

4 **On-Farm Fatality Rate of Cattle Transported to**
5 **Igboora Abattoir**
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9
10 **ABSTRACT**
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Aims: The shortcomings in animal welfare during the transportation of cattle had led to increased mortality among animals. The aim of this study is to determine the fatality rate in cattle transported for slaughter in the Towobowo abattoir located in Igboora Ibarapa Central Local Government.

Materials and methods: The fatality of cattle transported to Igboora abattoir was evaluated for four months. The cattle were brought to the lairage at Towobowo before they were slaughtered and sold out. They were usually brought in from Budo Musa and Thursday kraal market in Igboora. 2,196 cattle were brought to the abattoir between January and April, 2019. 12 animals were lost top transportation stress and mishandling. Data were analysed using chi square.

Results: There were not significant effect ($p=0.4464$) of the fatality rate across the months. Since, fatality is usually recorded mostly from the cattle brought from Budo Musa due to overcrowding in the trucks and under extreme atmospheric conditions with rough driving.

Conclusion: A conclusion of this study was that on-farm fatality could represent an important indicator for evaluating herd management and animal welfare practices. Further analysis and more structured data collection of this method would be needed in order to establish a robust method in sensitizing the farmers against the anomalous practice.

12
13 *Keywords: Fatality, Igboora, Abattoir Towobowo, Cattle.*
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15 **1. INTRODUCTION**
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17 In many countries, abattoirs and slaughter industries are becoming centralised into fewer,
18 larger plants. As a consequence, livestock are subjected to travelling greater distances,
19 enduring greater travel times, and exposed to more human handling. This increased stress
20 on livestock, is not only an issue in regard to animal welfare, but it reduces economic value
21 through its effects on meat quality [1]. The increasing trend of industry centralisation means
22 that the transport distances between farm and abattoir are likely to increase. Also, the trade

23 of live animals is of such a high economic viability, it is unlikely that pressure from animal
24 welfare groups could stop it. However, greater public awareness of animal welfare seems to
25 be increasing in western countries, and as a result there is more pressure on the livestock
26 industry to at least adopt better standards for the farming, handling, transport and slaughter
27 of animals [1]. Transportation of animals begins with loading and ends with off-loading at the
28 lairage. Unfortunately, both represent the most stressful period compared to the journey
29 itself and ought to be done in a gentle manner and under suitable environmental conditions
30 [12]. The animals are exposed to varieties of stressors ranging from stocking density, high
31 temperature, humidity, noise and sudden vehicular movements [9]. They may be stressed
32 also due to the absence of feed and water as well as bringing of different animals together.
33 The stress caused by transportation have been reported to adversely affect animal welfare
34 and caused economic losses related to mortality, carcass damage and decreased meat
35 quality [18]. The aim of this study is to determine the fatality rate in cattle transported for
36 slaughter in the Towobowo abattoir located in Igboora Ibarapa Central Local Government.

