

A NOTE ON TSETSE AND TRYPANOSOMIASIS CONTROL IN RHODESIA  
DURING THE YEAR ENDED 30TH SEPTEMBER, 1974, PREPARED FOR  
THE DIRECTOR OF VETERINARY SERVICES

The department's Tsetse and Trypanosomiasis Control Branch continued to direct a high level of effort towards controlling the disease, trypanosomiasis of domestic stock and the vector, the tsetse fly (Glossina morsitans Westw. and G. pallidipes Aust.), throughout the year. Generally, the disease position in the affected areas of the country can be regarded as very satisfactory at this point in time, the exceptions once again being the international border region between the Ruya and Mazoe rivers (Masoso Tribal Trust Land and Chimanda Tribal Trust Land, Rushinga district) and the international border region of the Sabi Valley (Ndwoyo Tribal Trust Land, Chipinga district). A severe outbreak of the disease also occurred in the Lubu Valley and Manjolo regions of the Binga district during the 1973-74 rainy season. Cattle losses were, regrettably, heavy, because the inspecting team was prevented from reaching the affected area for nearly two months by flooded rivers, but the problem has since been satisfactorily controlled. Tsetse control operations involving the application of residual insecticide to the dry season resting and refuge sites of tsetse flies and the selective elimination of game animals were continued with good results being achieved. It is also noteworthy that some pleasing progress was made by both the veterinary and glossinological research sections of the Branch in their respective research programmes, an important extension of the glossinological research work being limited aerial spraying trials in an endeavour to develop this control technique for use in Rhodesia.

The continuing improvement in the trypanosomiasis position on a country-wide basis was maintained, despite the exceptions noted above, this being very clearly demonstrated by a further decrease in infections recorded from cattle under regular inspection (from 4 124 cases among 505 094 cattle in the previous year to 3 362 cases among 513 234 cattle in the current reporting year) and by the reduction in the number of treatments administered (from 75 282 to 57 921).

Protection of the 513 234 cattle, which were regularly inspected during the year, involved the taking and examination of 111 123 blood films, a reduction of 28 948 or 20,65 per cent. from the previous year's figure of 140 071.

Parasites were detected in 3 362 or 3,0 per cent, of these blood films, which was a slightly higher ratio than last year, with the breakdown into species being as follows:

<u>Trypanosome congolense</u>	2 440
<u>T. vivax</u>	828
<u>T. brucei</u>	Nil
Mixed infection	94

Of the 57 921 treatments administered to cattle during the year, 415 were Ethidium, 32 795 were Berenil and 24 711 were isometamidium.

In addition, 14 357 donkeys were inspected regularly and of the 4 200 blood films taken from these animals, 133 showed T. congolense, 242 264 42 T. brucei and there was one mixed infection.

The 1974 anti-tsetse spraying operations were conducted during the period 1st June to 30th September. Fifty-nine teams were mounted, the same number as the previous year. A total quantity of 252 200kg of 75 per cent. DDT wettable powder was dispensed over 8 559 km<sup>2</sup> of tsetse habitat in Rhodesia and Mocambique (10 969km<sup>2</sup> in 1973 and 11 250km<sup>2</sup> in

1972) by pneumatic sprayers, the application rate varying according to particular situations, but on the country-wide basis, inclusive of Mocambique, at an average rate of 22,09kg/km<sup>2</sup> active ingredient (18,18 in 1973 and 16,65 in 1972). The continued increase in application rate, reflected by the above figures, is related to the more difficult situations, in terms of denser habitat and more broken terrain, in which the operations are now being carried out.

Selective hunting operations were continued throughout the year, excluding the months of April and May, along the Zambezi tsetse front. Hunting teams were employed on access and fence maintenance during the two months when hunting was not carried out. Twenty-three teams were deployed in these operations. A total of 2 204 animals was destroyed. The breakdown of this total was 2 127 "selected species" (kudu 278, bushbuck 742, warthog 804 and bushpig 303), elephant 21, buffalo 32 and "other species", which animals were either killed in error or were found dead, 24.

