Eduardo Mondlane University

INSTITUTE OF TROPICAL MEDICINE ANTWERP

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

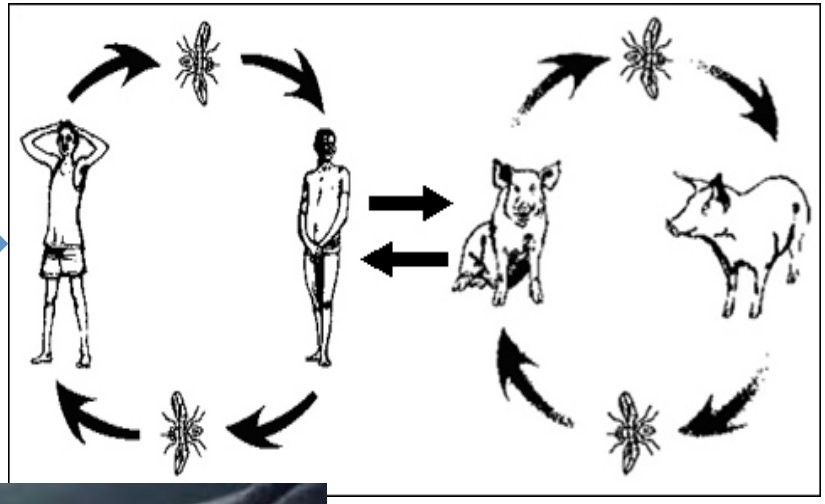
Regional Seminar for OIE National Focal Point for Veterinary Products

The susceptibility of *Trypanosoma congolense* isolated in Zambezia Province Mozambique, to isometamidium chloride, diminazene aceturate and homidium chloride

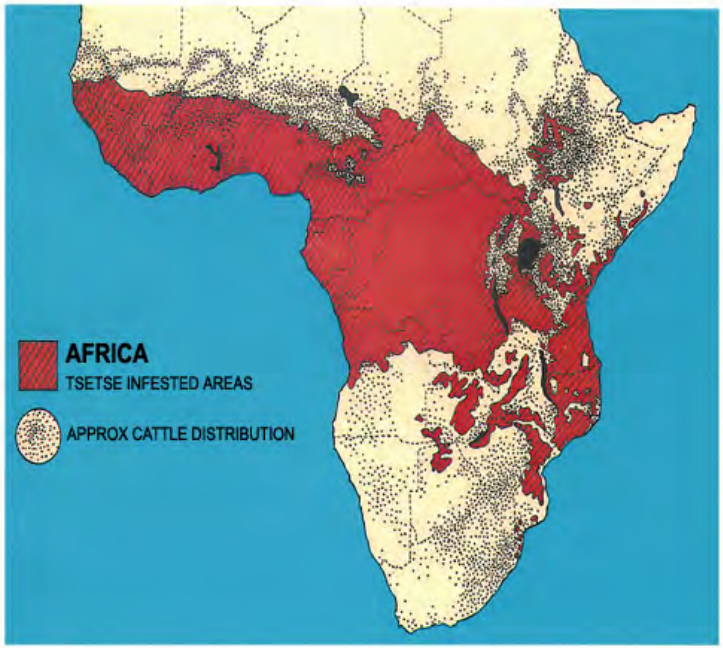
S. Jamal , P.Macucule, F.Chanisso, I. Sigaúque , B.L.Penzhorn , V. Delespaux , L. Neves

