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TRANSPORTATION OF RUMINANT ANIMALS IN BORNO STATE: WELFARE IMPLICATIONS

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ABSTRACT

A questionnaire survey on the level of awareness among ruminant transporters, sellers and buyers of government regulations regarding the welfare of ruminants during transportation was carried out. A total of 100 questionnaires were administered in four LGA of Borno state. Among the respondents, 21% were aware of government regulations regarding the welfare of ruminants during transportation while 79% were not aware. Furthermore, 26% of the respondents were involved in transportation business, 48% in buying and selling while 26% are involved in both transportation and buying and selling business. Majority of the animals were transported for sale (79%) rather than for slaughter (21%). Similarly, the study showed that injury, poor body condition, diseases, poor meat quality and death were the common complications associated with poor welfare during transportation. These conditions occur as a result of lack of implementation of existing laws and lack of awareness/ignorance of such laws by respondents.

Keywords: *Welfare Implications, Transportation, Ruminants, Borno State*

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INTRODUCTION

The intensity and specification of livestock production and demands for livestock to be marketed and slaughtered outside places where they are produced have necessitated animal transport all over the world [1]. Technological and transport stress are, the most common types of stress encountered today in the livestock industry [2]. A large proportion of all farmed animals are transported at some stage in their lives, sometimes to different destinations for rearing or slaughter [3]. Most countries have regulations for the humane transport of animals which assure a well maintained medium of transportation designed with the welfare of animals in mind and sympathetic handling by properly trained and competent personnel such as people who load and unload animals or drivers of the vehicles, border crossing inspectors, police, animal protection inspectors or the person responsible for the animal at the place of origin [4,5,6]. In Nigeria a lot of food animals especially ruminants are transported mainly by road from neighboring

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countries and from the northern to southern states of Nigeria for sale and slaughter [1]. Livestock may be transported within properties, between properties and between a property and sale yard, abattoir, feedlot and pre-export assembly depot.

Long distance transport and poor handling of animals impose stress on animals, compromising their welfare and health and ultimately reducing meat quality [7]. At the same time, societal concern is increasing to improve animal welfare, meat quality and safety, and environmental impact of transport activities in the production chain of meat. Collecting animals from many farms requires a dynamic planning process that takes into consideration road conditions, climate, traffic conditions, transport time and distance, queuing at the gate of the abattoir for unloading, etc [7]. All these aspects are potentially stressful for animals.

Transport has a negative impact not only on animal welfare and subsequent meat quality, but also on the environment in the form of emissions emanating from haulage vehicles [8,9]. Health is an important part of welfare whilst feelings such as pain, fear and various forms of displeasure are components of the mechanisms for attempting to cope and so should be evaluated, where possible, in welfare assessment [2,10,11]. The facilities containing the animals on the vehicle should be designed, constructed, maintained and operated in such a way as to minimize the risks of physical injury caused by falls, knocks, bruising and the protrusion of body parts. Risks to animal welfare can further be minimized by careful handling during loading and appropriate stocking density. Stocking density can also be managed to lessen the impacts on animal welfare caused by hot conditions. In a well-ventilated vehicle, it is the stationary periods rather than periods in motion that present the greatest risk of heat stress. Improper handling during transportation of animals may result to bruising, lacerations and other superficial blemishes which lead to down grade of carcasses from such animals [12].

Basic information on the economic and welfare implication of road transport of food animals in Borno State is lacking. Therefore, there is need for basic information on welfare and economic implications as a result of transporting food animals especially ruminants in Borno state.

MATERIALS AND METHODS

The study was conducted in Borno State. The study sites within the State were randomly selected and these included Maiduguri Metropolitan Council (MMC) and Jere, Marfa and Konduga Local Government Areas of Borno State, Nigeria.

Sources and types of animals studied

The animals studied included all large and small ruminants in the study area irrespective of age, breed and sex. Ruminants owned by both government and private individuals in the study areas were also investigated.

