# NIGERIAN JOURNAL OF ANIMAL PRODUCTION



Published by THE NIGERIAN SOCIETY FOR ANIMAL PRODUCTION

**VOLUME 40** 

**2013 NUMBER 1** 

# NIGERIAN JOURNAL OF ANIMAL PRODUCTION

# Editor-In-Chief Dr. O. A. Adeyemi Deputy Editor-In-Chief Dr. O. J. Babayemi OFFICERS OF THE NIGERIAN SOCIETY FOR ANIMAL PRODUCTION 2012-2014

President .	-	Prof. C.F.I. Onwuka
Vice President	-	Dr. A. O. Ani
Secretary	-D: (M	Dr. F. O. Abeke
Assistant Secretary	-	Dr. (Mrs.) L.A.F. Akinola
Editor-In-Chief	O VISION	Dr. O. A. Adeyemi
Deputy Editor-In-Chief	A Provide A.C.	Dr. O. J. Babayemi
Treasurer	Dr.A.C	Dr. S. B. Abdu
Public Secretary	-Dr. C.1	Dr. A.O. Abu
Ex-Officio	-Dr. J. T	Prof. Udo Herbert

#### **Editorial Board**

# Prof. Udo Herbert Dr. O. A. Adeyemi Dr. O. J. Babayemi Dr. A. A. Taiwo

The Nigerian Society for Animal Production was inaugurated in March 1973 during the first International Symposium on Animal production in the Tropics at the University of Ibadan, Ibadan, Nigeria. This Society is responsible for the publication of the Nigerian Journal of Animal Production which commenced the publication in 1974. The journal publishes two issues in a year. This present issue features the biography of one eminent personalty as mark of honour to him.

#### Membership

Membership of the Society is open to all that are engaged or interested in any aspect of Animal Production including Fisheries and Wildlife Management from all over the world. Interested individuals organizations or institutions should apply for membership to the Secretary of the Society.

#### Subscription and Advertising:

The current annual subscription is N1,500 for non – members and N2000 for organization and institutions within the country. It costs one hundred and twenty eight US Dollars (US \$128) for subscription outside Nigeria. Correspondence concerning subscriptions and purchase of single or back copies of the journal should be addressed to the Deputy Editor-in Chief, Nigerian Journal of Animal Production Dr. O. J. Babayemi, Department of Animal Science University of Ibadan, Ibadan, Nigeria, E-mail: oj.babayemi@mail.ui.edu.ng.

#### Manuscripts

All manuscripts and correspondence concerning the journal should be sent to Editor-in-Chief, Dr O.A. Adeyemi, Department of Animal Production and Health, Federal University of Agriculture, P.M.B. 2240, Abeokuta. Email: olajideadeyemi@yahoo.com. Manuscripts are invited from all over the world as long as they are original research reports on any aspect of Animal Production and Health. All authors' name in the references must be in bold lower case letters except the first letter of each surname. The surname must be followed by the initials in all cases irrespective of the number of authors. Tables and legends for figures must be typed on separate sheets. Tables must be numbered, title written in lower case letter (except the first letter) and left justified. Horizontal and vertical lines within the tables are not acceptable. Submissions on computer disc(CD) are also acceptable.

# NIGERIAN JOURNAL OF ANIMAL PRODUCTION

Pier, C.F.I. Onwing Da A. O. Ani Dr. F. O. Abuka Dr. O. A. Adeyami Dr. O. I. Babayami Dr. S. B. Abdu Dr. A. O. Abu

# **ISBN 0331-2064**

Typeset and formatted by Azol Computers Department of Animal Production and Health University of Agriculture, Abeokuta 08036250504

any argent of Animal Protection

Printed by Lynson Prints No, 31 Sokenu Rd. Oke-Ijeun, Abeokuta 08033928540, 08175608494

# Published by THE NIGERIAN SOCIETY FOR ANIMAL PRODUCTION

Abstracted in (I) CABS (ii) African Journal Online (ajol) http://www.inasp.info/ajol

