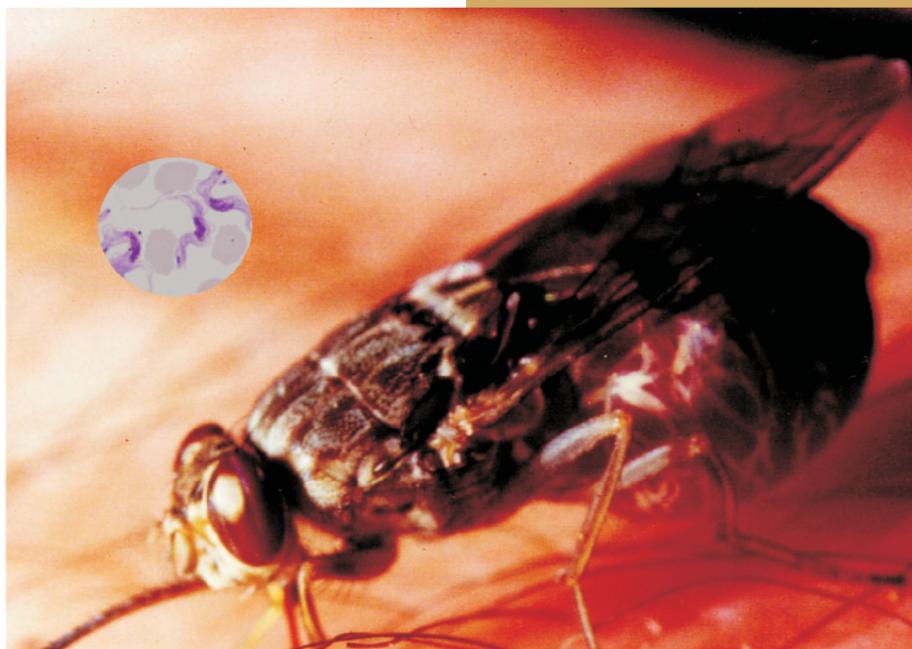




AFRICAN UNION
INTERAFRICAN BUREAU FOR
ANIMAL RESOURCES

30TH
**INTERNATIONAL
SCIENTIFIC
COUNCIL FOR
TRYPANOSOMIASIS
RESEARCH AND
CONTROL
CONFERENCE**
ISCTRC

**Kampala, Uganda
21-25 September 2010**



**REPORTS &
RECOMMENDATIONS**

INTERNATIONAL ORGANISATIONS

Moderator: Prof. Ahmed Elsawalhy

Rapporteur: Dr. Dr Raffaele Mattioli

The International Organisations presented their activities over the last two years and came up with the following recommendations

FAO

The meeting acknowledges the complexity of the tsetse and trypanosomiasis problem and notes that the various sectors of the livestock-agriculture development, including land use and natural resources, and socio-economic development are affected by the presence of the disease.

The meeting welcomes the work of FAO in:

- Generating standardized information pertaining to animal health, livestock and agricultural production systems, environment and agro-ecology of areas infested by tsetse fly;
- Providing assistance to tsetse affected countries in the formulation of policies, strategies and guidelines for tsetse and trypanosomiasis interventions.

The meeting **RECOMMENDS**

- To increase efforts for greater and wider adoption of developed policies and guidelines for planning T&T field programmes;
- To pursue endeavours for increased efficacy and impact at the field and country level and enhance synergies with national, regional and international entities and initiatives.

WHO

The meeting acknowledges the achievements made in the area of sleeping sickness control. It is however concerned by the lack of appropriate tools to develop adapted control methodologies and the weaknesses of health systems to integrate sleeping sickness control and surveillance to sustain current results.

The meeting RECOMMENDS

- WHO to continue its support to countries to adapt control strategies taking into consideration the evolution of the disease;
- R&D groups to develop new diagnostic tools and drugs to ensure a cost effective, adapted and sustainable control strategies for sleeping sickness;
- To increase awareness and advocacy on decision makers and donors to ensure that sleeping sickness is kept on their agenda.

The meeting notes that transmission rate of sleeping sickness is still high in areas of Central African Republic and Democratic Republic of Congo where security constraints hamper control activities.

The meeting RECOMMENDS

- NGOs that have previously been showing commitment and success in sleeping sickness control to continue providing support and maintain their efforts and assistance.

The meeting recognizes leadership and the efforts of WHO on mapping sleeping sickness distribution and acknowledges the assistance and support provided by FAO/PAAT and welcomes the outcomes already obtained on the development of this tool.

