October, 2012

Foot-and-Mouth Disease situation

Food and Agriculture Organization of the United Nations

Monthly Report

October 2012

INFORMATION SOURCES USED:

Databases:

OIE WAHID World Animal Health Information Database

FAO World Reference Laboratory for FMD (WRLFMD)

Other sources:

FAO/EuFMD supported FMD networks

FAO/EuFMD projects and field officers

* International Society for Infectious diseases*

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NCFAD, CANADA, CODA-CERVA, BELGIUM and NVSL, USA FOR THEIR VALUABLE INPUTS

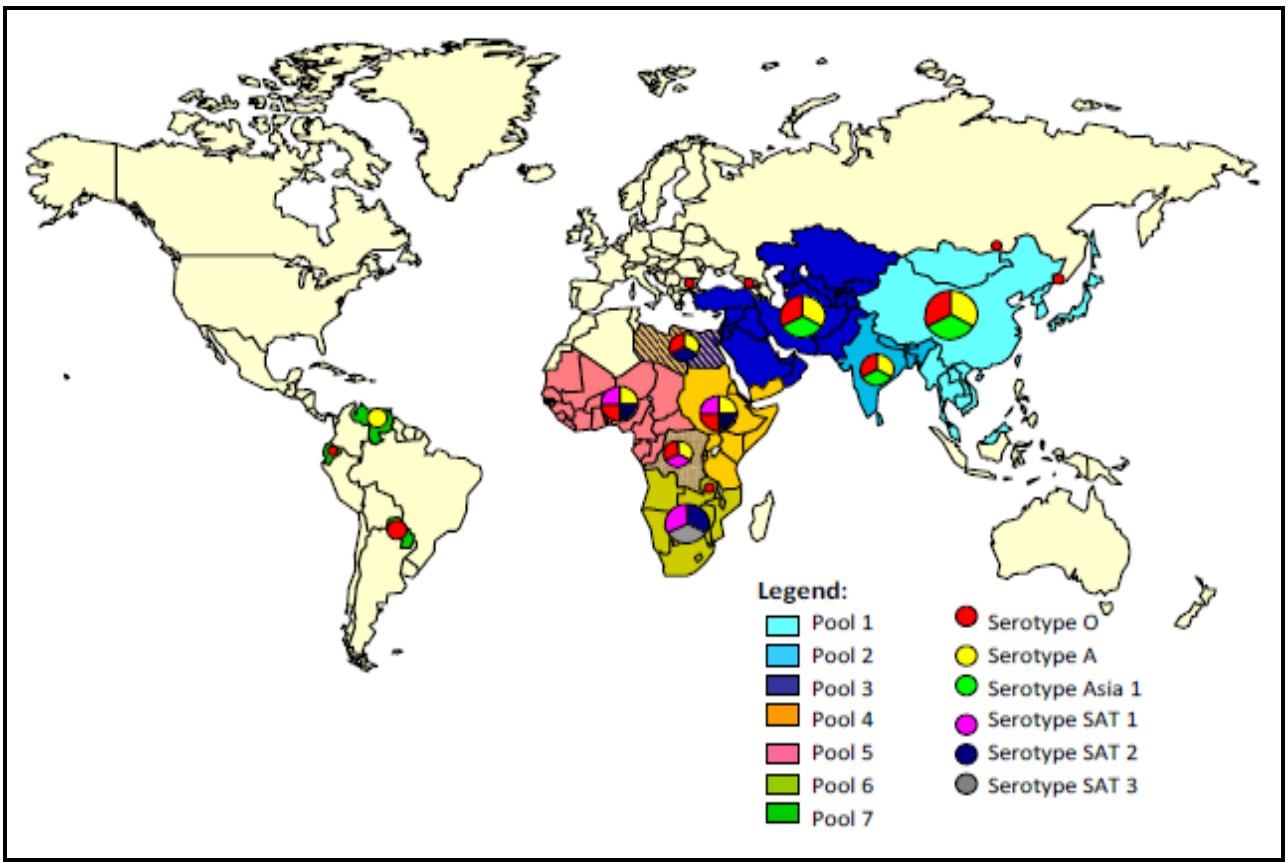
The sources for information are referenced by using superscripts.
The key to the superscripts is on the last page

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.

I. GENERAL OVERVIEW

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

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.



POOL	REGION/COUNTRIES	SEROTYPES
1	**CENTRAL/EAST ASIA** (Cambodia, China (People's Rep. of), China (Hong Kong, SAR),China (Taiwan Province), Japan, Korea (DPR), Korea (Rep. of), Lao PDR, Malaysia, Mongolia, Myanmar, Russian Federation, 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, Turkey, Turkmenistan, Uzbekistan)	**O, A, Asia 1**
4	**EASTERN AFRICA** (Burundi, Comoros, Congo D. R., Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Rwanda, Somalia, North 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 R., Cote d'ívoire, 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, SAT3**
7	**SOUTH AMERICA** (Ecuador, Paraguay, Venezuela)	**O, A**

* NOT CONFIRMED IN THE PAST 30 YEARS IN DOMESTIC ANIMALS

** 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

Chinese Taipei[1] **- 2 serotype O outbreaks in I-Lan county on pig farms.**

Pool 2

India[10] **- A new genetic group (Ind2011lineage) within serotype O, with more than 9% nucleotide divergence from contemporary viruses circulating in India, has been noted.**

Pool 3

Turkey[1] **- regained status of the FMD free zone where vaccination is practiced for Thrace region. In Anatolia region, serotypes O, A and Asia 1 are still circulating but the trend of decreasing number of cases is continuing, even after the risky period associated with the Kurban festival.**

Bulgaria[1] **- regained status free from FMD where vaccination is not practiced.**

Trans Caucasus Region[2] **- No FMD outbreaks or suspicious cases have been reported in period July - September; no samples have been submitted to laboratories for investigation.**

Iran[2] **- In the last month, there is evidence of continued circulation of serotypes A, O and Asia 1 in Iran.**

