Nigerian J. Anim. Sci. 2018, 20 (2): 280-287

Evaluation of Fore-Stomach of Cattle for Foreign Materials in Ilokun Abattoir, Ado-Ekiti

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Target Audience*: Cattle farmers; Animal Breeders; Butchers; Researchers*

Abstract

A study was conducted from October to December 2015 at Ilokun Abattoir, Ado Ekiti, Ekiti State, to assess the prevalence of rumen and reticulum foreign bodies of cattle. Post-mortem examination was employed for the recovery of foreign bodies from rumen and reticulum after slaughtering. The animals were selected by using simple random sampling from all the slaughtered animals. The total numbers of slaughtered cattle examined were 241 while the numbers of animals with ingested foreign bodies in reticulum and rumen were 68 (28.2%). The types of foreign bodies detected were leathers (1.5%), clothes (1.5%), mango seeds (4.4%), wires (4.4%), plastic (7.4%), thread (16.2%), nylon (27.9%) and plants materials (36.7%). Awareness should be created on proper disposal of these foreign materials, as well as the periodical cleaning of these wastes in the grazing area.

Keywords: foreign bodies, ruminants, prevalence, abattoir, rumen

Description of problem

Gastrointestinal foreign body surgery is the most common surgical emergency in veterinary medicine. Sheep and goats are highly selective feeder and ingest significantly less amount of foreign bodies compared to cattle (7). Cattle are more susceptible to foreign body syndrome than small ruminants; their lack of oral discrimination may lead to ingestion of foreign bodies which would be rejected by other species (10).

In cattle, ingestion of foreign body was reported to be a condition of great economic importance as it leads low production and high mortality rate (14, 18). The ingestion of indigestible materials may occur during periods of feed scarcity (8). The cattle that freely graze in villages, town and hilly areas eat plastic bags and other foreign materials which are indigestible; accumulation of these materials in the rumen may cause adverse effects on animal health (5).

Impactions of the rumen resulting from the accumulation of foreign bodies' interfere with flow of ingesta leading to distension of rumen (1, 8, 19). The presence of foreign bodies in the rumen and reticulum will also hamper the absorption of volatile fatty acids and consequently reduce feed utilization and growth rate (8).Traumatic reticulo–peritonitis (TRP), is a relatively common disease in adult cattle caused by the ingestion and migration of foreign body in the reticulum.

The typical foreign body is a metallic object, such as piece of wire or nail, often greater than 2.5 cm in length. This condition is serious in urban and peri-urban areas where mechanical and building constructions are carried out with poor waste disposal (17). Foreign body ingestion in abattoir

asymptomatic in nature and only be diagnosed in live animals if the material accumulated in large amount. The present study evaluated fore-stomach of cattle on the prevalence of foreign materials in Iloko abattoir, Ekiti state.

Materials and Methods

The study was conducted at Bawa Village, Ilokun Abattoir, Ado-Ekiti from October to December 2015. The abattoir is located along Ado- Iworoko road. It is the largest and major abattoir in the state. Ekiti State covers a land area of 6,353km square with a population estimate of 2,737,186 in 2006. It is a tropical climate with two distinct seasons; rainy season (April to October) and dry season (November to March).

Ado-Ekiti, the capital of Ekiti state has a temperature range of 21ºC - 28ºC, high humidity, south western wind and the north east wind which blows in the rainy g and dry seasons respectively. The tropical forests exist in the south of Ekiti state while savannah occupies the northern peripheries. The land mass is surrounded by rock, low lying forested areas with an average rainfall of 2,100mm which is bimodal in nature with peak in May and August.

Experimental Design:

This is a cross-sectional study. The cattle were selected randomly. After slaughtering, the stomach was carefully removed from the abdominal cavity and placed in a container. Rumen and reticulum were incised and thoroughly examined by visual inspection and palpation. Then the foreign bodies were washed, dried, identified and labelled.