The meeting RECOMMENDS

- Countries to continue providing necessary inputs to WHO to complete the Atlas of human African Trypanosomiasis;
- WHO to provide countries with the necessary equipment and training to own the Atlas and be able to continue its update, to use it as a tool for planning control activities and monitoring disease evolution.

PAAT

The meeting notes with appreciation the progress made by PAAT after the last ISCTRC conference, in the continuous production and wide distribution of the TTI, PAAT Technical and Scientific Series and decision support information on PAAT website for the T&T family. It

welcomes the annual organization of the meetings of the Panel of PAAT Advisory Group Coordinators and of the Programme Committee. ISCTRC also welcomes the decision to review PAAT and its structures.

The meeting URGES

- That this review will result in greater consultation, coordination and consultation with project activities in countries implementing large scale T&T projects in Africa;
- The use of the agreed harmonized guidelines / criteria for the selection of areas intended for T&T intervention to ensure the achievement of sustainable agriculture and rural development (SARD), improved human and animal livelihood, and poverty alleviation.

DNDi

The meeting notes the unbalanced ratio between the global disease burden and the development of new drugs for tropical diseases, including human African trypanosomiasis, and acknowledges the achievements and actions taken by DNDi in addressing the needs for novel treatments of neglected tropical diseases.

The meeting RECOMMENDS

- DNDi to further progress its strategy and enlarge its strategic partnership with the private sector and WHO for joint development of new drugs and/or treatment protocols for sleeping sickness.

FIND

The meeting commends the actions undertaken by FIND in the development of diagnostic tools for poverty related diseases of public health importance as sleeping sickness and recognizes the need to develop accurate diagnostic tools applicable in endemic (rural) areas. The meeting also notes the MoU between FIND and PATTEC for advocacy.

The meeting RECOMMENDS

- FIND to pursue the process of development, evaluation, demonstration and implementation of diagnostic tests for human African Trypanosomiasis.

PATTEC

The ISCTRC notes with pleasure the establishment of the monitoring and evaluation (M&E) Unit in the PATTEC Coordination Office. This unit has been able to monitor and evaluate the performance of the six countries currently implementing the AfDB-funded projects, thus providing information on their levels of individual project achievements in implementation.

The ISCTRC commends this step and hopes that by this process, these projects will be challenged so that a success story will be reported and recorded.

The ISCTRC also notes that those countries currently implementing PATTEC projects and the second batch of countries have pledged funds for the next phase. Based on the experience gained in the implementation by the current beneficiaries of the AfDB loans.

The meeting URGES

- These countries immediately release part of their pledges to be used for the collection of standardized baseline data, crucial to the success of the projects.

RESEARCH CENTRES / INSTITUTIONS

The meeting notes with appreciation the research themes developed by the international and regional research centres/institutions (CIRDES, ICIPE, ILRI) leading to provision of new insights and increased scientific knowledge supporting planners in conceiving T&T intervention projects and translate them into field application of research results for improved efficiency of control techniques. However, the meeting also notes that there is no silver bullet and magic solutions for the creation of T&T free zone. An array of tools has been developed and used with different degree of success. In order to achieve greater impact and cost-effective disease management, eventually leading to disease elimination,

The meeting RECOMMENDS

- To further continue the research with impact focus research on the development of cost-effective control measures based also on the principles of integrated pest and disease management and using a phased conditional approach;
- The technology to be developed and used be environmentally acceptable and economically justified;
- Proper, detailed base-line surveys be conducted, data collected and analyzed as necessary pre-requisite actions supporting to the formulation of field T&T intervention campaigns;
- To use the international / regional research centres / institutions as entities for coordinating, harmonizing and collating national and regional research data on T&T and related matters, and establishing data banks publicly accessible.

PATTEC

Theme I: PATTEC

Moderator: Dr. Issa Sidibe

Rapporteur: Dr. Solomon Hale Mariam

23 Papers were presented in the second session, a special session that was for the first time devoted entirely to reports on activities within the PATTEC Initiative. Presenting the overall progress report on PATTEC, Dr John Kabayo, the AU PATTEC Coordinator, Presented a summary of the activities undertaken within the PATTEC Initiative during the past 2 years, since the ISCTRC Conference in Angola. He recounted the progress made, including the successful eradication of tsetse and trypanosomiasis in Botswana and Namibia; and the various activities that have been carried out aimed at consolidating the full extent and purposes of the campaign. These activities include the progress in the execution of tsetse and trypanosomiasis eradication projects in Burkina Faso, Kenya, Ethiopia, Ghana, Mali and Uganda, using support in form of soft loans from the African Development Bank; initiation of self-funded tsetse eradication activities Angola and Zambia, using the sequential Aerosol Technique; the development of several multi-national bankable project proposals (including: Mozambique, South Africa, and Swaziland; Sudan and Ethiopia; Uganda and Sudan; Chad, CAR, Cameroon and Nigeria; Tanzania, Burundi and