Egypt, Iran[10] **- high degree of subclinical infection and/or under-reporting of clinical outbreaks.**

Pakistan[11] **- a shift from serotype O to A in 2008 observed based on retrospective analysis epithelial samples from 2005 to 2009.**

Palestinian Auton. Territories[1] **- SAT 2 outbreak in Gaza Strip from April 2012 is resolved.**

Pool 4

Uganda - **A total of 12 FMD outbreaks have been recorded in Uganda during the period January-August 2012**[13]**.**

Kenya - **Recently conducted FMDV NSP assay indicates widespread infection of African buffalo with FMDV**[10]

Pool 5

West and Central Africa regions **- 17 different wildlife species found FMD positive. Multiple serotypes are involved; serotypes O, SAT 2 and SAT 1 are dominant.**

Pool 6

Botswana[1] **- SAT 2 outbreak in sheep/goats in the containment zone.**

Pool 7

South America **- No new events have been reported for this reporting period.**

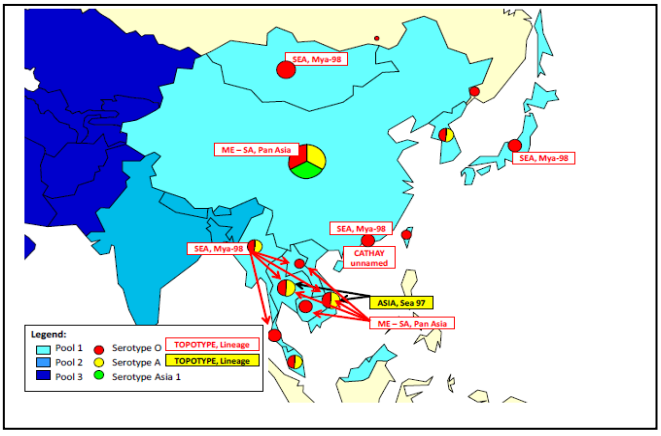
III. DETAIL POOL ANALYSIS

POOL 1

CENTRAL / EAST ASIA

Chinese Taipei[1] - 2 serotype O outbreaks in I-Lan county on 2 pig farms have been reported as reoccurrence of the disease, with manifested clinical signs; the last outbreak was recorded in June 2012. The disease is confirmed at Animal Health Research Institute (National laboratory) by NSP ELISA and RT-PCR tests.

FMD distribution by serotypes 2010 – 2012



FMD in most central and eastern Asia countries is endemic.

Brunei and Japan are the only countries in this region with the free FMD status where vaccination is not practiced.

There is a zone covering the provinces of Sabah and Sarawak in Malaysia which is designated as FMD free without vaccination.

In China, the main threat comes from O/Mya-98 strain and PanAsia strain. The O/Mya-98 strain mainly affects pigs, although cattle and goat/sheep can also show clinical signs in some field cases. However, the PanAsia strain mainly affects cattle. Epidemiological analysis indicates that animal movements associated with trade are the main factors for the spread of the FMD and for transmission between provinces in China. Both Mya-98 and PanAsia strains of FMDV sequences from PR China had a close relationship with those sequences from outbreaks in Southeast Asia nations[6].

COUNTRY/6 MONTHS REPORTING TO OIE	FMD HISTORY (past 2 years)	LAST OUTBREAK REPORTED/TYPE	OIE FMD STATUS
CAMBODIA, 2011	2011 – NOT TYPED[1]	JUL 2012/NOT TYPED[9]	DISEASE PRESENT
CHINA (PEOPLE'S REP. OF), 2011, ½ 2012	2011 – O[1]	SEPT 2012/O[1]	DISEASE PRESENT-DOMESTIC, NOT REPORTED-WILD
CHINA (HONG KONG, SAR) , 2011	2011 – O[1, 5]	NOV 2011/O[1]	DISEASE PRESENT-DOMESTIC, NOT REPORTED-WILD
CHINA (TAIWAN PROVINCE), NO OIE DATA	2011 - 2011 – O[5] 2012 – O[5]	NOT AVAILABLE	UNKNOWN
JAPAN, 2011	2011, 2012 - NO REPORTED OUTBREAKS[1]	JULY 2010/O[1, 5]	FREE WITHOUT VACCINATION
KOREA (DPR), 2011	2011 – O[1, 5]	MARCH 2011/O[1]	½ 2011-PRESENT-DOMESTIC, NOT REPORTED-WILD, 2/2 2011 – NOT REPORTED
KOREA (REP. OF), 2011	2011 – O[1, 5]	APR 2011/O[1]	½ 2011-PRESENT-DOMESTIC, NOT REPORTED-WILD, 2/2 2011 – NOT REPORTED
LAOS PDR, NO SUBM. REPORTS	2011, 2012 - NO REPORTED OUTBREAKS[1]	OCT 2010/O[1]	UNKNOWN
MALAYSIA, 2011, ½ 2012	2011 – O, A[1, 5] 2012 – O, A[1, 5]	JUN 2012/O[1]	FMD FREE ZONE WHERE VACCINATION IS NOT PRACTISED
MONGOLIA, 2011	2011, 2012 - NO REPORTED OUTBREAKS[1]	OCT 2010/O[1]	½ 2011 – LIMITED ON ONE OR MORE ZONES, 2/2 2011 -NOT REPORTED
MYANMAR, 2011	2011 – O[1]	FEB2012/O[9]	DISEASE PRESENT
RUSSIAN FEDERATION, 2011	2011 – O[1] 2012 – O[1]	MAR 2012/O[1]	½ 2011 – NOT REPORTED, 2/2 2011 - DISEASE PRESENT
THAILAND, 2011, ½ 2012	2011 – O, A[1, 5] 2012 – O, A[1, 5]	JUN 2012/O[1]	DISEASE PRESENT-DOMESTIC, NOT REPORTED-WILD
VIET NAM, 2011	2011 – O[1, 5] 2012 – O[5]	MAR 2012/O[5]	DISEASE PRESENT

