

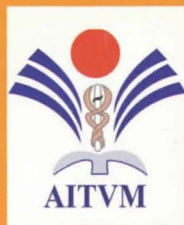
# Proceedings

## The 12th International Conference of THE ASSOCIATION OF INSTITUTIONS FOR TROPICAL VETERINARY MEDICINE

Does control  
of animal  
infectious  
risks offer  
a new  
international  
perspective ?



Montpellier, France  
20-22 August 2007



## **QUANTITATIVE ASSESSMENT OF THE RISK OF INTRODUCTION OF HPAI H5N1 TO ETHIOPIA VIA THE LEGAL IMPORT OF DAY-OLD-CHICKS**

SOARES MAGALHAES R.J.<sup>1\*</sup>, GOUTARD F.<sup>2</sup>, DEMISSIE A.<sup>3</sup>, IGEZU L.<sup>3</sup>,  
JOBRE Y.<sup>3</sup>, ROGER F.<sup>2</sup>, PFEIFFER D.U.<sup>1</sup>

*1. The Royal Veterinary College, University of London London, UK*

*2. Cirad, Epidemiology and Ecology of Animal Diseases Research Unit  
Campus international de Baillarguet, 34398 Montpellier Cedex 5, France*

*3. Food and Agriculture Organization of the United Nations,  
Addis Abeba, Ethiopia*

### **ABSTRACT**

Here we model the pathways leading to the introduction of highly pathogenic avian influenza (HPAI) of the H5N1 subtype to Ethiopia through the legal import of day-old-chicks (DOC). The uncertainties, variability and randomness associated with the model inputs and final probabilities were implemented using Monte Carlo simulation (@Risk; Palisade Corp.). Our results suggest that under current conditions the risk of introducing virus through the legal trade of DOC is very low but is likely to occur. Furthermore, we would expect to import infection every 3.8 years (90%CI: 0.30-235) from the approved third countries considered (i.e. Egypt, Saudi Arabia, United Kingdom and the Netherlands) with an annual probability of importing at least one infected DOC of 23% (90%CI: 0.4%-96%). The number of parent stock testing positive at the countries of origin of the DOC is suggested to have the highest effect on both risk estimates ( $r=$ ). Our simulations also suggest that the higher the level of poor compliance of the veterinary authorities at the border inspection posts (BIP) the lower the number of years between virus introductions in Ethiopia ( $r=$ ). We report and discuss the impact of sensitivity analysis of the baseline assumptions on the uncertainty associated with both estimates of risk.

### **INTRODUCTION**

The first African outbreak of highly pathogenic avian influenza (HPAI) (H5N1) virus was reported from a farm in northern Nigeria in February 2007 (OIE, 2007). Since then, the OIE has received official reports from seven other African countries, including Cameroon, Côte d'Ivoire, Burkina Faso, Djibouti, Egypt Niger and Sudan. Although the putative pathway of

\*Contac authort E-mail: rmagalhaes@rvc.ac.uk