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VEHICLE TYPES, TRANSIT TIME AND STOCKING DENSITY OF VEHICLES TRANSPORTING CATTLE INTO AKINYELE INTERNATIONAL CATTLE MARKET, IBADAN, NIGERIA.

P.L. Komolafe*, O.J. Babayemi*, K.A. Thomas**,

*Department of Animal Science, University of Ibadan, Nigeria**

*Department of Agricultural Extension and Rural Development***

*Corresponding Author: priskomolafe3@gmail.com
[08036106690](tel:08036106690)

Abstract

Transportation is an inevitable event in an animal's life. However, it has been tagged one of the most stressful experience an animal goes through. Akinyele international Cattle Market Ibadan (AICM) was used for the study over a period of five consecutive weeks. Data were obtained from 7.00am – 7.00pm using direct observation with the aid of checklist and information on number of cattle, vehicle type, transit time and stocking density were obtained. Data were analysed using descriptive statistics SPSS 20. The study revealed that a total number of 554 vehicles brought 11635 cattle into AICM from 13 states in which Kebbi had the highest number of cattle (66.4%) and Kogi the least (0.1%). Four Vehicle types were commonly used with the highest being articulated Mistibushi Canter (44.6%) while articulated Mistibushi Nisan Fuso Canter (2.2%) the least. Among the 13 states from which cattle were transported to AICM, the highest Transit Time (hours) was from Yobe (24.35 ± 0.2) while the least was from Kwara (4.39 ± 0.4). The highest stocking density (m^{-2}) was observed on the Articulated Nisan Canter Pisset (1.8) while the least (1.2) was from articulated Long Trailer and Articulated Short Trailer. The study revealed that cattle were transported for long hours using different vehicle types with high stocking density.

Keywords Vehicle types, Stocking density, Transit time, Akinyele International Cattle Market

Introduction

The constant and consistent transportation of cattle on bad motorable road and in vehicle meant for goods and passengers is becoming a major concern in the Nigerian livestock industry. Adenkola *et al.* (2009) reported that in Nigeria, animals are usually transported in vehicles meant to carry goods and passengers and alongside passengers in them. Cattle owners usually make use of available vehicle to transport cattle to different destination over a long distance without food and water and possibly not considering the comfortability of the vehicles which could compromise the welfare of the animals. Knowles *et al.* (1999); Minka and Ayo (2017) described this means of transportation to be inappropriate and contravened the standard recommendation of transporting cattle. Negligence of the health status of cattle during transportation especially over a long distance travel has been known to have a significant detrimental effect on the general well being of cattle (Ritter *et al.*, 2008). The use of unsuitable vehicles to transport cattle could often lead to traumatic injuries such as bruised skin, injured horn, injured legs twisted necks and also suffocation that can cause death. Injuries and death sustained in transit does not only compromise the welfare of an animal but also contribute serious economic loss to the cattle owners. This study was therefore designed to assess the transportation systems of cattle transported to Akinyele International cattle Market, Ibadan Nigeria.

Materials and methods

The study was carried out at Akinyele International Cattle Sheep and Goat Market, Akinyele LGA, Ibadan, Oyo State, Nigeria. Akinyele is located about 19 kilometers north on the Ibadan – Oyo road in 7.5309° N latitude and 3.9110° E longitude with annual rain fall of 1,250mm. The study area was purposively selected due to its centrality to the south western states and with its significant high population of cattle. The study was carried out for a period of five consecutively weeks (Monday to Sunday). Direct observation with the aid of checklist, measuring tape and camera was used to obtain relevant information on Takeoff state, Number of cattle transported, Vehicle types, Distance covered



and stocking density of all vehicles that brought cattle to the study area within 7am-7pm daily. Data obtained were analysed using descriptive statistics SPSS 20.