# AKNOWLEDGEMENT OF THE REVIEWERS OF ARTICLES IN VOLUME 40, (NUMBER 1) 2013 OF THE NIGERIAN JOURNAL OF ANIMAL PRODUCTION

The Editorial Board wishes to express appreciations and thanks to the following reviewers who have helped in the assessment of articles published in Volume 40, Number 1, 2013 of the Nigerian Journal of Animal Production

iii

Dr. (Mrs) I.O. Taiwo

Dr. (Mrs.) O.O.O. Adewumi Dr. A.M.K. Ogungbesan Dr. A.O. Adebambo

Dr. A.O. Talabi Dr. F.A.S. Dairo Dr. M.A. Adeleke

Dr. O.A. Adeyemi Dr. O.J. Babayemi Dr. O.S. Akinola Dr. T.A. Amole

Prof. A.M. Bamgbose Prof. C. Bartoski

Prof. J.A. Agunbiade Prof. M.A. Bamikole Dr. (Mrs) K.A. Sanwo Dr. A. O. Ladokun Dr. A.O. Abu Dr. A.O. Fasae

Dr. C.T. Ezeokeke Dr. L.T. Egbeyale Dr. M.N. Bemji

Dr. O.J. Babayemi Dr. O.M. Sogunle Dr. O.S. Sowande Prof. G.T. Iyeghe- Erakpotobor

F.O. Abelot, G.S. Bawa, and M.H. Bot

Prof. B.O. Esonu Prof. C.N. Carew

Prof. L.N. Agwunobi Prof. O.O. Oduguwa

# Volume 40, Number I, 2013

TO LAND TABLE OF CONTENTS AND A DALLOY

CONTENTS	Volume 40, Number I, 2013	PAGES
Abrief biography of	Professor M.M. Abubakar PhD, FNSAP	The Editorial E
aBreeding and Genet	ics	
Shared variability in b indigenous piglets <b>D. M. Ogah</b>	ody shape characters at growing phase of	Dr. (Mrs) I.O. Dr. (Mrs.) - <b>ð</b> r. A.M.K.
Effect of maternal haer	moglobin variants and lamb genotype on	
pre-weaning growth r. A.O. Iyiola-Tunji, G.	ate of sheep of northern Nigerian and their crosses N. Akpa, B.I. Nwagu and I.A. Adeyinka	Dr. A.O. Talal II: P.A.S. Da Dr. M.A. Ade
Animal Physiology	yemi (Vaturero) hun realite(0.1. Babaye	Dr. O.A. Ade
Effect of testosterone enanthate on the growth rate of large white pigs reared in south-west Nigeria A. O. Ladokun 19		
Physiological and haer	matological responses of broiler chickens offered	
cold water and vitamir M. O. Abioja, O. A. C	n C during hot-dry season Dsinowo, O. F. Smith and Daisy Eruvbetine	gA Al los A A 24
Non Ruminant Anim	al Production and Management	
Energy partitioning for stylosanthes forages s	r growth by rabbits fed groundnut and upplemented with concentrate	
F. O. Nwagu and G. I	1. lyeghe-Erakpotobor	37
Haematological, serum	n and carcass characteristics of broiler chicken fed inia kola (bitter kola) used as phytobiotic	
R. A. Sobayo, O.A. A O.G.,Sodipe, I. M. Og	deyemi, A.O., Oso, A.O . Fafiolu, , J.O. Daramo gunade and O.M. Odetola	ola, 48
Response of broiler ch	ickens to graded levels of locust beans (Parkia bigl	<i>lobosa</i> ) pulp
meal.	and MII Dat	57