Rwanda; Burkina Faso, Niger, Nigeria and Togo); extensive consultations with several affected countries; resources mobilization; monitoring and evaluation and training. He appreciated the financial and technical support provided to the PATTEC Initiative by various partners and urged those willing to help to liaise with the PATTEC Coordination Office in planning intended interventions, for maximum synergy, harmony and coordination. He expressed his gratitude for sense of commitment shown by affected countries; his satisfaction for the cooperation and spirit of the African Union in the planning and execution of PATTEC projects; and shared his feelings of optimism and hope that the objective of the PATTEC Initiative will be realized.

Papers were also presented on the progress made by the PATTEC Coordination Office in the area of strengthening advocacy activities, monitoring and evaluation efforts, the development of the PATTEC websites and dynamic database systems for PATTEC. It was also reported that PATTEC had signed MOUs with FIND to strengthen advocacy activities; with WHO on cooperation in the training and capacity building activities was gratefully acknowledged. The PATTEC Coordination office is in the process of establishing regional PATTEC Coordination Offices to enhance cooperation of PATTEC activities in response to increasing intervention within the PATTEC Initiative.

From the 23 papers, 18 papers give more details on countries on going activities including the 6 first phase countries which are sponsored by ADB, the national programs started with the own government funds, and the multinational regional project draft to be submitted for financing. Many countries express their commitment to support PATTEC initiatives and to start their own activities.

Following the presentations of the 23 papers, a brief discussion ensued and the following recommendations were also made:

Recommendations

1. The 30th ISCTRC Conference commends with satisfaction the progress and achievements so far made by PATTEC and calls upon other tsetse-affected countries to join the PATTEC Initiative if they have not already done so.
2. While PATTEC welcomes partners willing to provide support in the implementation of PATTEC it is essential that those partners discuss the area in

which support is anticipated with the PATTEC Coordination Office for Purpose of effective coordination.

3. The conference noted with satisfaction that all projects which were presented under the umbrella of the PATTEC Initiative demonstrated the strength and consolidation of the PATTEC Programme. The PATTEC session should be a permanent feature of future ISCTRC Conference and should include Country reports.
4. PATTEC programmes should also put emphasis on non-tsetse transmitted trypanosomiasis in future.
5. Noting that the decision of the African Heads of States and Governments will only end when trypanosomiasis is eliminated from Africa, and considering that Researching Institutions are engaged in activities to support the eradication process, it is recommended that the AU Commissioner for Rural Economy and Agriculture consider the appropriateness of ISCTRC as the technical advisory Council to PATTEC.
6. Considering the trans-boundary nature of Tsetse distribution and the divergence of T&T management systems between countries, it is recommended that project proposals for Creation of tsetse free areas be developed and operated independently for tsetse belts that occupy more than one country as a sub-regional project.

COUNTRY REPORTS

Moderator: Theophile Josenando:

Rapporteur: Louis Banipe

Given the fact that most countries are involved in the PATTEC programme, this session was devoted to some aspects which were not well highlighted during the PATTEC presentations.

Reports were received from six countries and the East-African Trypanosomiasis Control Network .

These were:

- Angola
- Democratic Republic of Congo

- Tanzania
- Uganda
- South Sudan
- Guinea (Conakry)

All reports highlighted the increasingly important consideration given to trypanosomosis and the vector control. The meeting also welcomed the increasing commitment of NGOs in the control activities and drew attention that a lot is still to be done.

