

# Perceptions on Tsetse and Trypanosomosis Disease among Livestock Marketers at Wudil Cattle Market, Wudil, Kano

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## Abstract

African Animal Trypanosomosis (AAT) is a debilitating disease that hinders livestock productivity in Nigeria and sub-Saharan Africa. Numerous strategies have been developed over time to fight this devastating disease, which are emphasized mostly on containing the spread of its causative agent and principal vector. However, very little has been done to include livestock marketers in decision making, planning and implementation of control programs. Therefore, this study was carried out to fill that void, by evaluating the knowledge of this group of people on Tsetsefly and Trypanosomosis in Wudil Cattle Market. Questionnaires were developed to collect relevant information, and were administered through 'Standard Focus Group Discussions'. The results revealed that tsetse fly was known by all respondents (100%), who significantly reported that they were most commonly found in the forests (95%), during the wet season (85%). Respondents also reported that these flies prefer to bite animals (71.25%). Similarly, a majority of respondents (97.5%) reported to being cognizant of trypanosomosis disease, while also stating that it had infected their animals at some point in time. Respondents believed infection was most prevalent during the wet season (60%) than the dry season (40%). Respondents had mixed views when it came to perceived causes of the disease, as some associated it with bite from flies (53.75%), while others linked it to transhumance (38.75%). In terms of signs and symptoms, 80% of respondents were able to identify with at least four symptoms of the disease. In essence, this study further intensifies the need to engage livestock marketers in tsetse and trypanosomosis control programs, in addition to emphasizing the need to create awareness campaigns that can further limit the spread of the disease and ensure vector control.

**Keywords:** African Animal Trypanosomosis (AAT), Livestock marketers, Wudil Cattle market, Tsetsefly, Kudan Tsando

## INTRODUCTION

African Animal Trypanosomosis (AAT) is endemic in at least 37 countries in Africa. It is estimated to cause direct and indirect losses in excess of US \$4.5 billion per annum to the livestock production industry (Yaro *et al*, 2016). It is caused by protozoan parasites of the genus *Trypanosoma*, with three particular species (*Trypanosoma vivax*, *T. congolense* and *T. brucei*) responsible for most of the infection in Nigeria (Odeniran and Ademola, 2018; de Gier *et al.*, 2020). AAT is cyclically transmitted by the bite of infected tsetse flies (*Glossina* spp.), but

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the infection, especially with *T. vivax*, may also be mechanically transmitted by other biting flies such as *Tabanus* and *Stomoxys* spp. (Desquesnes and Dia, 2004; Diarra *et al.*, 2019).

Livestock marketers occupy a key position in the epidemiology of AAT, and hence, any information derived from this group of people may facilitate decision making in terms of implementing effective strategies that can limit the spread of trypanosomosis (Maigari *et al.*, 2015). This study, which engages livestock marketers via interactive sessions, can provide information on how knowledgeable they are on Tsetsefly and trypanosomosis, thus, providing additional value to relevant stakeholders in the struggle to contain and effectively limit the spread of this debilitating disease.

## **METHODOLOGY**

### **Study design**

This study was designed to evaluate the knowledge, attitude, and practices of livestock marketers in Wudil Cattle Market, on tsetse and trypanosomosis disease, including the causes, symptoms, and preferred methods of treatment of the disease. Approval to carry out the research was obtained from the management at Wudil Cattle Market, which was in addition to a courtesy visit to the district head of the region. Also, consent of the respondents was orally sought for by clearly explaining the study protocols, as well as assuring them of no penalty whatsoever for their comments and opinions. Moreover, the information obtained from the livestock marketers was further enhanced and supplemented through oral discussions with the veterinary doctors of the cattle market.

Standard questionnaires were administered in form of focus group discussion in Hausa Language by organizing 8 group sessions consisting of 10 participants per group. Accordingly, a total of 80 livestock marketers were randomly sampled.

### **Study Area**

The study was carried out at Wudil Cattle Market located in Wudil Local Government Area of Kano State, which is only about 39 km from the ancient city of Kano. It is one of the largest cattle market in Nigeria and West Africa (Giginyu, 2011). Activities in the market usually commence on Wednesday through Thursday to Friday, which is the main market day.

### **Data Collection and Analysis**

Qualitative data collection method was employed in this study. The data collected from the administered questionnaires was presented in tabular form in numerical, simple proportions. Finally, inferential statistics was used to draw out conclusion.

## **RESULTS AND DISCUSSION**

The results obtained are presented in Tables 1-6.

The results obtained showed that all interviewed livestock marketers are cognizant of Tsetsefly (locally called 'Kudan Tsando'), which represents 100% of respondents. When asked about where these flies are predominantly found, 76 (95%) respondents believed that they are most commonly found in the forests, while only 04 (5%) stated that they were found elsewhere. When it comes to season where these flies are most abundant, 65 (85%) respondents are of the opinion that these flies are most numerous in the wet season. This result agrees with the findings of Ndegwa *et al.* (2001) and Van den Bossche and De Deken (2002), who also reported increased density of tsetse flies during the wet season (Table 1).