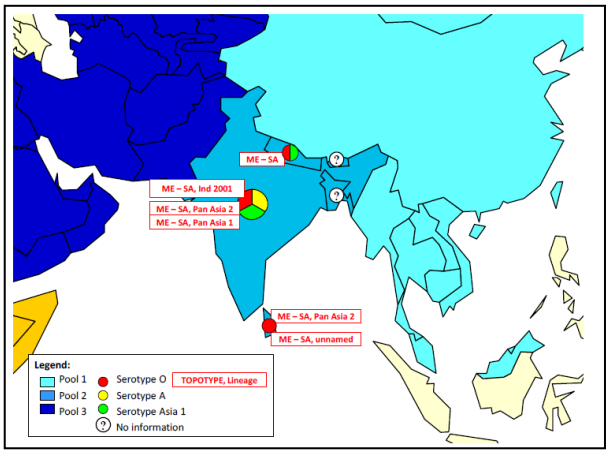
II P O O L 2
SOUTH ASIA

Bhutan[5] **-** No FMD virus was detected in any of nine oesophageal-pharyngeal scrapings samples collected from cattle in Bhutan on 26/06/2012 submitted to WRL on 28/08/2012.

India[10] - approximately 80% of the Foot-and-mouth disease (FMD) outbreaks are caused by serotype O; during 2009-2012, 141 serotype O outbreaks were recorded. A new genetic group (Ind2011lineage), represented by two sub-lineages, Ind2001a and Ind2001b, with more than 9% nucleotide divergence from contemporary viruses circulating in India has been noted. This lineage is so far restricted to southern region of the country. Within the span of 5 months, the Ind2011 lineage has caused 19 outbreaks.

PanAsia lineage is in declining phase, caused only 10 outbreaks in the mentioned period.

FMD distribution by serotypes 2010 – 2012



South Asia is known to be FMD endemic area but very limited data on serotypes is available.

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.

COUNTRY	FMD HISTORY (past 2 years)	LAST OUTBREAK REPORTED/TYPE	OIE FMD STATUS
BANGLADESH, 2011	2011 – O, A, Asia 1[6]	NOT AVAILABLE	½ 2011DISEASE PRESENT, 2/2011-LIMITED TO ONE OR MORE ZONES-DOM, NOT REPORTED IN THIS PERIOD-WILD
BHUTAN, 2011	2011, 2012 – NO REPORTED OUTBREAKS[1]	MAY 2010/NOT TYPED[1]	DISEASE PRESENT
INDIA, 2011	2011 – O, A, Asia 1[1]	SEP 2012/NOT TYPED[3]	LIMITED TO ONE OR MORE ZONES
NEPAL, 2011	2011 – O, A, Asia 1[1, 6]	NOV2011/NOT TYPED[1]	DISEASE PRESENT
SRI LANKA, 2011	2011 – O[1, 5]	JUN 2011/O[1]	½ 2011 - DISEASE PRESENT-DOMESTIC, NOT REPORTED-WILD ANIMALS, 2/2011 – NOT REPORTED

P O O L 3
WEST EURASIA & MIDDLE EAST

Turkey[1] - FMD free status of Thrace region was suspended on 6 September 2011. The Scientific Commission of OIE, based on the documentation submitted, concluded that the Thrace region of Turkey fulfils the requirements of the *Terrestrial Code* to regain its status of the FMD free zone where vaccination is practiced with effect from 17 October 2012. In Anatolia region, serotypes O, A and Asia 1 are still circulating.

Trans Caucasus Region[2] **-** Autumn vaccination campaigns are planned to achieve vaccination coverage of 90-100% for large ruminants (LR) in all TCC countries (Armenia, Georgia and Azerbaijan), but for small ruminants (SR) Azerbaijan is planning to cover 20-25 % while in Armenia and Georgia will not vaccinate SR because of limited financial resources.

Some autumn vaccinations have started in Armenia and Azerbaijan in July; in Georgia the national campaign has started in August.

Pakistan[11] **–** Out of 590 samples collected during the five years period (2005-2009), 196 were tested positive. It is shown that the disease was more frequent in the agro-climatic zones than in hilly areas. In the first two years (2005-2007), the occurrence of the serotype O, A and Asia 1 was as follows 20.4 %, 2.9 % and 4.7 %, respectively comparing to the period 2008-2009, 22.4 %, 31.6 % and 4.0 %, respectively. This indicates a shift from serotype O to A in 2008, which could explain the occurrence of severe outbreaks, despite vaccination.

Iran - In the last month, there is evidence of continued circulation of serotypes A, O and Asia 1 in Iran. Serotype A is appears to be dominating at the present time, being detected in more than 80% of recent samples submitted to the Central Veterinary Laboratory in Tehran from across the entire country[2].

Recent virus serotyping results also confirmed multi serotype circulation in Iran[5]:

Two out of eleven submitted samples to WRL were typed as O serotype; O/ME-SA/PanAsia-2$^{[FAR-09]}$ and O/ME-SA/PanAsia-2$^{[ANT-10]}$ sublineages.

Five samples were typed as FMDV A; four belonged to A/ASIA/Iran-05$^{[AFG-07]}$sublineage while one belonged to the A/ASIA/Iran-05$^{[SIS-10]}$.

Three samples were typed as FMDV Asia 1/Sindh-08 lineage.

Egypt[10] **–** A recent serosurvey showed 78% of villages and 19% of large ruminants positive for NSP antibodies. For small ruminants these numbers are 54% and 11% respectively. In 98 (31.6%) villages, local veterinarians had seen signs of clinical FMD in the 12 months prior to the sampling.

Preliminary results indicate that there is a high degree of subclinical infection and/or under-reporting of clinical outbreaks; in both Egypt and Iran approximately 80% of villages had serological evidence of recent FMD infection yet clinical signs had been observed in less than 20% of these villages. The number of outbreaks detected by active, clinical surveillance closely mirrors the pattern of results detected by passive reporting[10].

Recent serotyping results of virus isolates from Egypt show circulation of O, A and SAT 2 serotypes[5].

