



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

**November 2013**

**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.*



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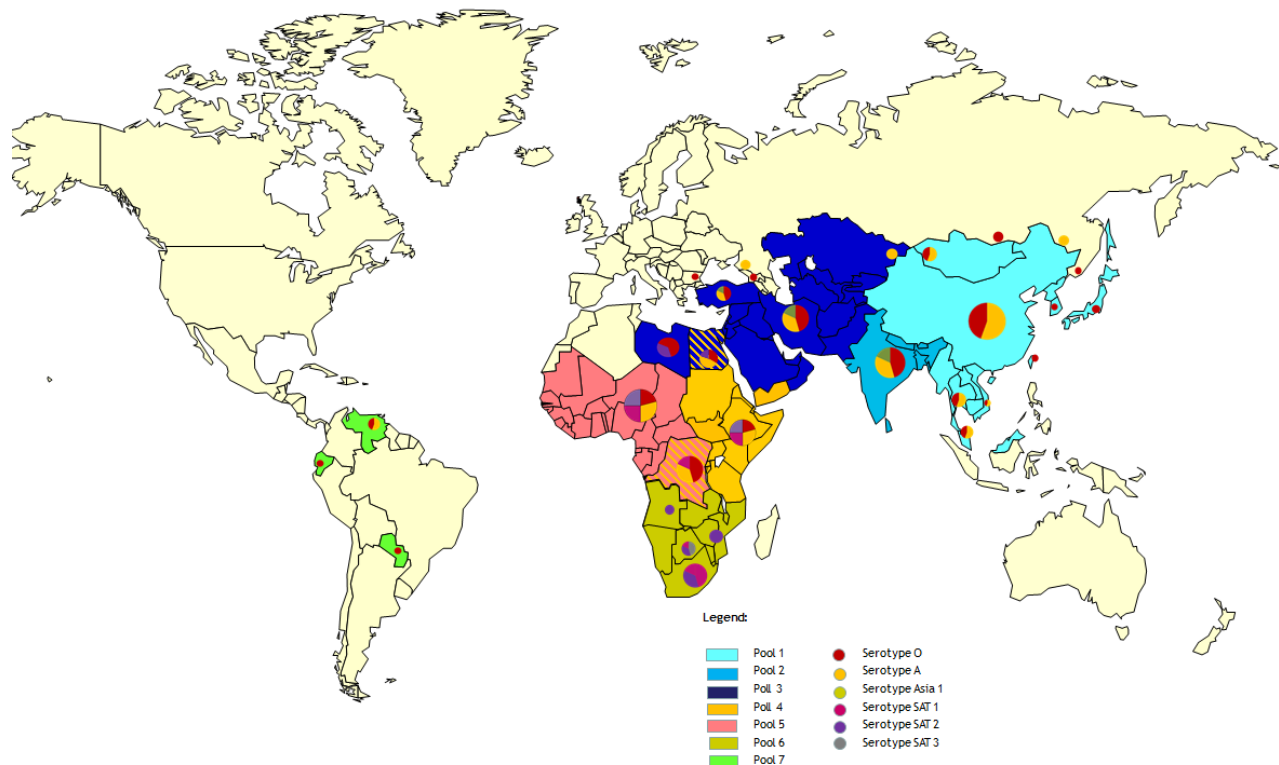
## I. GENERAL OVERVIEW

