



Foot-and-Mouth Disease situation

Food and Agriculture Organization of the United Nations

Monthly Report

April 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)

Review process:

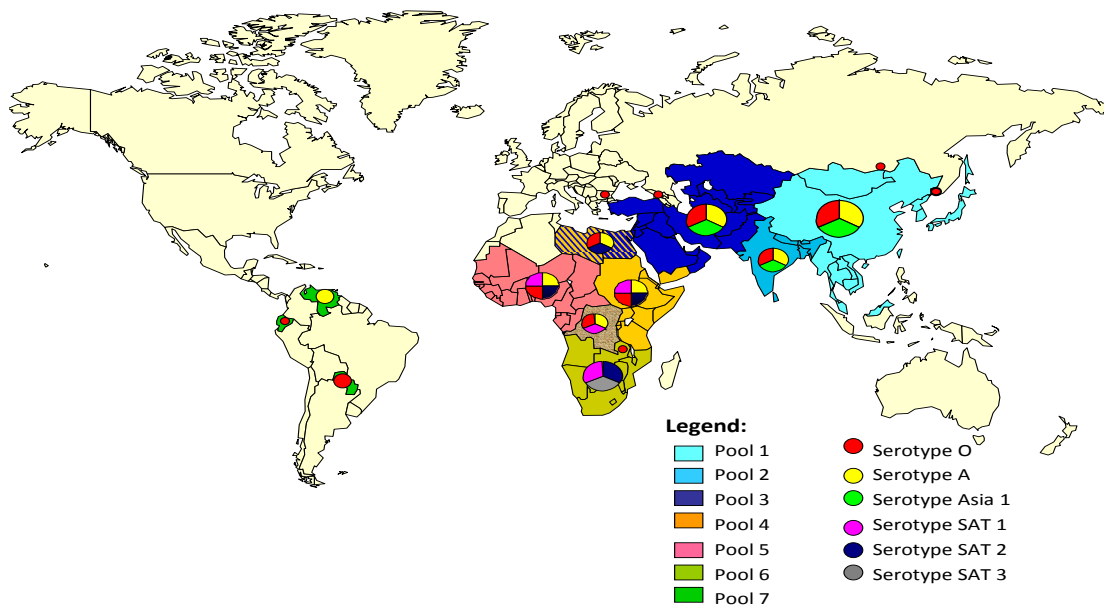
This report (in draft) was circulated for comment to focal points of the FAO Reference Centres for FMD (including Centres in process of recognition) and OIE Reference laboratories for FMD.

The following are thanked for their comments:

NCFAD, Canada
SENASA, Argentina
VAR, Belgium

*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 3:

- **Egypt¹, Libya¹ and Palestinian Autonomous Territories [the Gaza Strip]¹** - Serotype SAT 2, topotype VII, outbreaks in cattle (incursion from Pool 5). Serotypes A and O have also been found in Egypt and Serotype O in Libya.

Pool 4:

- **Kenya⁶** – Serotype O in the Rift Valley and Eastern provinces in January 2012 to April 2012. In Central province in March 2012. SAT2 in Rift Valley from January 2012 to April 2012 and in Central province only in January 2012.

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 Africa¹** - ongoing SAT2 outbreaks – a third SAT 2 outbreak began in Mpumalanga on 24 April 2012

Pool 7:

- **South America¹⁰** - no outbreaks for this reporting period, including Paraguay which had a Serotype O outbreak in San Pedro in December 2011.

Pool 1. CENTRAL / EAST ASIA

Country	Data WRL FMD ⁴ 2011/2012	Data from field officers ³ 2011/2012	Reported serotype/outbreaks in OIE 2012 ^{1*}		Reported serotype/outbreaks in OIE 2011 ^{1*}	
			Serotype	No of outbreaks	Serotype	No of outbreaks
Cambodia	O		...		?	88
China (People's Rep. of)		Asia 1?	O	1	O	8
China (Hong Kong, SAR)	O		...		No details have been submitted.	
China (Taiwan Province)			O	6	O	9
Japan			...		Reported as absent.	
Korea (DPR)	O		...		O	104
Korea (Rep. of)	O		...		O	155
Lao PDR	O		...		...
Malaysia	O		...		O, A	28
Mongolia			...		No new outbreaks in 2011 and 2010 event resolved 01/09/2011	
Myanmar			...		23/03/2011 – report confirming no new outbreaks	
Russian Federation			O	2	O PanAsia	1
Thailand			...		O, A	48
Viet Nam	O, A		...		O	449

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 Federation¹:**

Outbreak of FMD Serotype O, topotype PanAsia in Primorskiy Kray, very close to China, has been reported as resolved on 24 April 2012.

