Foot and mouth disease in Mali and West Africa

September 2010, Abdallah TRAORE. Mali

Introduction

- The Republic of Mali is a landlocked country of approximately 1,204,205 km². The country spans three major climatic zones: a large central band of semi-arid (Sahelian area), Soudanian area, with rain falls only from mid-June to October and north by the Saharan desert.
- Mali has one of the largest cattle populations in West Africa (approximately 8,385,700), as well as a large number of small ruminants (2,452,400).
- The cattle population consists principally of indigenous breeds (Mere cattle, N'Dama cattle, Zebu peuhl, Zebu Maure, Zebu Azawak).
- However, attempting to improve livestock productivity by importing exotic breeds for crossing-breeding is becoming a common practice in Mali.

Foot and mouth disease in Mali and West Africa

- Disease such as foot and mouth disease (FMD) require particular attention. The long campaign to eradicate rinderpest diverted attention and effort from FMD control in West Africa. Furthermore, the economic impact of FMD, particularly the reduction in milk production and depreciation in the value of meat (due to weight loss in the animal and the reduction in meat quality), has been overlooked or is not well understood by livestock-owners. In Mali, the loss (milk, meat, draught, cost of treatment) have been evaluated to 600.000 by year.
- These factors, combined with the low mortality rate of the disease, may explain the relative lack of attention to FMD infections in Mali, in particular and throughout the African continent as a whole.

Foot-and-mouth disease in Mali and West Africa

- Three of the seven serotypes have been found circulating in Mali: these include serotype A, O and SAT 2. FMD was first reported in Mali in 1991 in outbreaks attributed to type SAT 2 virus and, subsequently, other serotypes were identified (A, 1999; O, 2009). Although no extensive studies have been conducted in Mali, the onsets of FMD seem to follow a seasonal occurrence: during June-July-August (rain season) in the entire country, and during January-February (dry season) in target areas of Gao and Timbouctou regions.

Foot-and-mouth disease in Mali and West Africa

- The livestock husbandry in Mali is divided between three different systems: the sedentary system in the Soudanian area, where focal points of transhumance occur during the rain season; the semi-nomadic system in the Sahelian area; and the nomadic system in the Saharian area. It should be noticed that, however, the pastoral system is the predominant husbandry system in sub-Saharan Africa and many of these flocks traverse national borders in search of water and better pastures without any recourse to effective quarantine or movement control measures.
Foot-and-mouth disease in Mali and West Africa

- Most of the cattle and small ruminant population enter into Mali from Mauritania, Guinea, Ivory Coast, Burkina Faso and Niger; on the other hand transboundary movement also exists from Mali to the above countries and also to Algeria. The figure 1 shows the main transboundary movement in Mali by regions. Therefore, the regular congregation of herds from different sources without essential health check predisposes all herds to FMD and to the introduction and spreading of new strains.
- In Mali, there are regularly FMD outbreak. In 2007 ten outbreak were found, amongst 398 animals contaminated. According the retrospective study conducted in the seven countries of West Africa (Burkina Faso, Mali, Niger, Benin, Côte d’Ivoire, Ghana, Togo), over the period 1970-2003, FMD became enzootic in these countries.

Foot-and-mouth disease in Mali and West Africa

- According to the OIE notifications, 898 outbreak of FMD were declared over the period 2000-2004 by these seven countries. According to the same study, within the seven countries, 198 biological samples from identified outbreak, have permitted to confirm FMD outbreak with the follow serotypes: O: 62 outbreaks; A: 32 outbreaks; SAT1: 8 outbreaks; SAT2: 88 outbreaks.
- Even though under estimated, these results show clearly the importance of FMD in West Africa. The diffusion of FMD in the subregion is facilitated by the rearing mode of livestock dominated by the perpetual and non control movement of livestock (transhumance, commerce, nomadism).

Strategy to control foot and mouth disease in Mali

- Before the start of the national program for the control of foot and mouth disease, we want start study for all regions of Mali for serotypes screening.
- The study will assess the prevalence of FMD in Mali using serological and clinical disease survey based on a random sampling approach by the means of applied Geographic Information System (GIS) method. Furthermore, Participatory Epidemiology (PE) component will be integrated within the survey activities in order to gather relevant epidemiological information on the past events of FMD, the seasonal variation in the disease occurrence, and to investigate the risk associated with livestock movement and FMD prevalence.

Strategy to control foot and mouth disease in Mali

- Preventing and controlling FMD requires a good diagnostic laboratory, good quarantine facilities and qualified personnel. The Central veterinary laboratory of Bamako (CVL) has need serological and polymerase chain reaction (PCR) facilities. Moreover, the CVL routinely conducts ELISAs, PCR, qRT-PCR to detect antibodies, antigen and nucleic acid.

Strategy to control foot and mouth disease in Mali

- According to the OIE notifications, 898 outbreak of FMD were declared over the period 2000-2004 by these seven countries. According to the same study, within the seven countries, 198 biological samples from identified outbreak, have permitted to confirm FMD outbreak with the follow serotypes: O: 62 outbreaks; A: 32 outbreaks; SAT1: 8 outbreaks; SAT2: 88 outbreaks.
- Even though under estimated, these results show clearly the importance of FMD in West Africa. The diffusion of FMD in the subregion is facilitated by the rearing mode of livestock dominated by the perpetual and non control movement of livestock (transhumance, commerce, nomadism).

Strategy to control foot and mouth disease in Mali

- Before the start of the national program for the control of foot and mouth disease, we want start study for all regions of Mali for serotypes screening.
- The study will assess the prevalence of FMD in Mali using serological and clinical disease survey based on a random sampling approach by the means of applied Geographic Information System (GIS) method. Furthermore, Participatory Epidemiology (PE) component will be integrated within the survey activities in order to gather relevant epidemiological information on the past events of FMD, the seasonal variation in the disease occurrence, and to investigate the risk associated with livestock movement and FMD prevalence.

Strategy to control foot and mouth disease in Mali

- Preventing and controlling FMD requires a good diagnostic laboratory, good quarantine facilities and qualified personnel. The Central veterinary laboratory of Bamako (CVL) has need serological and polymerase chain reaction (PCR) facilities. Moreover, the CVL routinely conducts ELISAs, PCR, qRT-PCR to detect antibodies, antigen and nucleic acid.
Appendix 7

"New tools and challenges for progressive control"

Open Session of the EuFMD Research Group, Vienna (Austria) 29 September - 1 October 2010

THANK YOU