### *Foot-and-mouth disease (FMD) virus pools: world distribution by serotypes in 2011-2013*

#### *(Map 1)*

*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).*

**Map 1:** Foot-and-mouth disease virus pools distribution, 2011-2013



**Table 1:** List of countries representing each virus pool



<b>POOL</b>	<b>REGION/COUNTRIES</b>	<b>SEROTYPES</b>
<b>1</b>	<b><u>CENTRAL/EAST ASIA</u></b> (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)	<b>O, A, Asia 1</b>
<b>2</b>	<b><u>SOUTH ASIA</u></b> Bangladesh, Bhutan, India, Nepal, Sri Lanka	<b>O, A, Asia 1</b>
<b>3</b>	<b><u>WEST EURASIA &amp; MIDDLE EAST</u></b> (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, Turkey, Turkmenistan, Uzbekistan)	<b>O, A, Asia 1</b>
<b>4</b>	<b><u>EASTERN AFRICA</u></b> (Burundi, Comoros, Congo D. R., Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Rwanda, Somalia, North Sudan, South Sudan, Tanzania, Uganda, Yemen)	<b>O, A, SAT 1, SAT 2</b>
<b>5</b>	<b><u>WEST/CENTRAL AFRICA</u></b> (Benin, Burkina Faso, Cameroon, Cape Verde, Central Afr. Rep., Chad, Congo D. R., Congo R., Cote D'ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea Biss., Guinea, Liberia, Mali, Mauritania, Niger, Nigeria, Sao Tome Principe, Senegal, Sierra Leone, Togo)	<b>O, A, SAT 1, SAT 2</b>
<b>6</b>	<b><u>SOUTHERN AFRICA</u></b> (Angola, Botswana, Congo D. R., Malawi, Mozambique, Namibia, South Africa, Zambia, Zimbabwe)	<b>{O, A}* , SAT 1, SAT 2, SAT 3</b>
<b>7</b>	<b><u>SOUTH AMERICA</u></b> (Ecuador, Paraguay, Venezuela)	<b>O, A</b>

\* ONLY IN NORTH ZAMBIA AS OVERSPILL FROM POOL 4

Egypt and Libya are indicated as being in multiple pools, since they have evidence of FMDV originating from 2 or more pools in the recent past (4 years).

## II. HEADLINE NEWS



**POOL 1**

**Russia**<sup>1</sup> – An FMDV serotype A outbreak in Lozovoe, Amurskaya Oblast

**POOL 3**

**Israel**<sup>1,7,9</sup> – An FMD outbreak serotype O, was confirmed in a beef cattle herd in the Golan Heights

**Palestine**<sup>4,9</sup> – an outbreak of FMD serotype O virus was confirmed in Jericho, West Bank

**Saudi Arabia**<sup>4</sup> – another outbreak was caused by serotype O, sublineage Ind2001<sup>KAR-13</sup>, the same sublineage which caused outbreaks in Libya and Saudi Arabia as reported in the October monthly report.

**Pakistan**<sup>4</sup> – Serotype A, Pakistan viruses from 2012 -2013 are closely related to Iranian viruses

**POOL 5**

**Cameroon** – Serotype SAT1 was detected during laboratory testing at the national FMD laboratory, LANAVET. This is the first report of SAT1 in Cameroon.

**COUNTER**

**\*\*\* 23 MONTHS SINCE LAST OUTBREAK IN SOUTH AMERICA HAS BEEN REPORTED**

**\*\*\* 110 MONTHS SINCE LAST C SEROTYPE OUTBREAK HAS BEEN REPORTED**

**\*\*\* 6 MONTHS SINCE LAST ASIA 1 SEROTYPE OUTBREAK HAS BEEN REPORTED IN IRAN**

### III. DETAILED POOL ANALYSIS

#### A. POOL 1 – Central /East Asia

##### **Russian Federation<sup>1</sup>**

A new FMDV serotype A outbreak has been reported in a village from Lozovoe, Tambovskiy raion, Amurskaya Oblast, at the end of November 2013 (Map 2). One bovine presented clinical signs from 519 susceptible. The outbreak is located in the buffer zone and near the Chinese border. The diagnosis was confirmed by FGBI “ARRIAH” through antigen detection ELISA and PCR.

**Map 2:** FMDV type A outbreak in Lozovoe, Amurskaya Oblast, November 2013 (WAHID-OIE)



##### **Taiwan<sup>4</sup>:**

The genotyping analysis performed by WRLFMD on one sample collected from a pig at the end of October 2013, showed that between this O/TAW/1/2013 isolate and the most closely related sequenced virus (O/TW/258/2009), there is a difference of 3.14% at VP1, indicating that circulation may have been continuing in Taiwan during this time without viruses being characterised.

