequencing, followed by a phylogenetic analysis (15/03/2012), showed that

the FMD isolate belongs to O PanAsia genetic lineage and is genetically close to the isolates involved in the FMD outbreaks in China and Eastern Kazakhstan in 2011.

China (Peoples Republic of): 19/02/2012, recurrence of disease in Ningxia: four cattle of 51 showed clinical signs of FMD. Sertotype O confirmed.

Taiwan (POC): Commencing 26/01/2012, four outbreaks (Serotype O) occurred in pigs in Kinmen County, an island just offshore from China Mainland.

Pool 1. FMD distribution by Serotypes 2010 – 2012



Comments for results available (WRL)[4] in 2011

Cambodia:

Date received: 28/07/2011 (collected 2010)

No. of samples: four; Serotype O: two were of topotype: ME-SA, PanAsia

China, PR:

In the first half of 2011 VP1 sequence data provided by the Lanzhou Veterinary Research Institute (and submitted to GenBank – accession number JF837375) showed the virus to belong to the ME-SA/PanAsia lineage and to be closely related to recent viruses from Viet Nam.

FMD continued to be reported in the second half of 2011, all were Serotype O, no further sequencing data has been reported.

13/07/2011: start of outbreak in Guizhou in ruminants and pigs – over 60% morbidity in cattle and pigs. 5% morbidity reported in sheep/goats.

31/08/2011: start of outbreak in Shannan, Tibet, in cattle – six of 1744 showed clinical signs and six died.

30/09/2011: start of outbreak in Linzhi, Tibet, in ruminants/pigs – only cattle showed clinical signs.

16/10/2011: start of outbreak in ruminants in Ningxia.

27/12/2011: start of last reported outbreak of 2011 – Hubei province in 71 pigs – 33% morbidity.
All 2011 outbreaks reported as resolved by 09/01/2012.
The China PR outbreaks in 2011 covered a wide area of the country and were all Serotype O: Xinjiang in the west, towards (but not close to) the border with Kazakhstan; Tibet; Guizhou, towards the southeast; Ningxia in the north, towards (but not close to) Mongolia.

China (Mainland)[1]: Locations of officially reported FMD outbreaks, occurring in 2010 -2011.

Hong Kong SAR, P.R. China:
Date received: 07/12/2011; No. of samples: two, both were Serotype O topotype: CATHAY, unnamed
Date received: 15/09/2011; No. of samples: five, all were Serotype O topotype: CATHAY, unnamed

Lao PDR*:*
Date received: 28/07/2011; No. of samples: four;
O: one was of topotype: SEA, Mya-98
O: three were of topotype: ME-SA, PanAsia

Malaysia
Date received: 09/12/2011; No. of samples: 29
O: one was of topotype: SEA, Mya-98
A: six were of topotype: ASIA, Sea-97

***Thailand**:*
Date received: 28/07/2011; No. of samples: 17
O: one was of topotype: ME-SA, PanAsia
O: five were of topotype: SEA, Mya-98
A: 11 were of topotype: ASIA, Sea-97

Taiwan Province of China:
Outbreaks continued to be detected on serological surveillance only, until:
30/10/2011 – five pigs from Taiwan Island in quarantine on Penghu Island showed vesicles and FMD was confirmed. Tracing and surveillance have detected no other infected animals in or around farm of origin.
07/12/2011 – one pig at a slaughter house showed vesicles and FMD was confirmed. Tracing and surveillance have detected no other infected animals in or around farm of origin.

19/12/2011 - pigs with vesicles confirmed FMD Serotype O on Taiwan Island.
19/01/2012 - pigs from the main island of Taiwan were quarantined on Pehghu Island; they showed vesicles and tested positive for FMD Serotype O. No FMD found around the farm of origin.
26/01/2012 and 01/02/2012 - clinical signs in two pig farms on Kinmen County – a small island close to the coast of mainland China. The first outbreak has been confirmed as Serotype O topotype SEA.

Viet Nam:
Date received: 28/07/2011; No. of samples: seven
O: one; topotype: SEA, Mya-98
O: five; topotype: ME-SA, PanAsia
A: one; topotype: ASIA, Sea-97

Date received: 03/01/2012: No. of samples: two
O: two; topotype ME-SEA, PanAsia
Species affected: Pigs.

Pool 2. SOUTH ASIA

Country	Data WRL FMD[4] 2011	FAO-ICAR International conference 2012[7]	Reported serotype/outbreaks in OIE 2012 (immediate notifications)[1]		Reported serotype/outbreaks in OIE 2011		Reported serotype/outbreaks in OIE 2010 (annual report)[1]	
			Serotype	No of outbreaks	Serotype	No of outbreaks	Serotype	No of outbreaks
Bangladesh					...	?	+..	
Bhutan					?	4	?	5
India		O, A, Asia 1			O, Asia 1	439	O, A, Asia 1	422
Nepal					O, Asia 1	72	O	22
Sri Lanka	O				O	5	O	18