Introduction

Vector



Infestaction



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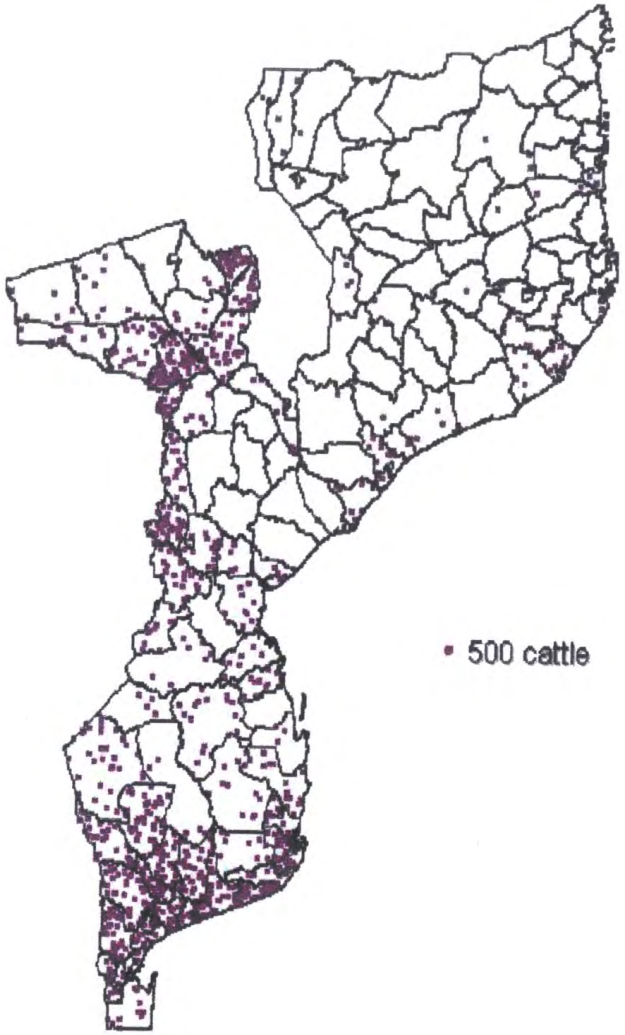
Economic Impact

Cont.

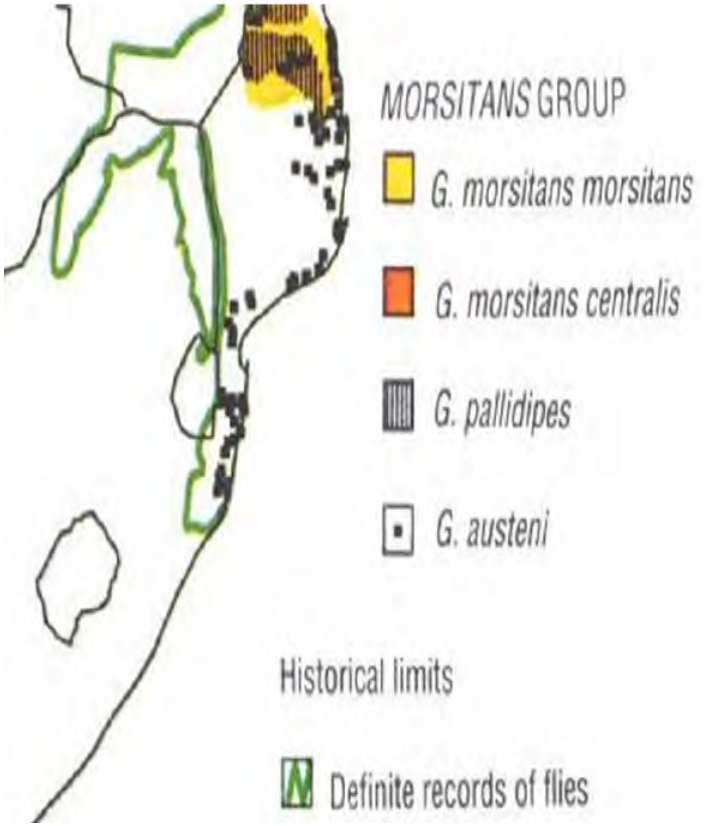


Tsetse in Mozam

Cont.

Infestaction ≈ 75%

G. morsitans,
G. pallidipes,
G. brevipalpis
G. austeni



Introduction(Cont)

- 3 species of Trypanossoma:
- *T.congolense* (+++)
- *T.vivax* (++)
- *T.brucei* (+)

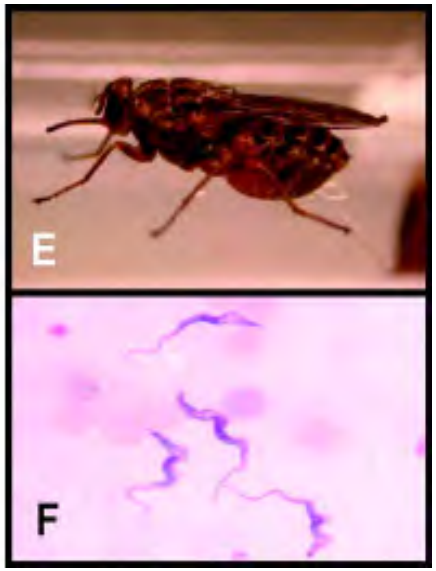
cont.