A/AFRICA/IV was confirmed in two samples taken in Hamaden (Zainia, Luxor, Upper Egypt) and Dina Farm (Giza, Delta) in March and May 2012, respectively. Both isolates are most closely related to viruses detected in Sudan in 2011[5].

Six samples from Delta region taken in March and May 2012 were serotyped as **SAT 2/VII/Ghb-12**.

Serotype O, topotype EA-3 was isolated from samples taken in period February – May 2012 from Western, Upper and Lower regions. Isolates are closely related to isolates from Eritrea and Ethiopia from 2011. One sample shows 100% VP1 identity to a Libyan isolate from April 2012 which indicates common origin or very fast spread route between Egypt and Libya. This demonstrates the potential risk of spread of other virus strains between Egypt and Libya[5].

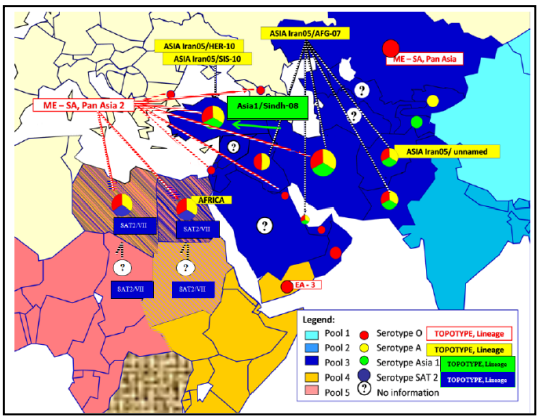
Saudi Arabia[5] - FMDV type O was isolated from the four samples collected in July 2012 from cattle in Durma near Riyadh; genotyping showed them to belong to the ME-SA topotype, PanAsia-2 lineages, ANT-10 sublineage.

Afghanistan, Pakistan, Tajikistan, Turkmenistan and Uzbekistan[10] - Harmonised cross-sectional surveys were conducted in 2011 under the *GTFS/INT/907/ITA* project to estimate the seroprevalence, by detecting Abs against NSP, and geographical distribution of FMD in Central Asian countries . The FMD overall prevalence at regional level was found to be 24.48% (4692/11874). Different patterns of FMD seroprevalence were reported across the Central Asian countries, where 46.81%, 39.74%, 47.83%, 41.93% and 14.35% of samples were scored as positive for Afghanistan, Pakistan, Tajikistan, Turkmenistan and Uzbekistan, respectively[10].

Bulgaria[10] - Eight representative viruses from all of the virus-positive outbreaks of the disease in Bulgaria in 2011 and 11 closely-related contemporary viruses from Anatolia region and Israel were analyzed. All Bulgarian sequences shared a single putative common ancestor closely related to the virus from the wild boar. The next closest virus was a FMDV collected during 2010 in Bursa (Anatolia, Turkey). Within Bulgaria, two discrete genetic clusters were detected that corresponded to the two waves of outbreaks.

Russia, Mongolia, Kazakhstan, Tajikistan, Kyrgyzstan and South Ossetia[10] - Twelve isolates of type O FMD virus from those countries were analyzed at FGBI "ARRIAH". The isolates responsible for FMD outbreaks in Russia and Mongolia in 2010-2012 belonged to the South-East Asia (SEA) topotype not registered in the Russian Federation earlier. The isolates from Kazakhstan/2010, Kazakhstan/May2011, Tajikistan/2011, Kyrgyzstan/2011 and South Ossetia/2011 belonged to O-PanAsia-2 genetic lineage of the Middle East-South Asia (ME-SA) topotype. The isolates that had caused FMD outbreaks in Eastern Kazakhstan in 2011 and 2012 as well as in Russian Far East in 2012 belonged to O-PanAsia lineage and were genetically close to O/CHA/7/2011 (JF837375 in the GenBank).

FMD distribution by serotypes 2010 – 2012



COUNTRY	FMD HISTORY (past 2 years)	LAST OUTBREAK REPORTED/TYPE	OIE FMD STATUS
AFGHANISTAN, 2011	2011 – O, A, Asia 1[1, 5]	DEC 2011[1]	DISEASE PRESENT
ARMENIA, 2011 MONTHLY REPORTS REGULARLY SUBMITTED TO EUFMD	2011, 2012 – NO REPORTED OUTBREAKS[1]	NOT AVAILABLE	NOT REPORTED IN THIS PERIOD
AZERBAIJAN, 2011 MONTHLY REPORTS REGULARLY SUBMITTED TO EUFMD	2011, 2012 – NO REPORTED OUTBREAKS[1]	JUN 2001[1]	NOT REPORTED IN THIS PERIOD
BAHRAIN, 2011	2011 – O, A, Asia 1[5] 2012 – O[5]	MAR 2012/O[5]	LIMITED TO ONE OR MORE ZONES
BULGARIA, 2011, ½ 2012	2011 – O[1, 5]	JUN 2011/O[1]	½ 2011 – DISEASE PRESENT, 2/22011, 2012 - NOT REPORTED IN THIS PERIOD
EGYPT, 2011, ½ 2012	2011 – A, O[1, 5] 2012 – SAT 2[1, 5]	JUN 2012/SAT 2[1]	2011 – NOT REPORTED, 2012 - DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
GEORGIA, 2011	2011, 2012 – NO REPORTED	2002[1]	NOT REPORTED IN THIS