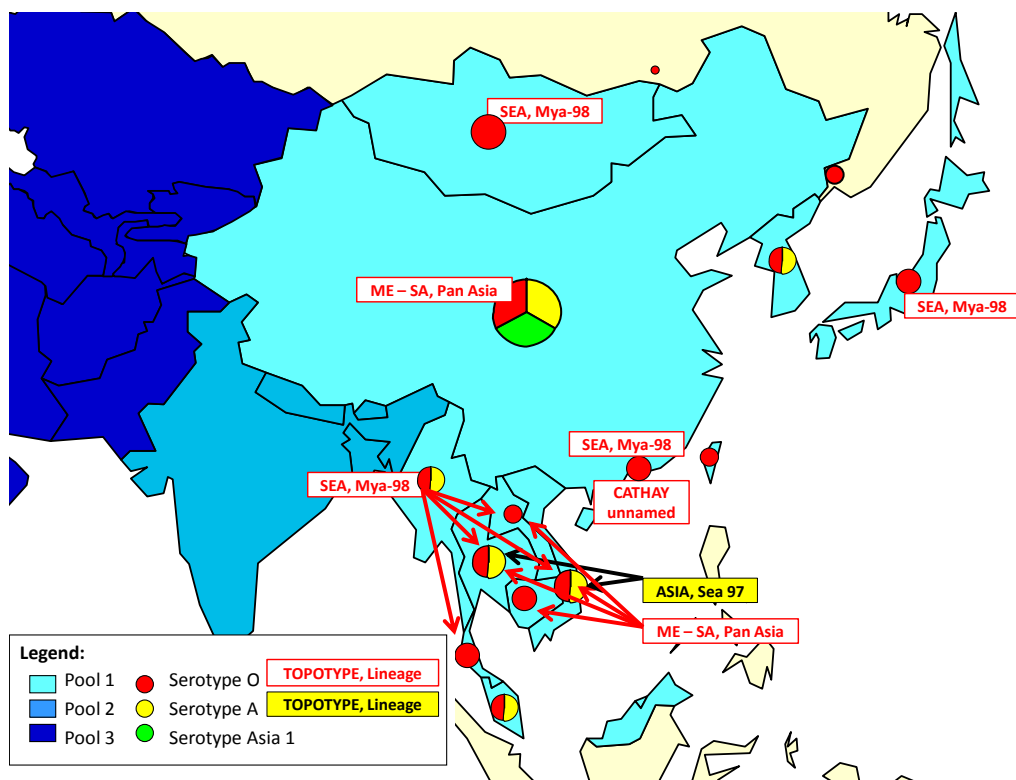
- **Taiwan Province of China¹:**

Surveillance samples collected from pigs on the 30 March 2012 were positive for non- structural proteins (NSP) of FMD and serotype O was confirmed, using the FMD ELISA kit. Virus isolation and RT-PCR are negative.

Significant events in Pool 1 from previous months.

- **China (Peoples Republic of):** Recurrence of FMD Serotype O on 19 February 2012 in cattle in Ningxia – no further outbreaks have been notified.
- **Taiwan Province of China¹:**
In January/ February 2012, four pig farms in Kinmen County, an island just off the coast of mainland China, were reported as being infected with FMD. Genotyping from the first outbreak identified Serotype O, topotype SEA. (This was the first time this topotype was recorded in the Taiwan Province of China). No new outbreaks have been reported in Kinmen County.

Pool 1. FMD distribution by Serotypes 2010 – 2012



Comments for results available (WRL)⁴ in 2011/2012

- **Malaysia⁴:**
Date received: 04/01/2012; No. of samples six, all Serotype A topotype: ASIA, lineage Sea-97. These samples were collected between May and December 2011, all from cattle. The lineage is most closely related to viruses isolated in samples from Thailand in 2010/2011. The outbreaks were not close together, but 4 of them were in the lower half of the country, and one about 50km south of Thailand. The location of the 6th could not be determined using the name on the WRL report and google maps.
Date received: 04/01/2012; No. of samples, 1, Serotype O topotype: SEA, lineage Mya 98. The sample was collected from cattle in July 2011. The three closest matches were with viruses isolated

in Malaysia in 2009, followed by viruses isolated in Thailand 2009. Again, this sample was from the lower half of the peninsula.

- **Thailand⁴** :
Vaccine Matching 2011: - two field isolates matched 0.33* and 0.64 with vaccine A Iran 2005 and 0.24 and 0.56 with vaccine A Tur06.
- **Viet Nam⁴**:
Vaccine Matching 2011: - one field isolate was best matched with Vaccine A Ind 17/82

*The matching was carried out using the Virus Neutralisation Test (VNT) – a value of 0.3 or more suggests that a potent vaccine containing the vaccine strain is likely to confer immunity, a value of less than 0.3 suggests that the field isolate is so different from the vaccine strain that the vaccine is unlikely to protect.

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			
Bangladesh					+..		+..	
Bhutan					?	6	?	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	6	O	18

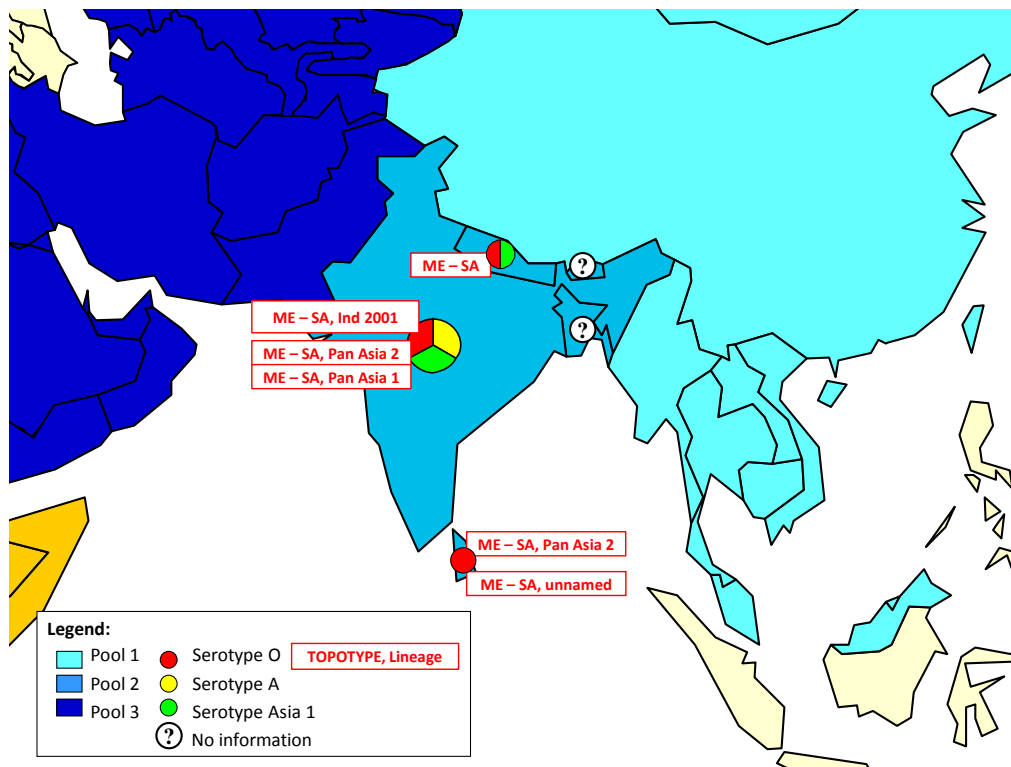
New events in Pool 2

- No new events reported

Significant events in Pool 2 from previous months

- Bhutan¹ – Two outbreaks were reported during the second half of 2011 bringing the total outbreaks notified in 2011 to six.