Effect of dietary L- Carnitine supplementation of diets containing cashew nut reject meal by broiler chickens A. O. Fafiolu, A. O. Oso, O. M. O. Idowu, A. V. Jegede, R. A. Sobayo and O. O. Oduguwa 67 Effect of different combination levels of palm kernel cake, yam peel and plantain peel meals as partial replacement for maize in broiler starter diets. E. B. Etuk, B. Anopueme, I. F. Etuk, J. S. Ekpo, O. O. Emenalom and 73 B. O. Esonu Performance of local fowls fed plantain peels meal C.T. Ezeokeke Effect of fibre and digestible energy levels on growth performance, apparent nutrient digestibility and caecal fermentation of growing rabbits S.O. Osho, A.O. Oso, I.E. Akpan, T.A Ayanniyi, I.M. Ogunade A.V Jegede, R.A. Sobayo, A.A Adegbenjo and S.O Durosaro 83 Effects of replacing groundnut cake with Gmelina arborea leaf meal in the diets of growing rabbits A.A. Adeniji 96 Effect of egg weight and oviposition time on hatchability and post hatch performance of Japanese quail (Coturnix coturnix japonica) L. T. Egbeyale, H. O. Fatoki and O. A. Adeyemi 102 102 **Ruminant Animal Production and Management** Use of Tannin Containing Browse Tree/Shrubs in the Control of Intestinal Parasites (Helminthes) in Small Ruminants: Review S.B. Abdu, O.W. Ehoche, A.M. Adamu, G.E. Jokthan, M.R. Hassan and H.Y. Adamu 111 Availability and Estimation of Crop by-product yields for small ruminant Production in Cross River State, Nigeria G.A. Kalio, L.N. Agwunobi, A. A. Ayuk and C. A. Eneji Nutritive value, growth performance and haematological parameters of West African dwarf sheep fed preserved pineapple fruit waste and cassava by-products B.O.Oduguwa, G.O.Sanusi, O.A. Fasae, O.A. Oni, O.M. Arigbede 123

Effect of Sole Maize and Maize –Lablab Silage on the Ruminal Volatile Fatty Acid (VFAs) of grazing Calves in the Dry Season	S
T. A. Amole,, B. O. Oduguwa, A. O. Jolaosho, O.S Onifade,	
O. M. Arigbede, J.A. Olanite, V.O.A. Ojo, P.A. Dele, R. Y. Aderinboye,	1 000
O.J. Idowu and B.T. Akinyemi	133
Unethical evidence against cattle dignity during loading, transportation and off-loading by livestock marketers in Ibadan metropolis, Nigeria <b>P. L. Akinyemi, O. J. Babayemi, O. A. Abu and M. K. Bamikole</b>	144
Direction and Genetics	10.38
Nutrient and Anti-nutritional constituents of <i>Penisetum purpureum</i> and four indigenous Tree legume of South-Western Nigeria: A Potential Ruminant Feed.	
L. A. Omoniyi, O. A. Isah, R. A. Olorunsola, O. A. Osofowora,	
R. M. Akinbode, K. O. Yusuf and J. A. Olanite	152
Accessing the nutritional composition and phytochemical screening of Panicum maximum and Newbouldia laevis leaves	
A. O., Yusuf, O. S. Sowande, O. M. Sogunle, V. A. Akinbami,	
O. O. Oyebanji, O. A. Yusuf, D. A., Ekunseitan, K. A. Adeleye and	
A. B. J. Aina	161
2 of replacing glouisant is a solution of the mean press	
Performance of traditionally-managed Bunaji (White Fulani) cattle under smallhold dairy production systems in Oyo State, South-West, Nigeria	ler
O. A. Olafadehan, M. K. Adewumi and A. A. Busari	168
Chemical Composition, Secondary Metabolites, In Vitro Gas Production Characteristics and Acceptability Study of Some Forage for Ruminant Feeding in South-Western Nigeria	
KOVusuf OAlsah OM Arighede AO Oni and CEL Onwuka	170
A.O. Tusui, O.A Isan, O.A. Angocuc, A.O. On and C.A.I. Onwuka	115
and second second is a second s	
Fisheries Management	
Assessment of Heavy Metals Concentration in the Intestine, Kidney and Muscle of	(Helm S.Byd
F.I. Adeosun, A. A. Akinyemi, W.O. Abdul, A.O., Agbon and O. C. Odebiyi	191
Assessments of fish catch composition of marine artisanal fishery in the Gulf of Guinea. Southwest Nigeria	
D. O. Odulate, I. T. Omoniyi and Y. Akegbejo-Samsons	197
ive value, growth performance and intentationical party prior of AT and the bar	
Livestock Economics and Extension	
Assessment of market performance of cat fish farmers in Sagamu local government area of Ogun State Nigeria	
In these tak, have and hill but	
vi	

### M.A. Oladoja and O.A. Adeokun

# **Feed Resources**

Vitamin and mineral analysis of fish liver oil, some locally available spices and vegetables S.A Bolu, O.O Balogun and F.E. Sola-Ojo