Statistical analysis:

The age and body condition of the animals were recorded. All data were entered and stored in MS excel and analysed with Statistical Package for the Social Sciences (SPSS, 2014)

Results and Discussion

Presented in Figure 1 are the breeds of selected slaughtered cattle examined at Ilokun abattoir, Ado-Ekiti. A total number of 241 animals were randomly selected and examined; 15(6%) were Cross breeds, 24(10%) Muturu, 19 (8%) Ndama and 183 (76%) White Fulani.

The present study is comparable to the findings of some researchers that reported White Fulani cattle as the mostly slaughtered cattle and crosses as the least in Lafenwa abattoir, Abeokuta, Ogun state (16). This may be connected to the fact that the study areas are within the southwest (same ecological zone); a factor that determines the type and breeds of animals that can thrive in an area.

Results (table 1) shows the number of selected cattle, cattle with foreign bodies in their rumen and types of foreign bodies found. . The selected number of cattle examined ranged from 40 (December) to 104 (November). Similar trend was observed for cattle ingesting foreign materials, the higher the selection, the greater the number of animals with foreign materials in the reticulum and rumen.

The proportion of animals with foreign materials in the rumen and reticulum was from 7.5 to 33.65% in December and November respectively. Foreign materials common among the three months considered were thread and nylon. The type of foreign material observed may be attributed to improper disposal of plastics and other ingestible foreign materials in urban and peri urban areas.

Table 2 indicated the prevalence of ingested foreign bodies in rumen and reticulum of slaughtered animals. In October and November, foreign materials observed were plants (46.67%, 31.43%), nylon (16.67%, 37.14%) and thread (16.67%, 11.43%) respectively. Ingestion of foreign materials by ruminants is a common worldwide problem previously reported in Nigeria.

Remi-Adewunmi *et al*., (19) reported that plastic was the mostly ingested (56.9%) foreign material by small ruminants, followed by clothes (13.8%), rope (9.2%), wire (6.4%) and nail (5.5%). Igbokwe I.O *et al*., (8) noted polythene material (81.6%), ropes (47.1%), dry seeds (41.2%), caked sand (25.7%), fibre balls (23.5%), metallic objects (14.7%), paper balls (12.5%) and hair balls (7.4%) were found in the rumen of sheep.

Hailat, N, *et al.,* (6) recorded; plastic (74%), rope and leather (7%), pins and nails (18.5%) and metal masses (6.6%) in the rumen of goats. Ghurashi, M., *et al.,* (5) noted plastics (42.3%), rope (28.4%), cloth (24.3%), nail (21.6%), wires (6.7%) and leather (2.7%) to be ingested by goats.

Table 3 showed the prevalence of ingested foreign bodies in the rumen and reticulum of cattle slaughtered at Ilokun abattoir. The prevalence was from 1.5 (cloth and leather) to 36.7 (plants). The present study revealed an overall prevalence of 28.22 % (n = 68/241) of rumen and reticulum foreign body in cattle slaughtered at Ilokun Abattoir. This level of prevalence is of economic importance because it may lead to loss in production and mortality.

The prevalence rate of foreign bodies in the present study was higher (17.07%) reported by Rahel, M (15). The difference in the prevalence rate might be due to differences in the origin of animals presented for slaughter and type of waste management system practiced. It has been reported that ingestion of foreign bodies was associated with shortage of forage and increased pollution of grazing land with inedible materials Hailat, N, *et al.,* (6). Incidence of undigested plants and plastics were the most common cause of rumen impaction in ruminants and could lead to death (6, 8, 19).

The highest frequency of occurrence of rumen and reticulum foreign bodies was detected in the rumen. This could be due to the fact that ingested feed first goes and lodge in the rumen. Rumen impaction caused by foreign bodies was found to occur more frequently in emaciated and thin animals. This is due to the interference of the foreign body with the absorption of volatile fatty acids causing reduced weight gain (19).