Pool 2. FMD distribution by Serotypes 2010 - 2012



Pool 3: WEST EURASIA & MIDDLE EAST

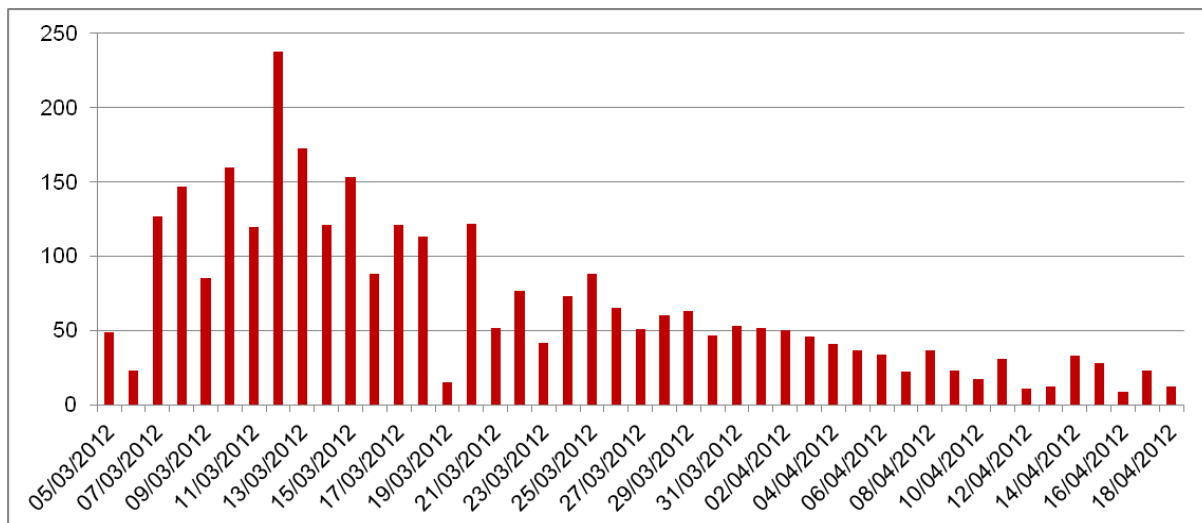
Country	Data WRL FMD ⁴ 2011/2012	Data from field officers ³ 2011/2012	Reported serotype/outbreaks in OIE 2012 ^{1*}		Reported serotype/outbreaks in OIE 2011 ^{1*}	
			Serotype	No of outbreaks	Serotype	No of outbreaks
Afghanistan	A, O, Asia 1				A, O, Asia 1	294
Armenia						Reported as Absent.
Bahrain	A, O, Asia 1		(SAT 2)*	(1)*	?	10
Bulgaria	O				O	11
Egypt	A, SAT2	Epidemic	SAT 2	43		Reported as Absent.
Georgia	O					Reported as Absent.
Iran	O, A, Asia 1	O, A, Asia 1			O, A, Asia 1	1304
Iraq					...	...
Israel	O		O	2	O	16
Jordan					...	...
Kazakhstan			O	5	O	11
Kuwait	O				O	3
Kyrgyzstan					...	...
Lebanon						Reported as Absent.
Libya	O		O, A, SAT 2	24	...	...
Oman					O	122
Pakistan	O, A, Asia 1				A, O, Asia 1	?
Palestine Autonomous Territories			SAT 2	1	?	1
Qatar					incidence 1 st half 2011.	?
Saudi Arabia					Suspected, but not confirmed	?
Syrian Arab Republic					Reported as absent.	Reported as absent.
Tajikistan			Asia 1		ASIA 1	1
Turkey	O, A Asia1	O, A Asia1		O, ASIA 1	O, A Asia1	1045
Turkmenistan					....	...
Uzbekistan					...	...

()* - identified in the quarantine centre.

New events in Pool 3

- **Egypt³**: FAO/EuFMD National Consultants prepared a second monthly report on the current situation of FMD in Egypt April 2012.

Daily total number of villages in Egypt reporting suspect cases for the first time.



This epidemic curve is now in a decline phase.

AHRI submissions and results: in April 2012, of 16 samples submitted through disease notifications, nine tested positive for FMD-SAT2, one for FMD-O, five other samples were positive for FMD and are undergoing serotyping, and one tested negative.

Active surveillance in 74 villages in 11 governorates found 14 villages with clinical FMD. In the 74 samples submitted, seven samples tested positive for FMD (one as Serotype O and three as Serotype SAT2) and one has so far tested negative.

It is reported that 18,910 animals were affected by FMD in April 2012, as opposed to 64,874 in March 2012.

A vaccination campaign commenced on 19 April 2012 in nine governorates, in areas less affected by FMD. Between 19 April 2012 and 29 April 2012, 95,803 animals (cattle and buffalo) were vaccinated, using mono-valent SAT2 vaccine.

- **Egypt and Libya⁴**:

New outbreaks are reported in both Egypt and Libya – Egypt has had Serotypes A, O and SAT2 identified; and Libya has had O and SAT2 identified.

The SAT2s in Libya are more closely related to Nigerian and Sudanese field viruses and the SAT2s in Egypt are around 89% identical to a field virus isolated in Cameroon in 2005.

11 samples from the west of Libya have been Serotyped as O, topotype ME-SA PanAsia- 2^{ANT-10}.

This lineage is also identified in a sample collected from this region on 31 January 2011.