### **Animal Products**

Effect of finisher diets treated with organic acids on carcass and internal organs of broiler chickens E.K. Ndelekwute, K.U. Amaefule, H.O. Uzegbu, and C.O. Okereke 224

Keynote paper presented at 37<sup>th</sup> Annual Conference of NSAP -2012 Valentine A. Aletor 218

232

© 2013 Nigerian Society for Animal Production

Nigerian Journal of Animal Production

Unethical evidence against cattle dignity during loading, transportation and off-loading by livestock marketers in Ibadan metropolis, Nigeria

P. L. Akinyemi<sup>1</sup>, O. J. Babayemi<sup>\*1</sup>, O. A. Abu<sup>1</sup> and M. K. Bamikole<sup>2</sup> <sup>1</sup>Department of Animal Science, University of Ibadan, Nigeria <sup>2</sup>Department of Animal Science, University of Benin, Benin City, Nigeria \*Corresponding author oj.babayemi@mail.ui.edu.ng

#### Abstract



Some activities that showed unethical practices against cattle during loading, transportation and off-loading were considered in this paper. Three major cattle market centres (Akinyele, Bodija and Oranyan) in Ibadan metropolis were used. Eighty (80) structured questionnaires were randomly administered to the cattle handlers to collect data on systems of loading, transportation and off-loading of the animals. Visual observations, head counting and image capturing of the animals on board were made. Cattle were transported by road (100%) using different kinds of vehicle including open roofed trailer, truck, saloon cars and buses with different capacities. Cattle were arranged to stand for days under sun and rain untill the final destination. Over 94% of respondents transported their animals in 1-3 days. Also, 60% parked breeds, different sizes, horned and polled cattle together in the same truck during transportation, 3.75%, 5%, 7.5% and 83.75% of handlers respectively transported their cattle in the morning, afternoon evening and at any time of the day. Cattle were loaded and off-loaded by dragging, pulling and pushing. It is concluded that there were no standard systems of transportation, loading and off-loading of cattle as animals were exposed to inclement weather and hardship.

Keywords: Unethical evidence, cattle dignity, loading, transportation and off-loading.

# Introduction

Specific studies on animal welfare and ethics in Nigeria, such as transportation is scanty. Good transportation is central to the calmness, control, admiration and the general welfare of livestock. In some countries of the world, there are laws guiding the very right of animals and standards in all activities relating to their production and managements. In Nigeria, there is no particular law relating to farm animal ethics and welfare but the right of animals under captivity or domestication has been defined by both criminal and penal codes that animals have right to be free from freedom to express normal behaviour. Babayemi and Bamikole (2010) observed that certain animals under confinement were deprived of essential necessities as comfortable space and quality diet and further expressed that in Nigeria, animal welfare and ethics were rarely enforced, not seen as quality control, thereby exposing the animals to all forms of treatment and consequently, not meeting the overall wellbeing of the society at large. This means that it is the prerogative of livestock producers and handlers to oppose callous treatment of farm animals at any stage of their life, especially during transportation. Ethical

hunger, discomfort, fear and distress and

Un ethical evidence against cattle dignity during loading, transportation and off-loading by livestock marketers

verdicts regarding the handler's our duties to animals are made at different levels within a community and society at large.

In the face of public concern about animal exploitation, animal scientists are increasingly questioning about the welfare of animals used in commercial production systems. The professional advice given by the animal scientists who have the expertise in animal welfare as regards animal production practices such as transportation, slaughtering and on-farm husbandry procedures are essential. Most animals often spend a fraction of their lifetime being transported from one place to another and therefore, constitute the most stressful experience they have. The novelty of being handled and transported can cause anxiety, fear and stress, making the animals more difficult to handle and thus tempting the handlers to become physically abusive. Often, in transportation, livestock handlers should handle the animals them gently and have a proper attitude about their treatment.

The European Union Legislation established the rules on transporting livestock, which include requirements on vehicles, water, feed, rest, and transporter competence. In addition to these assersions, Defra (2006) report that animals on transportation should be unequivocally free from injury, unnecessary suffering and generally fit to travel.