Questionnaire preparation and administration

Well structured questionnaires containing information such as methods of transporting these animals, how they were transported and arranged during transportation, problems encountered as well as the level of awareness of the animal handlers with regards to government regulations concerning animal transport were used for this investigation. The questions were a mixture of types with both close and open answers. The target individuals were livestock (ruminant animal) marketers, rearers, transporters, buyers and sellers. Besides the information collected through questionnaires, pictures were also taken to note the various ways in which these animals were loaded, transported, off-loaded and handled during buying and selling. Data from the questionnaires were collated and analyzed using simple percentages.

RESULTS

The survey revealed that the level of awareness among ruminant business practitioners on animal welfare regulations, especially welfare of animals during transportation, was low. According to Table 1, only 21% were aware while 79% of them were unaware of the existence of such regulation. The study revealed that animals are mainly transported by land in Borno state. Majority of the respondents transport their animals by Lorries (44%), followed respectively on foot (16%), by trailers (13%), by cars (13%), on motor bikes (9%) and on bicycles (5%) (Table 3). Most of the transported animals were males (85%) while only 15% of them are females. Table 2 shows that the respondents transport animals for sale (89%), slaughter (38%) or relocation to a new environment (5%). Among the animals transported, 65% were healthy while 35% were apparently sick animals being transported to the abattoir for slaughter or to nearby market for sale (Table 4). The problems encountered during transportation included injuries (50.4%), starvation (37.2%) and deaths (12.4%) (Table 4). Deaths were either due to disease (34%) or other undetermined causes (66%). It was also observed that these animals were frequently beaten and mishandled during transportation (Fig 3 and 4).

Table 1. The level of awareness of animal business operators to government regulations on the transportation of animals.

LOCAL GOVERNMENT AREA	YES	NO	Total
KONDUGA	1 (4.8)	29 (36.7)	30
MARFA	2 (9.5)	35 (44.3)	37
JERE	16 (76.2)	4 (5.1)	20
Maiduguri Metropolitan Council	2 (9.5)	11 (13.9)	13
TOTAL	**21 (21.0)**	**79 (79.0)**	**100**

Table 2. Reasons for transporting animals in Borno State, Nigeria.

LOCAL GOVERNMENT AREA	RELOCATION	SALES	SLAUGHTER	TOTAL
Konduga	2 (40)	26 (29.2)	11 (28.9)	39
Marfa	2 (40)	35 (39.3)	15 (39.5)	52
Jere	0	16 (18)	12 (31.6)	28
Maiduguri Metropolitan Council	1 (20)	12 (13.5)	0	13
Total	**5 (3.8)**	**89 (67.4)**	**38 (28.8**	**132**

DISCUSSION

The results of this investigation revealed that most of the animal transporters, buyers and sellers are not aware of the laws concerning transportation of animals and animal welfare. This fact could clearly be seen in the way these animals were transported and handled in transit. The animals were also transported without restraint and sometimes unaccompanied in contravention of the extant laws that animals should be properly restrained while on transit and while on a vehicle must be accompanied by an attendant responsible for their care and control [13]. Although some of the animals were transported along with attendants, these attendants constantly flogged the animals as a form of restraint hence inflicting bruises on them. This observation suggests that the attendants do not know how to handle these animals during

transportation. According to the law, road vehicles carrying livestock should be inspected by border crossing inspectors, the police, or animal protection society inspectors in order to check vehicle design, conditions of animals, or other compliance with legislation. However, most inspections of transported animals are those carried out by the person responsible for the animals at the place of origin [14].

Table 3: Level of patronage of the different medium of Transportation in some Local Government Areas of Borno state, Nigeria.

