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Joyce Akinyi Otieno* (jaotieno@maseno.ac.ke), Maseno University, Private Bag, Maseno, Kenya, and **Joseph Y. T Mugisha, Betty K Nannyonga** and **Paul O. Oleche**. *Parameter Driven Dynamics of Trypanosomiasis in a Cattle Population*

In this paper we study the disease dynamics of trypanosomiasis in a cattle population. The compartmental model presented includes the wild animal population which provides an alternative feeding source for the tsetse fly. An epidemiological parameter, the basic reproduction number is calculated. Based on this parameter, conditions for the global stability of the disease-free and endemic equilibrium points of the model are established. To aid decision making on which parameters to monitor in order to control the disease, a sensitivity analysis of the parameters which define the basic reproduction number is carried out. Results obtained from the sensitivity analysis indicate that the parameters with the highest influence on the spread of the disease are the vector biting rate, the vector survival rate and the vector death rate. These results indicate that an effective control of the disease would require a reduction of the contact rate between the cattle and the vector population.

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