##### **Mongolia<sup>4</sup>:**

3 samples coming from cattles were analyzed by FAO WRLFMD, identified as serotype A, genotype/strain Sea-97, toptotype Asia and named A/MOG/11/2013, A/MOG/12/2013 and A/MOG/13/2013. The viruses are closely related to Russian viruses, A/Amur/2/RUS/2013 (ARRIAH) and A/Amur/4/RUS/2013 (ARRIAH) with 0.63% difference at VP1.

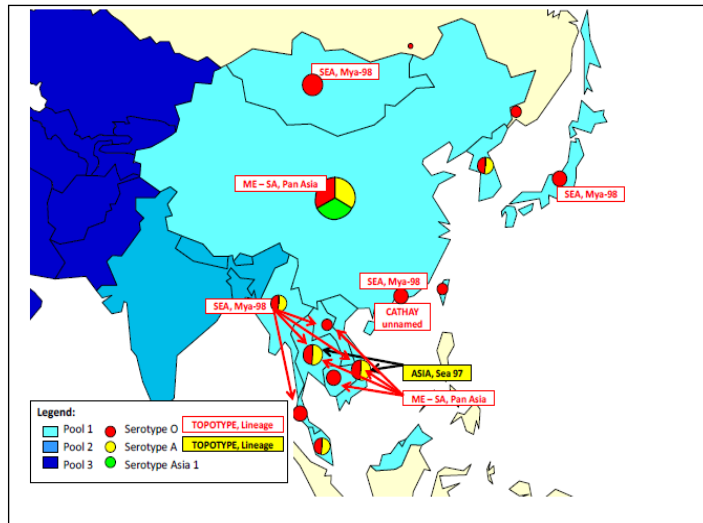


**Cambodia<sup>6</sup>:**

In the month of November 4 new outbreaks were reported in Cambodia, testing is ongoing.

FMD history for pool 1 in the past 2 years is given in Table 2, and map 3.

**Map 3:** FMD distribution by serotypes 2010 – 2013



**Table 2:** Pool 1 FMD history 2011-2013

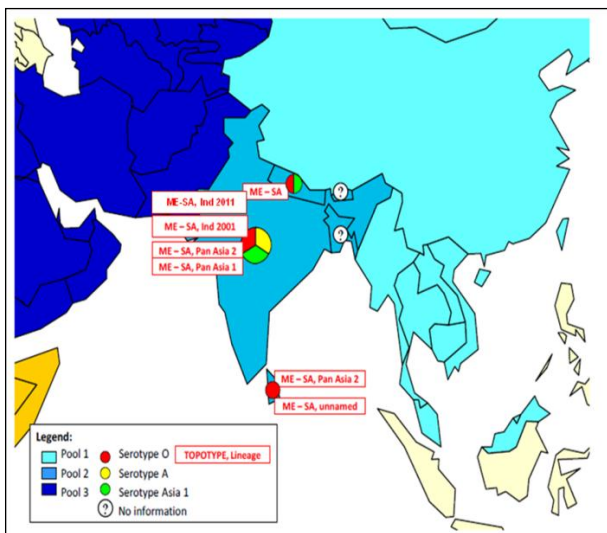
COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE in 2011 - 2013	LAST OUTBREAK REPORTED/SEROTYPE
CAMBODIA	NOT TYPED	OCT 2012/O
CHINA (PEOPLE'S REP. OF)	A, O	SEPTEMBER 2013/A
CHINA (HONG KONG, SAR)	O	NOV 2012/O
CHINA (TAIWAN PROVINCE)	O	JUNE 2013/O
JAPAN	NO REPORTED OUTBREAKS	JULY 2010/O
KOREA (DPR)	2011 – O	MARCH 2011/O
KOREA (REP. OF)	2011 – O	APR 2011/O
LAOS PDR	O	MARCH 2013/O
MALAYSIA	O, A 2013 – NOT TYPED	JAN 2013/NOT TYPED
MONGOLIA	2012 - O	SEPTEMBER 2013/A
MYANMAR	2011 – O	FEB2012/O
RUSSIAN FEDERATION	2011- 2012 – O 2013 – A	NOVEMBER 2013/A
THAILAND	O, A	OCT 2012/A, O
VIET NAM	2012 – A, O 2013 – A	APR 2013/A

**B. POOL 2 – South Asia**

No new events have been reported for this period. South Asia is known to be an FMD endemic area but very limited data on serotypes is available (Map 4).