MONTHLY REPORTS REGULARLY SUBMITTED TO EUFMD	OUTBREAKS[1]		PERIOD
IRAN, 2011	2011, 2012 – O, A, Asia 1[5]	JUN 2012/Asia 1[5]	DISEASE PRESENT
IRAQ, 2011	2011 – O,A[1]	DEC 2011[1]	DISEASE PRESENT
ISRAEL, 2011	2011 – O[1] 2012 – O[5]	MAR 2012/O[5]	DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
JORDAN, 2011	2011, 2012 – NO REPORTED OUTBREAKS[1]	2006[1]	NOT REPORTED IN THIS PERIOD
KAZAKHSTAN, 2011	2011 – O, A[1] 2012 – O, A[5]	FEB 2012/O[5]	DISEASE PRESENT
KUWAIT, 2011	2011, 2012 – O[5]	FEB 2012/O[5]	DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
KYRGYZSTAN, 2011	2011 – O, A[1]	NOV 2011/O, A[1]	LIMETED TO ONE OR MORE ZONES-DOMESTIC, NOT REPORTED IN WILD ANIMALS
LEBANON, 2011	2011, 2012 – NO REPORTED OUTBREAKS[1]	03/2010[1]	NOT REPORTED IN THIS PERIOD
LIBYA, NO SUBM. REPORTS	2011 – O[5] 2012 – O, SAT 2[5]	APR 2012[1, 5]	DISEASE PRESENT
OMAN, 2011	2011 - NO DATA AVAILABLE	DEC 2011[1]	DISEASE PRESENT
PAKISTAN, 2011	2011 – Asia 1, O 2012 – A, Asia 1[5]	JAN 2012/Asia 1, A[5]	LIMITED TO ONE OR MORE ZONES
AUTONOMOUS TERRITORIES PALESTINE, 2011	2011 – O, A, Asia 1[1] 2012 – SAT 2[1, 5]	APR 2012/SAT 2[5]	LIMETED TO ONE OR MORE ZONES-DOMESTIC, NOT REPORTED IN WILD ANIMALS
QATAR, 2011	NO DATA AVAILABLE		½ 2011 – NOT REPORTED, 2/2011DISEASE PRESENT
SAUDI ARABIA, 2011	2012 – O[5]	JUL 2012/O[5]	DISEASE PRESENT-DOMESTIC, CONFIRMED, NO CLIN-WILD ANIMALS
SYRIAN ARAB REPUBLIC, 2011	2011, 2012 – NO REPORTED OUTBREAKS[1]	03/2002[1]	NOT REPORTED IN THIS PERIOD
TAJIKISTAN, 2011	2011 – Asia 1[1]	NOV 2011/Asia 1[1]	½ 2011 – NOT REPORTED, 2/2011 - DISEASE PRESENT
TURKEY, 2011, ½ 2012 MONTHLY REPORTS REGULARLY SUBMITTED TO EUFMD	2011 – Asia 1, A, O[5,1] 2012 – Asia 1, A[5], O[1]	JUN 2012/O, A, Asia 1[1]	DISEASE PRESENT-DOMESTIC, CONFIRMED, NO CLIN-WILD ANIMALS
TURKMENISTAN	NO DATA AVAILABLE		UNKNOWN

NO SUBM. REPORTS		
UZBEKISTAN **NO SUBM. REPORTS**	NO DATA AVAILABLE	UNKNOWN

P O O L 4

EASTERN AFRICA

Uganda[13] - A total of 12 FMD outbreaks have been recorded in Uganda during the period January-August 2012, all caused by type O. The pattern of outbreaks indicates one pool clustering on the Southern border with Tanzania. Another pool seems to cluster around Central and Northern Uganda. Recent studies on FMD in African buffalos in Uganda indicate continued presence of SAT 1 and SAT 2.

Eritrea[5] **-** Eighteen samples, collected from cattle and pigs during November and December 2011, were analyzed at WRL. **FMDV type O** was identified in 15 samples, although only 14 of these were isolated in cell cultures. Genotyping showed that these 14 viruses belonged to the EA-3 topotype, but could also be divided into three unnamed lineages. No virus was detected in three samples.

Ethiopia **-** Fifteen samples, collected from cattle and sheep between January and June 2012, were submitted to WRL. Seven samples were typed as **FMDV O**, but only six were isolated in cell cultures. These six isolates were identified as the EA-3 topotype. FMDV genome was detected in four samples. No virus was detected in four samples[5].

FMDV O is the most prevalent recovered serotype with all isolates belonging to the East Africa 3 (EA-3) topotype. The phylogenetic analysis of FMD type O viruses isolated from cattle in the Tigray Region showed that they were most closely related to the O type viruses from Sudan isolated during 2008, 1999, and 2004. While the isolates from Oromia, Amhra and Southern Nations, Nationalities, and People's Region were closely related to FMD O type previously isolated in Ethiopia during 2009, 2010 and 2011[10].

Isolates from samples collected in February 2012 in Raya Azabo, Southern Zone are 99.37% identical with the isolates from Libya, collected in April 2012 in Al Hawari, Benghazi[5]. Also, the isolate from Mekele Umi Farm derived from the sample taken in November 2011 shows 99.69-100% identity with viruses isolated during the same period November – December 2011. from Eritrea, Maekel region[5].

Sudan[5] **-** Twenty-five samples, collected from cattle between December 2009 and November 2011 were typed at WRL. Five were **FMDV O** and belonged to the EA-3 topotype. Five were typed as **FMDV A** and all belonged to the AFRICA topotype, G-IV lineage. A single sample (from

2010) was identified as **FMDV SAT 2** and belonged to topotype VII, lineage Alx-12. This lineage was also identified in a single sample from Alexandria, Egypt in 2012. No virus was detected in 14 samples.

Kenya[10] - Recently conducted FMDV NSP assay indicates widespread infection of African buffalo with FMDV. Multiple serotypes are in circulation (SAT 1, SAT 2 and probably O). Overall, 52/67 (78%) buffalo serum samples tested positive for anti-FMDV antibodies in the NSP ELISA.

Tanzania[10]- FMD is very prevalent in traditional livestock-keeping systems across northern Tanzania and that non-wildlife-related risk factors are likely to be important. Seroprevalence varied among ecosystems, with high levels of seropositivity in livestock in pastoralist (64% and 66% in Ngorongoro and Tarangire, respectively) and agropastoralist (67% in Serengeti) ecosystems, and lower rates in rural smallholder systems (34% in Arusha).

Serotyping of isolates collected during 2012 shows that four serotypes have been circulating simultaneously in Tanzania[5].

Two samples, taken in June 2012, in Ngorongoro district, Arusha region, were typed as **A/AFRICA/G-I** and are most closely related to Kenyan and Tanzanian isolates from previous years[5].