- **Egypt, Libya and Palestinian Autonomous Territories-Gaza Strip**³

The map below illustrates the six SAT2 topotypes circulating in Africa, as reported by the World Reference Laboratory(WRL)⁴. The text detail is the testing history of those countries in which SAT2 topotype VII has been detected, ie the same topotype that has caused the recent Egypt and Libya FMD epidemics and that has made an incursion also into the Palestinian Autonomous Territories, Gaza Strip.

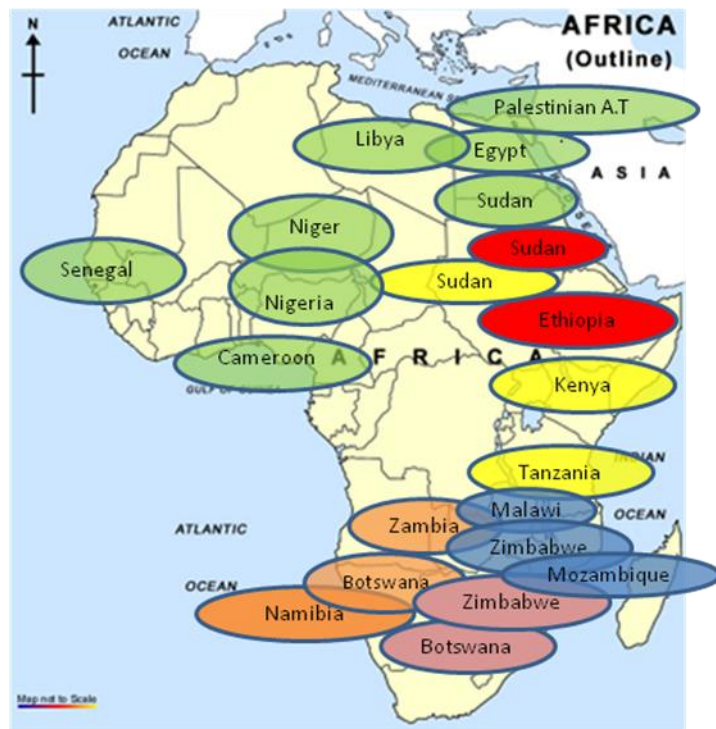
SAT2 Topotypes circulating in Africa since 2005

Serotyping History of Topotype VII Countries.

Country (WRL)	Year	Serotype
Cameroon	2005	O, SAT2
Niger	2005	O, SAT2 VII
Nigeria	2007	O
Nigeria	2008	SAT2
Nigeria	2009	O, A
Senegal	2008	O, SAT2
Senegal	2009	FMDV-GD*
Senegal	2010	NVD**
Sudan	2005	O
Sudan	2006	A
Sudan	2007	SAT2 VII
Sudan	2008	SAT2 XIII

*FMDVirus Genome Detected
**No Virus Detected.

Key to Topotypes:



The location of the lozenges approximate to the location of the country they represent, they are not exact locations.

- **Israel**¹: Notification was received of a second outbreak in Dudiam, which like the first outbreak, is located in Beer-Sheva, and again involved Serotype O in sheep and lambs, with lambs, purchased from an unknown origin, being described as epidemiologically significant. The event is now reported as resolved.
- **Libya**³: Mission by Crisis Management Centre-Animal Health (CMC-AH) regarding the FMD outbreaks was completed on 8 May 2012.
- **Palestinian Autonomous Territories – Gaza Strip**³: A CMC-AH mission⁴ is proposed to address the recent infection of SAT2 FMD.

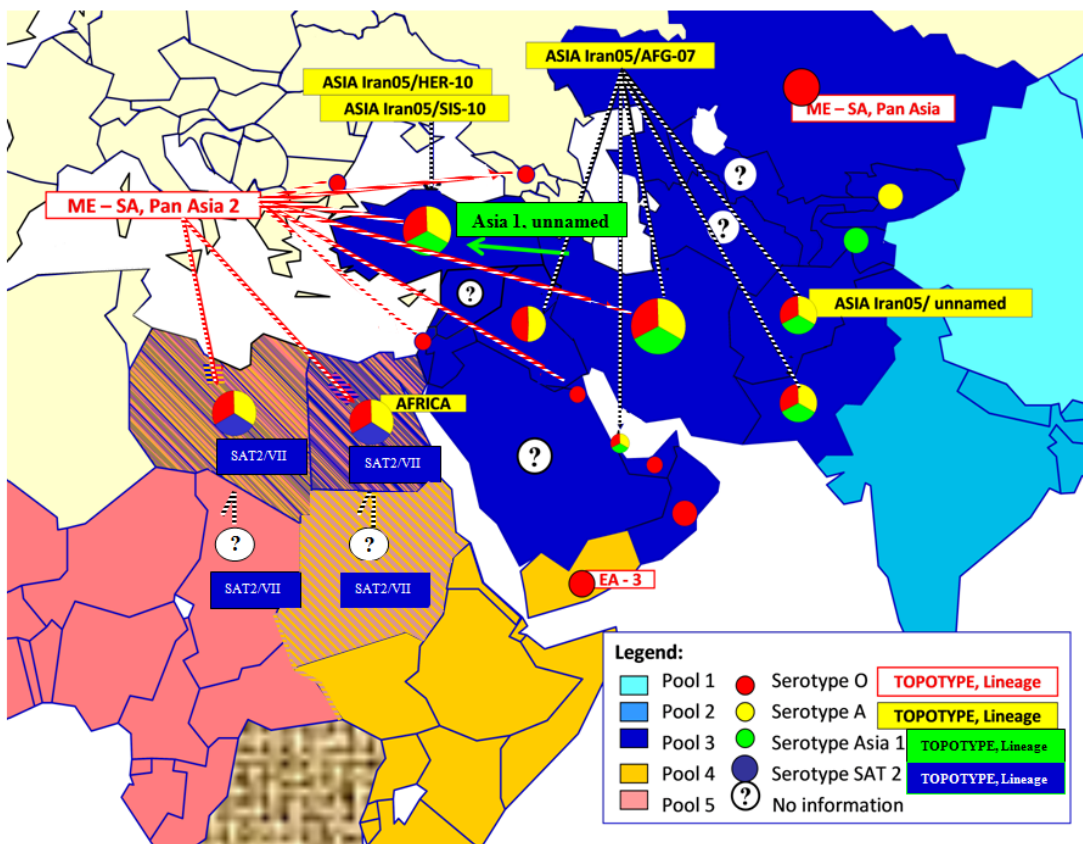
¹On 9 April 2012, three out of 120 cattle in Rafah, in the Gaza Strip, showed clinical signs of FMD. The herd, containing 120 fattening calves, was imported a month ago from Australia through Israel, where they were in quarantine for 20 days. This FMD virus SAT2 is topotype VII and it is 100% identical to field viruses isolated in Egypt in 2012.