The PD-FMD at Mukteswar (FMD Reference laboratory for South Asia) is active in this region and is requested to provide information on FMD circulation that will assist improved understanding of virus circulation.

**Map 4: FMD distribution by serotypes 2011 – 2013**



FMD history in the past 2 years is given in Table 3.

**Table 3: Pool 2 FMD history 2011-2013**

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	AUGUST 2013/O, Asia 1
NEPAL	O, A, Asia 1	MAR 2013/O
SRI LANKA	O	2012/O





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

#### ***Israel<sup>4,7,9</sup>:***

On 19 November 2013, an FMD outbreak caused by serotype O was confirmed in a beef cattle herd, in Majdal Shams, Golan Heights, Hazafon. Five of 20 cattles were affected. The herd was located very closed to Syrian border. The season is rather unusual for FMD in Israel since, of the 330 previous Israeli outbreaks from 1975 till now, none had occurred in month of November. Usually there was a clear seasonal pattern, starting in January and peaking in April-May.

Israel's last FMD outbreak, serotype O, was reported in March 2012<sup>4</sup>.

According to the data available in the website of the World Reference Laboratory for FMD, Pirbright, during 2013, FMDV serotype O has been identified in samples from 5 countries in the Eastern Mediterranean/Middle East region: Iran, United Arab Emirates, Turkey, Libya and Saudi Arabia<sup>9</sup>.

**Map 5: FMD type O outbreak in Israel, from Nov. 2013, marked with red (FAO-Empres-AH)**



#### ***Palestine<sup>4,9</sup>:***

In Jericho, West Bank an outbreak of FMD serotype O virus was detected in a flock of 200 sheep, with about 30% morbidity (diagnosis confirmed by the FMD laboratory at the Kimron Veterinary Institute).

The virus belongs to topotypes ME-SA, genotype/strain PanAsia-2<sup>FAR-09</sup> and is 98.59% identical at VP1 with viruses detected in Turkey in 2013. This 1.41% VP1 difference suggests considerable virus circulation has occurred between the outbreaks detected in Turkey and that in Palestine. This highlights the need for more surveillance in countries in the neighbourhood of Turkey, Israel and Palestine to determine the FMD situation more accurately.

***Saudi Arabia<sup>4</sup>*** – another outbreak was caused by serotype O, sublineage Ind2001<sup>KAR-13</sup>, the same sublineage which caused outbreaks in Libya and Saudi Arabia as reported in the October monthly report.



The causative viruses (O/Sau/6-8/2013) were 0.63% different at VP1 from the previous Saudi O Ind2001<sup>KAR-13</sup> viruses (O/Sau/3-4/2013), suggesting that this outbreak was not directly associated with the previous one and that virus circulation was occurring to allow this degree of genetic change.

**Pakistan**<sup>4,11</sup>:

Analysis performed by WRLFMD on 20 samples collected from Water Buffalo revealed that the serotype A, Pakistan viruses from 2012 -2013 are closely related to Iranian viruses and all are belonging to sublineage FAR-11 and SIS-12.

Pakistan serotype O viruses collected in 2012 from cattles, analyzed by WRLFMD were found to belong to ANT-10 sublineage. Also Pakistani viruses, serotype Asia 1 from Water Buffaloes are found to be most closely related to other Pakistani viruses from 2011 and 2012.