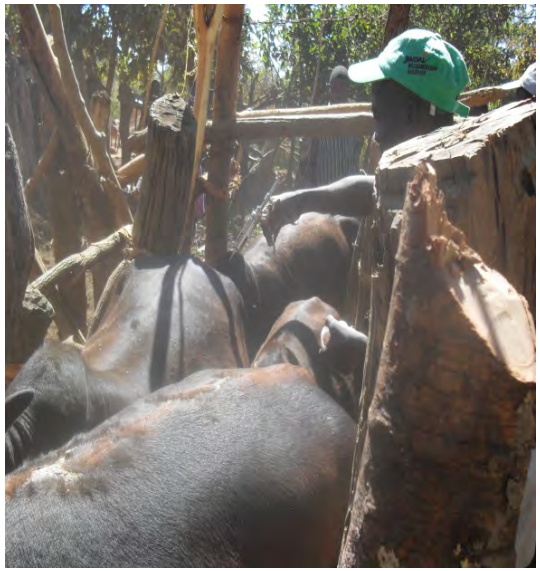
+

+

+

Control

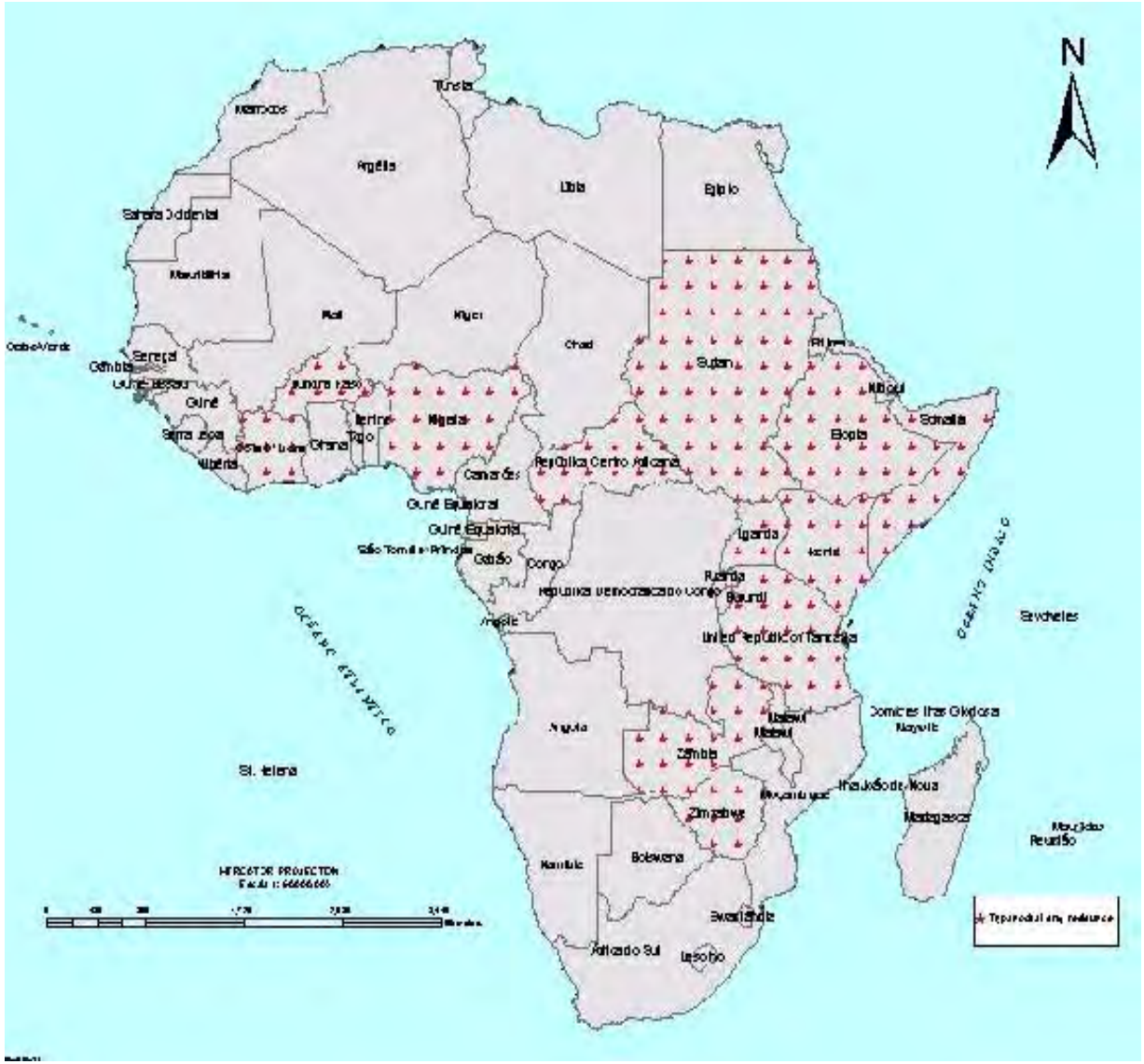




Introduction (Cont)

- Despite the availability of effective vector control methods trypanosomosis control rely on curative and prophylactic trypanocidal drugs.
- Only small group of chemoprophylactic and chemotherapeutic componds are currently in use and new compounds are unilikely to became available in the near future

Introdu.cont.



About 35 million doses of trypanocidal drugs are administered each year.

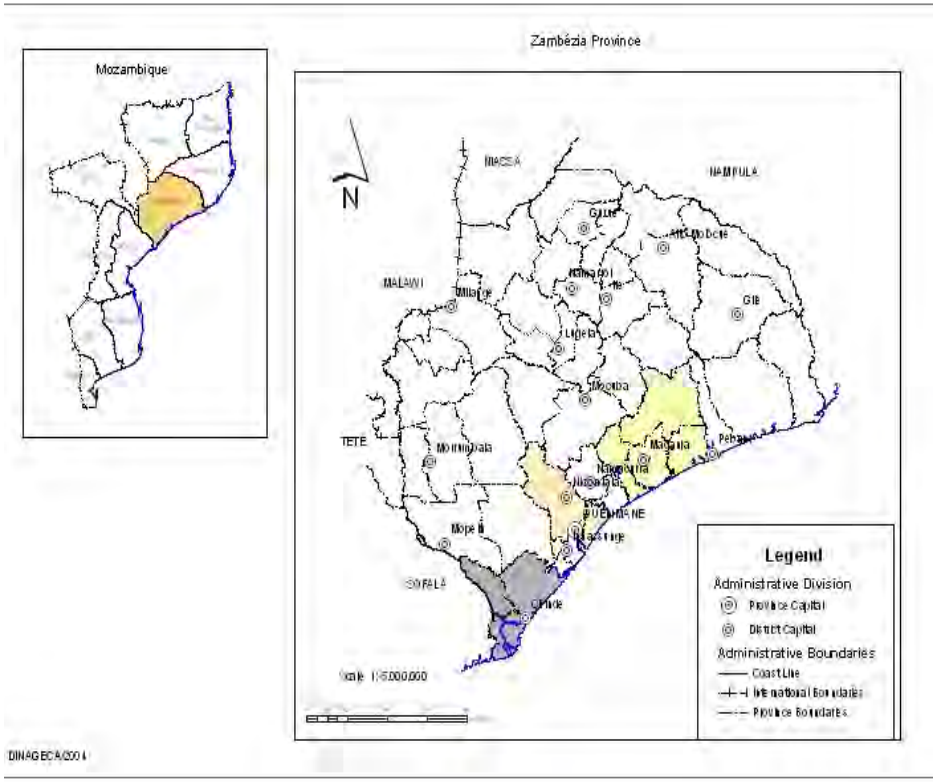
The effective of this control methods is reduced by the widespread development of resistance in trypanosomes.

In Mozambique trypanosomosis in livestock is controlled by treatment with DA and/or ISM

Objectives

- Determine the sensitibility of *Trypanosoma congolense* isolates collected from cattle from commercial and subsistence livestock manangement system in three districts of Zambezia Province to DA, ISM and homidium chloride.
- The SDM (Eisler *et all*) was used

Material e Methods



- ***Study are***
- Chinde, Nicoadala and Maganja da costa
- Zambezia
- 103 130 km2
- 32,2 inhabitants/km2

Sample collection

- 8 sampling sites were identified in three districts
- 165 animals were selected and sampled.

