



Tropentag, October 11-13, 2006, Bonn

“Prosperity and Poverty in a Globalised World—
Challenges for Agricultural Research”

A Methodology to Measure the Costs of Animal Trypanosomosis in West Africa

HIPPOLYTE AFFOGNON¹, HERMANN WAIBEL¹, DELIA GRACE², THOMAS RANDOLPH³

¹*Leibniz-University Hannover, Economics and Business Administration, Germany*

²*Free University Berlin, Institute of Parasitology and International Animal Health, Germany*

³*International Livestock Research Institute (ILRI), Livestock & Human Health, Kenya*

Abstract

This study assesses the farm level costs and the productivity of drugs used for controlling trypanosomosis, a serious cattle disease and major constraint to agricultural production in West Africa. Trypanocide drug treatments are the principal method of control but emerging resistance to these drugs threatens the sustainability of their continued use. The study was conducted in West Africa in Burkina Faso and Mali from June 2003 to May 2004. Data were collected by a team of veterinary epidemiologists, technicians and agro-economists. In all, 208 herds with a total of 3565 cattle in 18 villages were monitored during a period of 12 months. Epidemiological data were collected three times (the rainy season, the dry cold season and the dry hot season). Input and output data were collected by enumerators posted in the villages throughout the study period. Additional price data were collected in local markets and abattoirs. The methodologies of data analysis included Analysis of Variance (ANOVA) adjusted for clustering and a production function model integrating a damage control function. Resistance was captured by including a dummy variable for trypanocide drug failure. Results show that depending on epidemiological conditions, trypanosomosis costs, at farm level, 8.76 to 24.71 [€/TLU/Year] (Cost of trypanosomosis is composed of the production loss due to the disease plus the costs of disease abatement). The costs of the disease represent 8% to 22% of annual household cattle production revenue per Tropical Livestock Unit (TLU). Farmers in villages with high disease prevalence and high drug resistance realise significantly less output on average than those in low prevalence and low resistance villages. Where disease is common, there is significantly less total output (29.5%) in the presence of high versus low drug resistance. The marginal value products of trypanocides vary but are positive and greater than one. In economic terms, this implies that contrary to common opinion, farmers tend to under- rather than over-use trypanocide drugs. Based on the results, recommendations are made for introducing an extension system that promotes rational use of trypanocides to avoid inefficiency of input use.

Keywords: Costs of disease, damage control, productivity, resistance, trypanocide, trypanosomosis