New events in Pool 2

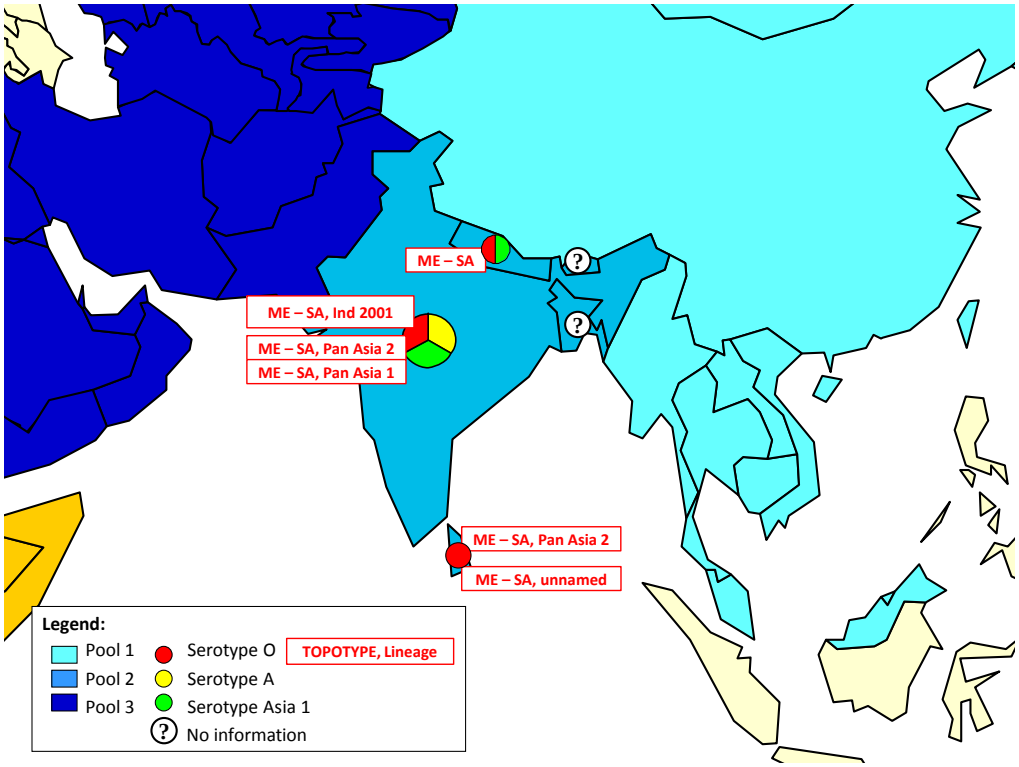
- **Pakistan:** WRL reports that Serotype A topotype ASIA, genotype Iran-05[Her-10] has been detected in a sample taken from cattle on 16/01/2012 in Peshwar.

Significant events in Pool 2 from previous months

- ***India[9]:*** *The following comes from the FAO reference Centre for SAARC countries (PD-FMD, India). [Note that is difficult to compare Serotypes A and Asia 1 nomenclature to those used in other regions as this Reference centre uses it own terminology.]*

*In **India**, three Serotypes have been recorded in 2010-2011. Serotype O is the dominating one followed by Serotypes Asia 1 and A. Emergence and re-emergence was observed in Serotypes O and Asia 1, as part of their evolutionary process. Re-emergence was not observed in the case of Serotype A, where it seems that, as the new sub-genotypes or genotypes appear, the old ones disappear, a phenomenon that has been termed as "lineage turnover". In case of Serotype O, different lineages co-circulate at the same period. During the last five years, the epidemiological scenario of Serotype O has been largely influenced by PanAsia and Ind 2001 strains in India. In 2010-2011, lineage Ind 2001 dominated, as outbreaks were recorded in 10 out of 12 states where disease due to Serotype O occurred. PanAsia II was responsible for the disease in West Bengal, Arunachal Pradesh and Maharashtra. PanAsia I case in cattle occurred in Punjab. For Asia 1, exclusive dominance of particular lineage ("Lineage C"") was observed. For Serotype A, the phenomenon of co-circulation followed by genotype turnover was observed. Only "Genotype 18" Serotype A viruses have been found in India since 2001, with cycles of FMDV belonging to one unique lineage (VP3[59]-deletion group) and non-deletion lineages. In 2010-11, the deletion lineages predominated in the epidemic spread. Emergence and re-emergence of lineages have not always resulted in antigenic deviation to a large extent in Serotypes O and Asia 1, but resulted in significant antigenic divergence in Serotype A, necessitating change of the vaccine strain.[7]*

Pool 2. FMD distribution by Serotypes 2010 - 2012



Comments for results available (WRL)[5] in 2011

Sri Lanka: Date received: 28/07/2011; No. of samples: two

O: one (2010); topotype: ME-SA, unnamed;

O: one (2011); topotype: ME-SA, PanAsia-2

Pool 3. WEST EURASIA & MIDDLE EAST

Country	Data WRL FMD[4] 2011	Field Officers Data[3] 2011 & 2012	Reported serotype/outbreaks in OIE 2012[1]		Reported serotype/outbreaks in OIE 2011[1]		Reported serotype/outbreaks in OIE 2010[1]	
			Serotype	No of outbreaks	Serotype	No of outbreaks	Serotype	No of outbreaks
Afghanistan	A, O, Asia 1				A, O, Asia 1	294	O, A	333
Armenia					Reported as absent.		...	...
Bahrain	A, O, Asia 1		(SAT 2)*	(1)*	?	10	?	4
Bulgaria	O				O	11	Reported as absent.	
Egypt			SAT 2	43	Reported as absent.		O, A	7
Georgia	O				Reported as absent.		Reported as absent.	
Iran	O, A, Asia 1	O, A, Asia 1			O, A, Asia 1	1304	O, Asia 1, A	4846
Iraq					...		A, O	104
Israel	O		O	1	O	16	Reported as absent.	
Jordan					...		Reported as absent.	
Kazakhstan			O	5	O	11	O	1
Kuwait	O				O	3	Reported as absent.	
Kyrgyzstan					...			
Lebanon					Reported as absent		?	Yes
Libya	O		O, A, SAT 2	24	...		O	2
Oman					O	122	O	122
Pakistan	O, A, Asia 1				A, O, Asia 1		?	Yes
Palestine Autonomous Territories			SAT 2	1 (April)	?	1	?	1
Qatar					Report of zero incidence 1st half 2011.		?	yes
Saudi Arabia					Suspected, but not confirmed		?	yes
Syrian Arab Republic					Reported as absent.		Reported as absent.	
Tajikistan			Asia 1		ASIA 1	1	Reported as absent	
Turkey	O, A Asia1	O, A Asia1			O, A Asia1	1045	A, O	1626
Turkmenistan					....		...	
United Arab Emirates	O							
Uzbekistan							No details have been submitted	