In Nigeria, the trends for transportation activities, systems and standards on livestock movement from long and short distances are not known. The only animal right protection organization in Nigeria is the Nigeria Society for the Prevention of Cruelty to Animals (NSPCA), but may be said to be moribund since its activities are unknown in the society. In advanced countries, where livestock production is well developed, there are clear and well defined specifications on the type of vehicle to use, distances to cover and the general welfare of the animals during the process. The Welfare of Farmed Animals, England (Regulations 2007) details the minimum standards under which farm animals must be kept. The philosophical study of animal ethics and welfare seeks to give people the general guidance concerning what to do. what to seek and how to treat animals (Kai, 1962). Similarly, the Philippines Animal Welfare Act of 1998 provides some regulations of the treatment of sentient animal species (Favre and Hall, 2004) and is very operational till date. This legislation covers the rules on transporting livestock. including requirements on vehicles, water, feed, rest, transporter competence and documentation. The present study was designed to evaluate the loading, transportation and off-loading systems in Ibadan metropolis of Nigeria.

# **Materials and Methods**

Three cattle markets in Ibadan metropolis were used in order to assess some unethical practices carried out by the cattle handlers in the areas. The cattle markets were Akinyele (Akinyele Local Government Bodija (Ibadan North Local Area). Government Area) and Oranyan (Ibadan North east Local Government Area). The markets were purposively chosen as they were central and the major cattle markets in Ibadan. Eighty (80) structured questionnaires were randomly administered to the cattle handlers to collect data on systems of loading, transportation and off-loading of the animals.

On arrival of vehicles conveying the animals from their destinations, type and nature of vehicle were noted and visual observation of the off-loading system was made. In off-loading, the breeds, sizes, sex and type (horned and polled) were closely observed. Loading methods from the three centres to other places within and outside Ibadan metropolis were further noted. Also, a structured oral interview was used to elicit more information on the off-loading and loading systems of cattle. A reconnaissance of loading and off-loading facilities at the centres was carried out. Data generated from the respondents were analysed using eiscriptive statistics.

### **Results and Discussion**

Presented in Table below are the means of transportation and composition of cattle transported. The result showed that all the cattle handlers transported their animals by road. This was expected as it might be more difficult to transport cattle on hoof from such long places, spanning hundred of

kilometers. The visual appraisal of the vehicle for road transportation indicated majority to be long trailers travelling long distance on bad roads. Grandin (2000) reported that vehicles should be driven smoothly without jerks or sudden stops, corners be negotiated slowly and gently as poor driving coupled with bad roads can cause animals to lose their balance and fall. The use of vehicles with open roofs expose the cattle to rain, sun intensity and cold conditions. On the composition of cattle at transportation (Table 1), the respondent indicated that 75%, 8.8% and 13.8% were transported as all kinds together, different sizes and similar breeds respectively. This composition of cattle in the trucks showed that all kinds were arranged and packed

Table 1: Means of transportation and composition of cattle transported

Parameter	Frequency	Percentage (%)
Means of transportation	and halfor	II, big, homed and p
Road	80	100
Rail whole all we downed was add to	None	None
Air	None	None
Composition of cattle transported		
Different sizes, horned and polled	60	100 75 0 00 PL SWADN
Similar sizes	7 alamine bolk	8.75
Different species	11222000 11 221	13.75



Figure 1. Showing cattle abuse during transportation out of Ibadan metropolis



Figure 2. Period for the transportation of cattle to Ibadan

together including breeds, cows, bulls, small, big, horned and polled. This arrangement was opposed to the welfare of the animals as there were competition for space, supremacy and fighting and trampling sometimes supervened. ARMCANZ (1999) established that one should not mix horned and polled animals together in the vehicle because it causes bruising and injury. The vehicles were not lined with bedding materials such as wood shavings, therefore, cattle rested and slept directly on their faeces and urine. Some inhumane treatment of cattle during transportation were noticed as shown in Figure 1. Apart from the fact that cattle were bound and crowded, people intentionally sat on the animals. The use of rail would have been preferred, being fast, cheap, accommodating and animals are less prone to inclement weather, but it is non functional at present in Nigeria.