Significant events in Pool 3 from previous months

- **Bahrain**⁴: No further reports about the SAT 2, topotype IV reported in cattle in a quarantine center, samples had been collected on 6 March 2012 and were found to be infected with FMD. The closest related virus was SAT 2/KEN (2009): 97.22% identical.

- **Kyrgyzstan**²: Serotype A in cattle (A-Iran-5).
- **Tajikistan**¹: Serotype Asia 1 in cattle and goats – near the border with Kyrgyzstan, but no further outbreaks reported since 06/12/2011.
- **Pakistan**³: (West Eurasia 3rd progress meeting) – 2010-2011 204 tissue samples collected from FMD cases were tested at the National Veterinary Laboratory(NVL) Islamabad. 173 samples were sent to WRL for genetic typing and vaccine matching – Serotype A toptotype, Serotype O, toptotype Iran05^{AFG08 and BAR08}, Serotype Asia 1, toptotype PanAsia II^{Pun10 and ANT10} and a new un named strain of Asia 1. These new strains matched poorly with the currently available vaccinal strains and have been associated with most of the disease outbreaks.
- **United Arab Emirates**⁴: location unknown – Goat sampled 23/12/2011 Serotype O toptotype ME-SA Strain PanAsia-2

Pool 3. FMD distribution by Serotypes 2010 - 2012



Comments for results available (WRL)⁴ for Pool 3 in 2011/2012

Egypt⁴:

- Two lineages of Serotype SAT 2 toptotype VII have been identified – SAT2/VII/Alx-12 and SAT2/VII/Ghb-12.
- Two lineages of Serotype A have been identified – four samples taken in 2011 were Serotype A, toptotype ASIA, lineage Iran-05^{BAR-08} and one sample taken in 2012 was Serotype A, toptotype AFRICA, lineage G-IV^{ISM-12}. All five outbreaks occurred within a 150km radius of Cairo.
- Three samples taken in 2011 were Serotype O, toptotype ME-SA, lineage PanAsia-2. The locations are recorded as Memofia Shebeen and Suze-Amer.

- **Libya**⁴: Ten samples from the east of the country (Benghazi/Darnah), sampled in December 2011/January 2012, were all positive for Serotype O, PanAsia-2ANT-10. Three samples from the same area sampled on 16 February 2012 were Serotype SAT2, topotype VII.

Pool 4. EAST AFRICA

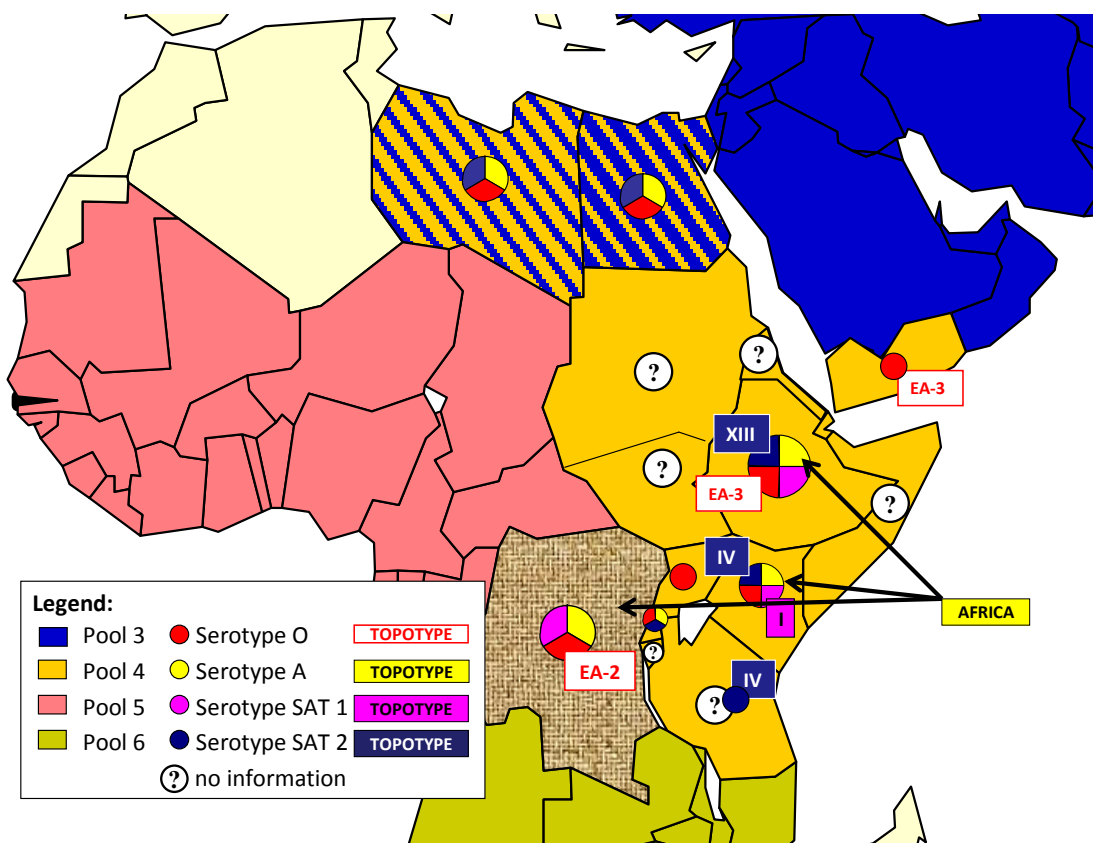
Country	Data WRL FMD ⁴ 2011/2012	Data from field officers ³ 2011/2012	Reported serotype/outbreaks in OIE 2012 ^{1*}		Reported serotype/outbreaks in OIE 2011 ^{1*}	
			Serotype	No of outbreaks	Serotype	No of outbreaks
Burundi		O A SAT1 SAT 2 ⁸			...	...
Comoros					...	...
Congo D. R.	O, A				O, A, C*, SAT 1	
Djibouti						Reported as Absent.
Egypt			SAT 2	8		Reported as Absent
Eritrea					...	...
Ethiopia	O	O, A SAT1			A, SAT 1, SAT 2, O	15
Kenya	O, SAT 1	O, SAT 1, SAT 2			O, SAT 1	60
Libya	O		O, A, SAT 2	14	...	
Rwanda		Reported as absent			...	
Somalia		No data available			?	39
North ³ Sudan		O, A SAT1 SAT 2			?	9
South ³ Sudan		No data available				
Tanzania	SAT2	SAT 1 (buffalo) SAT 2 (cattle)			SAT2	7
Uganda		O ³ A ⁸ SAT 1 SAT 2 SAT 3			O	15
Yemen					...	...