( )* - *identified in the quarantine centre*

New events in Pool 3

- **Libya**[1]: Serotype O and A outbreaks in cattle, sheep and goats. *Serotype O, PanAsia-2ANT-10 lineage was confirmed by WRLFMD in samples collected in Libya in January 2012 from cattle and sheep*[3]*. The genotyping shows close relation with previously isolated in Libya viruses.*
- **Egypt**[1] **and Libya**[1]**:** Serotype SAT 2 outbreaks cattle, were topotype VII, but not phylogenetically closely related.
- **Palestinian Autonomous Territories (the Gaza Strip)**[4]**:** one outbreak of Serotype SAT 2 topotype VII; confirmed as identical to four of the 2012 Egypt FMD Serotype SAT 2 viruses.
- **Israel**[1]**:** 18/03/2012- Serotype O - Rahat, Beer-Sheva, Hadarom - Lambs were bought from unknown origin and introduced into the herd.
- **United Arab Emirates**[4]: location unknown – Goat sampled 23/12/2011 Serotype O topotype ME-SA Strain PanAsia-2
- **Bahrain4**: SAT 2: topotype: IV. Cattle were identified in a quarantine center, samples were collected on 6 March 2012 to be infected with FMD. The closest related virus was SAT 2/KEN (2009): 97.22% identical.
- **Turkey**[3]**:** West Eurasia 3rd Progress Meeting, Istanbul, 23-26 March 2012. In 2008, in response to repeated epidemic FMD events and requests for assistance by the affected and at risk countries, FAO convened a meeting of 14 countries from the West Eurasia region in Shiraz, Iran, to develop a long term (2020) vision for FMD control in the region.

  The FAO developed Progressive Control Pathway (PCP) was utilized to develop national and regional action plans and support.

  One of the most serious threats to the FMD situation in the region has been the reduced effectiveness of vaccines against FMD:

  There have been three epidemics of regional significance in the past three years:

  A Iran-05 2008-2012
  O PanAsia-II^{ANT-10} 2009-2012
  Asia 1 (Group VII) 2008-2012.

  A Iran-05 is evolving at a rate that produces new sublineages within three years.

  O PanAsia is evolving at a rate that produces new sublineages within five to six years.

  Asia 1 was detected in Turkey in June 2011, for the first time in nine years, and it is a new Group VII virus that is not blocked by the traditional Asia 1 vaccines and presents a serious threat to Turkey – the table below indicates how this new Asia 1 (Group VII) has come to dominate the other serotypes in Turkey:

Reporting period	% Serotype O	% Serotype A	% Serotype Asia 1
2011	11%	55%	9%
2012	< 2%	20%	67%

  As FMD viruses evolve, the effectiveness of existing vaccines decreases.

  In addition to the new Asia 1 (Group VII) virus not being affected by the traditional Asia 1 vaccines (Shamir), recent Group II viruses are also not neutralized by the Shamir vaccine.

  Vaccine strain O Manisa is only 59% matched for FMDVs isolated from Euro-Asia, 2010-2011.

  Vaccine strains A22 Iraq and A Iran 2005, only match 32% and 47% for FMDVs isolated from Euro-Asia 2010-2011. The best match is A TUR 06 at 88%.

  In response to the reduced effectiveness of vaccines in the region, new vaccine matches have been identified/developed:

  Vaccines O Ind R2/75, O 4625 and O TUR 09 were 100% matched with Euro-Asia FMDV O isolates from 2010-2011.

  SAP Institute Turkey has recently prepared a new vaccine using Asia 1 (Group VII) and this is currently being tested with promising results.

Note: The following is an excerpt from the 83rd Session of the Executive Committee of the European Commission for the Control of Foot-and-Mouth Disease (EuFMD), held at Bucharest, Romania 12-13 April 2012, regarding the situation in Anatolia, Turkey, for the new FMD Serotype Asia 1 and also the potential for a Serotype O epidemic in Anatolia, Turkey –

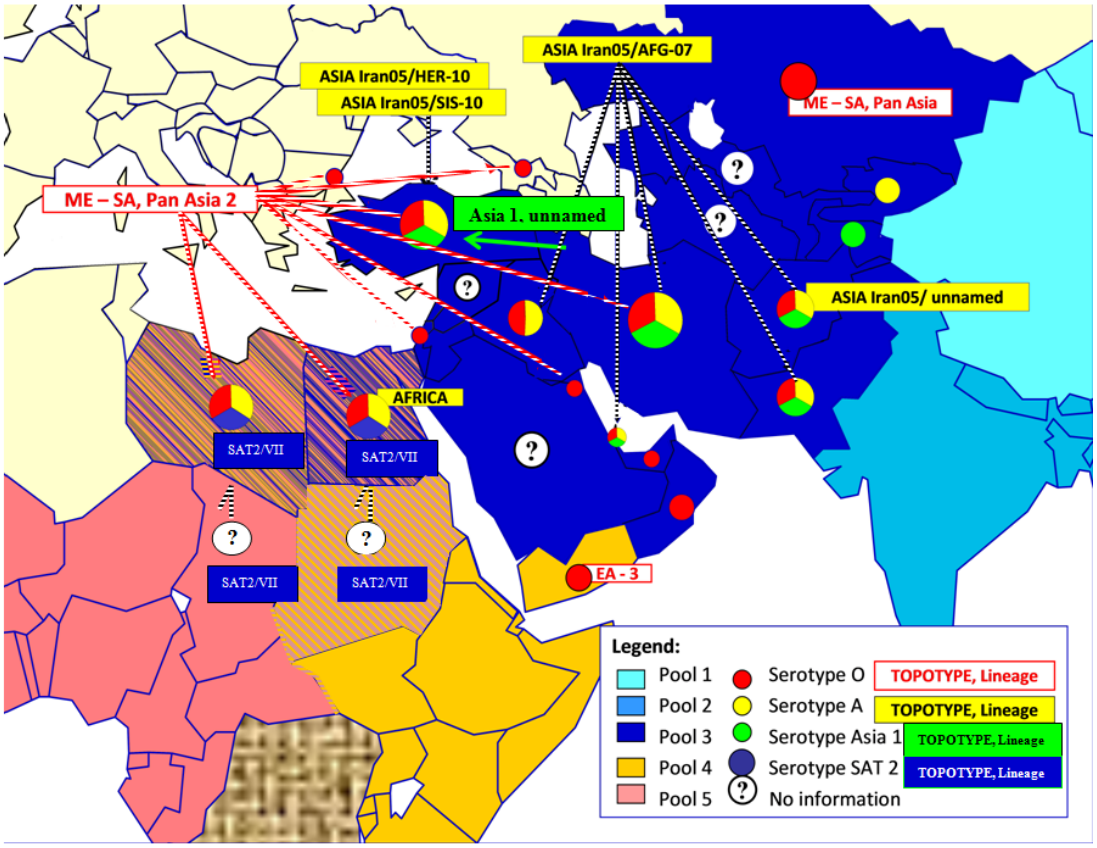
"The FMD situation in spring 2012 is serious, with the autumn epidemic of Asia 1 becoming widespread to all corners of Anatolia in late 2011 and continued high level in western Turkey in spring 2012; the lack of reports from Eastern Anatolia were considered to result from difficult winter conditions for reporting.

