



EVALUATION OF CATTLE REARER'S KNOWLEDGE, ATTITUDE AND PRACTICES ABOUT TSETSE FLY IN MURI DISTRICT, TARABA STATE, NIGERIA

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ABSTRACT

A study using a structural questionnaire was conducted in Muri district, Taraba State to evaluate knowledge, attitude and practices of cattle rearers about Tsetse fly (*Glossina*). Most cattle rearers (94.8%) had adequate knowledge of Tsetse fly, (69.0%) gave a local name to it and (100%) know the effect of Tsetse fly to their cattle. Cattle rearers (52.3%) reported Tsetse flies transmit disease to cattle, (85.7%) know where their cattle make contact with the tsetse flies and (67.0%) know season and period of the day when tsetse flies bite their cattle. 48.1% recognized tsetse fly as an important threat to their cattle, (90.0%) reported their herd had contact with tsetse flies in the preceding 12 months, (90.9%) practices preventive measures against tsetse flies, and only (9.1%) do not. Respondents had high knowledge of tsetse fly and the economic significance attributed to cattle and the use of pour-on in the control of tsetse fly in the districts should be raised among cattle rearers. Results obtained from this study could be used in the formulation of extension material in trypanosomosis prevention.

Keywords: Knowledge, attitude, practice, tsetse fly (*Glossina*) trypanotolerant, Taraba, Muri.

INTRODUCTION

Tsetse flies are some group of biting flies that are distributed over 10 million square kilometers of Africa and are extremely significant as biological vector of African animal trypanosomosis and sleeping sickness in humans (Urquhart *et al.*, 1996). Currently in Nigeria, studies have shown the wide distribution of economically important *Glossina spp* in all states of the federation including the federal capital territory Onyiah, (1985). The area infested by tsetse species extend from latitude 4°N (Atlantic coast) to approximately 13 N° with northern extensions along Hadejia – Jama'are river valley.

African animal trypanosomoses are serious diseases of livestock in many parts of the tropics and subtropics. The disease is caused by trypanosomes which live in the blood and some tissue of their host (man, cattle, pig, horses, rabbit, goat etc) (Ikede, 1989), also the disease is considered to be a major constrain to livestock industry and food security in sub-Saharan Africa (Swallow, 2000). An estimated direct loss in meat and milk yield as well as cost of disease control amounting to the tune of \$600 million to \$1.2 billion annually on the global scale (FAO, 1994). Losses to trypanosomosis in Nigeria was estimated at N135 million annually Esuruoso, (1973).

In man, the African human trypanosomosis or sleeping sickness due to *Trypanosome brucei gambiense* is a debilitating and complex disease.

The disease at the chronic stage, results in a major disruption of the circadian rhythmicity of sleep and wakefulness (Radomski *et al.*, 1995). Of the twenty – two species of *Glossina* that are identified in Africa, eleven infest 75% of Nigeria landmass and four play a very significant role in the transmission of African

animal trypanosomosis viz *Glossina submorsitans*, *G. Palpalis* and *G. longipalpis*.

The presence of tsetse exclude livestock from large area of considerable agricultural potential by virtue of the severity of the diseases caused by tsetse transmitted trypanosomes. It has been postulated that livestock population could be doubled if tsetse and trypanosomosis are controlled or eradicated in Nigeria. Furthermore, it has been predicted that, if trypanosomosis is controlled or eradicated, tsetse – infested areas of the country could support additional 2.5 to 3.2 times the current estimated livestock population (Ikede, 1989).

African animal trypanosomosis (AAT) is managed through vector control; keeping trypanotolerant cattle and the used of trypanocidal drugs by way of chemotherapy and chemoprophylaxis (Urquhart *et al.*, 1996).

In Africa and especially Nigeria, trypanosomosis control facilities have become dysfunctional (Njoku *et al.*, 2003) and the advent of veterinary services privatization had let the responsibility for diagnosis, treatment and prevention of this notorious disease to lie almost entirely in the hands of cattle rearer's and quarks who are untrained and unskilled, through chemotherapy and chemoprophylaxis with trypanocidal agents. Muri district provide a significant grazing ground for nomadic cattle which as well serves as habitat for some savannah tsetse fly species, the vector of notorious African animal trypanosomosis (Daniel *et al.*, 1993). In view of the above, this study was conceived in order to determine level of knowledge, attitude and practices towards tsetse management and control by cattle rearers in the course of prevention of devastating trypanosomosis in the district.