**Table 5:** Pool 3 FMD history 2011-2013

COUNTRY	FMD HISTORY FMDV serotypes, reported to OIE in 2011 - 2013	LAST OUTBREAK REPORTED/SEROTYPE
AFGHANISTAN	2011 – O, A, Asia 1	DEC 2011
ARMENIA	NO REPORTED OUTBREAKS	NOT AVAILABLE
AZERBAIJAN	NO REPORTED OUTBREAKS	JUN 2001
BAHRAIN	2011 – O, A, Asia 1 2012 – O	MAR 2012/O
BULGARIA	2011 – O	APRIL 2011/O
EGYPT	A, O 2012 – O, A, SAT 2	JUN 2012/SAT 2
GEORGIA	NO REPORTED OUTBREAKS	2002
IRAN	O, A, Asia 1	JUNE 2013/O, A, Asia 1
IRAQ	O,A	2012/A
ISRAEL	O	NOVEMBER 2013/MAR 2012/O
JORDAN	NO REPORTED OUTBREAKS	2006
KAZAKHSTAN	O, A	JUNE 2013/ A
KUWAIT	O	FEB 2012/O
KYRGYZSTAN	2011 – O, A	NOV 2011/O, A
LEBANON	NO REPORTED OUTBREAKS	03/2010 <sup>1</sup>
LIBYA	2012 – O, SAT 2	OCTOBER 2013/O
OMAN	NO DATA AVAILABLE	DEC 2011
PAKISTAN	O, A, Asia 1	NOV 2012/O, Asia 1, A
AUTONOMOUS TERRITORIES PALESTINE	2011 – O, A, Asia 1 2012 – SAT 2; 2013 - A	November 2013/O
QATAR, 2011	NO DATA AVAILABLE	NOT AVAILABLE
SAUDI ARABIA, 2011	O	JULY 2012/O
SYRIAN ARAB REPUBLIC, 2011	NO REPORTED OUTBREAKS	MARCH/2002
TAJIKISTAN, 2011	2011 – Asia 1	NOV 2011/Asia 1
TURKEY,	Asia 1, A, O	AUGUST 2013/O, A
TURKMENISTAN	NO DATA AVAILABLE	NOT AVAILABLE
UZBEKISTAN	NO DATA AVAILABLE	NOT AVAILABLE



***POOL 4 – Eastern Africa******Kenya<sup>10</sup>:***

In Bomet county, Rift Valley Province, four major livestock markets (Kapckwen, Chebunyo, Rongena and Ndanai) were reportedly closed as a quarantine measure, due to an outbreak of FMD. A vaccination campaign is reportedly planned for the next one and a half months at a subsidised fee in Sotik and Chepalungu constituencies, due to the high prevalence of the disease in the regions. Around 300,000 cattles are expected to be vaccinated within this period.

**Table 6:** Pool 4 FMD history 2011-2013

<b>COUNTRY</b>	<b>FMDV serotypes, reported to OIE in 2011 - 2013</b>	<b>LAST OUTBREAK REPORTED/SEROTYPE</b>
<b>BURUNDI</b>	O, A, SAT 1, SAT 2	AUGUST 2013/ NOT AVAILABLE
<b>COMOROS</b>	NO DATA AVAILABLE	2010
<b>CONGO D. R.</b>	O, A, SAT 1	JUNE 2013/NOT TYPED
<b>DJIBOUTI</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>EGYPT</b>	2011 – A, O 2012 – A, O SAT 2	JUN 2012/SAT 2
<b>ERITREA</b>	O	DEC 2011/O
<b>ETHIOPIA</b>	A, SAT 1, O	2012/O
<b>KENYA</b>	2011 – O, A, SAT 1, SAT 2	JAN 2013/A, SAT2, SAT1
<b>LIBYA</b>	2011 – O 2012 – O, SAT 2	O, OCTOBER 2013/APR 2012
<b>RWANDA</b>	ABSENT NOT TYPED	NOV 2012/NOT TYPED
<b>SOMALIA</b>	NO DATA AVAILABLE	2011
<b>SUDAN</b>	A, O	2013/O, SAT2
<b>SOUTH SUDAN</b>	O, SAT 1, SAT 2, A	2011
<b>TANZANIA</b>	2011 – SAT 1(buffalo), SAT 2 (cattle), O, SAT3 2012 – A, O, SAT 1, SAT 2	MAR 2013/O
<b>UGANDA</b>	O, A, SAT 1, SAT 2, SAT3	2013/A, SAT2
<b>YEMEN</b>	NO DATA AVAILABLE	NOT AVAILABLE