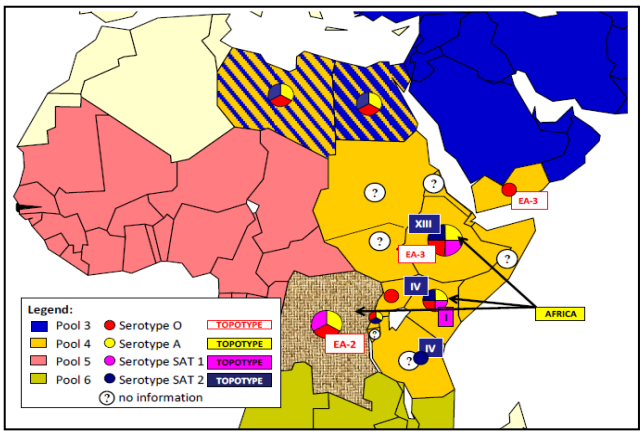
Two **O isolates** from Ngorongoro district, Arusha region (May 2012) were determined to belong to EA-2 topotype, most closely related to Kenyan isolates from 2010/2011[5].

Eight isolates from the period March – July 2012 were typed as **SAT 1/I (NWZ).** The last evidence of this topotype in Tanzania was in 2008. All SAT 1 isolates were derived from samples taken in Simanjiro district, Manyara region[5].

Sixteen isolates from February – May 2012 were typed as **SAT 2/IV**. The samples were collected in Bunda and Serengeti district of Mara region and Simanjiro district, Manyara region[5].

Kenya/Tanzania/Uganda/Cameroon[10] - retrospective serosurvey was performed using field serum samples collected during ASF surveillance programs, between 2004 and 2011 from sub-Saharan regions. Antibodies to FMDV NSP were absent in most (98%) free ranging pigs and all (100%) wild suid samples examined. Most sampling sites remained negative, and few positives were only observed in five (out of 18) sampling areas.

FMD distribution by serotypes 2010 – 2012



East Africa is known to be FMD endemic area but with limited available data.

COUNTRY	FMD HISTORY (past 2 years)	LAST OUTBREAK REPORTED/TYPE	OIE FMD STATUS
BURUNDI, 2011	2011 – O, A, SAT 1, SAT 2[7]	2011[7]	UNKNOWN
COMOROS, 2011	2011 - DISEASE SUSPECTED BUT NOT CONFIRMED[1]	2010[1]	SUSPECTED NOT CONFIRMED
CONGO D. R. , 2011	2011, 2012 O, A, SAT 1[7]	2011/2012[7], NO PRECISE DATA	LIMITED TO ONE OR MORE ZONES
DJIBOUTI, 2011	2011 – ABSENT[1]	NOT AVAILABLE	NOT REPORTED IN THIS PERIOD
EGYPT , 2011, ½ 2012	2011 – A, O[1, 5] 2012 – SAT 2[1, 5]	JUN 2012/SAT 2[1]	2011 – NOT REPORTED, 2012 - DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
ERITREA, NO SUBM. REPORTS	2011 – O[5]	NOT AVAILABLE	UNKNOWN
ETHIOPIA, 2011	2011 – A, SAT 1, O[5, 7]	2011[5]	DISEASE PRESENT
KENYA, 2011	2011 – O, SAT 1, SAT 2[1, 5]	SEP 2012/SAT 2[2]	DISESE PRESENT-DOMESTIC, LIMITED TO ONE OR MORE ZONES-WILD ANIMALS
LIBYA , NO SUBM. REPORTS	2011 – O[5] 2012 – O, SAT 2[5,7]	APR 2012[1, 5]	DISEASE PRESENT
RWANDA, NO SUBM. REPORTS	2011, 2012 – ABSENT[7]	2010[1]	UNKNOWN
SOMALIA, 2011	2011 – NO DATA AVAILABLE	2011[1]	DISEASE PRESENT
NORTH SUDAN, 2011	2011 – A, O[1]	DEC 2011[1]	DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
SOUTH SUDAN, 2011	2011, 2012 – O, SAT 1, SAT 2, A[7]	2011[7]	DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
TANZANIA, 2011	2011 – SAT 1(buffalo), SAT 2	DEC 2011/SAT 2[1]	DISEASE PRESENT IN

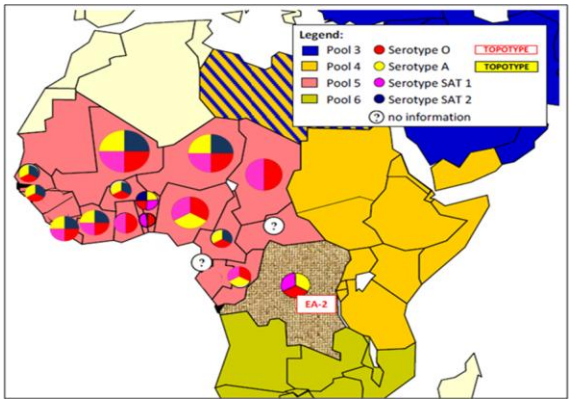
	(cattle), O[7], SAT3[1, 5]		DOMESTIC, NOT REPORTED IN WILD ANIMALS
UGANDA, 2011	2011 – O, A, SAT 1, SAT 2, SAT3[7, 2, 1]	SEP 2011/O[1]	DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
YEMEN, NO SUBM. REPORTS	NO AVAILABLE DATA		

P O O L 5

WEST/CENTRAL AFRICA

West and Central Africa regions[10] - FMD is prevalent in wildlife ruminant species in both West and Central Africa regions and in particular in buffalo. Multiple serotypes are involved; serotype O, SAT 2 and SAT 1 are dominant. Two hundred and thirty samples out of 719 (31.99%) tested positive for NSP antibody against FMDV. FMD positivity was found in 17 different wildlife species. No positivity was reported in African Forest Buffalo. SPCE test found buffalo as positive for A (44.09%), O (82.24%), C (66.11%), SAT 1 (73.16%), SAT 2 (81.89%) and SAT 3 (46.46%) serotypes, although highest O and SAT 2 prevalence were reported for the Central African region.