Once again, game and cattle fences have played a major role in the control operations on all fronts. Totals of 1 277km of game fence and 1 091km of cattle fence were maintained.

In the Sipolilo and Darwin-Mtoko-Inyanga operations areas the international border has been fenced from the Kadzi-Mzengedzi confluence to the Ruya river with an all-steel game fence, the purpose of which is to control the anticipated increased movement of game animals into Rhodesia, which, it is believed, will occur as a result of the filling of Cabora-Bassa Dam in Mocambique.

In the Chipinga-Sabi/Lundi Operations Area the Border Barrier Northern game fence (30km of a total length 116km) was completed and the Border game fence between the Sabi/Lundi junction and Vila Salazar (112km plus 5,5km of accessory fence) was reconstructed. In both cases all-steel construction has been used.

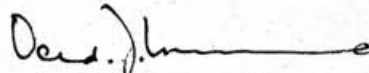
Good access roads and tracks are a prerequisite for the efficient prosecution of tsetse control measures. The current access system was maintained in a state of good repair in all operations areas, the total length of which is approximately 10 000km. Some additional tracks were also developed in order to provide better access for spraying teams.

Traffic control points continued to be maintained at strategic points within and adjacent to the various tsetse operations areas throughout the year, in order to restrict the carriage of tsetse flies by traffic moving out of the fly belts, to a minimum.

The veterinary research section continued with the previously reported study of T.congolense infection in sheep and initiated investigations into T.simiae infection in the domestic pig and the effect of concomitant infections of T.vivax and Babesia bigemina on the immunity developed to each parasite. Other work included the routine examination of human and animal blood smears, a total of 5 789 such preparations being dealt with during the year, tsetse blood meal identifications and the appraisal of an insect repellent compound, 11-2-70. In the case of the blood meal identification work, a collection of one thousand meals obtained from G.pallidipes captured in the region of the Rekomitjie Research Station, the purpose of which was to determine the relative importance of the bushbuck as a source of food for this species of tsetse fly in the Zambezi flybelt, was processed. Results indicated that bushbuck only provided

1,9 per cent. of the meals, the chief hosts proving to be kudu (26,6%), suids (21,5%) and elephant (20,1%).

Glossinological investigatory work included a continuation of the insecticide "sticker" trials which were directed towards improving the effective life of DDT deposits in the field (these have now been discontinued, because the sticker in question proved to be unsatisfactory), the use of DDT at concentrations lower than five per cent. active ingredient, which is the concentration used in the Branch's spraying operations (3,5%, 2,0% and 1,0%), a comparison of the effectiveness of DDT and Thiodan when applied to simulated resting and refuge sites of tsetse flies, aerial spraying trials, tsetse behaviour and population studies and intensive researches on baits for survey and control, with particular reference to the importance of host odour. In the case of the aerial spraying trials, a ULV formulation of 20 per cent. Thiodan was applied to an area of 261km<sup>2</sup> of tsetse infested woodland in the Chirisa game reserve, at the rate of 7 l per km<sup>2</sup>, in six applications, at intervals of between 17 and 22 days, during the period June to November. Impressive knockdowns of the tsetse population were achieved with each application and by the end of the operation it was estimated that 99 per cent. control had been obtained. Effects of the insecticide on a variety of insects, fish, mice, frogs and geckoes were also studied. All test creatures, except the fish, which were rapidly killed (~~although~~ <sup>but</sup> their situation was highly artificial and exposed), appeared unharmed. It is intended to continue these trials in the 1975 dry season with a view to achieving the desired one hundred per cent. control.



(D.F. Lovemore)

ASSISTANT DIRECTOR VETERINARY SERVICES  
TSETSE AND TRYPANOSOMIASIS CONTROL