Figure 2 indicates are the periods for the transportation of cattle from their source of purchase to various centres in Ibadan

metropolis. Of the respondents, 3.75, 5, 7.5 and 83.75% transported their cattle in the morning, afternoon, evening and any time of the day respectively. The study showed that there were no specific periods for transporting cattle. A larger percentage of the handlers indicated transportation at any time, which was anchored on when purchasing was completed and again on the availability of vehicle to convey the animals. These reasons for transporting cattle at any time of the day were not the best for the welfare of the animals. Animals that are transported during the hot weather of the day or under heavy down pour of rain may be stressed and weakened. High environmental temperature may increase the risk of heat stress and mortality. This agrees with the report of ARMCANZ (1999) that the stress of transport will be greatly increased by extremes of weather amd that severe stress or deaths can also be caused by very cold weather because the body temperature would be considerably reduced (Tarrant and Grandin, 2000). It is

very important to transport animals in vehicles during the cooler mornings and evenings or even at night. A combination of high humidity and high environmental temperatures may be deadly to animals. Knowles and Warriss (2000) reported that death losses increase as a result of stress created by increased temperature indicating that transportation is better at the cool hour of the day.

The number of days that it took to transport cattle from the source is in Figure 3. Majority of the handlers (96.4%) claimed with impunity that they transported their cattle between one and three days i.e. 24-72 hours. This is rather too high for an animal to be healthy and to maintain its body weight. The implication of this long hour of transportation by road is that cattle would stand, confine, remain without food, water

and exercise. Where possible, journeys are expected to be short and direct without any stoppages. As a rule, cattle, sheep and goats should not travel for more than 36 hours and should be offloaded after 24 hours for feed and water if the journey is to take longer than that. Marahrens et al. (2003) studied long distance road transport of cattle and reported that all categories of cattle lost weight and showed catabolic energy metabolism during transport. Similarly, Nanni (2003) transported steers for 16 hours and reported that the longer journey was associated with a significantly larger live weight loss. Regulations governing the transport of livestock differ among countries. Blackwood and Hurst (2004) reported that in Australia, the code of practice for Land Transport states that sheep, for example, must be rested after a

in the Firming 4- introduction the





the desired death of

Unethical evidence against cattle dignity during loading, transportation and off-loading by livestock marketers



Figure 4. Off-loading of cattle at destination

journey of 36 hours. There are recent moves in developed regions, seeking to limit the duration of livestock transport to 8 hours or less. In the European Union, journey time does not exceed 8 hours (Tarrant and Grandin, 2000).

Shown in Figure 4 are cattle in the truck ready to be off-loaded. During off-loading, it was observed that cattle were directly pushed down from the truck of about 2 m high from the ground. There was no good ramp facility for easy off-loading in the three locations. The process adopted for off-loading was by drawing the animal from inside of the truck to the door through holding of the horn or pulling the tail. The off-loaded cattle were always observed to be weak and wounded with bruised skin. Due to the stress of the long journey without food, water, rest and coupled with forceful off-loading, some cattle became recumbent and at times dead. Smith et al. (1995) reported that bruises can be greatly reduced if the producers/truckers/packers will take care of off-loading facility. Therefore, in order to minimize stress and avoid injury, ramps are necessary for off-loading livestock out of the vehicle. Excessive steep ramps should be avoided or designed so that the slope is not greater than 20 degrees and should fit closely and be at the same level

with the truck gate (Grandin, 1987 and Lapworth, 2004).

Presented in Figure 5a is a common loading system of animals in Ibadan cattle centres. Cattle were bound with ropes on legs and head together. This was effected by twisting and bending the head in order to align with the hind and fore legs. The choice of this method was probably necessitated by the type of vehicle for conveyance (Figure 5b). The method undoubtedly might inflict injury and pains on the animal. This is indeed an animal abuse. Animals that have been abused can be dangerous. Abuse of animals is unethical which may be detrimental to animal welfare and human being consuming it. It is reported that, cattle and sheep have excellent memories and are able to remember painful experiences and will be more reluctant to re-enter a facility where a stressful event has previously occurred (Grandin et al., 1986; Hutson, 1985 and Rushen, 1986).

