

## SPATIAL DISTRIBUTION OF BOVINE TRYPANOSOMIASIS IN MALAWI

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The epidemiology of livestock transmitted trypanosomiasis is affected by changes in the environment. The interaction of livestock, wildlife, humans and the vector also affects the epidemiology of the disease. In this study we report on the spatial distribution of bovine trypanosomiasis in Malawi.

A cross sectional study was conducted to establish the prevalence of bovine trypanosomiasis. Multistage sampling was performed at dip tanks in 13 selected districts distributed among the three regions of the country. A total of 444 blood samples were collected from cattle between January 2016 and February 2016. Samples were screened for trypanosomiasis using an indirect ELISA and PCR. Sample to positive ratios were calculated as,  $S/P = (\text{Sample optical density (OD)} - \text{Negative control OD}) / (\text{Positive control OD} - \text{Negative control OD})$ . Distribution of the frequencies of the results of serological data were tested for normality by plotting histograms and performing a Shapiro-Wilk normality test. S/P ratios were transformed using the natural logarithm and averaged over all sampled cows in each area. Serological results were then linked with their geographical locations. Risk maps were created by interpolation of the S/P ratio using ordinary Kriging. The Moran's I was used to estimate the spatial autocorrelation of bovine trypanosomiasis based on the natural logarithm of the S/P ratio.

The identification of high risk areas for trypanosomiasis will help in implementing effective prevention, control and mitigation measures of bovine trypanosomiasis in Malawi.

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