Outbreaks of Asia 1 predominated in January-March 2012, but a Serotype O epidemic may be starting, with evidence of an incursion of O PanAsia II FAR-09 lineage and re-appearance, possibly from a wild boar reservoir, of the O PanAsia II BAL-10 lineage. Serotype A outbreaks are also circulating, with A Iran 05 USK-11 lineage causing seven of the 16 Serotyped outbreaks in 2012".

Significant events in Pool 3 from previous months

- **Tajikistan**[1]: Serotype Asia 1 in cattle and goats **–** near the border with Kyrgyzstan, but no further outbreaks reported since 06/12/2011.
- **Kazakhstan**[3]: Serotype O topotype PanAsia I epidemics in Kazakhstan, in 2011, are evidence of the FMD movements associated with transborder animal movements between Kazakhstan and Xinjiang, China, which has an ethnic Kazakh population.
- **Kyrgyzstan**[2]: Serotype A in cattle (A-Iran-5)**.**

Pool 3. FMD distribution by Serotypes 2010 - 2012



Comments for results available (WRL)[4] for Pool 3 in 2011

Afghanistan and Pakistan
The O/ME-SA/PanAsia-2ANT-10 and A-Iran-05AFG-07 lineages continue to dominate in these countries. A new, as yet unnamed, A-Iran-05 lineage was found in Afghanistan.

Bahrain
Date received: 03/11/2011; No. of samples: four
Two samples Serotype O, topotype: ME-SA Lineage: PanAsia-2^{ANT-10}
One sample Serotype A, topotype: ASIA Lineage: Iran-05^{HER-10}

Date received: 30/03/2012; No. of samples: two
Two samples Serotype SAT 2, topotype: IV
Cattle were identified in a quarantine center in March 2012 to be infected with FMD. Phylogenetic analysis identified the closest related virus as SAT 2/KEN (2009): 97.22% identical.

Bulgaria
Date received: 05/04/2011; No. of samples: six
Serotype O: topotype ME-SA, Lineage: PanAsia-2^{ANT-10}

Israel
Following 12 outbreaks of FMD Serotype O in the Hazafon/Haifa and Hadarom areas between April and June 2011, six further outbreaks were reported in the Hazafon area at Shamir, Tsefat (24/06/2011), Shirion Junction, Golan (30/06/2011), Orcha Junction, Golan (18/07/2011), Devora, Yizreel (10/07/2011), Dalton, Tsefat (10/07/2011) and Mi'elya, Acco (26/07/2011). All outbreaks involved only cattle. Viruses isolated at the WRLFMD all belonged to the ME-SA topotype, PanAsia-2ANT-10 lineage.

Kazakhstan
An outbreak of FMD O occurred in cattle on the 11/08/2011 at Karashilik, Kurchumskiy, East Kazakhstan. A sample was submitted to the FGI-ARRIAH and the VP1 sequence provided to the WRLFMD. Phylogenetic analysis showed the sequence to belong to the ME-SA topotype, PanAsia lineage and was closely related to sequences obtained from viruses occurring in Viet Nam and P.R. China (Guizhou province) (= incursion from Pool 1).

Kuwait
Two samples from cattle received on 18/07/2011. Phylogenetic analysis showed the sequence to belong to Serotype O, ME-SA, PanAsia-2ANT-10.

Libya
Serotype O, PanAsia-2ANT-10 lineage confirmed in samples from cattle and sheep in Jan 2012.

South Ossetia / Tskhinvali Region Georgia (disputed)
An outbreak of FMD Serotype O occurred in cattle on 05/08/2011. Laboratory diagnosis took place at the FGI-ARRIAH and the VP1 sequence was provided to the WRLFMD. The virus belonged to the ME-SA topotype, PanAsia-2ANT-10 lineage.

Turkey
The WRLFMD reported on the 5 March 2012:
Serotype O,topotype ME-SA, PanAsia-2 ANT-10 – one sample in December 2011.

Serotype A, topotype ASIA, Iran-05 SIS-10 – three samples in December 2011, three samples in January 2012.
Serotype Asia 1, topotype ASIA, lineage unnamed.
All the above originate in Anatolia.
Also reported: One FMDV-GD (FMDV genome detected by RT-PCR, but no virus isolated).