Results and discussion

Presented in Table 1 is the take-off states, Number of vehicles and cattle transported to AICM from various states in Nigeria. The result revealed that 11,635 cattle were brought to the AICM from 13 states in Nigeria with the highest from Kebbi (66.8%) and the least from Kogi (0.1%). Most of the cattle transported were from the Northern states, except for Niger (18.4%), Kwara (0.3%) and Kogi (0.2%), which are in North central. A total number of 554 vehicles brought cattle to the market with the highest still from Kebbi (68.4%) and the least from Kogi (0.2%). The large number of cattle transported to Akinyele market could be due to the centrality of the market to South Western states. Filani 2005 reported that Akinyele is an age long market which had been in existence for over 20years. The population of cattle transported to the study area from Kebbi state could be due to the fact that the state is closer to the borders (i.e. the Niger and Benin) where cattle are being imported into the country. Rim (1992) reported that Kebbi state is one of the states in Nigeria blessed with abundance of livestock resources especially cattle, sheep and goats. The least number of cattle transported from Kogi state could be because state is not known for commercial livestock production compared with the Northern states

Table 4. 1 Take-off states, population of vehicles and cattle transported to Akinyele International Cattle Market, Ibadan

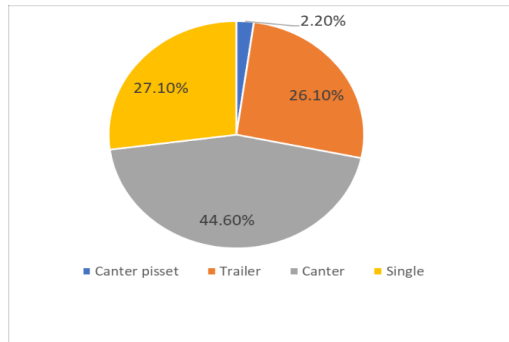
State	Frequency		Percentage	
	Vehicle	Cattle	Vehicle	Cattle
Kebbi	409	7773	68.4	66.8
Niger	112	2144	18.7	18.4
Yobe	10	350	1.7	3.0
Sokoto	13	341	2.2	2.9
Zamfara	36	555	6.0	6.0
Bauchi	2	81	0.3	0.4
Kano	6	164	1.0	0.9
Katsina	2	34	0.3	0.4
Kaduna	2	67	0.3	0.4
Jigawa	2	47	0.3	0.4
Borno	1	32	0.2	0.2
Kwara	2	35	0.3	0.4
Kogi	1	12	0.2	0.2
Total	598	11635	100	100

Source: Field survey 2018

Different types of vehicles that offloaded cattle at AICM is shown in Figure 1. It was observed that four different vehicle types were consistently used in transporting cattle to the study area. The most frequently used vehicle was the articulated Mitsubishi Canter (44.6%) followed by articulated Short



Trailer (Single) (27.1%), articulated long Trailer (26.1%) and articulated Nissan fuso canter pisset (2.2%). The Canter vehicle was observed to be the smallest in size of all the vehicles used this could be because they are fast moving vehicles with shorter transit time. The different vehicle types used in transporting cattle to AICM could be the available vehicles at the markets to transport to various destinations. However, conveying cattle in such vehicle might constitute a serious abuse to the animal's welfare and should be discouraged. Adenkola *et al.* (2008) reported that in Nigeria, animals are usually transported in vehicles meant to carry goods and passengers. Knowles *et al.*, 1999; Minka and Ayo, 2017 described this means of transportation to be inappropriate and contravened the standard recommendation of transporting cattle in well-articulated lorries with adequate space, ventilation and bedding materials. The cost of purchase of standard vehicles might be high as individuals might be unable to afford it.



Shown in Table 2 is the transit time of vehicle to AICM. The least minimum TT was from Kwara 3hr while the highest was from Borno (21.30hr). Also for maximum time spent, the minimum hours used on the road was from Kwara State (5.0h) while the maximum was from Yobe (28.55h). The average time taken was from Kwara 4.39±0.4 while the highest from Yobe 24.4±0.2. Most of the vehicles spent more than the recommended transit time of eight hours according to the international standards (Knowles *et al.*, 1999) this could suggest that the journey was stressful and may compromise the cattle welfare. Factors that contributed to long hour road transport according to the drivers were distance of the market location, nature of road, security, revenue checkpoints, vehicle breakdown, traffic jam on the road etc. cattle were transported without food and water. Welfare of Animal Transport Order (1997), reported that it is unethical to transport cattle for more than eight hours without food or water and offloading for one-hour rest before continuing the journey. Several studies have reported significant loss of weight in animals transported for long distance without food or rest (Ritter *et al.*, 2008).