**D. POOL 5 – West / Central Africa**

**Nigeria<sup>3</sup>:**

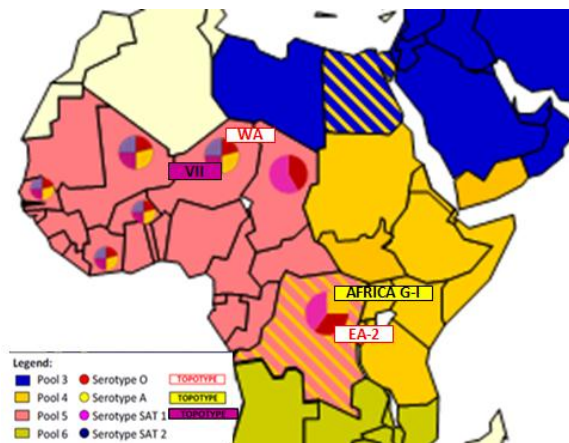
National Veterinary Research Institute Vom (RESOLAB), reported that in November 5 epithelial tissues were analysed from which 3 positive samples (one type A and two SAT2) were confirmed by antigen detection ELISA.

**Cameroon<sup>3</sup>:**

National Veterinary Laboratory (LANAVET) reported that FMDV serotypes SAT1, SAT2 and A were detected during month of November. This is the first time SAT1 has been reported following laboratory detection in Cameroon.

Foot and mouth disease is endemic in West Africa. The FMDV topotypes presented in the region are given on the (Map 6)

**Map 6:** FMD distribution by serotypes 2011 – 2013



**Table 7:** Pool 5 FMD history 2011-2013

<b>COUNTRY</b>	<b>FMD HISTORY FMDV serotypes, reported to OIE in 2011 - 2013</b>	<b>LAST OUTBREAK REPORTED/SEROTYPE</b>
<b>BENIN</b>	2011 – A, O, SAT 1, SAT 2	DEC 2011/O, A, SAT 1, SAT 2
<b>BURKINA FASO</b>	O, A, SAT 2	2013/ NOT AVAILABLE
<b>CAMEROON</b>	2011 – O, A, SAT 2	2013/O; SAT1; SAT2
<b>CAPE VERDE</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>CENTRAL AFR. REP.</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>CHAD</b>	2011, 2012 – A, SAT 1	NOT AVAILABLE
<b>CONGO D. R.</b>	2011, 2012 O, A, SAT 1	JUNE 2013/NOT TYPED
<b>CONGO R.</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>COTE D'IVOIRE, 2011</b>	2011 – SAT 1, A, O, SAT 2	2011
<b>EQUATORIAL GUINEA, 2011</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>GABON, 2011</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>GAMBIA</b>	O, A, SAT 2	2012/O
<b>GHANA</b>	O, A, SAT 1, SAT 2	2013/NOT AVAILABLE
<b>GUINEA BISS.</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>GUINEA</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>LIBERIA</b>	A, SAT 2	2011/2012, NO PRECISE DATA
<b>MALI</b>	O, A, SAT 1, SAT 2	2011/2012, NO PRECISE DATA
<b>MAURITANIA</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>NIGER</b>	O, A, SAT 1, SAT 2	2013/NOT AVAILABLE
<b>NIGERIA</b>	O, A, SAT 1; SAT 2	2013/O, A, SAT 1, SAT 2
<b>SAO TOME PRINCIPE</b>	NO DATA AVAILABLE	NOT AVAILABLE
<b>SENEGAL</b>	O, A, SAT 1, SAT 2	2012/O, A, SAT 1
<b>SIERRA LEONE</b>	NO DATA AVAILABLE	OCT 1958
<b>TOGO</b>	O, SAT 1	2012/O