United Arab Emirates
23/12/2011 collected from a goat, location unknown – O: topotype: ME-SA, Lineage:PanAsia^{-2}
29/03/2010 collected from Arabian Gazelle at Al Ain - O: topotype: ME-SA, Lineage:PanAsia^{-2}

Note: *FMDV Serotype Asia 1 was detected in Pakistan (December 2010 in Bahawalpur, Punjab and December 2010/January 2011 in Karachi, Sindh). These viruses are closely related to previous viruses isolated from Sindh in 2008-2009. Subsequently, closely related Asia 1 viruses were detected in Bahrain (February 2011).*
Asia 1 epidemics periodically spread from the Indian sub-continent across the Middle East entering Turkey, and on two occasions (1984 and 2000), even Greece. These epidemics have been recorded in 1973-1974, 1983-1984 and 1999-2000.
[WRLFMD, 2011, http://www.wrlfmd.org/fmd_alerts/asia_1_2011.htm]

Pool 4. EAST AFRICA

Country	Data EARLN 2011/ 2012	Data from field officers[3] & NTC[6] 2011 & 2012	Reported serotype/outbreaks in OIE 2012 (immediate notifications)[1]		Reported serotype/outbreaks in OIE 2011 (1st 6 month report or/and annual report or/and immediate notifications)[1]		Reported serotype/outbreaks in OIE 2010 (annual report)[1]	
			Serotype	No of outbreaks	Serotype	No of outbreaks	Serotype	No of outbreaks
Burundi		O A SAT1 SAT 2[8]			...		...	
Comoros					...		?	2
Congo D. R.	O, A				O, A, C*, SAT 1	2	+..	
Djibouti					Reported as absent.			
Egypt			SAT 2	8	Reported as absent.		O, A	7
Eritrea					...		...	
Ethiopia					A, SAT 1, SAT 2, O	15	A, O, SAT 1, SAT 2	67
Kenya	O, SAT 1	A, SAT 1, SAT 2, O			O, SAT 1	60	O, SAT 1, SAT 2, A	103
Libya	O		O, A, SAT 2	14	...		O	2
Rwanda					...		A, O, SAT 2	7
Somalia					?	39	?	+?
Sudan		O, A SAT 2			?	9	?	9
Tanzania		SAT 1 SAT 2 SAT 3			SAT 2	7	?	51
Uganda		O[3] A[8] SAT 1 SAT 2 SAT 3			O	15	?	4
Yemen					...		O	176

** In the 2011 Jan-Jun report Congo D.R reported Serotype C to the WAHIS database of the OIE. Data was rechecked and not confirmed by the local authorities. However the notification of Serotype C still remains in WAHIS.*

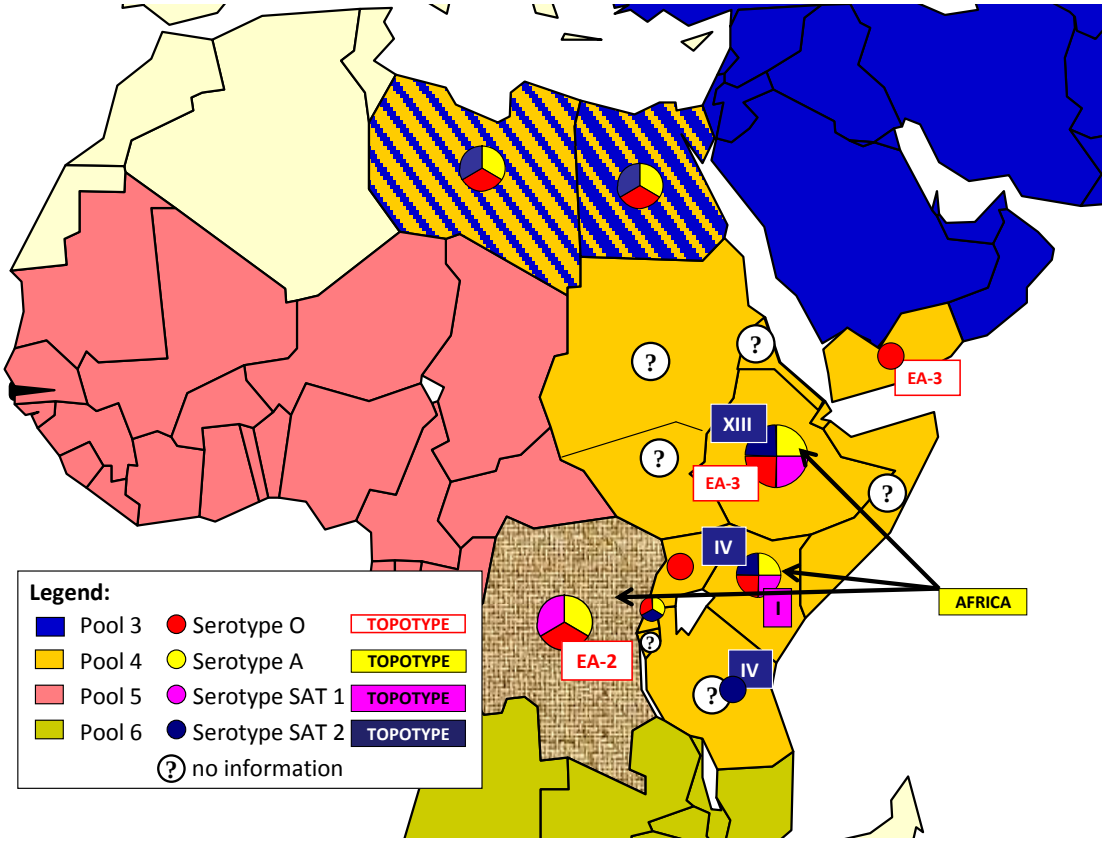
New events in Pool 4

- **Egypt and Libya and Palestine[1]:** Serotype SAT 2 outbreaks in cattle.

