CONTRIBUTION TO THE ANNUAL REPORT OF THE DIRECTOR OF VETERINARY SERVICES FOR THE YEAR ENDED 30TH SEPTEMBER, 1969.

SUMMARY OF TSETSE AND TRYPANOSOMIASIS CONTROL

This has been a year of steady achievement, measured in terms of improved planning and efficiency in control operations, of the general reduction in the total number of trypanosomiasis cases, and, what can be regarded as a promise of future policy, of the attempt at reclaiming an uninhabited area from tsetse fly for the purpose of settling people with their cattle.

The improved trypanosomiasis situation is indicated in Fig. 1 which shows the progress of the disease in cattle since 1958. The incidence of the disease is seasonal, showing peaks usually in the quarter April-June, coinciding with the appearance of peak G.morsitans populations. When shooting game as a means of controlling G.morsitans ceased in 1960 the recorded cases increased. The introduction of selective shooting (shooting the favoured hosts warthog, bushpig, kudu and bushbuck within fenced areas) was followed by a sharp decline in the incidence of disease. The suspension of shooting as a means of control in late 1965 and its very gradual resumption until mid 1967, was accompanied by a further rapid increase in cases to an unprecedented peak in April-June, 1967, since when control measures have again exerted their effect. The seasonal peaks of 1968 and 1969 have declined progressively.

Captures of tsetse flies at 75 traffic control gates and barriers on roads leaving fly infested country also show a satisfying decrease. The total numbers recovered were 23,398 G.morsitans and 92 G.pallidipes compared with 49,469 and 141 respectively for last year. Taken together, these facts indicate a general improvement in the tsetse and trypanosomiasis position.

The very strenuous effort put into the 1968 insecticide spraying operation, in which the tsetse habitat within 4490 square miles was treated with a 5 per cent DDT suspension, was rewarded with satisfactory success in most areas. Some disappointments were experienced, however, in the Sabi-Lundi-Limpopo drainages where an unusual ecological situation was encountered, calling for a modified method of insecticide application. The 1969 operation covered 4210 square miles of tsetse habitat

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Selective hunting operations continued satisfactorily in all areas without interruption. The areas covered do not hold a large population of game, and special techniques are being developed

to seek out the reduced numbers of kudu, bushbuck, warthog and bushpig still present.

The Wankie District has remained free of trypanosomiasis throughout the year, following the control operations carried out during 1967 and the partial operation of 1968. The appearance since January, 1969, of a few cases of trypanosomiasis at the cattle centres within the area of Binga District sprayed during 1967 and 1968 made it advisable during 1969 to extend the treatment to denser tsetse areas to the north and east of these centres.

The Gokwe-Sanyati area continues to be critical. Control operations are hampered by the large numbers of stock, cattle, sheep, goats and donkeys throughout the area. It is no mean achievement to have arrested the eastward spread of trypanosomiasis in this area and to be able to contemplate seriously its ultimate elimination.

The continued and increasing occurrence of trypanosomiasis in Urungwe District, particularly within the Vuti Block and the north Karoi European farms warranted a further intensive insecticide treatment of part of the Rekomitjie, Charara and Naodza drainage. Operations are still in progress. ✓

Trypanosomiasis in the Mtoko District remains quiescent and in Inyanga North the only persistent appearance of cases occurs within the central area, mainly at Samakande. The position has greatly improved since the extensive spraying operations in 1967 and 1968. The ~~current~~ 1969 spraying operations should further consolidate these gains. - a proposal - was completed by Aug. 1969

Although only one case of trypanosomiasis occurred on the European farms adjoining the international border in Chipinga District, there has been a ~~serious~~ increase in the incidence of the disease on a few farms and at African centres associated with the Umselezwe drainages and also those associated with the Sabi River, sufficient to warrant a spraying operation to cover the affected areas, and extending over part of Humani Ranch on the ~~east~~ west bank of the Sabi, in Bikita District, where cases persisted for several months. Elsewhere, in Chiredzi and Nuanetsi Districts, the position is very satisfactory. No cases have occurred in Sangwe Tribal Trust Land or MatibiII Tribal Trust Land for over a year, and the only cases recorded from Nuanetsi District were from the department's test herds situated along the Mocambique border, south of the Lundi River. No tsetse flies have been taken at any traffic control points within the Sabi Lundi area, or on the cycle flyrounds north of the Lundi. Only small numbers of

tsetses have been taken monthly on the cycle and bait ox flyrounds south of the Lundi, and during September a nil catch was recorded from the cycle flyrounds for the first time ever.

The international insecticide spraying operations and the maintenance of selecting hunting operations in the protective fenced barriers between the Gona-re-Zhou and the cattle occupied areas of Chiredzi and Nuanetsi Districts have succeeded in eliminating the tsetse fly from an area of about a thousand square miles, so that spraying operations this year will cover only about 190 square miles in Rhodesia, but over 400 square miles within Mocambique.