Results obtained from this study can be used in the formulation of extension material in the trypanosomosis prevention.

MATERIALS AND METHODS

Study Area

The study area is located in Muri district of Taraba State which lies between latitude 8° 13'E and 9° 14'N and longitude 10° 9' and 10-° 30'E. The climate is tropical and vegetation terrain fall within Guinea savannah ecological zone characterized by short grasses interspersed with tall trees (Taraba State Government Diary, 2008).

Administration of Questionnaires

Knowledge, attitude and practice (KAP) interviewer administered questionnaire (in English) was developed after preliminary interaction with cattle rearers. It was then administered in four cattle markets selected by simple random sampling procedure in Muri district to assess knowledge, attitude and practice in respect of tsetse fly (Kinunghi et al., 2006). Pretest was conducted with twenty copies to ensure questions were comprehensible and acceptable. Questionnaires were administered by the researcher, veterinary assistant and veterinary drug vendors. The questionnaires were administered in local language (the administrator translating the questions and responses). Six photographs of different insects were presented to the respondents to identify amongst which is tsetse fly in order to ascertain knowledge. Seventy seven out of one hundred questionnaires were retrieved from the respondents.

Analysis of Data

All data collected through the questionnaire were analyzed using frequency tables and percentages, measures of control tendency and chi-square (Balogun and Owoje, 2005).

RESULTS

Participant Characteristics

The result of the analysis (Table 1) shows that majority of the respondents 22 (28.6%) fall within age group of 31.40 years with mean age 30 years and only 16 (20.8% were above sixty years old. The percentage of males and females respondents are 68 (88.3%) and 9 (11.7%) respectively. Table 2 revealed that 73 (95.8%) of the respondents know tsetse fly and 69(89.6%) of them were able to give its local

name. Table 3 shows that, all respondents 77 (100%) acknowledged that tsetse fly bite and 40 (52%) agreed that, the bite of tsetse fly can cause disease. Also from table 3, 20 (26%) of the respondents agreed, tsetse fly bite cause annoyance to the host and 10 (13%) believed the bite cause distraction during grazing activities. Table 4 indicated that, 48 (62.8%) of the respondents believed that their herd have contact with tsetse flies, at forest; 14 (18.2%) at Riverine areas and 11 (14.3%) at open space or unforested area. Only 11 (14.3%) do not know where their herds make contact with tsetse flies. From table 5, 41 (53.2%); 9 (11.7%) and 17 (22.1%) of the respondents believed tsetse fly bite during dry; rainy season and all year round respectively. Only 10 (13.0%) do not know the specific season which tsetse fly bite. Also in table 5, 34 (44.0%) of the respondents reported tsetse fly bite in the afternoon during grazing while 2 (2.3%) believed tsetse fly bite in the morning hours. From the same table, 24 (31.2%) and 8 (10.0%) of the respondents acknowledged tsetse fly bite cattle all day round and at night respectively. Table 6 shows that 64 (88.1%) of the respondents recognized the importance of tsetse fly as a threat to livestock and man and 54 (90.0%) of the respondents herds had contact with tsetse fly the preceding year. The same table indicated 23 (42.6%), 25 (46.3%), 6 (11.1%) and 2 (3.7%) of the respondents acknowledged contact with tsetse fly at riverside, forest and grazing farm land respectively. Table 7 showed that 70(90.9%) of the respondents practice tsetse fly bite prevention in their herds while 7 (10.0%) do not. Also from this table, 49 (63.6%) of the respondents use insecticides while 21 (27.3%) employ traditional preventive measures against tsetse fly. The result also revealed that, those respondents that engaged in tsetse fly bite prevention, 70 (90.9%) of the respondents avoid their cattle from making contact with tsetse fly habitat and 54 (77.1%), 21 (30%) use traditional smoking of herd and herd spray with insecticides respectively. However, 8 (11.4%) use pour-on to repel tsetse fly while none of the respondents employ keeping trypanotolerant cattle as a means of control. From table 7 also, 54 (77%) of the respondents engaged in tsetse fly control in rainy season while 25 (35.7%) carryout the control in dry season but only 15(21.4%) does both seasons.

