Epidemiological follow-up of bovine theileriosis to *Theileria parva* in North-Kivu province, Democratic Republic of Congo

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1. INTRODUCTION

East Coast fever (ECF) poses a major constraint on the improvement of cattle production in Eastern part of the Democratic Republic of Congo (DRC). In this region, the activity of the main vector of ECF, the three host tick *Rhipicephalus appendiculatus* is very higher. However, very few studies on ECF are available in DRC. The work described in this paper aimed at gaining a better understanding of factors associated with the presence and the possible emergence of the ECF in North-Kivu, the ultimate goal being to determine the epidemiological states of the disease and to propose their control methods.

2. MATERIALS AND METHODS

Three studies were conducted in North-Kivu: (i) firstly, a retrospective survey carried out (December 2007 to June 2008) among 1021 veterinarian surgeons in North-Kivu allowed the collection of data concerning the epidemiological situation of the three major tick-borne diseases: ECF, anaplasmosis and babesiosis, (ii) secondly, a cross-sectional study (February-April 2009) was led in 29 herds (1,427 cattle heads) raised under a fenced system in two agro-ecological zones (AEZ) namely medium (1,000-1,850 m asl, 0°7' to 0°8'N) and high (>1,850 m asl, 0°19' to 0°40'S) altitude. All attached ticks (3,215 ticks) were collected by manual extraction on 482 animals. In their pastures, 4,353 ticks were collected by flagging. The identification of ticks was carried out according to Walker et al. (2003). Additionally, the *Theileria parva* seroprevalence was performed by the indirect fluorescence antibody test (IFAT) on 450 blood samples, and (iii) thirdly, the dynamics of the transmission of *T. parva* was studied over a period of one year (October 2009 to September 2010) in two cohorts in Butembo (0°05'N, 29°19'E). The first cohort was the free-range grazing system with 38 indigenous cattle and the second used 34 bovine cross breed grazing under a fenced system. Monthly, *R. appendiculatus* were counted on each animal of cohorts, animals were examined clinically and blood sampled for an IFAT. Clinical ECF was diagnosed when symptoms of the disease were confirmed by the demonstration of *T. parva* schizonts in lymph node smears with or without seropositivity. The diagnostic of sub-clinical ECF was the seroconversion.

3. RESULTS AND DISCUSSION

The results of the different studies (**Fig. 1**) are discussed, highlighting the risk factors of ECF in North-Kivu (climatic conditions and ecological favourable to the vector, low availability of tools to control the disease) as the indicators used to assess the epidemiological state of the ECF are directly concerned. Thus, animals must be immunised by the so-called infection and treatment technique. Also, a regular control of ticks is necessary and clinical cases needs to be treated.

Fig. 1 Proposal of control methods of epidemiological status of ECF in North-Kivu, DRC