It is our intention to remove tsetse flies so far from our borders that they will no longer pose a threat to this part of Rhodesia. During the 1968 spraying campaign in this border area an unusual ecological situation was encountered in heavily infested tsetse areas to which the conventional method of treating riverine vegetation ~~vegetation~~, vlei edges and vegetation "contacts" was inapplicable. Resort was made to marking and cutting a system of grid lines, spaced 400 yards apart, along which insecticide was applied to the boles of trees of diameter 6 inches or more. A 5 per cent DDT suspension was applied, which was a departure from the 1967 operation when a 3.1 per cent Dieldrin emulsion was used. Access in this nondescript area was almost non-existent and consequently there was little information available of the distribution or magnitude of the tsetse population before treatment. The 1968 spraying operation in this area failed to eliminate the resident tsetses, and it may not have brought about even a reduction in their numbers. It was not possible to determine with any confidence whether the DDT wettable powder was less effective than the previously used Dieldrin or whether the lack of success was due to the modified spraying technique. Both factors may have been responsible. It was, therefore, decided to compare the performance of these two insecticides during the ~~current~~ 1969 campaign under similar conditions of application and terrain. In these large scale tests, ~~which are commented on under~~ , the grid lines were marked at 700 foot intervals, and the spray operators applied insecticide to those places where tsetse flies would be compelled to find refuge during hot, dry periods. This nondescript area surrounds the international border, and it is imperative that an effective treatment is devised without delay. The current operations should indicate a solution to the problem.

The blood meal identification laboratory was formally opened on 3rd October, 1968, by the Secretary for Agriculture, Mr. R.A. Griffith.

In 1969 a meeting of the Interterritorial Standing Committee for Tsetse and Trypanosomiasis Control in South East Africa was held in Salisbury between 28th April and May 1st, to which observers from Angola, Botswana and South West Africa were invited in addition to the representatives from the Republic of South Africa, Mocambique and Rhodesia. The formal business was followed by a symposium on tsetse and trypanosomiasis problems of mutual interest.

RESEARCH

VETERINARY RESEARCH

The routine observations on cattle, sheep, pigs and goats under prolonged prophylaxis and under constant trypanosome challenge continue at Lusulu and Rekomitjie Field Research Stations.

TSETSE RESEARCH

Comparative treatments have been given to areas of tsetse habitat within the Zambesi Valley to determine the efficacy of 5 per cent DDT wettable powder in reducing tsetse fly populations under different methods of application. Treatment was given:

a) by the conventional method of applying insecticide to the boles of trees of over six inches diameter, to horizontal branches, fallen logs, holes in trees and antbear holes within denser riverine vegetation, vlei edges and vegetation contact zones,

b) to the boles of rough barked trees of six inches or more in diameter found along the paths of a grid system spaced at 428 yards intervals within uniform nondescript habitat, and

c) to those situations, along a similar grid within similar nondescript habitat such as boles of rough barked trees, holes in trees, fallen logs and antbear holes where tsetse could be expected to retire during hot dry days. The treatments are not yet completed.

It has long been established that warthogs are particularly attractive to G.morsitans. Investigations are in progress to

other animals, like impala, unattractive. Model animals, traps and metal drums of various shapes and configurations, set stationary and moving have been found to have differential attractiveness to G. morsitans. The use of sticky substances in conjunction with these artificial attractants greatly increases the numbers of flies recorded, compared with the conventional capture by a hand-net, and also increases the percentage of female flies in the catch. This is an important observation that will make it necessary to reconsider conclusions about tsetse populations based on the conventional methods of recording tsetse flies.

As samples of new insecticides become available from the manufacturers and distributors they are screened for possible use against tsetse flies, using the performance of DDT and Dieldrin as a standard. So far none has been found to be an improvement on DDT or Dieldrin, but some have been found to offer some promise as an application to the coats of cattle.

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STAFF

During the year ~~three~~ Two glossinologists were appointed, but as there have been two resignations McDonald Lightening and one transfer Sherry, the staff situation has ~~not improved numerically.~~ deteriorated.

The experience gained by the younger professional staff now enables them to plan control operations and to assess their effects with confidence. They are now able to instruct new professional recruits, but, unfortunately these are not forthcoming. It is becoming apparent that special inducements will be needed to attract young biologists to undertake the arduous but rewarding life of a field glossinologist. In order to maintain and improve the degree of control over the tsetse fly and trypanosomiasis that has been achieved, we must be assured of a steady flow of recruits. Too much is now being done by too few.

It is pleasing to report that a promise of relief for our difficulties in administration has been afforded by the provision of a further administrative officer post. However, it has not yet been filled.

Courses of instruction have been given to two candidates for

the Senior Tsetse Field Officer examination and 12 Animal Health Inspectors.

Gerald F. Cockbill
17.11.69.