### Conclusion

The current study indicated that there were cattle abuse and unethical evidences in major cattle centres in Ibadan metropolis. Cattle were transported on bad roads with low speed and roofless trucks, and the



Figure 5a. Restrained cattle to be transported to the desired destination

Akinyemi, Babayemi, Abu and Bamikole



Figure 5b. Loaded cattle to be transported to the desired destination

animals arrived their destination late, stressed and weak. Animals were transported at any time of the day thereby exposing them to inclement weather and suffering. Ramp was not used for offloading from high built trucks but were thrown down, suggesting that the animals could be battered, wounded and weakened. Animals to be loaded were folded, tied and rolled into the boots of car, which were generally unsuitaby for such. It is concluded that the market cattle handlers were probably ignorant of the standards in the transportation, loading and off-loading of livestock, the paper therefore recommends training for the stakeholders.

### References

- ARMCANZ,1999. Land Transport of Cattle SCARM Report 77, pp. 1 – 23. A griculture and Resource Management Council of Austraila and New Zealand. CSIRO Publishing, Collingwood, Victoria, Austrailia.
- Babayemi, O. J. and M. A. Bamikole,2010. Ethics and Animal Welfare: Is it possible in Nigeria? Proc. 35<sup>th</sup> Annual Conference Nigeria Society for Animal Production 14 – 17

March, 2010. Univ. of Ibadan, Nigeria. Pp. 732-734.

- Blackwood, I. and R. Hurst, 2004. Tips for Transporting Cattle and Sheep pp. 1 – 11. New South Wales Department of Primary Industries: Agriculture. New South Wales Governmentl Agnote DAI-234 (Second Edition).
- Department for Environment Food and Rural Affairs (DEFRA), 2006. Sheep and goats health and welfare.
- Favre, D. and C. F. Hall, 2004. Comparative National Animal Welfare Laws Michigan State University College of Law, Animal Legal and Historical Center, East Lansing, MI.
- Grandin, T., S. E. Curtis, T. M. Widowski and J. C. Thirman, 1986. Electroimmobilization versus mechaniclal restraint in an avoid-avoid choice test Journal of Animal Science 62:1460 – 1480.
- Grandin, T.,1987. Animal handling. Veterinary Clinics North America, Food Animal Practice 3:323-324.
- Grandin, T., 2000. Effects of animal welfare audits of slaughter plants by a major fast food company on cattle handling and stunning practice. J. Am. Vet. Med. Assoc. 216:848-851.
- Hutson, G. D., 1985. The influence of barley food rewards on sheep movement through a handling system. *Appl. Anim. Behav. Sci.* 14:263-273.
- Kai, N.,1962. Problems of Ethics. In: the Encylopedia of philosophy, P. Edwards, ed., The Free Press, New york. Vol. 1, p. 117..
- Knowles, T. G. and P. D. Warriss, 2000. Stress physiology of animals during transport. In: T. Grandin (editor) Livestock Handling and Transport, CAB International, Wallingford, 385-407.

Lapworth, J. W., 2004. Cattle Transport:

Unethical evidence against cattle dignity during loading, transportation and off-loading by livestock marketers

Loading strategies for road transport pp. 1 – 2 Department of Primary Industries and Fisheries. Queensland government, Brisbane, Australia.

- Marahrens, M., I. Von Richthofen, S. Schmeiduch and J. Hartung, 2003. Special problems of long-distance road transports of cattle. *Dtsch. Tierarztl. Wochenschr.* 110:120-125.
- Nanni C. L., D. P. Lo Fiego, M. G. Cassanelli, F. Tassone and V. Russo ,2003. Effect of journey time and environment condition on bull behaviour and beef quality during road transport in northern Italy. Dtsch. Tierarztl. Wochenschr. 110:107-110.
- Rushen, J., 1986. Aversion of sheep for handling treatments paired choice

And the second states of the second second

studies Smith, G. C., J. W. Savell, H. G. Dolezal, T. G. Field, D. R. Gill, D. B. Griffin, D. S.

- Hale, J. B. Morgan, S. L. Northcutt and J. D. Tatum, 1995. Executive summary of the National Beef Quality Audit – 1995. National Cattlemen's BeefAssociation, Centennial, CO.
- Tarrant, V. and T. Grandin, 2000. Cattle Transport pp. 151–173. (In: Livestock handling and transport Ed. T. Grandin). CABI Publishing, New York, NY.
- The Welfare of Farm Animals (Transport) Regulations, 2000. (S.I. 2000 No. 1870) Schedule 1 paragraphs 22-27.

Received: 5<sup>th</sup> May, 2011 Accepted: 19<sup>th</sup> December, 2012