- **Angola** highlighted the enormous efforts granted by the Government and various partners not only for identifying the disease but also to control it. Angola expressed concerns over the proposed delimitation area designed by PATTEC within the ongoing sub-regional project with the DRC "Cleaning-up of pastoral areas of Kasai and Luanda provinces". In fact, Angola pointed that the delimitation does not take care of the reality and requested that henceforth, extensive studies should be carried out to design consistent proposals.
- The **Democratic Republic of Congo** underlined once more that three quarters of the recently reported cases of African Human Trypanosomiasis in Africa are from DRC. This requires further sustained attention. Welcoming the multifaceted support, DRC wished that the support is maintained and hope that the control is incorporated into traditional structures in charge of health aiming at improvement of cases' care.
- **Sudan** made a special presentation on the situation in the South. Faced with a war situation prevailing in that locality, NGOs are increasingly leaving the area leaving a vacuum that is not really filled. This worrisome situation which prevents the production of reliable reports of disease cases is not likely to reassure. In addition, efforts are being made to conduct general census on which field activities should be based.
- **Uganda**, presenting all the gift nature offered the country, namely the rich hydrographical net, pointed that this remains the heart of many diseases, in particular trypanosomosis and its vectors. Thanking the partners, he pleaded that the support be sustained to help achieving the effective control of the plague.
- **Tanzania** indicated that the wildlife case remains a concern with an important infestation of livestock at the edge of protected areas. The African Human Trypanosomiasis (AHT) centre of Serengeti, formerly nearly extinct is now revived. The personnel training needs to be pursued and even backed up by various actors.
- **Guinea (Conakry)** provided an update on ongoing studies and the difficulties to access targeted sites.

- **The Eastern Africa Network of Trypanosomosis (EANETT)**

During the presentation, the Network was presented to the audience. It came out that the network was founded in 1999, but its activities started in 2000. It is the only research network on African Human Trypanosomiasis (AHT) in the sub-region. The founding institutions are: The Swiss Tropical Institute (STI), KETRI (currently KARI-TRC), TTRI (Tanzania), TMRI (Sudan) and LIRI (currently NaLIRRI, Uganda). Three other countries joined the network. These are: Malawi, Zambia and the Democratic Republic of Congo. The Network organizes scientific conferences once a year and also offers opportunity for young scientists to intervene, share and be backed up in research field on trypanosomiasis and tsetse flies. Young scientists in postgraduate education are encouraged to seize the opportunity.

The meeting RECOMMENDS

- That the Country reports should strictly follow the outline developed by the ISCTRC Secretariat;
- That the reports should only focus on the specified period.

HUMAN AFRICAN TRYPANOSOMIASIS (HAT)

Moderator: Pere Simarro

Rapporteurs: Dawson Mbulamberi

Session 6 & 7: Basic Research on trypanosome and Diagnostics:

Rapporteurs: Dawson Mbulamberi & Jose Ramon Franco

Sessions 6 and 7 focused on the diagnosis of Human African Trypanosomiasis, including some basic research on trypanosomes. Ten papers were presented during these sessions.

The first three presentations were related to basic research on the parasite (population genetics of *T. b. ambiense* improved in vitro medium for bloodstream form of *T. b. gambiense* and comparative genomic analysis of procyclic *T. b. r* with DNA microarrays), all these presentations addressed the improvement of knowledge on the genetic characteristics of the trypanosome and the search for an improved culture media .

The subsequent presentations tried to demonstrate the impact of HAT on the sensitivity of HIV diagnostic tests and the public health implications of this impact. A study performed with samples coming from Mbuji-Mayi, (DRC) revealed a decrease in the sensitivity of the usual HIV rapid tests.

The presentation on immune trypanolysis revisited this test as described in 1995, tried to explore the possibility of using it as tool for epidemiological decisions, with examples in some countries in west Africa. This presentation raised different questions and comments about the interpretations of seropositive individuals without parasitological confirmation, particularly those who spontaneously turn seronegative.

The presentations 3.06 and 3.07 were about research on new staging markers. The use of some proteins showed promising preliminary results, thus emphasizing the need to combine several markers such as CXCL10, CXCL8 and H-FABP .

Presentations 3.08 and 3.09 dealt with molecular methods of sleeping sickness diagnosis (NASBA and Trypanozoon OligoC-strip), they gave a review of the efforts to standardize and simplify these tools, highlighting the use of oligonucleotide probe as a simpler amplicon detection method.

The last presentation of the session addressed the use of algorithms combining different field criteria (presence of trypanosomes and White Blood cell count in CSF) with the aim of shortening the follow up period. The result seemed to support the possibility of shortening the follow up period of second stage *Gambiense* HAT patients. However, the application of these results was limited because of the peculiarity of the cohort studied. The other limiting factor for the application of these results was the unusually high failure rate of treatment with Melarsoprol. There was a possibility of these results being different if another treatment had been used.

Recommendations:

- Further evaluation of the impact of HAT on HIV rapid tests, coordinating with HIV programs the assessment of HIV tests in HAT patients
- To assess the utility of the immune trypanolysis tests in other different epidemiological situations.

- To comparatively evaluate and standardize the different PCR tests available, to highlight its real value in the diagnosis process.