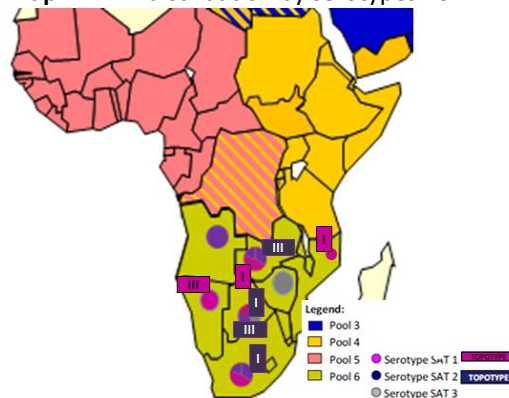
**E. POOL 6 – SOUTHERN AFRICA**

No new FMD events were reported in November.

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 7).

FMD history in past 2 years is given in Table 8.

**Map 7:** FMD distribution by serotypes 2011 – 2013



**Table 8:** Pool 6 FMD history 2011-2013

COUNTRY	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	AUGUST 2013/ NOT AVAILABLE
SOUTH AFRICA	SAT 1, SAT 2	AUGUST 2013/SAT 1; SAT 2
ZAMBIA	SAT 1, SAT 2	JUN 2012/SAT 1
ZIMBABWE	SAT 2	AUGUST 2013/NOT AVAILABLE



## F. POOL 7 – SOUTH AMERICA

No new outbreaks have been reported for this reporting period.

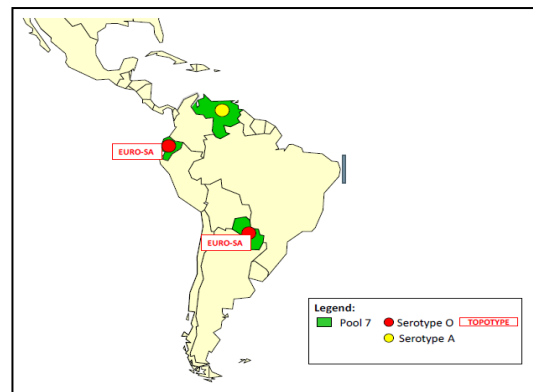
### **Paraguay<sup>9</sup>:**

Paraguay has been formally certified as free of foot-and-mouth disease with vaccination by OIE, World Organization for Animal Health, two years after an outbreak. In September 2011, Paraguay, the world's 9th-biggest global beef exporter, suffered an FMD outbreak in the central San Pedro district.

Most South America countries are FMD free with (Uruguay)/without (Chile, Guyana) vaccination or with free zones with/without vaccination. Small areas of the continent are considered as endemic but clinical cases are rare (Map 8).

FMD history in past 2 years is given in Table 9.

**Map 8:** FMD distribution by serotypes 2011 – 2013



**Table 9:** Pool 7 FMD history 2010-2013

COUNTRY	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

2012 was the first year without reported FMD outbreaks in 50 years in the Andean region. According to official reports submitted to the OIE, in 2012 Peru completed more than eight years without the presence of the disease, Bolivia and Colombia 4 and 6, respectively<sup>1</sup>.

Argentina has not had an FMD outbreak since February 2006<sup>11</sup>.

