Tsetse eradication programmes in Zimbabwe: 2011-2013

W. Shereni
Animal Trypanosomiasis Cases: 2011-2013

- AAT survey data cannot be relied upon due to inadequate surveillance and the use of prophylactic drugs by farmers
- Table below shows number of AAT cases recorded from 2011- August 2013

<table>
<thead>
<tr>
<th>Area</th>
<th>No of blood smears examined</th>
<th>Trypanosomiasis cases diagnosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lusulu</td>
<td>72</td>
<td>314</td>
</tr>
<tr>
<td>Gokwe</td>
<td>32</td>
<td>185</td>
</tr>
<tr>
<td>Makuti</td>
<td>245</td>
<td>329</td>
</tr>
<tr>
<td>Doma</td>
<td>557</td>
<td>13</td>
</tr>
<tr>
<td>Mashumbi</td>
<td>1005</td>
<td>1175</td>
</tr>
<tr>
<td>Rushinga</td>
<td>557</td>
<td>217</td>
</tr>
<tr>
<td>Kotwa</td>
<td>399</td>
<td>509</td>
</tr>
<tr>
<td>Save-Runde</td>
<td>594</td>
<td>1011</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3461</strong></td>
<td><strong>3753</strong></td>
</tr>
</tbody>
</table>

Table above shows number of AAT cases recorded from 2011- August 2013.
<table>
<thead>
<tr>
<th>Year</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>11</td>
</tr>
<tr>
<td>2013</td>
<td>0</td>
</tr>
</tbody>
</table>
Programmes Implemented

1. Target Barrier

- 750 km long barrier of targets located along the tsetse limit line consisting of a narrow barrier (1 km wide) and a wide barrier (10 km wide)

Configuration of Narrow Barrier

- 100m interval
- 200m interval

Configuration of Wide Barrier (even)
2. Ground Spraying 2012 & 2013

- Pre-spray tsetse surveys in the 2012 ground spray block

  - Baseline data collection was done using epsilon traps baited with acetone/methyl-ethyl-ketone, 3-n-propyl phenol and 4-methyl phenol.

  - Traps were deployed at 1 trap per 4 km$^2$ and 7,500 km$^2$ was confirmed to be tsetse infested in North-West Zimbabwe.

  - An area of 1,150 km$^2$ was delineated for ground spraying in 2012 while 500 km$^2$ in 2013.
Relative Density

Glossina Morsitans
+ 0
• 0.01 - 4
• 4.01 - 8
• 8.01 - 12
• 12.01 - 16
• 16.01 - 84

Matusadona Ntl Park
Project area

By the Geo-Information and Remote Sensing Institute (GRSI) of the SIRDC, 2011.
Ground Spray Operation

- Dry season ground spraying operation was undertaken over a 4 months period from July-October, 2012.

- The insecticide (deltamethrin 0.05% s.c) was applied as a residual deposit at 165g a.i per km$^2$ using knapsack sprayers with lances fitted with cone nozzles.

- 4 knapsack spraying machines covering a swathe width of 60m were used and spraying was conducted along marked transects.

- Cost of ground spraying operation in 2012 was **US$290/km$^2$**
2. GROUND SPRAYING 2012 & 2013
Results

Post Spray Tsetse Catches

- Both *G.m.morsitans* and *G.pallidipes* declined by more than 90% a month after spraying.

- Only 1 *G.pallidipes* was captured in April, 2013 (i.e 6 months after spraying) in a survey programme involving the use of 165 traps.

- Surveys conducted after April have failed to yield tsetse catches
Changes in mean *G. pallidipes* trap catches before, during and after ground-spraying in each 100km\(^2\) grid
Changes in mean G. morsitans trap catches before, during and after ground-spraying in each 100km$^2$ grid.
Conclusion

- Tsetse were effectively controlled through the integrated use of targets, cattle dipping, ground spraying and traffic control barriers. However, the increase in human sleeping sickness cases in 2012 is cause for concern and investigations have been initiated to establish causes for this unexpected development.