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SURVEY FOR COMMON DISEASES AND MANAGEMENT PRACTICES OF DONKEYS (*Equus asinus*) IN BORNO STATE, NIGERIA

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SUMMARY

Data were collected by questionnaire from 156 donkey owners in some parts of Borno State, Nigeria. From the data obtained, back sores (43:27.6%), external parasitism (29:18.6%), helminthosis (27:17.3%), pneumonia (23: 14.7%) and foot rot (22:14.1%) were the most commonly reported diseases. Also, during the administration of the questionnaire, a total of 100 donkeys sampled from the target population were examined to assess their helminthic and haemoparasitic burden. Gastrointestinal parasites identified from the faecal analysis of 100 sampled donkeys were *Strongylus* spp (57: 57.0), *Strongyloides* spps (15:15.0%), mixed *Strongylus* and *strongyloides* spp (20: 20.0%), *Eimeria* oocyst (5: 5.0%) and *Dicrocoelium* spps (3: 3.0%) as the most common cause of parasitism. Haemoparasites were identified in only 10 of the 100 donkeys sampled with (7:7.0%) positive for *Trypanosoma* spp and (3:3.0%) were positive for *Babesia* spps. Mean haematological values of the donkeys were as follows: haemoglobin (Hb) 9.3±1.9g/l, red blood cell (RBC) count 4.9±1.9 x 10^6 µl, white blood cell (WBC) 10.2±4.0 X 10^6µ/l, packed cell volume (PCV) 29.3±4.0%, mean corpuscular volume (MCV) 67.4±24.7fl, mean corpuscular haemoglobin (MCH) 20.7±6.5pg, mean corpuscular haemoglobin concentration (MCHC) 30.7±5.3 g/dl. Gastrointestinal and haemoparasites in donkeys appeared to feature prominently 56(35.9%) when compared with other disease conditions. Proper management practices such as strategic deworming, ectoparasite control grazing management and strict surveillance for common diseases are required to improve the health status of donkeys in the study area.

KEY WORDS: *Donkeys, Diseases, Management practices*

INTRODUCTION

Despite the increase in mechanization throughout the world, donkeys still play an important role in transportation of people and goods in arid and semi-arid areas, especially where road network is poor or non-existent (Pearson *et al.*, 1999). Although donkeys are known to survive with little management, their body condition fluctuates during the year as feed supply fluctuates (Nengomasha *et al.*, 1995). For most part of the year donkeys in Botswana for example, are released to graze and roam freely and only kraaled during the ploughing season when they are required (Mushi *et al.*, 1999).

The main health problems of donkeys in Uganda were skin wounds and injuries, helminthosis, fly attacks and sudden deaths (Saul *et al.*, 1997). Donkeys are susceptible to many diseases which affect their viability and lower their ability to work (khalifa *et al.*, 1988). Hematological parameters could be employed as surrogate markers of the health status in donkeys (De Aluja *et al.*, 2006).

The present study examines the health problems militating against the general well-being of donkeys in some parts of Borno State, Nigeria vis-à-vis the influence of management practices on the prevalence of diseases.

MATERIALS AND METHODS

Study Area

This study was carried out in three Local Government Areas (Konduga, Gajiganna and Magumeri) of Borno State, Nigeria during the rainy season. Donkey owners in these study areas were administered with questionnaires and samples of faeces and blood were also taken from these donkeys for laboratory analysis.

Data collection

A survey questionnaire was designed to cover some common diseases and management problems of donkeys. The questionnaires were administered personally and donkey owners were interviewed in the local language and their responses recorded appropriately. In all, a total of 156 questionnaires with 52 allotted to each town were administered randomly to donkey owners. Blood and faecal samples were randomly collected from 100 donkeys for laboratory analysis.

Faecal analysis

Faecal samples were also collected from each donkey per rectum using polythene hand gloves in most cases when the animal was observed defecating. Samples were brought to the laboratory and examined for the presence of gastrointestinal parasites as described by Soulsby (1982). At instances where immediate examination was not feasible, the samples were preserved by refrigeration at 4°C.

Hematological analysis

Approximately (5mls) of blood was collected by jugular venipuncture into EDTA bottles. The blood was dispatched for analysis on an ice-pack within one hour of collection. Both thin and thick blood smears and haematocrit centrifuge technique (Woo, 1969) was employed in the identification of parasites. Examination of blood smears were done under oil immersion light microscopy (x100).

Haematocrit was determined by microhaematocrit technique, while red and white blood cells were counted with Neubauer haemocytometer. Wright's stain was used for white cell counts while the mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH) and mean corpuscular haemoglobin concentration (MCHC) were calculated according to Brown (1979).