- To encourage the efforts made to shorten the follow up period and recommend the application of the proposed algorithms in different cohorts (including stage I cases), considering always the variability according to the drug used for treatment.

Session 8: Epidemiology of HAT

Rapporteurs: Dawson Mbulamberi & Diarra Abdoulaye

Four presentations were made during this session.

Two presentations dealt with epidemiology, one with long term follow up of sleeping sickness patients and one with the impact of interventions targeting the control animal reservoir of *T.b.rhodesiense* within the framework of Public /Private Partnership and community involvement.

The presentations on disease epidemiology attempted to describe the current trends of the disease, the ongoing control activities and the perspectives in terms of surveillance and control. In general, there seems to be an increase in control activities leading to the decrease of the number of reported cases over the past ten years. However, it was observed that there was still low coverage of endemic areas.

Parameters underlying the epidemiology of *Rhodesiense* sleeping sickness, as well as the role of domestic reservoir hosts were described.

The effectiveness of PPP (public-private partnership) and the very important role of communities in controlling the animal reservoir were described as an important factor for sustainability of activities and their expansion.

Sleeping Sickness patients who refused to be treated were regularly followed up by using serological and parasitological methods to monitor the evolution of the disease without treatment linked to the individual susceptibility (human trypanotolerance or self cure). Some of them died after developing second stage disease while some cured spontaneously and a few remained positive as asymptomatic carriers with low parasitemia.

Recommendations:

1. The meeting acknowledged the complex epidemiological features of the *Rhodesiense* form of sleeping sickness and its zoonotic component and recommended that:

- *T.b.rhodesiense* endemic countries should develop integrated control approaches including human, animal and vector components, fostering PPP and community involvement

Session 9: Disease distribution and Treatment of HAT

Rapporteurs: Dawson Mbulamberi & Jose Postigo

Seven presentations were made during this. Two presentations dealt with epidemiology and five with treatment.

One presentation on epidemiology in West Africa showed how the spatial evolution of HAT over the past 100 years, seem to have moved from the North to the South and that it has disappeared from savannah areas and is currently occurring in forest and mangrove areas. The second presentation on epidemiology showed the current status of the Atlas of HAT which constitutes three quarters of the cases reported during the period 2000-2008 already mapped at the village level. Representatives from Angola and DRC expressed their full support for this initiative and committed themselves to share their data with WHO to finalize the mapping exercise. The final outcome of the Atlas will be made available in the public domain through WHO and FAO/PAAT websites.

Out of the five presentations on the subject of treatment, the first one dealt with the implications of the nifurtimox-efornithine combination therapy clinical study and its implications for the national sleeping sickness programme in Uganda. The second presentation showed the results of a study to use the 10-day melarsoprol schedule for second stage *T.b. rhodesiense* patients. The study concluded that the 10-day schedule does not expose patients to a higher risk of serious adverse events or death and it has highly efficacy. The third presentation dealt with Phase III trial on the safety and efficacy of pafuramidine maleate (DB289) for the treatment of first stage *T.b. gambiense* sleeping sickness. The study had to be stopped due to severe adverse events associated with the new medicine. The fourth and fifth presentations dealt with

molecular parasitological studies carried out in relapsed *T.b. gambiense* patients. The studies did not yield conclusive results on the molecular mechanisms leading to relapses.

Recommendations:

1. Recalling the recommendation of the 27th ISCTRC held in Pretoria, South Africa in 2003 to adopt the 10 days course of melarsoprol for the treatment of the late stage *T.b. gambiense* sleeping sickness and requested to undertake similar studies for *T.b. rhodesiense* sleeping sickness. On the basis of the results of the clinical trials conducted in Tanzania and Uganda;

The International Scientific Council for Trypanosomiasis Research and Control RECOMMENDS;

- Disease-endemic countries to adopt the abridged 10-day melarsoprol schedule as the new regimen for the treatment of the late-stage *T. brucei rhodesiense* sleeping sickness.

2. Considering that nifurtimox-eflornithine combination treatment for the second stage of *T. brucei gambiense* infections has been included in the WHO Essential List of Medicines in May 2009 after a successful clinical trial developed by a collaborative partnership carried out in Congo and the Democratic Republic of the Congo. Preliminary results of a similar clinical trial in Uganda also show positive results of this combination treatment;

The International Scientific Council for Trypanosomiasis Research and Control RECOMMENDS

- Countries to include nifurtimox-eflornithine combination as a treatment option in their national protocols to treat sleeping sickness and initiate the process of ordering this combination treatment through WHO.

