

Evaluation of passive and active surveillance of notifiable avian diseases in Mali

S Molia¹, MR N'Diaye², L Dombia³, A Diarra⁴, K Diarra Sissoko³, B Kamissoko⁴, S Magassa⁴, I Traoré⁴, M Sanogo Sidibé³, M Diall³

¹ CIRAD, UPR AGIRs, Bamako, Mali; ² PACE, Bamako, Mali; ³ DNSV, Bamako, Mali; ⁴ Laboratoire Central Vétérinaire, Bamako, Mali

INTRODUCTION

Standardized methods for semi-quantitative evaluation of animal health surveillance systems have been developed in the last 10 years in order to reduce the subjectivity of evaluation and to make comparisons among countries. An adaptation of the method developed by Squarzone et al (2006) was used in Mali to assess the National veterinary epidemiological surveillance network (EPIVET-Mali). Although this evaluation enabled to identify weak points and recommendations for improvement, it did not provide any insight into how efficient the surveillance of notifiable avian diseases (NAD) was. This is critical in the Malian context where Newcastle disease (ND) causes major economic losses and where outbreaks of highly pathogenic avian influenza (HPAI) have been notified in neighboring countries. We therefore aimed to evaluate both components (passive and active) of the surveillance of NAD (HPAI and ND) in Mali.

PASSIVE SURVEILLANCE

Methods

We used pilot-tested questionnaires in 32 randomly selected villages in the southern half of Mali (which accounts for 98% of the Malian poultry population) every 3 months between November 2009 and February 2011.



In each village, data was collected in 4 randomly chosen households on the number of sick and dead birds in the last 3 months, observed clinical signs, and notification to veterinary authorities.

Households where birds showed at least 3 of the following clinical signs: diarrhea, respiratory signs, nervous signs, cyanosis of the combs or wattles, and high mortality were considered as having NAD-looking-like disease.

Results

| Parameter | Nov 09 | Feb 10 | May 10 | Sep 10 | Nov 10 | Feb 11 |
|---|--------|--------|--------|--------|--------|--------|
| Number of households (hh) investigated | 128 | 128 | 127 | 110 | 124 | 121 |
| % of hh where any avian disease occurred in the previous 3 months | 52,3% | 53,1% | 37,0% | 33,6% | 42,7% | 47,1% |
| % of hh where NAD-like disease occurred in the previous 3 months | 39,7% | 33,3% | 15,8% | 50,0% | 14,6% | 19,6% |
| % of notification for hh where any avian disease occurred | 10,6% | 5,9% | 20,0% | 8,8% | 23,5% | 14,5% |
| % of notification for hh where NAD-like disease occurred | 20,0% | 0,0% | 33,3% | 11,8% | 57,1% | 20,0% |

Occurrence of any avian disease and occurrence of NAD-looking-like disease significantly varied over time but not the percentage of notification. Whatever season considered, the percentage of notification was not significantly different between households where any avian disease occurred and households where NAD-looking-like disease occurred.

ACTIVE SURVEILLANCE

Methods

We graphed surveillance data produced by the veterinary services between February 2008 and April 2011.

Results

Every week since 2010 (stabilization of surveillance efforts), are investigated an average of:

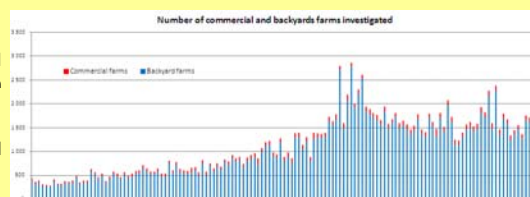
> 40 markets
(out of an estimated 121)



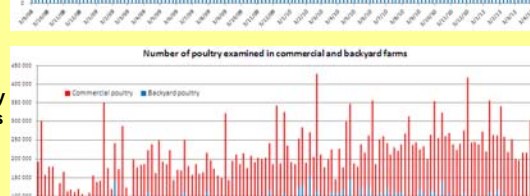
> 220 fairs



> 80 commercial farms
(out of an estimated 326)



> 1,500 backyard farms



~ 150,000 poultry in commercial farms

~ 100,000 poultry in backyard farms

DISCUSSION

The efficiency of passive surveillance is unsatisfactory with an overall notification of 13.5% for avian diseases and 17.4% for NAD-looking-like diseases. Notification did not vary with time which seems to indicate that it is unrelated to how busy village farmers are with agricultural work. More sensitization efforts of poultry owners must be implemented to increase notification of NAD-looking-like diseases.

The active surveillance of NAD in Mali has made good progress since 2008 and now enables to examine a total of about 450,000 poultry every week, that is 1.4% of the estimated total population (33,000,000). The representativeness of the examined birds is nevertheless limited, especially for backyard poultry, since difficult field conditions favor investigation of the most accessible markets, fairs and farms.



We thank the French Ministry of Foreign Affairs for funding this work

For more information: sophie.molia@cirad.fr or <http://avian-influenza.cirad.fr>