Table 4. 2. Transit time (TT) of cattle Transported to Akinyele International Cattle Market

State	Minimum	Maximum	Mean and standard deviation
Bauchi	15.30	20.25	18.50 ± 1.9
Jigawa	15.45	20.10	18.20 ± 1.4
Kebbi	12.35	16.54	14.49 ± 1.0
Niger	9.00	11.00	10.33 ± 1.9
Sokoto	14.00	20.00	16.33 ± 1.9
Yobe	15.43	28.55	24.35 ± 0.2
Zamfara	15.00	20.00	18.75 ± 2.6
Katsina	16.37	20.45	18.25 ± 2.0
Kogi	8.00	11.00	9.50 ± 2.3
Kwara	3.00	5.00	4.39 ± 0.4



Borno	21.30	24.55	23.85 ± 2.2
Kano	15.08	20.22	17.20 ± 2.5
Kaduna	10.40	16.42	15.53 ± 0.6

Source: Field survey

Table 3 shows the dimension of different vehicles and cattle density transported to AICM. Articulated long Trailers (ALT) had the highest loading space (m^2) 31.5 ± 0.0 , followed by Articulated Short Trailer 22.6 ± 0.0 , Articulated Nisan fuso Canter pisset (ANCP) 9.6 ± 0.0 and Articulated Mistubishi Canter (AMC) 8.8 ± 0.0 , respectively. However, ANCP had the highest stocking density SD (m^2) of 1.8 followed by AMC, ALT and AST at 1.4, 1.2 and 1.2 respectively. The average number of cattle carried per vehicle were 10, 17, 28 and 38 by AMC, AMCP, AST and ALT vehicles, respectively. The stocking density of vehicles observed in the present study was higher than the values of $1.55m^2/animal$ and 0.3 to $1.3m^2/animal$ reported for temperate (Knowles *et al.*, 1999) and for different breeds of *Bos indicus* cattle in Africa (Minka and Ayo, 2010), respectively. Chamber and Grandin (2001) recommended a floor spacing of 1.0 to 1.4 and 0.3 for mature and small cattle, respectively in temperate region. This suggests that cattle were overcrowded inside the vehicle, which could result into injuries, heat stress, and even death. Overcrowding of cattle in vehicle could be because the stockholders were more interested in maximizing profits than the welfare of the cattle. However, cattle owners should be aware of possible death in transit, thus ensure healthy animals are sourced, which can withstand pressure of bad road and long-distance of travel.

Table 4. 3. Vehicle types, dimension and cattle stocking density transported to Akinyele International Cattle Market, Ibadan

Vehicle type	Vehicle dimension			Average number of cattle	Cattle density (m^2)
	Length (m)	Breath (m)	Area (m^2)		
AMP	4.4 ± 0.0	2.0 ± 0.0	8.8 ± 0.0	10	1.4
ANCP	4.8 ± 0.0	2.0 ± 0.0	9.6 ± 0.0	17	1.8
AST	7.8 ± 0.0	2.9 ± 0.0	22.6 ± 0.0	28	1.2
ALT	11.9 ± 0.0	2.7 ± 0.0	31.5 ± 0.0	38	1.2

Source: Field survey 2018

* AMP: Articulated Mistubishi Canter * ANCP: Articulated Nisan fuso Canter pisset * AST: Articulated Short Trailer * ALT: Articulated long Trailers

Conclusion

In conclusion, cattle were mostly transported from Kebbi state (66.4%), Articulated Mistubishi Canter (44.4%) was mostly used for transportation. The highest transit time was from Yobe state (24.0 ± 0.2) and the least from Kwara. Stocking density was highest in Articulated Nisan Fuso Canter ($1.8m^2$).

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