- WHO to make available to countries all necessary training, information and support to implement this combination treatment.

AFRICAN ANIMAL TRYPANOSOMIASIS (AAT)

Moderator: A. Ilemobade

Rapporteur: A. H. A Rahman

A key note address was given by Prof. Eli Katunguka-Rwakishaya who gave a historical perspective of the disease and the efforts exerted into its control and he stressed the need for concerted multidisciplinary approach to control the disease. Out of the 15 papers accepted for oral presentation only 12 were presented. The papers addressed five major areas, epidemiology and baseline data collection, trypanocides fastness, trypanotolerance, drug quality and safety assurance and chemotherapy.

In the area of trypanotolerance, there is one paper under the title:

Effect of N'Dama origin marker alleles on trypanotolerance in a backcross cattle population under natural tsetse and trypanosomiasis challenge.

In the area of animal trypanosomiasis epidemiology, surveys and base line data collection 4 papers were presented:

1/ Baseline survey on bovine trypanosomiasis and chemo-resistance in the Sikasso Cercle of Mali as a preamble to a vector control operation.

2/Bovine antibody response directed against *Glossina saliva*: An epidemiological marker of cattle exposure to tsetse bites

3/ Donkey trypanosomiasis, their vectors, Helminthiasis, in Pate Island of Lamu District, Kenya.

4/Sero-epidemiology of dourine in Bale Highlands of Oromyia Region, Ethiopia.

In the area of drug resistance the following papers were presented:

1/Occurrence of diminazine, homidium and isometamidium resistant *T. congolense* strains isolated from cattle in Ghibe Valley and Lake Abaya localities, South-west Ethiopia.

2/Field detection and evaluation of trypanocidal drug resistance in the Sissala East District of Northern Ghana.

3/ Field detection of chemo-resistance to isometamidium and diminazene in the region of Boucle Du Mouhoun, Burkina Faso.

In the area of drug quality and safety assurance two papers were presented:

1/ Determination of diminazene aceturate in animal tissues by enzyme-linked immunosorbent assay (ELISA).

2/ Poor quality and fake trypanocidal drugs, a real threat for a sustainable and profitable livestock production in sub-Saharan Africa.

In the area of chemotherapy two papers were presented:

1/ Cymelarsan effectively cures trypanosomes in dourine infections and with no relapses

2/ Identification and experimental validation of potential drug targets in *Trypanosoma brucei*.

The baseline data reported in the presentations included trypanosomiasis prevalence and tsetse densities. Also the surveys included the non-tsetse transmitted *T. equiperdum*. The antibody body responses directed against *Glossina* saliva was suggested to be used as a marker of the exposure of cattle to tsetse flies. Drug resistance against trypanocidals was reported from Ethiopia, Burkina Faso and Ghana, while the paper from Ethiopia recommended the use of Cymelarsan in the treatment of dourine. Methionine synthase and Homocysteine methyltransferase were reported to be potential drug targets in *T. brucei* in one of the presentations. Two presentations warned from the presence of residues of diminazene and other trypanocides in addition to the fake drugs in the different tissues of animals and from their severe implication on both animal health and food safety.

Recommendations

1/ Recognizing the alarming and long lasting problem of the presence of substandard veterinary drugs in the free market, with specific trypanocides which is among the causes of drug resistance in chemotherapy, the ISCTRC recommends to the Food and Drug Agencies in the African countries:

That the agencies are to take action of inspection, follow up and take legal action to manufacturers and importers who do their business against Pharmaceutical SOPs and rules of quality and safety assurance.

2/ The ISCTRC recognizes with appreciation the success WHO /FIND has achieved in developing diagnostics for HAT requesting them to respond similarly to the diagnostic needs in AAT.

3/ Referring to the reports on the wide spread resistance to all the available trypanocidals, FAO is requested to assist in developing a standard protocol that is to be applied in the different countries to reduce the presence of drug resistance,

4/Management of this problem requires concerted efforts, using parasitological and molecular tools, to quantify the level of resistance, its distribution and where possible conduct remedial action

