Survey-based study on African swine fever in 13 African countries

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Introduction

African swine fever (ASF) is a devastating swine disease that causes important economical loses in the affected countries, as most of the Sub-Saharan countries where ASF is endemic since long time ago. However, official information about the current distribution of the disease (i.e. areas where ASF is endemic) and country´s capabilities for fighting against the disease (i.e. diagnosis capabilities and surveillance measures implemented) is very scarce. In order to have further insights about these aspects, and consequently update the picture of ASF situation in Africa, a survey-based study was conducted during an ASF course in Cameroon (July 2012) organized by the International Atomic Energy Agency (IAEA).

Material and Methods

A paper-based survey was distributed to a group of experts on laboratory diagnosis coming from 13 African countries: Burkina Faso, Cameroon, Central African Republic, Equatorial Guinea, Republic of the Congo, Ethiopia, Gabon, Kenya, Mali, Mozambique, Rwanda, Senegal and Tanzania (Figure 1). Each survey comprised questions on three main components: ASF situation in the country (8 quest.), ASF diagnosis (6 quest.) and ASF surveillance system (11 quest.). Questions with less than 60% answered (more than 8 surveys not answered) were discarded for results interpretation.

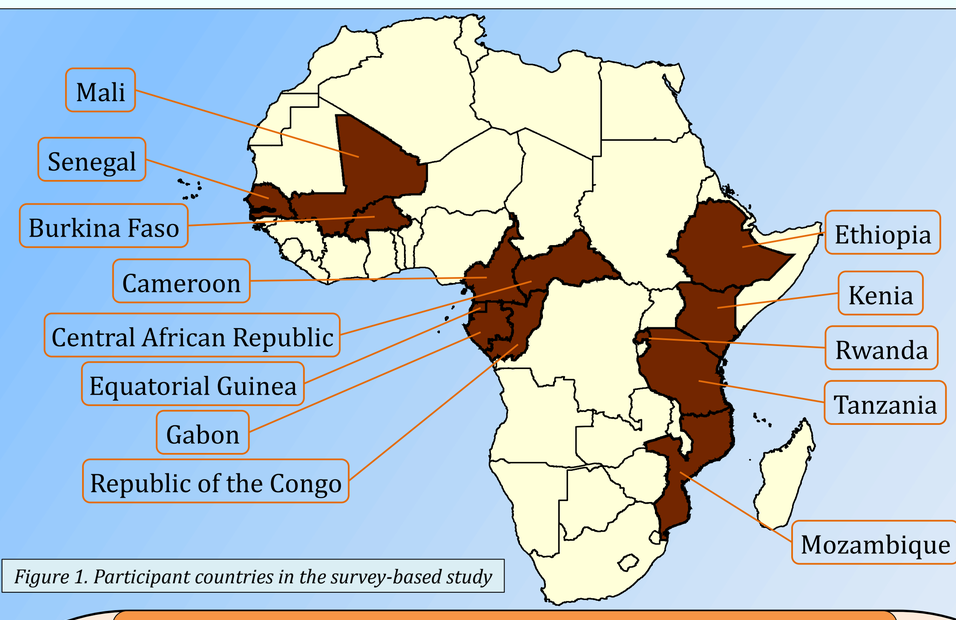


Figure 1. Participant countries in the survey-based study

Results: ASF diagnosis

Five out of six questions were considered in this section. Table 1 represents the number of samples received in each country for ASF diagnosis in 2011, according to the expert opinion participants (EOP). All countries which took samples for ASF diagnosis had ASF in 2011.

Figures 1 to 3 summarize the country´s capacity for performing ASF diagnosis.

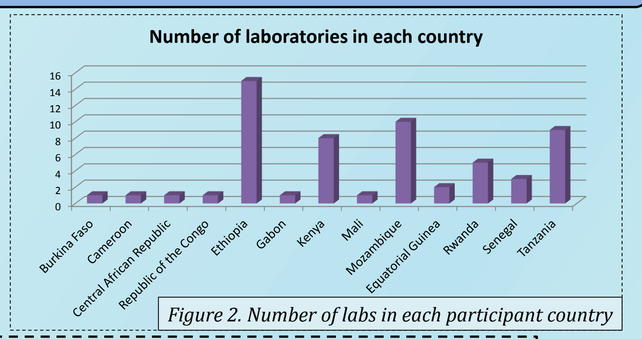


Figure 2. Number of labs in each participant country

Table 1. Number of samples for ASF diagnosis in 2011 of each country

Country	Number of samples for ASF diagnosis in 2011
Burkina Faso	50
Cameroon	300
Central African Republic	805
Republic of the Congo	0
Ethiopia	0
Gabon	0
Mali	0
Mozambique	50
Equatorial Guinea	0
Rwanda	0
Senegal	20
Tanzania	100