** 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.*

Significant events in Pool 4 from previous months

- **Eritrea**⁸: severe epidemic of FMD in 2011
- **Ethiopia**⁸: It is reported that there were 58 outbreaks of FMD in 2011. Samples submitted to WRL identified Serotype O toptotype EA-3, and one sample, from the Tigray Province in the north of the country (which borders Sudan and Eritrea, was specifically identified as Serotype O toptotype EA-3^{Sudan}. Regarding the Tigray outbreaks FMD was subsequently detected in neighbouring Afar region to the east of Tigray, which borders Eritrea and Djibouti and in Amhara region to the south of Tigray which borders Sudan. The samples from outbreaks in the south of the country (Ethiopia) showed close genetic relationships with previous Ethiopian isolates.
- **Kenya**⁶: Serotype O in the Rift Valley (Nakuru, Laikipia, Koibatek, Keiyo) and Eastern (Mukaa) in January 2012. Serotype O continued into Central province (Nyeri) in March 2012 and was reported in Naivasha in April 2012. Serotype SAT 2 in Rift Valley (Nakuru, Nyandarua, Nakuru, in autumn 2011 and continuation into 2012 (Naivasha)⁶
- **Tanzania**⁴: SAT 2, toptotype IV in cattle
- **Uganda**⁸: FMD was reported in 22 districts in 2011. January to March 2012 only one outbreak has been reported.

Pool 4: FMD distribution by Serotypes 2010 – 2012



Comments for results available (WRL)⁴ in 2011

Democratic Republic of the Congo (DRC)⁴:

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, toptotype EA-2, was found in epithelial tissue samples collected from cattle in October 2010 and FMD Serotype A, toptotype 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 epidemiological links for these events. The Serotype A (which may be the first time for DRC, that we know of) is related to the East African pool (Kenya and Tanzania recent isolates, but sufficiently different to suggest local evolution).

Ethiopia⁴:

In the second half of 2011 13 samples were identified as Serotype O, toptype EA-3 and were related to toptypes previously found in Ethiopia.