Also, 57 (71.25%) respondents stated that animals are the preferred bite victims of tsetse fly, followed closely by 21 (26.25%) respondents who assume that both animals and humans are

equally attractive to tsetse flies when it comes to preferences on who to bite. Tsetse bite victim preference could be location specific based on the available fauna; as it is only logical for humans to get more frequent bites than animals in urban areas where human population is high, and the other way round when the population of fauna is higher (Stone and Chitnis, 2015).

**Table 1:** Perception of Respondents on Tsetsefly

Questions	No. and proportion of respondents (%)
Knowledge of Tsetsefly?	Yes 80 (100) No 0 (0)
Location	Homes (0), Forests 76 (95), Elsewhere 04 (5)
Season of abundance	Dry 04 (5) Wet 68 (85) Harmattan 08 (10)
Preferred bite victims	Animals 57 (71.25) Humans 02 (2.5) Both 21 (26.25)

Table 2 shows the perception of respondents on Trypanosomosis disease. 78 respondents, representing a whopping 97.5% of the total sample, attested to the fact that they are cognizant of trypanosomosis disease, which is locally called ‘Sammore’. Interestingly, all the respondents that knew trypanosomosis disease admitted that it has infected some of their animals at one point in time. When asked about season where infection is most common, 48 (60%) respondents reported infection was most common during the wet and rainy season, while a significant proportion (40%), believed infection is at its high during cold or harmattan period. Sangwan and Abebe (2005) reported a higher trypanosomosis infection rate in wet season. They also reported a higher tsetsefly density during same season. All these are consistent with the findings of this research.

**Table 2:** Perception of Respondents on Trypanosomosis disease

Questions	No. and proportion of respondents (%)
Knowledge on Trypanosomosis	Yes 78 (97.5) No 02 (2.5)
Infection of animals	Yes 78 (100) No 0 (0)
Season of infection	Dry 0 (0%) Wet 48 (60) Harmattan 32 (40)

On the perception of respondents about the causes of trypanosomosis, 43 (53.75%) respondents associated it with the bite from flies, while 31 (38.75%) believe it is from transhumance. Bouyer *et al.* (2013) explained that cattle transhumance into the tsetse infested zones of a country could import trypanosomes, and subsequently transmit them locally to resident herds through mechanical vectors such as the tabanid flies.

**Table 3:** Perception on Causes of Trypanosomosis

Perceived causes	No. and proportion of respondents (%)
From fly bites	43 (53.75)
Transhumant	31 (38.75)
Do not know	06 (7.5)
Total	80(100)

The results from the survey revealed that livestock marketers have significant knowledge on signs and symptoms of trypanosomosis, with 64 (80%) respondents categorically knowing at least four of its symptoms, which include loss of weight, lacrimation, abortion and loss of appetite (Table 4).

**Table 4:** Perception on Signs and Symptoms of Trypanosomosis

Perceived signs and symptoms	No. and proportion of respondents (%)
Lack of Appetite	03 (3.75)
Loss of weight	10 (12.5)
Abortion	02 (2.5)
Lacrimation	01 (1.25)
All of the Above	64 (80)
Total	80 (100)

Table 5 reveals the results of preferred treatment methods used by respondents to fight trypanosomosis, which could be either traditional method or the use of conventional drugs. 58 (72.5%) respondents claimed to use traditional methods in treating their infected animals, while only 22 (27.5%) admitted to using conventional trypanosomosis drugs. A particular traditional treatment method that seemed to be popular among these livestock marketers was the use of honey. They described performing it by carefully scrubbing and washing the tongue of an infected animal, and then, applying pure honey on it.

**Table 5:** Perception on preferred method of Trypanosomosis treatment

Treatment methods	No. and proportion of respondents (%)
Traditional methods	58 (72.5%)
Conventional drugs	22 (27.5%)
Total	80 (100)

The results from table 6 revealed the perception of respondents on animal classes that are most vulnerable to trypanosomosis infection. A total of 71 (88.75) respondents believe cattle are the most vulnerable group of animals to trypanosomosis, while only 1 (1.25%) respondent believed sheep are most vulnerable.

**Table 6:** Perception on animal classes that are most vulnerable to Trypanosomiasis

Animal class	No. and proportion of respondents (%)
Sheep	1 (1.25)
Goats	00 (0)
Cattle	71 (88.75)
All of the above	08 (10)
Total	80 (100)

## CONCLUSION

The result of this study demonstrates that the livestock marketers in Wudil Cattle Market have significant knowledge and perception on Trypanosomosis and its vector. This is very important if control programs are to utilize their potential in curbing and managing the spread of the disease. Although most marketers are aware of the disease and its principal vector, further enlightenment on its possible transmission routes and treatment methods would go a long way in curbing the menace of this debilitating cattle disease. Moreover, since a significant proportion of respondents believed transhumance activities were responsible for most infection in their livestock, encouraging confined grazing would play a critical role in curbing the spread of trypanosomosis.

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