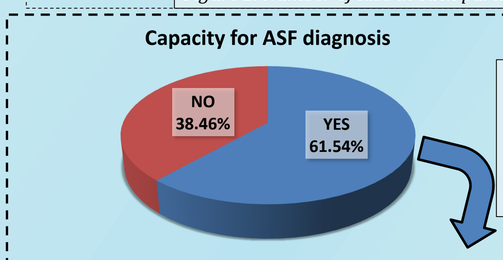


Figure 3. Percentage of countries which have the capacity for ASF diagnosis

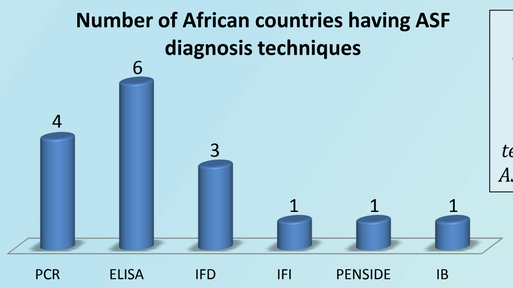


Figure 4. Amount of countries that have each technique for ASF diagnosis

Discussion

Despite the fact that every participant country has at least one laboratory (Fig. 2), there is a high percentage (38,36%, 5 countries) which are not able to diagnose ASF virus. Furthermore, there is a lack of money in this countries to buy reagents for ASF diagnosis. These points suggest that not only trainning courses are needed to improve the techniques for ASF diagnosis, but more economic resources should be allocated to have the appropriate material. Reagents which doesn't expire or which doesn't need cold to keep a good stage of preservation may also help on this.

Results: Surveillance system for ASF

Only 7 out of 13 questions were considered. Results of this section were quite confusing as some of EOP who stated that the census of pig farms in their countries were not available, they knew the number of pig farms. Furthermore, some EOP confirmed the absence of surveillance systems for ASF in their countries, but afterwards they marked that there was passive or active surveillance system for ASF.

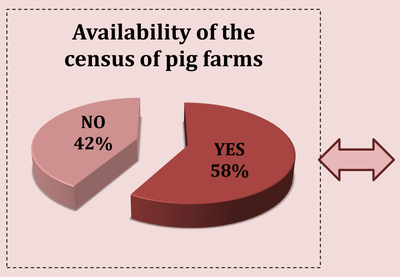


Figure 9. Percentage of countries which have the availability of the census of pig farms

Country	Number of pig farms
Burkina Faso	
Cameroon	1,008,000
Central African Republic	996,000
Republic of the Congo	37,448
Ethiopia	
Gabon	70,000
Kenya	304,689
Mali	
Mozambique	500,000
Equatorial Guinea	50,000
Rwanda	706,476
Senegal	15,000
Tanzania	1,600,000