Pool 5. WEST AFRICA

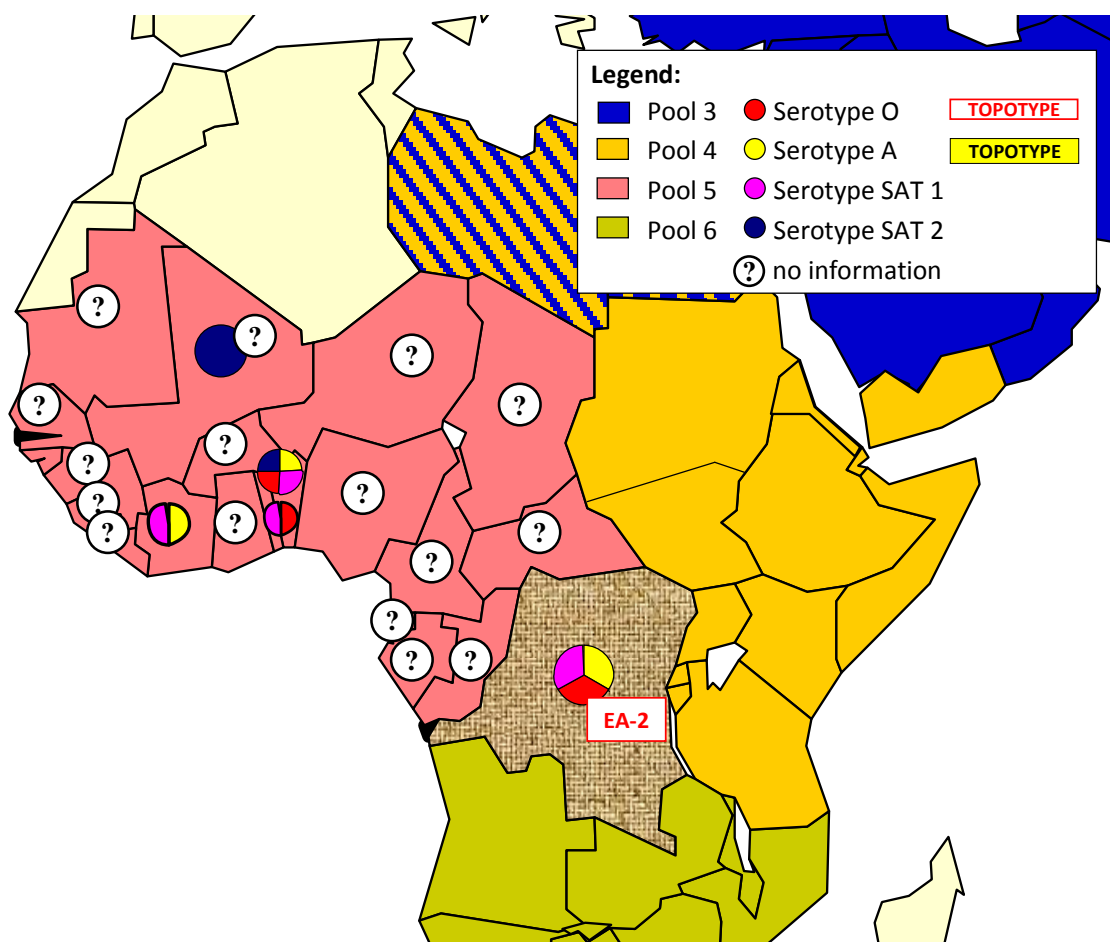
Country	Data RESOLAB 2011/2012	Data from field officers ³ 2011/2012	Reported serotype/outbreaks in OIE 2012 ^{1*}		Reported serotype/outbreaks in OIE 2011 ^{1*}	
			Serotype	Nb of outbreaks	Serotype	No of outbreaks
Benin					A,O, SAT 1, SAT 2	22
Burkina Faso					?	48
Cameroon	pending	11 outbreaks 2012			?	35
Cape Verde						No details submitted.
Central Afr. Rep.					...	...
Chad					...	...
Congo D. R.	O,A				A, C SAT 1	3
Congo R.					...	...
Cote d'ivoire					SAT 1, A	13
Equatorial Guinea						Disease suspected but not confirmed.
Gabon						Reported as absent.
Gambia	pending	Outbreaks reported 2012				No details submitted.
Ghana	43 samples ELISA positive	No outbreak reported			?	57
Guinea Biss.						Reported as absent.
Guinea						...
Liberia						No details submitted.
Mali	SAT 2				?	3
Mauritania					...	...
Niger					?	37
Nigeria					?	10
Sao Tome Principe						No details submitted.
Senegal					?	12
Sierra Leone						Reported as absent.
Togo		2012, one outbreak			O, SAT 1	79

New or significant events in Pool 5 .

- **Cameroon**³: 11 outbreaks reported for the first three months of 2012; samples to be sent for analysis.
- **The Gambia**³: Outbreaks in the North bank, Central river and Western regions; samples sent for analysis.
- **Togo**³: one outbreak at Adetikope (Adodovi) on 21 February 2012; epithelial and sera samples collected and submitted to Accra Veterinary Laboratory, for further submission to WRL.

In an update on the FMD situation for the RESOLAB area for January to March 2012 it was noted ‘...considering the disease dynamics.. the problem of transhumance and outbreaks in Cameroon’s North West and Far North regions... could indicate possible outbreaks in Chad, Nigeria, Central African Republic....outbreaks in Togo could affect Burkina Faso, Benin and Ghana.’

Pool 5. FMD distribution by Serotypes 2010 - 2012



Comments for results available (WRL)⁴ in 2012 – none for this reporting period.

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		Reported serotype/outbreaks in OIE 2011	
			Serotype	Nb of outbreaks	Serotype	Nb of outbreaks
Angola					SAT 2	?
Botswana	SAT 2				SAT 2	3
Congo D. R.	O, A				A, C, SAT 1	2
Malawi					SAT 2	2
Mozambique					SAT 2	1
Namibia			SAT 1	1	SAT 1	4
South Africa	SAT 2, SAT 3	SAT 3	SAT 2	3	SAT 1	46
Zambia					O	1
Zimbabwe	SAT 2				SAT 2	10

New events in Pool 6

- **South Africa¹**: 4 April 2012, a third outbreak of Serotype SAT 2 was detected in Mpumalanga, which is within South Africa's surveillance zone of their FMD control zone. Six cattle in a village of 1,001 cattle, showed clinical signs. 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. Contact with wild species is believed to be epidemiologically significant.
- **Mozambique¹**: 10/02/2012 – SAT outbreak commenced 2010, resolved – no new outbreaks in nine months.

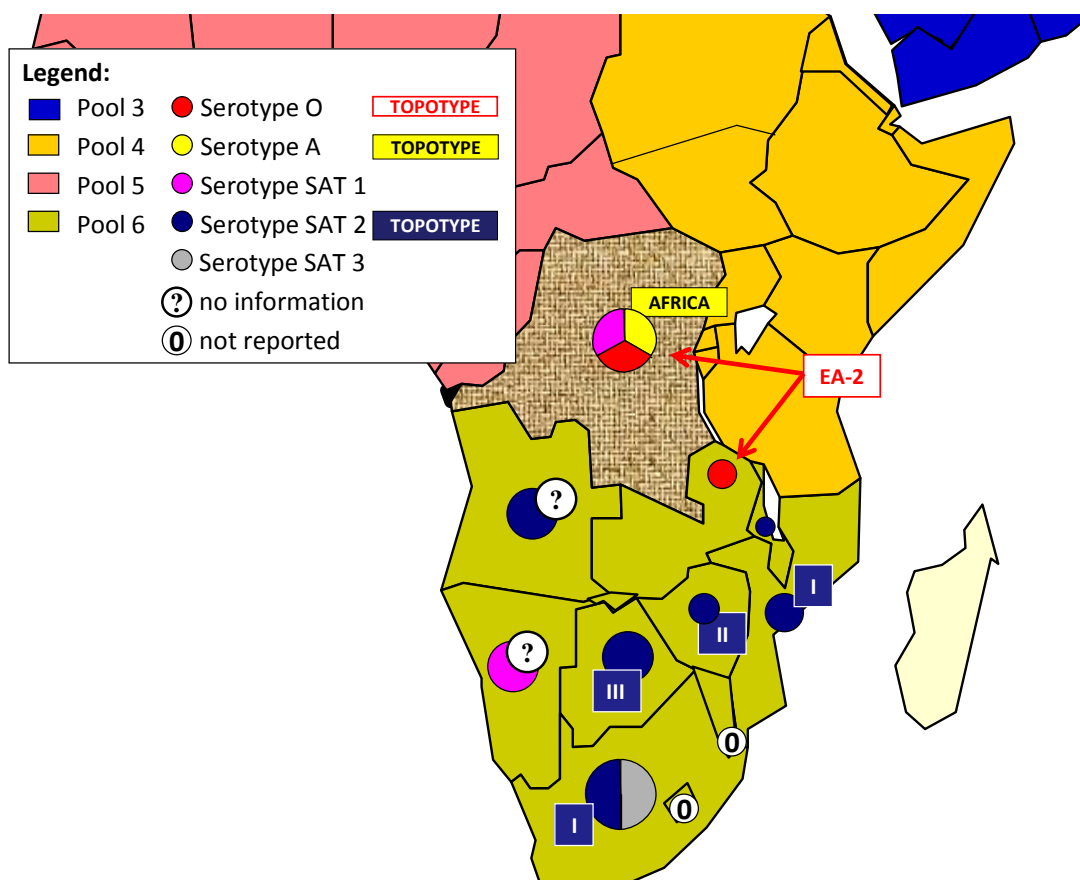
Significant events in Pool 6 from previous months