Conclusion and Applications

1. There is a prominent prevalence level of foreign bodies in slaughtered cattle particularly in Ilokun abattoir, Ado Ekiti, Ekiti State.
2. Foreign bodies in the rumen and reticulum have great economic significance associated with reduced production and productivity of animals suffering from them.
3. Ingestion of foreign bodies by cattle must be prevented not only because of its mortality and morbidity but it also contributes a lot to animal's output.
4. The cattle herders should be encouraged not to allow their cattle to freely wander in streets especially in the cities and populated towns.

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20. Statistical Package for the Social Sciences (SPSS, 2014)

Table 1: Types of foreign bodies ingested by cattle at Ilokun abattoir on a monthly basis from October to December

Month	Number of selected slaughtered cattle examined	Number of animal with foreign bodies	Type of foreign body in the rumen/reticulum
October	97	21	Plant materials Nylon Cloth Wire Plastic Thread Mango seed
November	104	35	Plant materials Nylon Leather Plastic Wire Thread Mango seed
December	40	3	Thread Nylon

Table 2: The prevalence of ingested foreign bodies in rumen and reticulum of slaughtered cattle at Ilokun abattoir

Type of foreign body	Frequency	Prevalence (%)	Month(s)
Plant materials	14	46.67	**October**
Nylon	5	16.67	
Cloth	1	3.33	
Wire	1	3.33	
Plastic	2	6.67	
Thread	5	16.67	
Mango seed	2	6.67	
Plant materials	11	31.43	**November**
Nylon	13	37.14	
Leather	1	2.86	
Wire	2	5.71	
Plastic	3	8.57	
Thread	4	11.43	
Mango seed	1	2.86	
Thread	2		**December**
Nylon	1		

Table 3: Prevalence of Ingested foreign bodies in Rumen and Reticulum of cattle slaughtered at Ilokun Abattoir.

Types of Foreign Bodies	**Value of foreign bodies for 3 months**	**Prevalence (%)**
Undigested Plants	25	36.7
Nylon	19	27.9
Clothes	1	1.5
Wire	3	4.4
Plastic	5	7.4
Thread	11	16.2
Leather	1	1.5
Mango seed	3	4.4
Total	68	100