1. buffy coat,
2. stained thick and
3. stained thin smear was used for parasitological diagnosis

Isolation of trypanosomes in the field

Outbread albino mice of 60 days of age, weighing app 25-30gramas. Mice was keeptim metalic boxes with savdust bedding and perforated lid to allow the circulation of air. They were feed and were received water ad libitum.They had been immunosuppressed 24 h previously ny Ip injection of 300 mg/kg cyclophosphamide (Endoxan,Asta medica)

1ml of blood was inoculated intraperitonealy in to outbread albino mice.
The parasitaemia was monitored twice weekly
Stabilites of the blood of the ones that became parasitaemic were prepared in liquid nitrogen.
All trypanossome infection in cattle were due to *T.congolense*
Seven isolates 3 (Chinde), 3 (Nicodadala) 1 (Maganja costa) were used for resistance test.

Isolation of trypanosomes in the field

Isolates	Charatization
1	Originated from cattle from a commercial ranch Madal estates. All cattle were treated with DA followed by ISM 2eeks later four times per year.
2	Sick animals were treated with DADespite this treatment prevalence of
3	trypanosome infection is high.
4	Was collected from cattle belonging to a subsistance farmer based in Namutangurine.The farmer treated his animals tree time per year with DA followed by ISM two weeks later
5	Came from cattle kept in Botao, private . Animals of this herd were treated once a year with DA followed by ISM
6	Was collected from cattle belonging to a subsistance farmer based at Licuari. Treats sick animal with DA
7	was collected from cattle belonging to a commercial livestock owner based on Cangu. Here the animals were treated once per year with DA followed by ISM two weeks later.Sick animals were treated with DA

Resistance testing of trypanosome

- Eisler *et al* (2001)
- Groups of 6 mice were inoculeted with 105 tryps of a particular isolate
- 24 h after the mice were treated with different dose of tripanocide

The buffy coat was collected twice a week-60 days pos treatment

Drug	Doses (mg/kg)
DA	1
	3
	10
	20
	30
Control	2ml water
	0,01
ISM	0,1
	0,5
	3
	20
Control	2ml water
	0,01
Homidim chloride	0,1
	0,5
	3
	10
Control	2ml water

Results

Type of Trypanocide	Doses (mg/kg)	Number of mice positive per isolate						
		4	**6**	**5**	**1**	**2**	**3**	**7**
Diminazene aceturate	1	6	6	5	5	5	5	5
	3	6	5	6	6	6	6	6
	10	3	4	5	4	6	5	4
	20	0	1	**5**	2	**6**	**5**	3
	30	0	1	1	2	**6**	**5**	3
	Control	**6**	**5**	**6**	**6**	**6**	**5**	**6**
Isometamidium chloride	0,01	6	0	5	6	5	5	6
	0,1	6	0	5	6	6	4	5
	0,5	2	0	4	6	4	5	5
	3	0	0	**4**	**5**	**5**	**5**	**5**
	20	0	0	0	2	**5**	**4**	**4**
	Control	**6**	**5**	**6**	**6**	**6**	**6**	**6**
Homidim chloride	0,01	3	5	6	6	6	5	6
	0,1	5	3	6	6	3	4	5
	0,5	3	3	6	6	4	5	6
	3	4	0	2	**5**	**5**	2	**5**
	10	0	0	1	0	0	1	1
	Control	**6**	**6**	**6**	**5**	**6**	**6**	**6**

If at least 5 out of 6 treated mice were cured the isolate were considered sensitive

Conclusion

- The outcome of the trypanocidal drug resistance in mice clearly showed the presence of resistant trypanosome isolate

Recomendation

- Monitoring of the prevalence of trypanocidal drug resistance.
- Prohibite of the cattle moviment from Zambezia province to others province without survey of drug resistance.
- More reserch is required to determine the spread of the strain resistant to tripanocidal drugs.

Acknowelegements

- The supersiors (B.L.Penzhorn , V. Delespaux , L. Neves) P.van der Bossche on His memory
- MINAG – Proagri
- PVO Zambézia
- Mr Rogerio Henriques from Madal
- Mr Jose Rezende from Maganja da costa district

Muito Obrigada pela atenção