- **Botswana¹**: Zone 6 (in the east of Botswana, near the border with Zimbabwe, and also the border of Zone 7)
A containment zone was set up with vaccination of all ruminants, with a view to depopulation of the cattle in the zone. The stamping out of cattle was completed on 30 January 2012. The total cattle stamped out was 47,578.
Sero-surveillance has been carried out in small ruminants, with a low incidence of positives being reported – in Botswana, small ruminants are considered epidemiologically insignificant in the transmission of FMD, although they continue to be vaccinated. Surveillance of pigs has been negative and they are no longer being sampled.
A new round of clinical and serological surveillance commenced in the Zone on 8 February 2012 and samples were sent to the Botswana National Veterinary Laboratory – testing of the samples is still ongoing, as is testing of samples from a district serological survey of small ruminants that was completed on 5 April 2012
Botswana continued: 27/05/2011 – FMD outbreaks in Zone 7 (south of Zone 6). Zone 7 was FMD free without vaccination and the outbreaks occurred along the border with Zimbabwe.

A vaccination campaign commenced, as well as 5,000 cattle being destroyed. Vaccination and surveillance are continuing, the last clinical cases were detected on 13 August 2011.
 17/09/2011 – FMD outbreak in Zone 2D (recurrence). There have been no subsequent outbreaks since the initial one in September 2011; and two rounds of vaccination have been completed – in the last one, 361,762 cattle were vaccinated.

- **South Africa¹**: Mpumalanga, just to the north of Swaziland – a SAT2 outbreak was detected on 30/12/2011 and there have been two more outbreaks, the latest was detected on 24/04/2012. The area is in a surveillance zone where vaccination is carried out, vaccination is prohibited in the rest of South Africa.
 The area is close to the Kruger National Park and contact with wild species is considered epidemiologically significant.

Pool 6. FMD distribution by Serotypes 2010 – 2012



Pool 7. SOUTH AMERICA

Country	Data WRL FMD ⁴ 2011 - 2012	Data from field officers ³ 2011 - 2012	Reported serotype/outbreaks in OIE 2012		Reported serotype/outbreaks in OIE 2011	
			Serotype	No of outbreaks	Serotype	No of outbreaks
Ecuador					O	5
Paraguay					O	2
Venezuela				

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

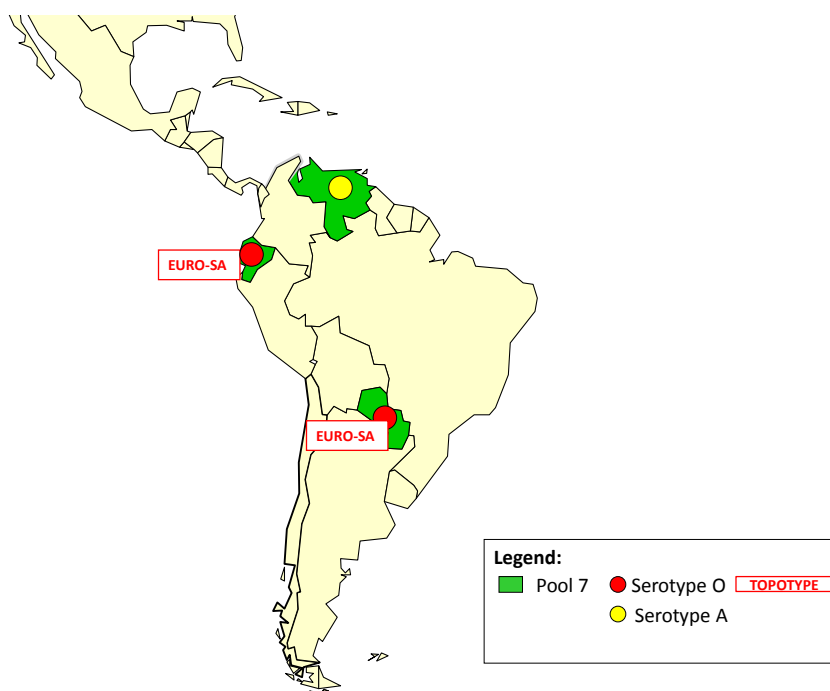
New Events in Pool 7

It has been reported from SENASA that there are no new outbreaks for the period of this report.

Significant events in Pool 7 from previous months

Paraguay¹: No further cases have been reported for this reporting period. On 30/12/2011 – San Pedro – of a total 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, toptype EURO-SA⁴) 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



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
10. SENASA, Argentina.

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