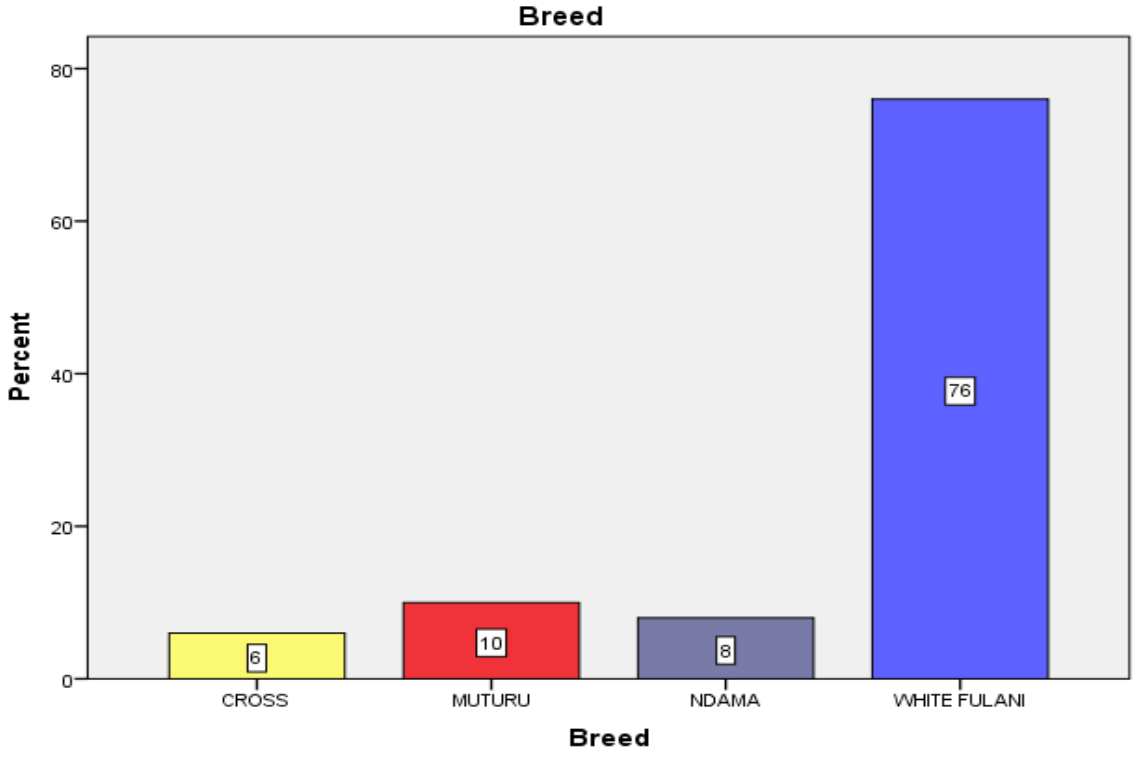

Fig. 1: Selected Breeds of cattle examined after slaughtering in Ilokun Abattoir, Ado-Ekiti

PICTURES SHOWING THE INGESTED FOREIGN BODIES FOUND IN THE RUMEN AND RETICULLUM OF A CATTLE

Plate1: Undigested plants

Plate2: Nylon ingested

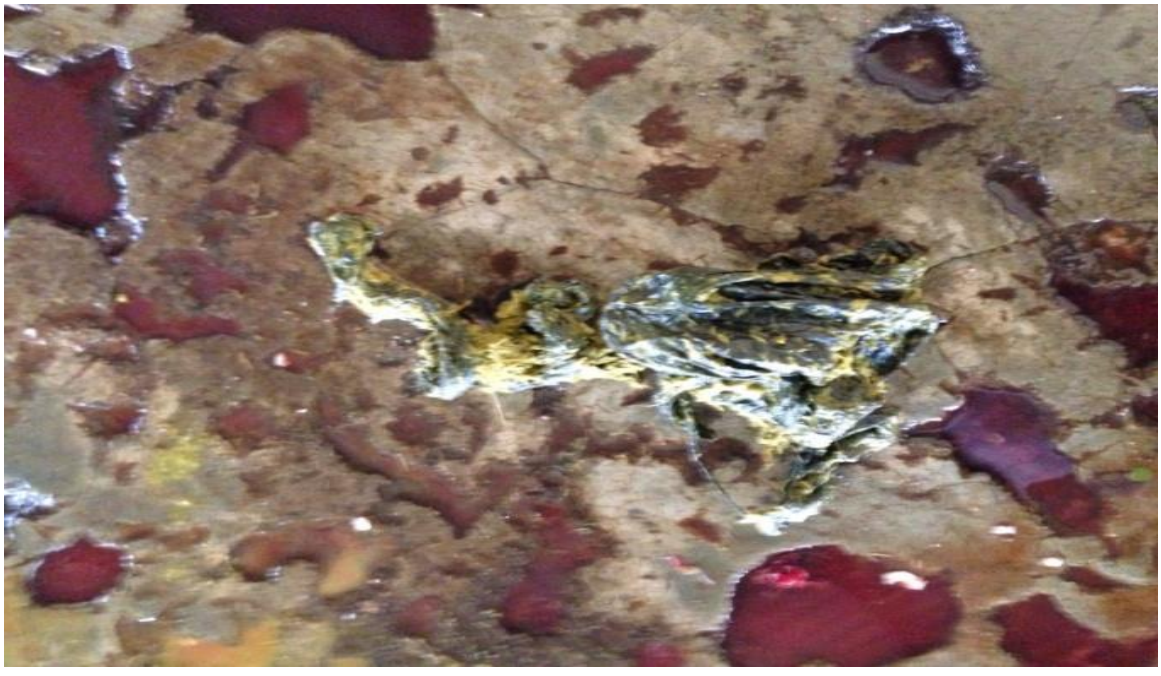

Plate3: Rope and clothes material