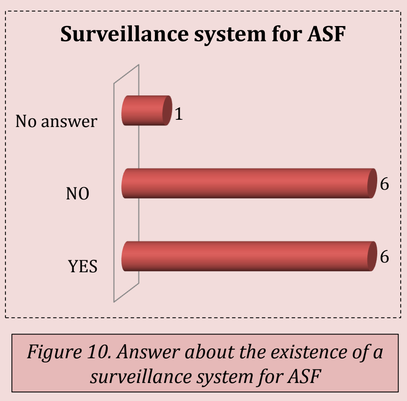


Figure 10. Answer about the existence of a surveillance system for ASF

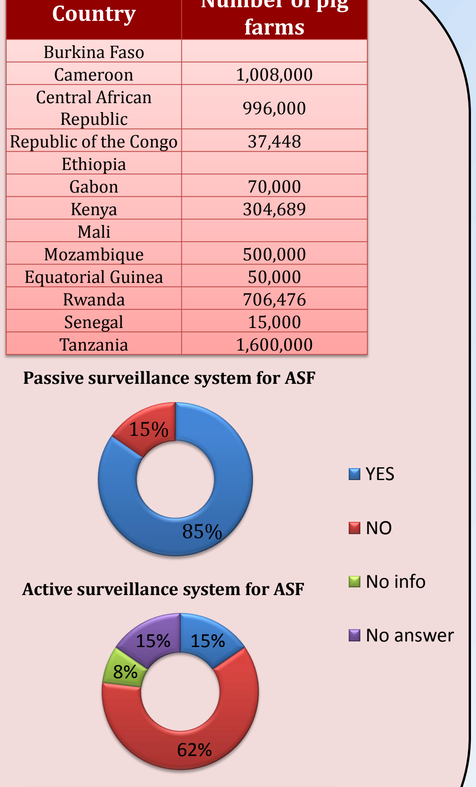


Figure 11. Percentage of countries having passive/active suveillance system for ASF

Discussion

Important disagreements were found between the EO responses and the WAHID information. This result may be due either to the lack of epidemiological knowledge or field information about ASF of the experts participating in this survey, or the little reporting to the OIE. This point remarks the need to train the laboratory experts in an epidemiological way, at least for the disease present in the country.

Results: ASF situation

Five out of eight questions were considered in this section. A total of 69,2% responses of EOP regarding ASF notifications were in agreement with the WAHID, whereas only the 23,1% of EOP regarding the current ASF situation in the country. 38,5% of the EOP had no information about the current ASF situation in the country. Figure 7 shows the areas with highest density of pig farms and those where pig consumption is important. Most of EOP remark the animal movement as the main factor for ASF transmision (Figure 8).