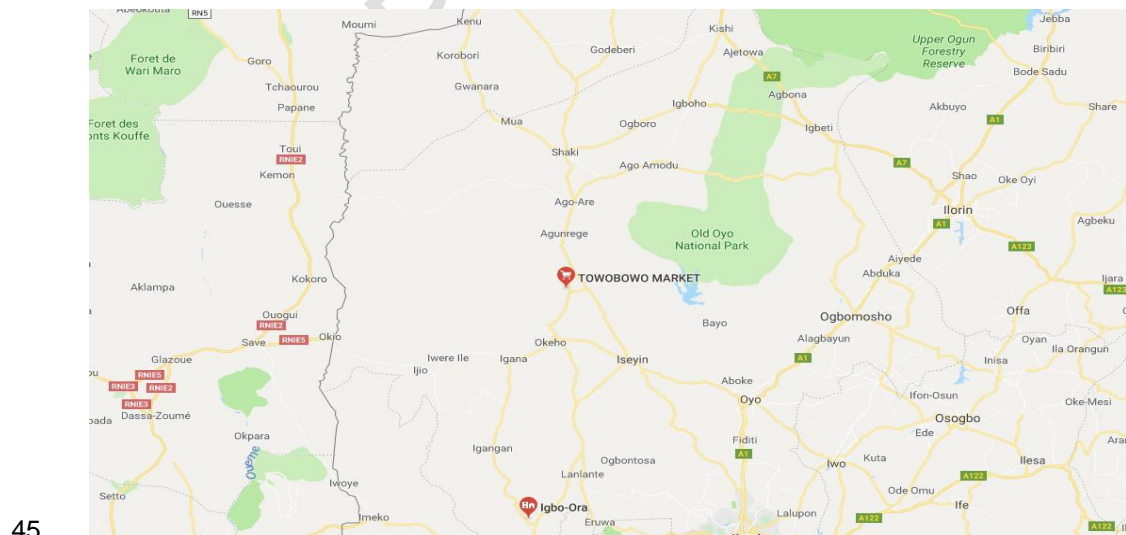
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38 2. MATERIAL AND METHODS

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40 2.1 Location of the study

41 Towobowo abattoir is located in Igboora Ibarapa Central Local Government with
42 geographical Coordinates of latitude $5^{\circ}25'N$ and longitude $2^{\circ}15'$ in an elevation of 160m
43 above sea level. It is one of the major places where animals are being slaughtered in
44 Igboora.



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46 Plate 1: Map of Towobowo abattoir located in Igboora Ibarapa Central Local Government

47 2.2 Study sampling and population

48 The records of this study were based on regular visits to the abattoir for 4 months i.e.
49 January 2019 – April 2019 on daily basis to ~~really-get-idea-of~~fully address the problems and
50 to witness all the activities that takes place from the acceptance of the animals at the Lairage
51 to point of slaughtering. Adequate attention was paid to the mode of transportation and
52 handling of the animals. The people that transported the animals were also interviewed to
53 get the real source of the animals and duration of time if took to get to Towobowo.
54

55 **2.3 Statistical Analysis**

56 | Data were analysed using chi square.
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59 **3. RESULTS AND DISCUSSION**

