

8. Summary

African Animal Trypanosomosis (AAT) is the most serious cattle disease in sub-Saharan Africa. It is managed through vector control, keeping trypanotolerant cattle, but most importantly, by the use of trypanocidal drugs. Resistance to trypanocidal drugs is emerging and threatens the livelihoods of pastoralists and agro-pastoralists in sub-Saharan Africa who depend on cattle for traction, manure, milk, meat, savings, insurance, status and cultural obligations.

A study was carried out in the cotton zone of west Africa (south west Burkina Faso, south Mali and north east Guinea) to: firstly, characterise trypanosomosis control and epidemiology in villages with presence or risk of drug resistance; secondly develop, test, and evaluate best-bet strategies for the control of trypanosomosis in the presence/risk of drug resistance; thirdly, model the dynamics of trypanocide resistance.

To understand the situation, Knowledge, Attitude and Practice questionnaires were administered to all cattle-keepers in 65 villages, an Agricultural Knowledge and Information Study on trypanosomosis management was carried out in eight villages, Participatory Rural Appraisals held in seven villages and 73 animal health service providers interviewed. Entomological studies were carried out in 54 villages, 16 935 cattle were examined parasitologically for trypanosomes, 834 blood samples were checked for haemoparasites and 1 463 coprological samples examined.

Three strategies were evaluated for trypanosomosis management: participatory vector control in eight villages, keeping trypanotolerant cattle in 65 villages and rational drug use (RDU); the latter by informing farmers in 46 villages, establishing/evaluating primary health services in 18 villages and training service providers who covered 235 villages. A dynamic mathematical model was developed to elucidate development and reversal of trypanocide resistance.

We found AAT was the most important cattle disease in the area and was managed at community level. Animal health services were dysfunctional, with a large informal sector and low quality in the formal sector. Policy deficits and incoherencies impede the management of AAT: most actors were unaware of trypanocide resistance. Modelling suggested resistance is inevitable given agricultural intensification, will worsen without intervention, but can be reversed by vector control.

All strategies were effective at managing trypanosomosis, but rational drug use had the highest benefit-cost ratio. Vector control delivered most benefits, but because of high transaction costs requires continued support. Vector control, funded as a public good, is recommended for the containment of resistance, and RDU for its prevention. Trypanotolerant cattle-keeping is less attractive to farmers but should be retained as a fall-back option.

Integrated approaches to AAT management combined with initiatives to promote evidence-based policy are likely to prove the best bet for trypanosomosis management under risk of resistance in the cotton zone of west Africa.