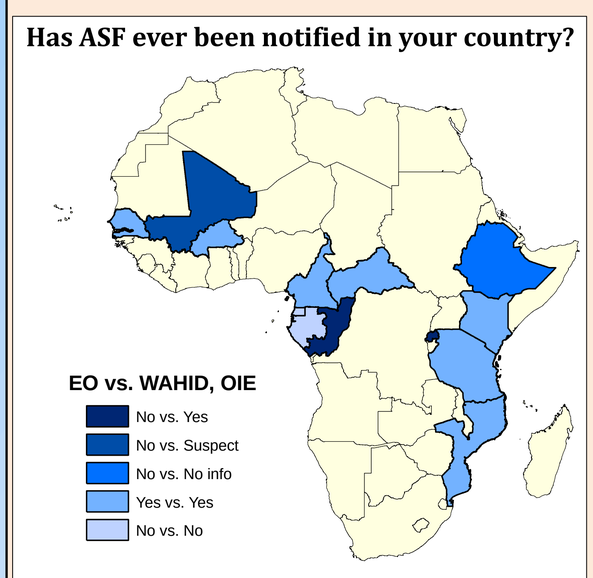


***Figure 5**. Agreement in answers between EOP and OIE about the notifications of ASF in their countries.*

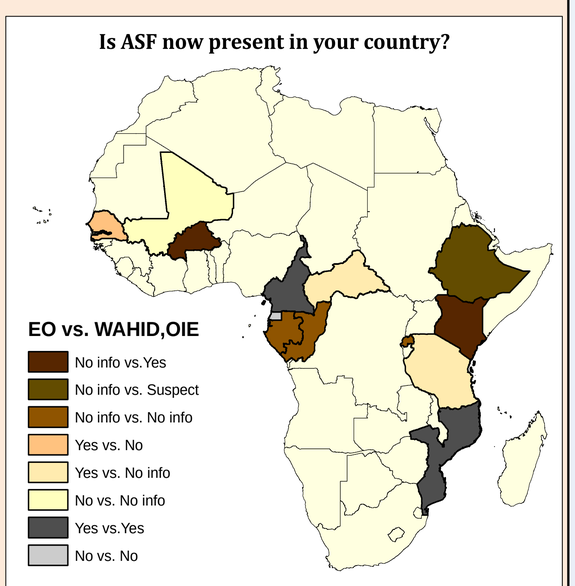
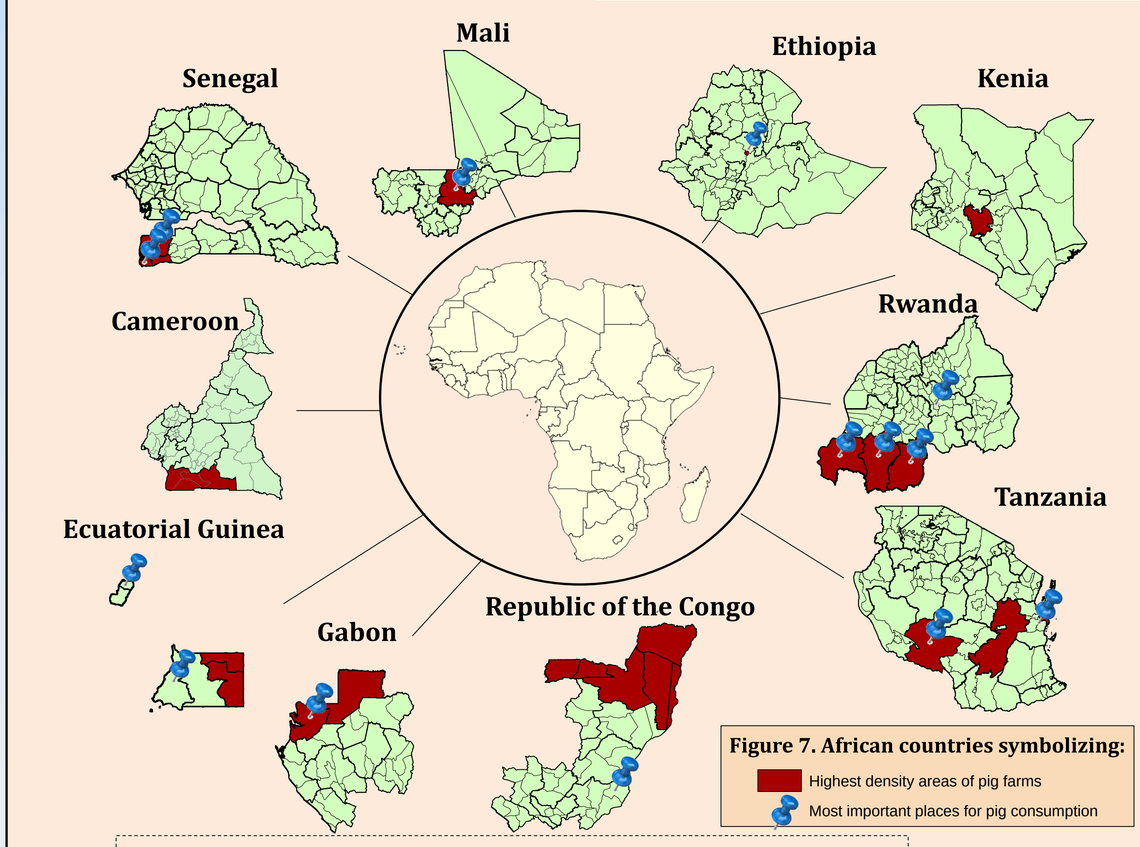


***Figure 6**. Agreement in answers between EOP and OIE about the presence in the moment of the survey of ASF in their countries.*



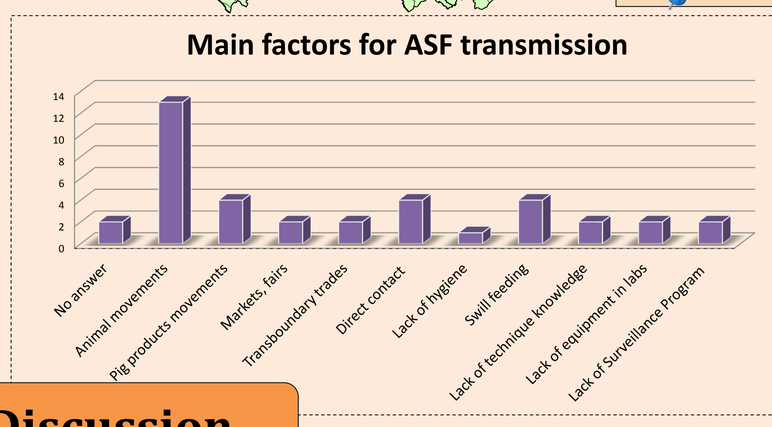


Figure 8. Main factors for ASF transmission according to expert opinion participants

Discussion

The ASF situation in African countries is not very well known by experts of laboratory diagnosis, according to this survey. This point highlights the importance of the joint training of epidemiology and laboratory at the same time. Nevertheless, most of the EOP could give us a good location where pig farms and consumption of pig meat were important, that can give us an idea of where ASF could be present with highest probability. Further studies should be conducted to identify main factors for ASF transmision, while informations campaigns could be useful to increase the awareness and prevention of the disease.

References:

WAHID Interface, OIE (Organisation for Animal Health)

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