RESULTS

Common disease conditions

Table I shows that out of the 156 donkey owners surveyed 43 (27.6%) reported back sores, 29 (18.6%) external parasitism, 27 (17.3%) helminthosis, 23 (14.7%) pneumonia, 22 (14.1%) foot rot, 6 (3.9%) fracture, 3 (1.9%) mange and

TABLE I: Distribution of diseases of donkeys in some areas of Borno State

Diseases/health problems	No positive	Frequency (%)
Back sore	43	27.6
External parasites	29	18.6
Helminthiaosis	27	17.3
Pneumonia	23	14.7
Foot rot	22	14.1
Fracture	6	3.9
Mange	3	1.9
Dog bites	3	1.9
Total	**156**	**100**

Gastrointestinal parasites

Out of the 100 donkeys sampled, 92 (92%) were positive for various gastrointestinal parasites. These include *Strongyles spp.* 57 (57%) *Strongyloides* spp 15 (15%), mixed *Strongyles* and *Strongyloides spps* 20 (20%), *Coccidia Oocyst* 5 (5%) and *Dicrocoelium spps* 3 (3%) (Table II).

TABLE II: Distribution of gastrointestinal parasites of Donkeys in some areas of Borno State Nigeria

Parasite	No positive	Frequency (%)
Strongylus spp	57	57.0
Strongyloides spp	15	15.0
Strongylus & Strongyloides spp	20	20.0
Coccidian oocyst	5	5.0
Dicrocoelium spp	3	3.0

Haemoparasites

Table III shows that out of the 100 donkeys sampled, only 10 (10%) were positive for haemoparasites, 7 (7%) were positive for *Trypanosoma* spp and 3 (3%) were positive for *Babesia* spps.

TABLE III: Distribution of Heamoparasites of Donkeys in some parts of Borno State

Parasite	No positive	Frequency (%)
Trapanasomoma spp	7	7%
Babesia spp	3	3%
Total	**10**	**10%**

Haematological values

The obtained values were as follows mean packed cell volume 29.3±4.0, while haemoglobin concentration 9.3±1.9, white blood cell count 10.2±2.6, red blood cell 4.9±1.9, mean corpuscular haemoglobin 67.4±24.7. mean corpuscular haemoglobin concentration 30.7±5.3 (Table IV).

TABLE IV: Haematological parameters of donkeys in some areas of Borno State, Nigeria

Parameters	Unit	Mean S.D	Range
Haemaglobin (Hb)	g/l	9.3±1.9	7.4-11.2
Red Cell Count (RBC)	x106/ul	4.9±1.9	3.0- 6.8
White Blood Cell (WBC)	x106/ul	10.2±2.6	7.6-12.8
Packed Cell Volume (PCV)	%	29.3±4.0	25.3-33.3
Mean Corpuscular Volume (MCV)	fl	67.4±24.7	42.7-92.1
Mean Corpuscular Haemaglobin (MCH)	pg	20.7±6.5	14.2-27.7
Mean corpuscular Haemoglobin Concentration (MCHC)	g/dl	30.7±5.3	25.4-36.0

Management practices

A greater number of the donkeys surveyed were managed under the extensive system of management with little or no feed supplementation in form of straw, house hold waste or grains. The donkeys were mainly used for transport or farm produce/ fire wood, fetching of water or commercial load carriage on market days. It was also noticed that majority of the donkey owners interviewed do not deworm their donkeys at all. Most of the donkeys surveyed fell in the weight range of 90 200 kg with a body condition scoring of less thin or less than moderate as described by Pearson and Quassat (1996).

DISCUSSION

This study shows that parasitism and back sores feature more prominently in donkeys in some parts of Borno State, Nigeria. This is in agreement with observation of Saul *et al.* (1997) in Uganda. The high prevalence of back sores could be due to the fact that greater number of the donkeys surveyed were either used for fetching water, conveying farm products and fire wood or used for commercial transportation of goods on market days as reported by Pearson, *et al.* (1999).

Poor management practices, such as poor housing and sanitation, inadequate nutrition and lack of veterinary services are predisposing factors to parasitism and other health problems observed in donkeys in the study area. All donkeys examined were positive for gastrointestinal parasitism partly because they were never dewormed at any stage in their life time. *Strogylus spp* were observed to feature prominently in donkeys in Sokoto (Abubakar and Mohammed, 2002) and in Botswana (Mushi *et al.,* 1999). The high prevalence of *Strongylus* spp in donkeys in this study is in line with the report of Fowler (1986) and Sewel (1990). Pneumonia and foot rot seen in the donkey population in this study may have coincided with the season of study (wet season) when these two health problems are at their peak. A similar observation was made by Rodriquez-Maldonado (1990) and Anon (1991).

Haemoparasitism appears to pose a health risk to donkeys in the study area. The hematological parameters observed in this study contradict the findings of Lewa *et al.* (1999) in a comparative study of hematological values and *Strongylus* faecal egg count in donkeys in Kenya. The plane of nutrition and level of parasitic burden may have attributed to this variation in hematological values.

CONCLUSION AND RECOMMENDATION

Poor management practices coupled with low plane of nutrition were observed to be the principal factors predisposing donkeys to parasitism and other health problems in some parts of Borno State, Nigeria. Proper housing with a semi-intensive husbandry system, good plane of nutrition, ectoparasites control and strategic deworming will go a long way in reducing the health problems of donkeys and curtailing it to a tolerable level.

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