Significant events in Pool 4 from previous months

- **Kenya[6]:** Serotype O in the Rift Valley (Nakuru, Laikipia) in January 2012; and Serotype SAT 2 in Nakuru in autumn 2011 and continuation into 2012 (Naivasha)[6]
- **Tanzania[4]:** SAT 2, topotype IV from cattle
- **Eritrea[8]:** severe epidemic of FMD in 2011
- **Ethiopia[8]**: samples were submitted for the 2011 – 2012 outbreak; testing identified Serotype O topotype EA-3 and one sample, from the Tigray Province (closest to Sudan) was specifically identified as Serotype O topotype EA-3[Sudan]

Pool 4: FMD distribution by Serotypes 2010 – 2012



Comments for results available (WRL)[4] in 2011

Democratic Republic of the Congo (DRC)

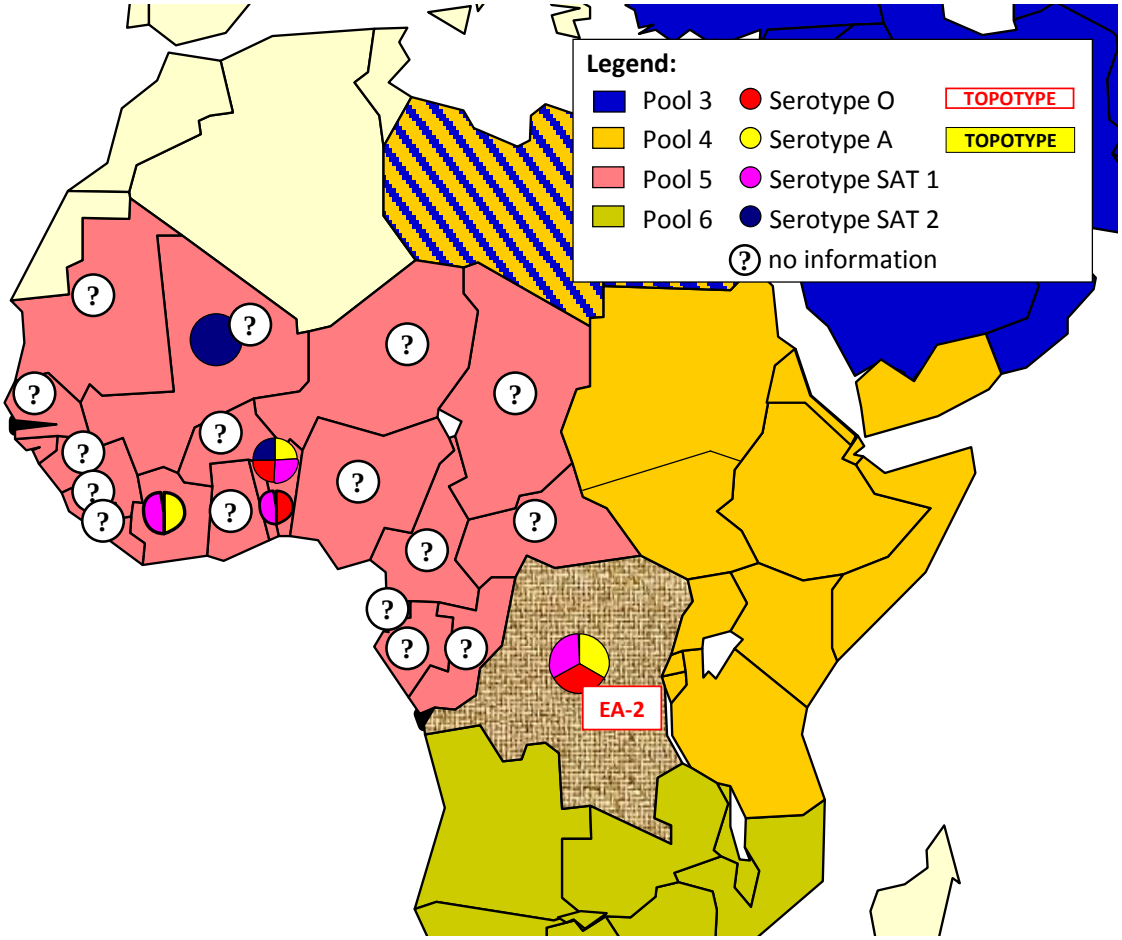
The World Reference Laboratory for FMD (WRLFMD) received samples from the DRC on 29 September 2011 and completed the testing on 18 October 2011. FMD Serotype O **(topotype: EA-2)** was found in epithelial tissues samples collected from cattle in October 2010 and FMD Serotype A (**topotype: AFRICA)** was found in epithelial tissue samples collected from cattle in February 2011. The Serotype O is close to the northern Zambian incursion outbreaks of last year, suggesting closer links that would link these events. The Serotype A (may be the first time for DRC, that we know of) is related to East African pool (Kenya and Tanzania recent isolates, but sufficiently different to suggest local evolution).

Pool 5. WEST AFRICA

Country	Data RESOLAB 2011/ 2012	Data from field officers[3] 2012	Reported serotype/outbreaks in OIE 2012[1]		Reported serotype/outbreaks in OIE 2011[1]		Reported serotype/outbreaks in OIE 2010[1]	
			Serotype	No of outbreaks	Serotype	No of outbreaks	Serotype	No of outbreaks
Benin					A, O, SAT 1, SAT 2	22	A, O, SAT 1, SAT 2	39
Burkina Faso					?	48	?	111
Cameroon	pending				?	35	?	32
Cape Verde					No details submitted			
Central African Republic					...		?	11
Chad					...		?	2
Congo D. R.	O, A				A, C, SAT 1	3	O	?
Congo R.					...		...	
Cote d'ívoire		no known outbreaks			SAT 1, A	13	?	15
Equatorial Guinea					Disease suspected but not confirmed.		?	
Gabon					Reported as absent			
Gambia	pending	no known outbreaks			No details submitted.			
Ghana	43 samples ELISA pos.	no outbreaks reported			?	57	?	39
Guinea Bissau					Reported as absent			
Guinea					...		...	
Liberia					No details submitted.			
Mali	SAT 2				?	3	?	4
Mauritania					...		...	
Niger					?	37	?	72
Nigeria	no virus detected				?	10	?	17
Sao Tome & Principe					No details submitted.			
Senegal	no virus detected				?	12	?	6
Sierra Leone					Reported as absent			
Togo	FMDV				O, SAT 1	79	O, SAT 1	42

No new or significant events in Pool 5 identified during this reporting period.

