

RESEARCH COMMUNICATION

SEROLOGICAL EVIDENCE OF Q FEVER IN CATTLE IN MALAWI

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ABSTRACT

STALEY, G. P., MYBURGH, J. G. & CHAPARRO, F., 1989. Serological evidence of Q fever in cattle in Malawi. *Onderstepoort Journal of Veterinary Research* 56, 205-206 (1989)

The serological prevalence of *Coxiella burnetii* in cattle in Malawi is unknown. Serum samples from 200 Malawian zebu cattle were tested for *C. burnetii* antibodies using the complement fixation test. The percentage of positive and suspicious titres was 1.5% and 5% respectively.

INTRODUCTION

Since its recognition as an agent of disease in man in 1937, epidemiological studies of *C. burnetii* have been undertaken in many countries throughout the world (Babudieri, 1959; Roth & Bauer, 1986; Aitken, Bögel, Cračea, Edlinger, Houwers, Krauss, Rády, Reháček, Schiefer, Schmeer, Tarasovich & Tringali, 1987).

It has been shown that *C. burnetii* is endemic in many African countries (Hummel, 1976; Schutte, Kurz, Barnard & Roux, 1976), but there are no records on the occurrence of *C. burnetii* in Malawi. Q fever, caused by *C. burnetii* is of limited economic importance, but the infected animals represent a potential hazard to human health (Babudieri, 1959; Gear, 1980).

The aim of this study was to determine the presence of *C. burnetii* antibodies in cattle in Malawi.

MATERIALS AND METHODS

Two hundred serum samples were obtained at the main abattoirs in Malawi and were collected in vacuum tubes at slaughter¹. The cattle were predominantly male animals, of at least 18 months age and originated from throughout the northern and central areas. Samples were refrigerated at approximately 4 °C for 14 days, before being flown to the Republic of South Africa, where they were tested at the Onderstepoort Veterinary Research Institute.

Each sample was tested for antibodies to *C. burnetii* using the complement fixation test as described by Herr, Huchzermeyer, Te Brugge, Williamson, Roos & Schiele, 1985. Titres equal to and greater than 30 South African units per ml (SAU/ml) (Herr *et al.* 1985) were regarded as positive. Titres of 18-24 SAU/ml were regarded as suspicious. Positive control serum was used when testing each batch of sera with commercial antigen².

RESULTS

Of the 200 samples 3 were positive, 10 suspicious and 4 were anti-complementary.

TABLE 1 The distribution of antibody titres to *C. burnetii*

SAU/ml	<18	18	21	24	49	A/C*
No. of samples	183	7	1	2	3	4

* A/C = Anti-complementary

DISCUSSION

Babudieri (1959) states that Q fever has been found in animals and man in most of the countries in which it has been looked for. This was confirmed as far as Malawi is concerned.

The results of this small pilot study indicate that 13 animals reacted positively or suspiciously for Q fever. The proportion of the cattle reacting positively or suspiciously as a percentage of animals tested, is 6.5%. Q fever's prevalence in Malawi therefore seems to be similar to that in other central and southern African countries (Hummel, 1976; Gummow, Poerstamper & Herr, 1987).

C. burnetii is believed to cause inapparent infections in both wild and domestic animals (Babudieri, 1959; Gear, 1980; Aitken *et al.*, 1987). Q fever is not regarded as an economically important disease in domestic animals, but perinatal deaths in sheep, goats and cattle as well as abortions in sheep and goats have been ascribed to *C. burnetii* (Schutte *et al.*, 1976).

A large percentage of the Malawian human population are resident in the rural areas and they are closely associated with livestock and wild animals. This creates an ideal situation for the transmission of the disease. Human infection, which most usually comes about by inhalation, has ample opportunity to occur in a country where the disease is endemic among domestic animals (Babudieri, 1959). *C. burnetii* is extremely infectious for humans (Gear, 1980). It assumes a sporadic nature, or involves small groups of people living around barns or pastures used by infected animals, partly because a part of the population is already immune from earlier infections (Babudieri, 1959). It can, however, adopt an epidemic form when infected animals or herds come in contact with susceptible humans (Babudieri, 1959). Cattle in Malawi positive for Q fever therefore represent a potential hazard to human health (Gear, 1980; Aitken *et al.*, 1987).

This study was a preliminary trail and the results suggest that a detailed serological survey and epidemiological investigation of *C. burnetii* in cattle, sheep, goats and humans should be undertaken.

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² Q fever antigen for CFT, Oras 04/05 Lot 411567A Behringwerke AG, Marburg, W. Germany

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