LGA	MEANS OF TRASPORTING THE ANIMALS (%)							
	Rail	**Foot**	**Car**	**Motorbike**	**Lorry**	**Bicycle**	**Trailer**	**Total (%)**
Konduga	0	5 (31.3)	6 (46.15)	2 (22.22)	17 (38.63)	0 (0)	0 (0)	30
Mafa	0	7 (41.17)	3 (23.07)	3 (33.33)	17 (38.63)	4 (80)	3 (23.07)	37
Jere	0	1 (5.88)	2 (15.38)	1 (11.11)	6 (13.63)	0 (0)	10 (79.9)	20
MMC	0	3 (17.64)	2 (15.38)	3 (33.33)	4 (9.09)	1 (20)	0 (0)	13
Total	**0**	**16 (100)**	**13 (100)**	**9 (100)**	**44 (100)**	**5 (100)**	**13 (100)**	**100**

Table 4. Health status and challenges of transported ruminants in some LGA of Borno State, Nigeria.

Health status/ Challenge	Number (%)/Local Government Area				
	Konduga	**Mafa**	**Jere**	**MMC**	**Total**
Health status					
Healthy	18 (27.7)	20 (30.8)	14 (21.5)	13 (20.0)	65
Sick	12 (34.3)	17 (48.6)	6 (17.7)	0	35
Health Challenge					
Death	5 (29.4)	8 (47.1)	4 (23.5)	0	17
Injury	17 (24.6)	30 (43.5)	14 (20.3)	8 (11.6)	69
Starvation	17 (33.3)	18 (35.3)	9 (17.6)	7 (13.7)	51

The results further revealed that these vehicles used for transporting animals were not properly designed to protect the animals. High ambient temperatures affect animal welfare during transportation and may lead to loss of body weight by up to 10.6% [15]. Long-term transportation of livestock by road across various ecological and climatic zones imposes many stressors upon such animals. These stressors include; rough handling during loading and unloading, deprivation of food and water, poor vehicle design, poor road conditions, extremes of temperature and humidity, overcrowding, mixing different species and age groups, high air velocity, noise, motion, vibration and length of the journey. The stress reactions overtax the body systems and cause reduction in fitness of the animal by inducing dysfunctions of the pituitary, adrenal and thyroid glands [16].

Apart from flogging these animals and the lack of restraint, the injuries recorded during this study were also attributed to transportation of different animals (in relation to size and sex) together in a single vehicle. According to Kenny and Tarrant [17], an important behavioral measure of welfare when animals are transported is the amount of fighting that they show. This fighting is a consequence of social mixing rather than the transport itself. When adult male cattle are mixed during transport or in lairage they may fight and this behavior can be recorded directly [17]. Health is an important part of welfare and any increase in disease means poor welfare [18].

Although indicators of poor welfare may not necessarily mean poor health at that time, they may indicate a risk of poor health in the future [14]. In addition, however, the transmission of some pathogens is more likely because of various aspects of animal transport procedures [14]. Where poor welfare associated with transport of animals is prevented, there is an immediate financial advantage because mortality rates and carcass downgrading are reduced.

To improve animal welfare during transport, stress should be minimized. This could be done by reducing the factors that induce stress during loading, transport and unloading and also by minimizing or avoiding transport by promoting small-scale local abattoirs or developing mobile or semi-mobile abattoirs [18]. Transportation of food animals is of great concern due to several reasons [16,19,20]. Firstly, it can cause severe stress in animals, if due welfare conditions are not provided. Secondly, stressful transportation may adversely affect meat quality. Thirdly, there is the risk of spread of infectious diseases over large distances. For example, 'shipping fever' is a term commonly used for a specific transport-related disease condition in cattle. It develops between a few hours and 1-2 days after transport. Several pathogens may be involved and these include *Pasteurella* species, bovine respiratory sycyntial virus, infectious bovine rhinotracheitis virus and several other herpes viruses. Para-influenza 3 virus and a variety of pathogens such as rotaviruses, Escherichia coli and Salmonella species associated with gastrointestinal diseases may also be involved [21].

Fourthly, animal health can be impaired by various pre-transport and transport conditions that may cause injury, reduced performance, increased morbidity and mortality rate of various diseases and consequently substantial economic losses due to loss of live weight and poor meat quality [19, 22,23].

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