GLOSSINA BIOLOGY

Moderator: Ambrose Gidudu

Rapporteur: Joyce Daffa

There were 11 papers presented in this session. We noted that from the lead paper there is no easy single method that can be applied alone, no much work has been done on savannah *Glossina spp.* Due to the feeding behaviour of tsetse flies insecticide application in cattle can be restricted to legs only. There was a proposition that the target size can be reduced from 1x1 m to 0.5 x 0.5 m as the efficacy is almost the same. There are new advances in Tsetse genomics and bioinformatics, molecular biology specifically on fungus and bacteria towards improvement of tsetse control. Symbionts have expressed trypanocidal agents. It has been noted that due to technical problems in rearing and colonization of different species SIT is not available for the current eradication programme period. Other papers were on detection of Salivary Gland Hypertrophy Virus (SGHV), developments on research for tsetse and host attractants, Nutritional stress in tsetse for trypanosome susceptibility, Improved visual baits, Genetic diversity among geographically separated tsetse populations, management and control of vector borne for improved productivity. Furthermore, spatial analytical tools and mathematical models can be used in baseline data collection to develop a stratified entomological sampling protocol. Finally there are old areas whereby they were once announced free of tsetse but are currently infested by tsetse flies.

Recommendations drawn from these presentation and discussion were:

- It has been noted that due to technical problems in rearing and colonization of different species SIT is not available for the current eradication programme period; therefore countries have been urged to undertake area-wide integrated tsetse suppression and eradication techniques until when the SIT is available for field use.
- Insecticide treated target / screens size may be reduced in to tiny size however, this should further be investigated
- Undertake further investigation on the fungus and bacterial for future use in tsetse control programmes
- Conduct surveys to monitor tsetse fly in tsetse free countries to ensure its current status areas.
- Undertake further investigation on the fungus for use in tsetse control programs
- Undertake area-wide integrated tsetse control/eradication until when the SIT is available for use.

SOCIO-ECONOMICS

Moderator: Prof. Hippolyte Affognon

Rapporteur: Dr Cecchi Giulian

During this session five presentations were given. The first was entitled “Community-based Livestock Health Delivery Services: The Case of the medium to high tsetse/trypanosomiasis challenge areas of the Ghibe Valley, South west Ethiopia”. This presentation focused on an ILRI project in the Ghibe Valley of south western Ethiopia where pour-on insecticide treated-cattle was used and improved income and welfare of farmers was achieved. The method was well-accepted by the community which was willing to pay for the treatment. ILRI facilitated a series of consultation workshops with farmers’ representatives and service providing institutions with a view towards institutionalizing sustainable service delivery. Farmers’ animal health service cooperatives were formed, which were successfully implemented for about five years. Such community-based animal health delivery was the first of its kind in Ethiopia and experiences from such institutional innovations could be scaled out/up to areas with similar challenges.

The second presentation (i.e. Do social networks influence livestock keepers' know-how on animal trypanosomiasis and its control?) concerned social networks and their contribution to the diffusion of cattle farmers' knowledge on animal trypanosomiasis and its control in Solenzo in Burkina Faso. A knowledge, attitude and practices (KAP) survey and a social network analysis were conducted in two villages where all cattle farmers in both villages were involved. A knowledge score was developed as a percentage point of total knowledge and a regression analysis conducted. Results suggest that besides other means of information dissemination, farmer-to-farmer information sharing should be promoted in order to improve farmers' know-how on animal trypanosomiasis and its control.

The third presentation was entitled "Livelihood strategies in endemic livestock breeds based production systems: Trends, tradeoffs and implications" and concentrated on trypanotolerant endemic ruminant livestock breeds, whose relative population is decreasing as a result of both increased crossbreeding with Zebu cattle and Sahelian sheep, and degraded habitat due to forest conversion and bushfires. These trends suggest tradeoffs between livelihoods (cross-breeding and cotton cultivation) and ecosystem preservation (endemic ruminant genetic resources and their habitat). The paper used Participatory Rural Appraisal in selected communities to look into the current trends, tradeoffs and implications of observed breeding strategies and natural resource management. Results indicate that trends in habitat quality tend to drive changes in breed composition at the site levels but also changes (tradeoffs) in livelihoods (income generating activities). Habitat degradation as suggested by the results is related to an increase or decrease of particular animal breeds. Furthermore, the analysis revealed that livelihood options were largely defined by the assets base (resources), which were mostly common property in the study areas (in the Gambia). Community-based management of the natural resources was indicated as 'critical' to sustainable endemic ruminant livestock, natural resources and livelihoods.