Pool 5. FMD distribution by Serotypes 2010 - 2012



Comments for results available (WRL)[4] in 2011

Democratic Republic of the Congo (DRC) - See pool 4.

Pool 6. SOUTHERN AFRICA

Country	Data WRL FMD[4] 2011 - 2012	Data from field officers[3] 2011 - 2012	Reported serotype/outbreaks in OIE 2012 (immediate notifications)[1]		Reported serotype/outbreaks in OIE 2011 (1st 6 month report or/and annual report or/and immediate notifications)[1]		Reported serotype/outbreaks in OIE 2010 (annual report)[1]	
			Serotype	No of outbreaks	Serotype	No of outbreaks	Serotype	No of outbreaks
Angola					SAT 2	?	SAT 2	1
Bostwana	SAT 2				SAT 2	3	SAT 2	1
Congo D. R.	O, A				A, C, SAT 1	2	+..	
Malawi					SAT 2	2	+..	
Mozambique					SAT 2	1	SAT 2	10
Namibia			SAT 1	1	SAT 1	4	SAT 1	1
South Africa	SAT 2, SAT 3	SAT 3	SAT 2	2	SAT 1	46	SAT 1	6
Zambia					O	1	O	1
Zimbabwe	SAT 2				SAT 2	10	SAT 2	9

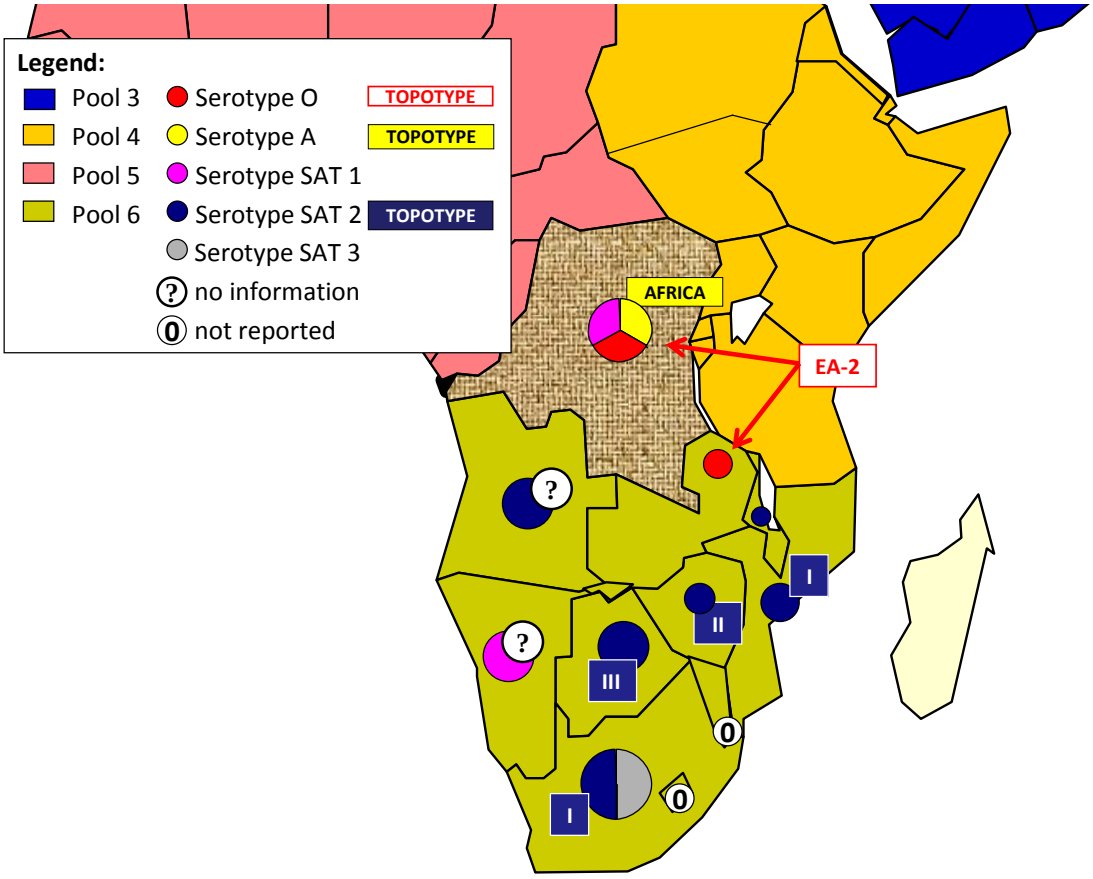
New events in Pool 6

- **South Africa[1]:** Serotype SAT 2 outbreaks in cattle in January 2012 – in Mpumalanga within South Africa's surveillance zone of their FMD control zone. Cattle in this zone are vaccinated against FMD. Vaccination for FMD is prohibited in the rest of South Africa. These outbreaks are in a different locality from the 2011 outbreaks (which have now been confirmed as SAT 1). The 2012 outbreaks were located at a diptank near the Kruger National Park. Most of the 2011 outbreaks were about 350 km away, near the border with Swaziland.
- **Mozambique[1]**: 10/02/2012 – SAT outbreak commenced 2010, resolved – no new outbreaks in nine months.

Significant events in Pool 6 from previous months

- **Namibia[1]**: 2011/2012 outbreaks in the extreme east of the country, near Zambia, Zimbabwe and Botswana. Based on partial ID genetic sequencing, the current SAT 1 strains are 100% identical to each other and differ by 6% from a previous SAT 1 strain reported at Impalila island in 2010. It also clusters with Botswana SAT 1 isolates from 1998 and 2006 with a nucleotide difference of 11% and 12%, respectively, as part of the western topotype. Contact with wild African buffaloes (*Syncerus caffer*) reported.
- **South Africa[1]:** Serotype SAT 1 confirmed.

