Location-specific treatment pattern for African animal trypanosomosis

Introduction: background and purpose

The economic impact of African animal trypanosomosis (AAT) has been estimated to be USD 4.75 billion per annum and it is considered the disease which has the greatest impact on cattle production in tropical Africa.

Over the past half-century we have made a substantial progress in our understanding of many aspects of AAT and its control, including vector control, epidemiology, chemotherapeutic and immunological issues.

A wide range of chemotherapeutic and immunotherapeutic tools are available for use in cattle suffering from AAT. However, the efficiency of these tools depends on the appropriateness of their use, i.e. correct treatment and control means are used.

The control and the prevention of AAT, however, still remains dependent on a few trypanocidal drugs, especially diminazene aceturate and isometamidium chloride developed in the 1950s and 60s and use of synthetic pyrethroids that were initially used on cattle in Africa as acaricides and later found to be effective against tsetse flies.

Although there has been considerable research focused on the best ways to use trypanocides, especially to avoid resistance, this has not significantly impact on the livestock keepers. One of the missing elements appears to be the limited use of practical tools in particular the lack of follow-through to enable the continuous appealing of the vets and para-vets to improving their skills, which are so vital to the livestock keepers.

In addition, many livestock keepers report that local availability of quality animal health products and services are not reliable.

Several steps have been designed to help vets and paravets design effective control packages for livestock keepers.

Step 1 - Defining the implementation area

The area of implementation should be well defined and homogenous (vegetation, climate, farming system...) and the treatment pattern that is developed can be easily applicable where these conditions are found.

Step 2 - Actual Risk assessment

Ideally, AAT risk should be determined by measuring prevalence, such as through vector-monitoring and measuring the vector density by trapping tsetse. Clearly this is a challenge for local vets and paravets. Fortunately, there is evidence of a strong correlation between AAT prevalence and vector density.

However, implementation of vector control and the use of trypanocidal drugs may reduce the level of this correlation. Nevertheless, the percentage of local farmers being taken into consideration a moderate level of correlation between AAT prevalence and vector density.

We therefore propose a simple system based on a two-dimensional table detailing the number of cattle suffering from AAT in the given area (low to high) and the total number of farmers who have reported AAT in their herd (low to high).

Step 3 - Designing and implementation of the treatment and control package

The identification of the most appropriate and cost-effective control pattern is based on the selection of the treatment control package, which depends on the animals’ value and the Actual Risk assessment.

The timing of the treatment depends on the rainfall pattern in the area.

Three control packages are proposed

1. Curative treatment: elimination of trypanosomiasis; treatment of all animals suffering from AAT with diminazene (Veridium®) and prevention of new infections with isometamidium (Veridium®)

2. Sensate pair: Combination of curative treatment with diminazene (Veridium®) and prevention of new infections with isometamidium (Veridium®)

3. Integrated programme: the combination vector control achieved through use of insecticidal sprays, beef bulls breeding only, the restricted application protocol in non-BCV areas with administration of trypanocidal drugs (low to moderate risk areas)