FMD distribution by serotypes 2010 – 2012



Foot and mouth disease is endemic in West Africa. In Gabon, Sierra Leone, Mauritania, Guinea, Guinea Biss. FMD has not been reported at least in the last 3 years.

COUNTRY	FMD HISTORY (past 2 years)	LAST OUTBREAK REPORTED/TYPE	OIE FMD STATUS
BENIN, 2011	2011 – A, O, SAT 1, SAT 2[4, 1]	DEC 2011/O, A, SAT 1, SAT 2[1]	DISEASE PRESENT
BURKINA FASO, 2011	2011, 2012 – O, A, SAT 2[4]	NO PRECISE DATA, DEC 2011[1]	DISEASE PRESENT
CAMEROON, 2011	2011 – O, A, SAT 2[4,1]	2012[4]	DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD

			ANIMALS
CAPE VERDE , NO SUBM. REPORTS	NO DATA AVAILABLE		
CENTRAL AFR. REP. 2011	NO DATA AVAILABLE		DISEASE PRESENT
CHAD, NO SUBM. REPORTS	2011, 2012 – A, SAT 1[4]	2011/2012[4], NO PRECISE DATA	UNKNOWN
CONGO D. R. , 2011	2011, 2012 O, A, SAT 1[4]	2011/2012[4], NO PRECISE DATA	LIMITED TO ONE OR MORE ZONES
CONGO R., NO SUBM. REPORTS	NO DATA AVAILABLE		
COTE D'ÍVOIRE, 2011	2011 – SAT 1, A[1], O, SAT 2[4]	2011[4]	LIMITED TO ONE OR MORE ZONES
EQUATORIAL GUINEA, 2011	NO DATA AVAILABLE		DISEASE SUSPECTED, NOT CONFIRMED
GABON, 2011	2011 – ABSENT[1]	NO IN 2006-2012 PERIOD[1]	NEVER REPORTED
GAMBIA, NO SUBM. REPORTS	2011, 2012 –O, A, SAT 2[9]	2011/2012[9], NO PRECISE DATA	DISEASE PRESENT
GHANA, 2011	2011 – O, A, SAT 1, SAT 2[4, 1]	DEC 2011[1]	DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
GUINEA BISS., 2011, ½ 2012	2011, 2012 – ABSENT[1]	NO IN 2009-2012 PERIOD[1]	NOT REPORTED IN THIS PERIOD
GUINEA, 2011, ½ 2012	2011, 2012 – ABSENT[1]	NO IN 2007-2012 PERIOD[1]	NOT REPORTED IN THIS PERIOD
LIBERIA, NO SUBM. REPORTS	2011, 2012 – A, SAT 2[4]	2011/2012[4], NO PRECISE DATA	UNKNOWN
MALI, 2011	2011/2012 – O, A, SAT 1, SAT 2[4, 1]	2011/2012[4], NO PRECISE DATA	LIMITED TO ONE OR MORE ZONES
MAURITANIA, 2011	2011, 2012 – ABSENT[1]	NO IN 2007-2012 PERIOD[1]	NOT REPORTED IN THIS PERIOD
NIGER, 2011	2011/2012 – O, A, SAT 1, SAT 2[4, 1]	NO PRECISE DATA, OCT 2011[1]	LIMITED TO ONE OR MORE ZONES – DOMESTIC, SUSPECTED, NOT CONFIRMED – WILD ANIMALS
NIGERIA , 2011, ½ 2012	2011/2012 – O, A, SAT 1[4, 1]	OCT 2011[1]	DISEASE PRESENT
SAO TOME PRINCIPE, NO SUBM. REPORTS	NO DATA AVAILABLE		
SENEGAL, 2011	2011/2012 – O, A, SAT 2[4, 1]	NO PRECISE DATA, DEC 2011[1]	DISEASE PRESENT IN DOMESTIC, NOT REPORTED IN WILD ANIMALS
SIERRA LEONE, 2011	2011, 2012 – ABSENT[1]	OCT 1958[1]	NOT REPORTED IN THIS PERIOD
TOGO, 2011	2011, 2012 – O, SAT 1[1, 4, 1]	FEB 2012[4]	DISEASE PRESENT

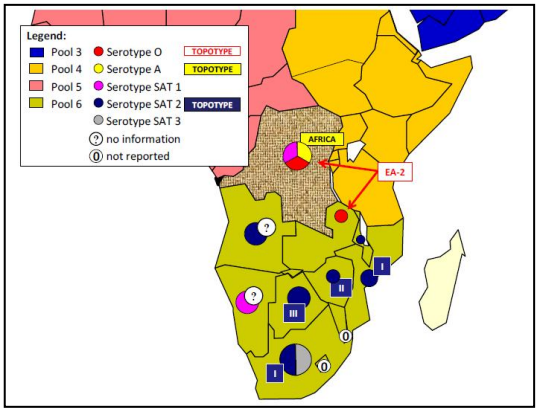
POOL 6

SOUTHERN AFRICA

Botswana[1] - SAT 2 outbreak recorded in sheep/goats is a reoccurrence FMD in the containment zone. The infection is sub-clinic and discovered during routine active surveillance. Small sheep/goat stock tested positive to non-structural protein ELISA. A statistical sample of the positive animals was subjected to probang sampling and the FMD virus, SAT 2, was isolated at Botswana Vaccine Institute (BVI) (OIE's Reference Laboratory).

Tanzania/Zambia/Mozambique[10] - A total of 150 probang samples collected in 2010 from Cattle and buffaloes in Katavi (Tanzania), Lochninvar (Zambia) and Morromeu (Mozambique) National Parks were tested. The overall FMDV genome detection rate was 6.7% (n=10), with SAT 1 being the most frequent serotype (60%; n=6) isolated in cattle and buffaloes in Tanzania, Zambia and Mozambique followed by SAT 3 (30%; n=3) and SAT 2 (10%; n=1). Genotyping showed that type SAT 1 viruses fell into either the TOPOTYPE 1 (NWZ) or UNASSIGNED topotypes, type SAT 2 into the AFRICA topotype I and type SAT 3's into topotype IV (SEZ).