Pool 6. FMD distribution by Serotypes 2010 – 2012



Comments for results available (WRL) [4] ***in 2011***

Botswana

Previously, in February 2011, an outbreak of FMD Serotype SAT 2, topotype III was reported in cattle at Kaepe crush, Okavango, Ngamiland, Maun. A second focus of infection in cattle, due to Serotype SAT 2, topotype I, was reported on 29/04/2011 at Butale Syndicate Crush, Francistown, North East, close to the border with Zimbabwe. The previous outbreak of FMD in this area was in 2003. Subsequently, two further outbreaks, (both Serotype O, topotype I), were report in the region (on 22/05/2011 at Mabethe Crush, Francistown and on 27/05/2011 at Ramokgwebana, Selibe-phikwe, Central, Selibe Phikwe). The topotype I isolates have occurred in the east of Botswana and are closely related to viruses found in Mozambique in 2010.

A new outbreak of FMD was reported in cattle at Itoto, Okavango, Ngamiland, Maun (17/09/2011); serotyping and genetic analysis by the regional reference laboratory is awaited.

Democratic Republic of the Congo (DRC) - see pool 4

Pool 7. SOUTH AMERICA

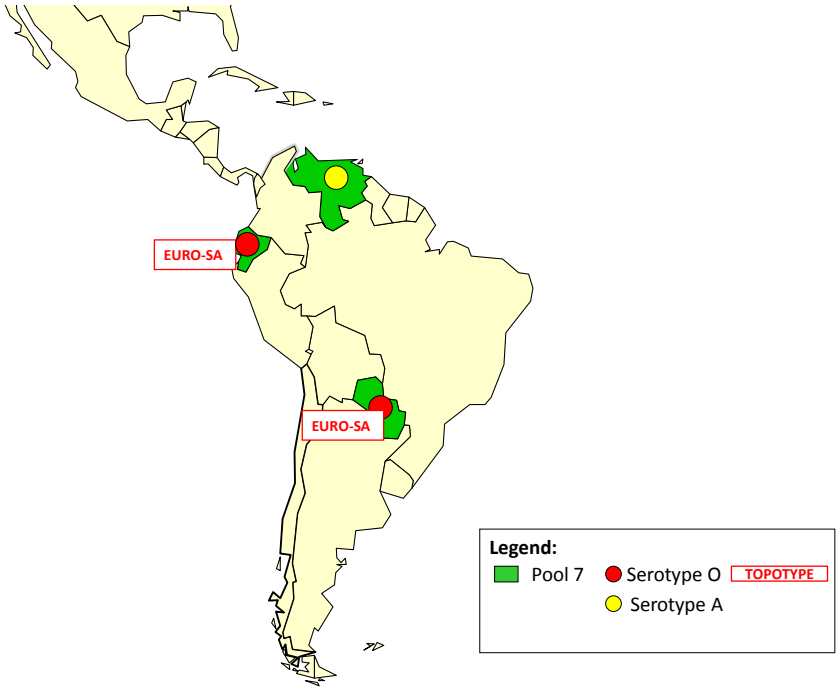
Country	Data WRL FMD[4] 2011 - 2012	Data from field officers[3] 2011 - 2012	Reported serotype/outbreaks in OIE 2012 (immediate notifications)[1]		Reported serotype/outbreaks in OIE 2011 (1st 6 month report or/and immediate notifications)[1]		Reported serotype/outbreaks in OIE 2010 (annual report)[1]	
			Serotype	No of outbreaks	Serotype	No of outbreaks	Serotype	No of outbreaks
Ecuador					O	5	O	42
Paraguay					O	2	...	
Venezuela					...		A	3

Commentary on the endemic Serotypes for 2010 is found in the annual FAO/OIE FMD surveillance report (www.wrlfmd.org)

New events in Pool 7

- **Paraguay**[1]: 30/12/2011 – San Pedro – of 131 mixed age cattle, 15 cattle, under 24 months old, showed clinical signs compatible with a vesicular disease: salivation and lameness. The farm is located at about 15 kilometres from the previous outbreak (detected in San Pedro in September 2011; confirmed as Serotype O, topotype EURO-SA[4]) in the emergency zone established at that time; during surveillance, illegal introduction of 23 animals of unknown origin was identified, the farmer could not justify the origin of these animals. Serotype O has been confirmed.

Pool 7. FMD distribution by Serotypes 2010 – 2012



Current and continuing disease events in Pool 7 for March 2012 – none identified during reporting period.

References

1. WAHID Interface – OIE World Animal Health Information Database http://web.oie.int/wahis/public.php?page=home
2. Global Early Warning System (EMPRES/GLEWS) reports http://empres-i.fao.org/empres-i/home ; National Authorities, 10/11/2011, http://www.gov.kg/?p=4716]
3. Reports from FAO/EuFMD projects and field officers
4. World reference laboratory for Foot and mouth disease (WRLFMD), www.wrlfmd.org
5. RESOLAB-FMD West Africa (FAO/EuFMD supported FMD network), Quarterly report on the Western & Central African laboratories network; Jan-Aug 2011 [2nd Sept 2011]
6. Nakuru Real-Time Training courses (NTC) on Foot-and-Mouth Disease reports
7. Subramaniam, S., Mohapatra J. K., Sanyal, A., Rout, T., Prasad, G., & Pattniak, B., Molecular epidemiology of Foot-and-mouth Disease in India, *FAO-ICR International conference, Scientific developments and technical challenges in the progressive control of Foot-and-mouth Disease in South Asia,* 13-15 Feb 2012, New Delhi, India
8. East African-FMD Laboratory 3rd Annual Network meeting 5th March 2012 Nairobi (Kenya)
9. Project Directorate on Foot and Mouth Disease, India

Annex 1

+.. Disease present but without quantitative data
+ Disease present with quantitative data but with an unknown number of outbreaks
... No information available for this disease