Table 1: Biodata of respondents in Muri district

Age Years	(N)	%
Below	11	14.3
31 – 40	22	28.6
41 – 50	12	15.6
51 – 60	16	20.8
Above 60	1	20.8
Total	77	100
Gender		
Male	68	88.3
Female	9	11.7

Table 2: Evaluation of knowledge of Tsetse fly in Muri district

Knowledge N = 77	(N)	%
Do you know tsetse fly	73	94.8
If yes, give local name		
Local name		
Nyabbare/Nyabbel yami/yabe	34	44.2
Bubi/Bubi lande/wadube	17	22.1
Bakkare	2	2.6
Kudan tsando/Tsando	13	16.9
Loe	1	1.3
Goteze	1	1.3
Kondozi	1	1.3
Do not know	8	10.4

Table 3: Evaluation of responses by respondents on effect of tsetse fly on livestock

Effect N = 77	(N)	%
Bite	77	100
Nuisance	20	26
Distract grazing activities	10	13
Transmit disease	40	52
Any two of the above	4	5
None of the above	3	3.9
Name disease transmitted by tsetse fly to livestock		
a) Samore	39	50.6
b) Jola	4	5.2
c) Kenye	6	7.8
d) Nyaububi	2	2.6
e) Hanta	3	3.9
f) Trypanosomosis	12	15.6
g) Do not know	11	14.3

Table 4: Evaluation of responses on livestock site of contact with Tsetse fly

Location N = 77	(N)	%
Forest	48	62.3
Riverine area	14	18.2
Unforested areas	4	5.2
Do not know	11	14.3

Table 5: Evaluation of respondents on season and period of the day when Tsetse fly bites

Effect N = 77	(N)	%
Season		
Dry season	41	53.2
Rainy season	9	11.7
Both seasons	17	20.1
Do not know	10	13.0
Period of the day		
Morning	2	2.3
Afternoon	34	44.0
Evening	9	10
Night	8	10.0
Day and night	24	31.2

Table 6: Evaluation of respondents' attitude towards tsetse fly

Perception N = 77	(N)	%
Recognition of Tsetse fly as important threat to livestock	64	88.1
Herd had control with tsetse in the preceding 12 months	54	90.0
Location of contact with tsetse fly	N = 54	
a) River side	23	42.6
b) Forest	25	46.3
c) Grazing farm land	6	11.1

Table 7: Practices of respondents towards Tsetse fly prevention

Effect N = 77	(N)	%
Prevention of tsetse fly	70	90.9
Apply traditional method	21	27.3
Apply insecticides	49	63.6
None	7	9.1
Type of prevention (N = 70)		
Prevent herd – tsetse fly contact through voidance of tsetse ecology	70	100.0
Use traditional herbs to smoke herd thus repelling tsetse fly	54	77.1
Spray of hers with insecticides	21	30.0
Use of pour-on to repel tsetse fly	8	11.4
Keeping of trypanotolerant cattle seasons of practice	0	0
Rainy season	54	77.1
Dry season	25	35.7
Rainy and dry seasons	15	21.4

DISCUSSION

Table 1 shows that majority 22 (28.6%) of the respondents are between the ages of 31 – 40 years and only 26 (20.8%) are above 60 years. This shows that most of the respondents are within their energetic and productive ages who can perform well and impart to new generation of cattle rears new skills of animal disease and parasites prevention. The table also indicates 68 (88.3%) of the respondents were males while 9 (11.7%) were females.

Respondents Knowledge of Tsetse Fly

It was discovered from the findings that majority of the respondents have high knowledge 73 (94.8%) of tsetse fly and how it is called locally. Similar observation was made in Nigeria by Njoku *et al.*, (2003) and Ohaga *et al.*, (2007) in Kenya. This could be as a result of the economic importance associated with the disease agent which tsetse transmits biologically (Trypanosomosis).