60
61 2,196 cattle were received for slaughter at Towobowo abattoir out of which 12 died. 1,573
62 bulls and 623 cows. The fatality recorded was 6 and 6 respectively as a result of
63 transportation stress as recorded in Table 1 and Figure 1. The majority of those butchers
64 said that the animals were kept standing for hours without feed and water and that it also
65 took some time to offload those animals at the lairage as those that do assist them were not
66 always available and thereby keeping the animals standing for additional hours. The results
67 obtained are similar to [17] who reported 0.4% fatality in pigs, 0.007% in fattened cattle over
68 an 8 years' period [10] while [11] reported 0.029 and 0.256% for different categories of pigs
69 and cattle between 1997 and 2006 respectively in Czech Republic. In Nigeria [7] reported
70 0.10% and 0.24% fatality for Cattle and Camel transported to Oko-Oba Abattoir in Lagos
71 State, respectively. Whilst death is a definitive welfare outcome, the variation in the above
72 mentioned fatality is most likely related to the species or the type of animals being
73 transported, bad road network and their transport and handling conditions [3]. The
74 prevalence of transport related health problems varied significantly even within the same
75 species. Road transport conditions are known to influence the physiological response of
76 animals either as a result of physiological stress or physical fatigue [8, 5]. The causes of
77 road transport stress are classified into pre-transport causes (these include lack of adequate
78 preparation before transportation), transport causes (the distance and duration of transport,
79 climatic factors and changes in the accustomed daily routine, nature of road and speed of
80 the vehicle) and post-transport causes (rough unloading of animals from the vehicle, poor
81 unloading ramp, lack of adequate food water and rest in lairage after transportation and lack
82 of post-transport medication [16; 2; 6; 18; 13].
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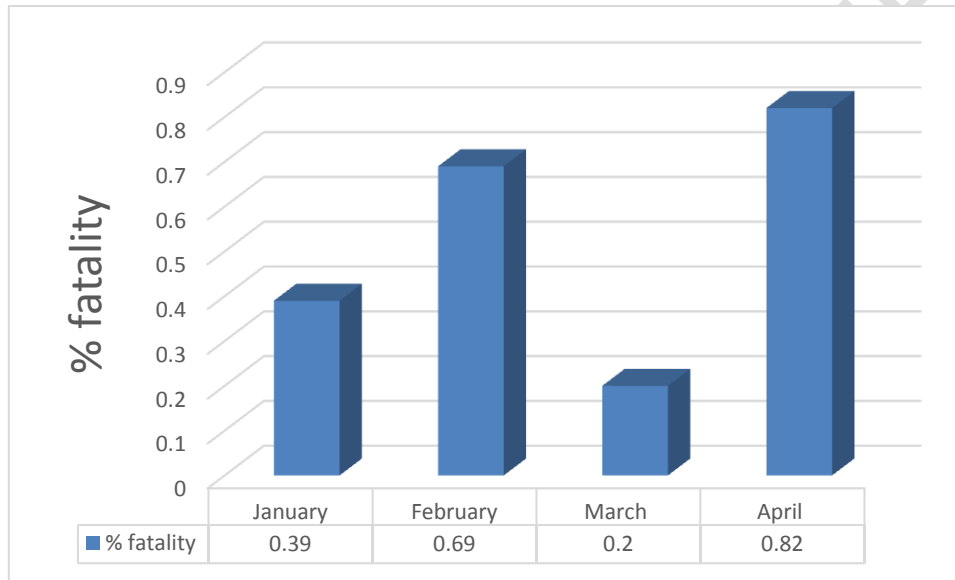
84 Table 1: Fatality of Cattle brought to Igboora abattoir as a result of transportation stress.

Duration	Cattle number			Fatality		
	Bull	Cow	Total	Bull	Cow	Total
January	273	237	510	2	-	2
February	421	162	583	1	3	4
March	387	107	494	-	1	1
April	492	117	609	3	2	5
Total	1,573	623	2,196	6	6	12

85 $\chi^2=16.09, p=0.4464$

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87



88

89 Figure 1: The percentage of fatality of cattle in Igboora abattoir

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91 **4. CONCLUSION**

92 Stressors acting on the transported cattle leads to crucial welfare and economic problems to
 93 the animals, farmers, traders, transporters, butchers and the country at large. Management
 94 techniques towards reducing road transport stress should be aimed at selected stages of
 95 stress development. New technology approaches must include ways of improving the
 96 genetic composition of the animals with the aim of proving not only the production but also
 97 the adaptability of the animals to transport stress factors.