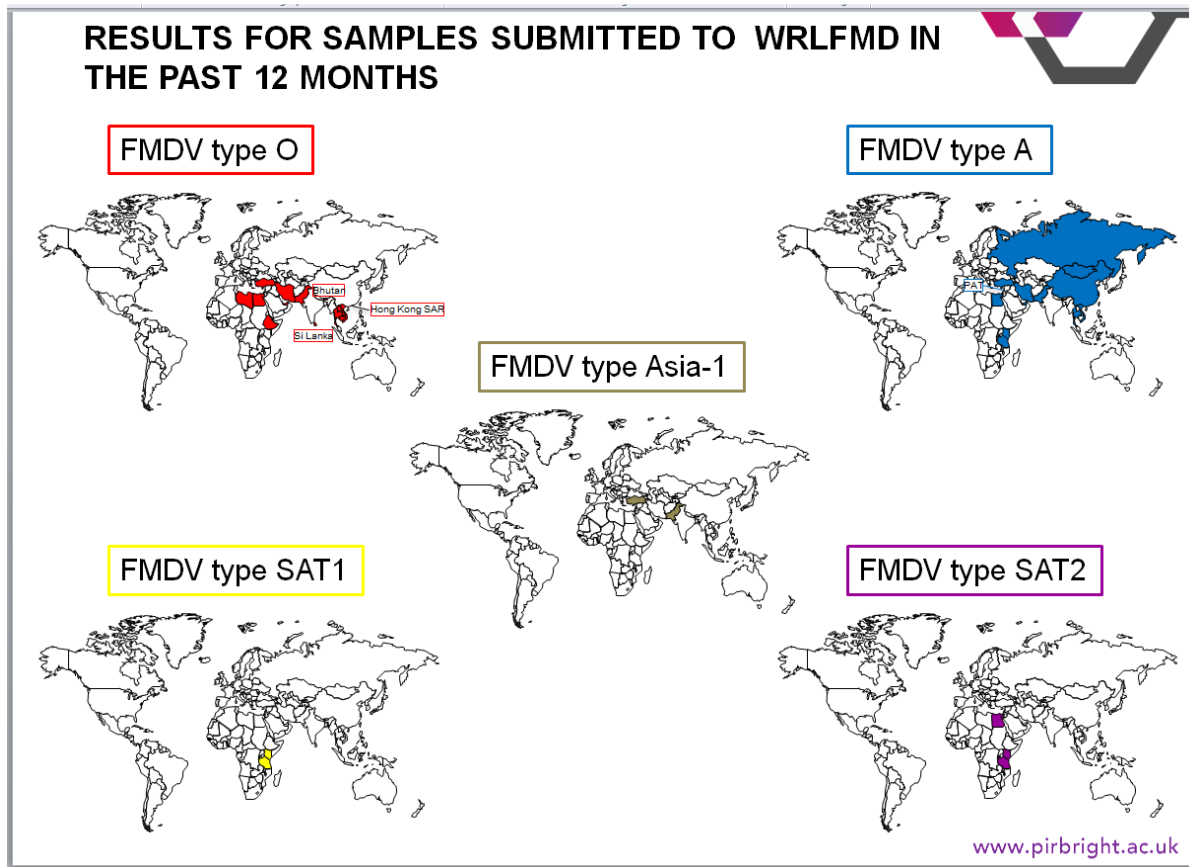


**IV. OTHER NEWS <sup>8</sup>:**

At the *Special Committee on Research and Programme Development* meeting, held in Frascati, 12-14 November 2013, Valérie Mioulet, Head of Virology Section, Vesicular Disease Reference Laboratories – Pirbright Institute, UK, gave a presentation of the work of WRLFMD and the results from samples submitted to the laboratory in the last 12 months, from October 2012 till October 2013.

The results are presented in map 9.

**Map 9: FMDV distribution by serotypes, October 2012 – October 2013 (WRLFMD)**



## V. REFERENCES

1. WAHID Interface – OIE World Animal Health Information Database  
<http://web.oie.int/wahis/public.php?page=home>
2. Reports from FAO/EuFMD projects and field officers
3. FAO/EuFMD supported FMD networks (RESOLAB-FMD West Africa)
4. World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD), [www.wrlfmd.org](http://www.wrlfmd.org)
5. FAO/EuFMD supported FMD networks (EARLN-FMD Eastern Africa)
6. SEAFMD, <http://www.arahis.oie.int/reports.php>
7. EMPRES-i (<http://empres-i.fao.org/eipws3g/#h=0>)
8. Special Committee on Research and Programme Development meeting, Frascati, 12th-14th of November 2013.
9. ProMed, (<http://www.promedmail.org>)
10. <http://www.standardmedia.co.ke>
11. SENASA, Argentina.