Table 2 indicated all respondents 77 (100%) agree tsetse fly bite cattle and only 40 (52%) believed the bite cause disease to their cattle. This observation indicates average awareness of the respondents on the role play by tsetse on disease transmission among cattle. A similar observation was made in Kenya in agro-pastoral communities in Lambwe and Kwale (Olubai *et al.*, 1995). From the table also, 66 (85.7%) were able to give a name to the disease tsetse flies transmit to their cattle.

From table 3, all respondents 77 (100%) knows tsetse fly bite has effect on the host. This result tally with knowledge of tsetse fly and it indicates high level of awareness of tsetse fly and the effects it produces. This table also indicates 20 (26%), 10 (13%), 40 (52%) and 40 (52%) believed tsetse fly cause nuisance, district grazing activities, transmit disease and any two mentioned to cattle respectively. Only 3 (3.9%) did not mentioned effects of tsetse fly on cattle. The result also indicated that 11 (14.3%) of the respondents were not able to give a name to the disease tsetse fly transmit to cattle however 39

(50.6%), 4 (5.2%), 6 (7.8%), 2 (2.6%), 3 (3.9) and 12 (15.6%) mentioned Samore, Jola, Kenya, Nyaububi, Hanta and trypanosomosis respectively as the names of disease transmitted to cattle by tsetse flies. This indicates also high level of awareness of the tsetse fly and the disease cause to the cattle by the respondents. A similar observation was made in study by Onyiah, (1997).

Table 4 depicted, 48 (62.3%), 14 (18.2%) and 4 (5.2%) believed that host-vector contact occur at forest, reverine area, and unforested area respectively. Only 11 (14.3%) do not know where cattle contact tsetse fly. This result shows majority of the respondents have knowledge of where a cattle makes contact with tsetse flies. This could be the reasons why some of the respondents avoid tsetse fly habitat as a means of prevention of bovine trypanosomosis. A similar study in Nigeria (Njoku *et al.*, 2003) showed that, farmers believed that African animal trypanosomosis is caused by fresh water stream.

Table 5 indicate 41 (53.2%) of the respondents believed that tsetse fly bite their cattle during dry season and 9 (11.7%) believed their cattle are bitten by tsetse fly in the rainy season. Their believe could be associated to the fact, cattle rearers take their cattle for grazing and watering in tsetse fly ecology in dry season in that is only the point where their cattle can get grasses and water. The attitude of respondents towards tsetse is good and positive as depicted in Table 6. 64 (88.1%) of the respondents recognized the importance of tsetse flies and 84 (90.0%) of the respondents herds had contact with tsetse fly in the preceding 12 months.

The practices of respondents towards tsetse flies are also very good in that in Table 7, 70 (90.9%) of them practice one or the other form of tsetse fly control. Their attitude followed the good knowledge of tsetse fly. However, an exceptionally wide gap between the uses of insecticide spray and pour-on exist in the control of tsetse fly by the respondents.

A similar observation was reported by Magana *et al.*, (2004) in Uganda and Ohaga *et al.*, (2002) in Kenya. Table 7 also depicted that, control of tsetse through keeping trypanotolerant cattle is not practiced by respondents in Muri district. It also showed that 54 (77%), 25 (35.7%) of the respondents practice prevention in rainy and dry seasons respectively while 15 (21.4%) of them practice tsetse control throughout the seasons.

CONCLUSION AND RECOMMENDATIONS

From the results of this study, respondents have high knowledge of Tsetse fly and the economic importance associated to cattle production. Their attitudes and practices towards Tsetse flies are also good but their

practice of keeping trypanotolerant cattle and use of pour-on in the control of Tsetse and trypanosomiasis is poor.

In view of the above, it was recommended that: Awareness on keeping trypanotolerant cattle by cattle rearers in the district should be raised.

The use of pour-on on the prevention of Tsetse fly and other external parasites (arthropod) should be excited among cattle rearers to the district. This is because, pour - on is easier to use and also control other external parasites of Tick, lice etc.

Research should be encouraged to investigate the local herbs used by cattle rearers to repel or control Tsetse fly to save cost and hazard associated with the use of conventional insecticides.

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