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100 **COMPETING INTERESTS**

101 **AUTHORS HAVE DECLARED THAT NO COMPETING INTERESTS EXIST.**

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104 **REFERENCES**

105

- 106 1. Atkinson, P. J. Investigation of the effects of transport and lairage on hydration state
107 and resting behaviour of calves for export. *The Vet Record* 1992; 130, 413-416.
- 108 2. Ayo J. O. and Oladele S. B. Transport stress in food animals. A review *Nig. Vet. J*
109 *Special edition* 1996; 1:58 – 68.
- 110 3. Becker, B. A., Mayes, H.F., Hahn, G.L., Nienabers, J.A., Jesse, G.W., Anderson,
111 M.E.
- 112 4. Heymann, H. and Hedrick, H.B. Effect of fasting and transportation on various
113 physiological parameters and meat quality of slaughter hogs 1,2,3. *J. Animal Sci.*
114 1989; 67: 334-341.
- 115 5. Brandshaw, R. H., Parot R. F., Goode J. A., Lloyd D. M., Rodway R. G. and Broom
116 D. M. Behavioural and hormonal responses of pigs during transport: Effect of mixing
117 and duration of Journey. *Ani Sci.* 1996; 62: 547 – 554.
- 118 6. Hartung J. Effects of transport on health of farm animals. *Vit. Res. Common* 2003;
119 27: 525 – 527.
- 120 7. Ibrinke, A. A., Mccrinde, C.M.E., Adejuwon, T. A. and Cadmus, S.I.B. Losses
121 associated with mortality of cattle and camel during transportation to Oko-Oba
122 Abattoir, Lagos state, Nigeria. *Proceedings of 14th annual conference of animal*
123 *Science Association of Nigeria (ASAN) September 14th – 17th 2009, pp. 297 – 300.*
124 *LAUTECH, Ogbomoso, Nigeria*
- 125 8. Lambooi J.E, Garssen G. J, Wastra D, matemarm G. and Merkus, G.S.M. Transport
126 of pigs by car for two days: some aspects of watering and loading density. *Livest.*
127 *Prod. Sci.* 1985; 13:289 – 299.
- 128 9. Lambooi, E and van Putten, G. Transport of pigs. In: Grandin T (ed). *Livestock*
129 *Handling and Transport* 1993; pp 213 – 231. CABI: Wallingford, UK.
- 130 10. Melena, M., Voslarova, E. Kozak, A., Belobradek, P., Bedanova, I., Steinhauser, L.
131 and Vecerek, V. Influence of travel distance and the season upon transport-induced
132 mortality in fattened cattle. *Acta Vet Brno*, 2006; 75: 619 – 624.

- 133 11. Melena, M. Voslarova, E. Kozak, A., Belobradek, P., Bedanova, I., Steinhauser, L.
134 and Vecerek, V. Comparison of mortality rates in different categories of Pigs and
135 Cattle during transport for slaughter. *Acta Vet Brno*, 2007;76: 109 – 116.
- 136 12. Minka N. S. and Ayo J. O Effects of loading behavior and road transport stress on
137 traumatic injuries in cattle transported by road during the hot-dry season. *Life Sci.*,
138 2007a;10: 91 – 95
- 139 13. Minka N.S. and Ayo J. O. Physiological responses of transported goats treated with
140 ascorbic acid during the hot-dry season. *Animal Sci. J.* 2007b; 78: 164 – 172.
- 141 14. Minka, N.S., Ayo, J. O., Sackey, A.K.B., and Adelaiye, A.B. Assessment and scoring
142 of stresses imposed on goats during handling, loading, road transportation and
143 unloading, and the effect of pre-treatment with ascorbic acid. *Livestock Science*,
144 2009;125, 175 – 282.
- 145 15. Nielsen B.L., Dybkjaer j. and Herskin M.S. Road transport of farm animals: effects of
146 Journey duration on animal welfare. *Animal* 2011; 5: 415 – 427.
- 147 16. Plya schenko S. I. and Sidorow V.T. Stresses in farm animals *Agropromizdat*,
148 Moscow (in Russian), 1987.
- 149 17. Von Altrock, A and Von Holleben, K. Sudden death in fattening herds on taking
150 blood samples- Experiences from the practice. *Berliner Munchener Tierarzt*
151 *Wochenschr* 1999; 112: 86-90.
- 152 18. Warriss, P.D., Brown, S.N., Adams, S.J. and Corlett, I.K. Relationships between
153 subjective and objective assessments of stress at slaughter and meat quality in pigs.
154 *Meat Science*, 1994; 38: 329 – 340.
- 155 19. Warris P. D. Optional lairage times and conditions for slaughtering pigs. A review
156 *Vet. Rec.* 2003; 153: 170 – 176.
- 157 20. Weeks C.A., McGreevy P., Waran N.K. Welfare issues related to transport and
158 handling of both trained and unhandled horses and ponies. *Equine Vet. Edc.* 2012;
159 423 – 430