The fourth presentation was entitled "Trypanocidals cost as an economic parameter in the socio-economic surveys of animal trypanosomiasis in the Sudan". For this study, surveys were conducted in two tsetse-infested areas in the Sudan (one in the Blue Nile State and one in Central Equatoria State) to estimate the cost of trypanosomiasis treatment. Both areas possess

huge numbers of livestock, particularly cattle; and are infested with several species of tsetse flies. Questionnaires and interview of community leaders and group discussions were used for data collection. Usage of Berenil (Diminazine aceturate) was found to be at an average rate of 2.15 dose/animal/year, Homidium (Ethidium bromide) at average rate of 1.9 and Antrycide (Quinopyramine sulphate) at average rate of 0.45. The cost of trypanosomiasis treatment amounted to 7.9% and 6.3% of the gross livestock production cost in the two study areas. The results of the study indicate that trypanosomiasis treatment cost may be used as a tool for assessing the economic impact of African animal trypanosomiasis.

The last paper was entitled “Improving food security through facilitation of community-based management of Trypanotolerant cattle in the high disease challenge Ghibe Valley”. The study was aimed at facilitating community action-learning in the participatory screening and verification of allegedly trypanotolerant cattle breeds from traditional managed herds in four villages in the Ghibe valley. Animals were identified that had better tolerance to trypanosomiasis, as measured in terms of less or even no infection, maintenance of reasonably high PCV values after infection, and the need for only few trypanocidal treatments in a year. Participating communities also recognized these attributes of their animals, and accepted the results as true. They have expressed strong interest for continuation of activities initiated by this project. All the participating farmers recognized the genetic basis of trypanotolerance, and those farmers who own selected animals started to record pedigrees of these animals to help them in selecting replacement breeding animals. Series of village-level and regional consultation workshops were held. The reporting-back and policy dialogue workshop held discussed on the outcomes of the study, and recommended that the process of screening continue. Unanimous recommendation was finally made to try to encourage farmers to use the established farmers groups for enhanced breeding and reproduction of selected animals.

Recommendations

It was noted that socio-economic component in the ISCTRC meeting is getting weak and weak, few papers were presented and many participants were absent and:

recommended that projects and programmes developed for trypanosomiasis and its control put more emphasis on the socio-economic component and encourage participation in the ISCTRC meetings.

recognized the need to have countries flexible policies to allow the communities and their partners to organize themselves in groups and play active role in the sustainable management of tsetse and trypanosomiasis control.

recognized the need for appropriate support by projects and the communities and their partners engaging them in to income generations practices using own resources.

Encourage and support the dissemination of successful experiences to communities and their partners.

LAND USE AND ENVIRONMENT

Theme 6:

Moderator: Dr Okoth O. Josue

Rapporteur: Joseph Maitima

Recommendations

1. Realizing the importance of climate change on the dynamics of ecosystems that determine the distribution of tsetse habitats, the meeting recommended for further work to show the impacts of climate change on future habits of tsetse and the implications on PATTEC activities.
2. The meeting recommended harmonization of socio-economic impacts assessment across regions so that PATTEC achievements can be compared across regions, across tsetse belts and across countries.

3. The meeting recommended more training on communities in PATTEC working sites on proper use of chemicals to ensure that chemicals used in tsetse control are used safely and that trypanocides are applied to animals using the correct procedures.

POSTERS

Theme 6:

Moderator: Dr. Mamadou Lamine Dia

Rapporteur: Dr. James Wabacha

It was noted that the announcement required that the poster should be in English or French and should carry the following information:

- Title, author(s),
- Institutional affiliation, address(es) and email.
- Indicate the corresponding author with an asterisk after the name.
- The space allocated for posters is 100 x 150cm.
- Poster must be easy to read.
- The poster should bear the following sections
 1. An introduction stating the purpose of the study,
 2. material and methods, results (text and illustrations),
 3. Conclusions/recommendations and
 4. References.

The following were the key observations:

- No posters were posted on the first day as the poster stands were not ready.
- Out of the forty seven **(42) posters** selected for presentation, only **26 posters** had been posted by the third Day (23/9/2009) of the conference.
- The scientific content of all the posters was of high quality
- The visual quality of most posters was high
- However, for some posters the following were the shortcomings:
 - ✓ Some included the abstract/Summary

- ✓ Some discussed the results at length rather than providing conclusions only
- ✓ Some had small font sizes and made them not visually attractive
- ✓ Some contained a lot of information and therefore made the posters clumsy
- ✓ Some did not contain the references
- ✓ Some did not carry the acknowledgements

Summary of Posters selected for presentation viz a viz those that were presented

THEME	POSTER	Presented
3. Human African Trypanosomiasis	15	12
4. Animal African Trypanosomiasis	9	5
5. <i>Glossina</i> Biology/Control	13	5
6. Social Economics	2	1
7. Land Use	3	2
Grand total	42	25