FMD distribution by serotypes 2011- 2012



Swaziland and Lesotho are the countries free from FMD in which vaccination is not practiced. Also, there is the zone in both, Botswana and Namibia, FMD free where vaccination is not practiced, since 2010 and 1997 respectively.

COUNTRY	FMD HISTORY (past 2 years)	LAST OUTBREAK REPORTED/TYPE	OIE FMD STATUS
ANGOLA, NO SUBM. REPORTS	NO REPORTED OUTBREAKS	DEC. 2010/ SAT 2[1]	UNKNOWN
BOTSWANA, 2011	2011 – SAT 2[5] SAT 2[1] 2012 – SAT 2[1]	MAY 2012/ SAT 2[1]	FMD FREE ZONE WHERE VACCINATION IS NOT PRACTISED
CONGO D. R. , 2011	2011, 2012 O, A, SAT 1[4]	2011/2012[9], NO PRECISE DATA	LIMITED TO ONE OR MORE ZONES
MALAWI, 2011	2011 – SAT 2[1]	OCT 2011[1]	DISEASE PRESENT
MOZAMBIQUE, 2011	2011 – SAT 2[1]	JUN 2011/SAT 2[1]	DISEASE PRESENT
NAMIBIA, 2011	2011 – SAT 1[1] 2012 – SAT 1[1]	JAN 2012/SAT 1[1]	FMD FREE ZONE WHERE VACCINATION IS NOT

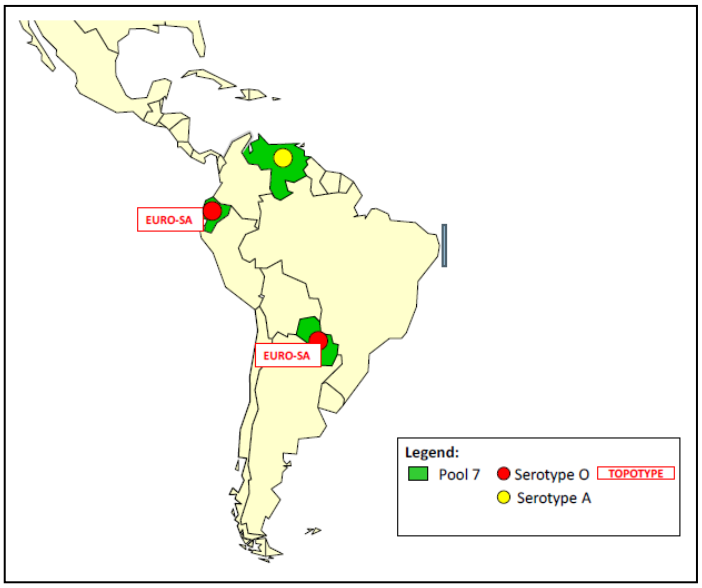
			PRACTISED
SOUTH AFRICA, 2011	2011 – SAT 1[1] SAT 2[1] 2012 – SAT 2[1]	APR 2012/SAT 2[1]	DISEASE PRESENT-DOMESTIC, CONFIRMED WITH NO CLIN.-WILD
ZAMBIA, 2011	2012 – SAT 2[1]	JAN 2012/SAT 2[1]	DISEASE PRESENT
ZIMBABWE, 2011	2011 – SAT 2[1]	APR 2011/SAT 2[1]	DISEASE PRESENT

P O O L 7

SOUTH AMERICA

Serotyping results of forty-nine samples taken in 1999-2008, **mainly in Venezuela**, shows that most were caused by serotype A. The phylogenetic analysis showed that all South American type A FMDV belonged to the Euro-SA topotype. Sixteen subgenotypes could be identified, based on a 15% nucleotide divergence; eight are extinguished, three were active until the year 2002 and the remaining five circulated in Venezuela during the period 2001-2007, illustrating the potential for FMDV diversification under appropriate selective pressure. The last emergencies reported in already-free areas of Colombia in 2004 and 2008 were closely related to isolates acting in Venzuela[12].

FMD distribution by serotypes 2010 – 2012



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.

COUNTRY	FMD HISTORY (past 2 years)	LAST REPORTED/TYPE	COUNTRY FMD STATUS[1]	CONTROL MEASURES
ECUADOR, 2011, ½ 2012	2011 – O(5)[1]	AUG 2011/O	2011 – DISEASE PRESENT, 2012 – NOT REPORTED	ROUTINE VACCINATION - CATTLE
PARAGUAY, 2011	2011 – O(2)[1]	DEC 2011/O	½ 2011 – NOT REPORTED, 2/2011 - LIMITED TO ONE OR MORE ZONES	ROUTINE VACCINATION – CATTLE, BUFFALOES
VENEZUELA, NO SUBM. REPORTS	2011 – O(1)[8] A(1)[8]	2011/O, A	UNKNOWN	

The key to the superscripts is below:

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. International Society for Infectious diseases, http://www.promedmail.org
4. FAO/EuFMD supported FMD networks (RESOLAB-FMD West Africa)
5. World Reference Laboratory for Foot-and-Mouth Disease (WRLFMD), www.wrlfmd.org
6. Conference on Scientific Developments and Technical Challenges in the Progressive Control of FMD in South Asia, New Delhi, India, 13-15 February 2012.
7. FAO/EuFMD supported FMD networks (EARLN-FMD Eastern Africa)
8. SENASA, Argentina
9. SEACFMD
10. Open session of the EuFMD, Jerez de la Frontera, Spain. 29-31 October 2012.
11. Virologica Sinica 2012 Oct;27(5):320-3. Epub 2012 Oct 11.
12. Veterinary Microbiology 2012 Jul 6;158(1-2):82-94. Epub 2012 Feb 17.
13. East Africa Foot and Mouth Disease Neswletter