



Research Article

Foetal Wastage and Disease Prevalence among Slaughtered Livestock at Zaria Abattoir

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ABSTRACT

This study was conducted to determine foetal wastage and disease prevalence among slaughtered livestock (cattle, camels, sheep and goats) in Zaria Abattoir as affected by species and season. These losses pose a great threat to the future population of Nigerian livestock. Records from the year 2009 to 2012 were collected from the management of Zaria Abattoir. The record includes; the number of animals slaughtered monthly, monthly foetal losses, disease incidence and organs infected and the most predominant disease found among slaughtered animals. A total of 4,675 female animals were slaughtered in the Abattoir, with a total of 339 fetuses recovered in 2012. Statistically, there is no significant difference ($P>0.05$) between species, however, there is statistical significance ($P<0.05$) of the season on the diseases prevalent. The highest number of foetal wastage was observed in the month of July with 42% and February had the lowest value of 17%. *Fascioliasis* had the highest mean value of disease prevalence (63.13%) and *mastitis* had the lowest mean value (0.06%). The wet season (31.36%) recorded the highest occurrence of foetal wastage than the dry season (12.84%). To achieve high production and have a sustainable livestock industry capable of meeting the nutritional demands of Nigerians, remedial measures have to be taken to stop the liquidation of pregnant female animals through the slaughtering of pregnant animals. It is, therefore, recommended that ante-mortem inspection should be conducted to identify pregnant and diseased animals before slaughter.

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INTRODUCTION

The economic importance of livestock production (cattle, camels, sheep and goats) lies in the value derivable from them. These include; meat, milk and skin with huge economic potentials that may contribute to the Gross Domestic Products of developing societies (FAO, 1992). To obtain some of these products, the animal must be slaughtered and processed appropriately. However, it becomes worrisome when pregnant and infected animals are slaughtered culminating in foetal losses and unwholesome products (Oyekunle *et al.*, 1992 and Ataja *et al.*, 1995). The estimated population of livestock in Nigeria was 1.4billion as of 2008 among which 56.2 million were cattle, 204 million sheep, 385.3 million goats, 85 million pigs, 268.4 million were horses, camels and donkeys and 131 million poultry (CBN, 2008). All these livestock were distributed in different parts of Nigeria, depending on their favourable environmental condition (Kebede, 2010).

Apart from the lack of adequate feed resources which leads to poor nutrition, inadequate health care delivery, as well as poor husbandry practice, an important factor that affects the supply of animals, is the common and unhealthy practice of slaughtering pregnant animals due to increasing demand for dietary protein in Nigeria as a result of population explosion. This poses a great challenge to the livestock industry in Nigeria due to the wastage of animals. Other reasons that contribute to the slaughtering of pregnant animals are not plausible. These include; ignorance on the part of farmers and the urgent need for income for the family (Garba *et al.*, 1992); the collapse of proper pre-slaughter inspection of animals and above all, the neglect of legislation prohibiting the slaughter of a pregnant animal for meat (Ataja *et al.*, 1995).

This suggests that the slaughter of pregnant Cows, Does, Ewes and Camels contribute to

livestock prenatal losses in Nigeria. Hence, this poses uncertainty about the country's ability to meet its long-term demands for meat and meat products at an affordable price (Ndi *et al.*, 1995). One possible factor contributing to the high rate of slaughter of pregnant animals is the season of the year. In analyzing the effect of drought on livestock in the savannah region of Africa, Toulmin (1986) observed that during extremely dry periods, herders increased their sales of aged cows and less productive females to meet household cash needs. As the dry season progressed and the stress on cattle increased, herders were compelled to liquidate pregnant females before they die naturally. The report of Beckam *et al.* (1994) showed that 70% of cattle slaughtered during the extremely dry period were females compared to 30% during the normal period of the year.

Taiwo *et al.* (2006) reported that pregnant animals constituted 6.39-10.27% of the small ruminants slaughtered at Ijebu-Igbo and Lafewan in the wet season. Alaku and Orijiinde (1999) recorded a higher number of Does (7792) and Ewes (3539) slaughtered during raining season in Zaria. According to Kudi *et al.* (1996) Cows, Ewes, and Does were more susceptible to disease infection compared to Ram and Buck, which make female animals more vulnerable to slaughters at all stages of production than male.

Foetal wastage as a result of the slaughter of pregnant animals poses a great challenge to the livestock industry in Nigeria due to the wastage of stock animals. An Abattoir survey has been undertaken by several researchers to determine foetal wastage (Ndikum and Saliki, 1989; Garba *et al.*, 1992; Wosu and Dibua, 1992; Alabi, 1993 and Okoli *et al.*, 2001). Mathew *et al.* (2002) reported that approximately 30,000 fetuses were wasted from a total of 1.9million cattle slaughtered in four towns (Kaduna, Jos, Enugu and Ibadan) in Nigeria between 1995 to 2000. Muhammed *et al.* (2007) estimated that

0.21 million lambs would be destroyed annually due to the slaughter of pregnant animals in Kano state only. These losses pose a great threat to the future population of livestock in Nigeria.

Therefore, the objective of the study is to determine foetal wastage and disease prevalence among slaughtered livestock (cattle, camels, sheep and goats) affected by species and season at Zaria Abattoir Kaduna State.

MATERIALS AND METHOD

Study Area

The study area covered Zaria town of Kaduna state, Nigeria. The state is in central northern Nigeria and its capital is Kaduna. Zaria is one of the major cities in Kaduna state and as well a Local Government Area, in the North-West geopolitical zone of Nigeria. Zaria lies in the

northern guinea savanna zone of Nigeria with coordinates stated as Longitude 11.0667 0N Latitude 7.7000 0E (Figure 1) (Nimyel and Namadi, 2019).

Zango Abattoir is located in Samaru, Zaria in Kaduna state, Northern Nigeria. It is the major or central Abattoir in Zaria which is owned by the Kaduna state government. The Abattoir is managed by the Veterinary Division, Ministry of Agriculture Kaduna state. Records kept by the management of the Abattoir between January 2009 and December 2012 were collected and collated.

Records were collected from the management of Zaria Abattoir for this research.

The record includes;

1. The number of animals slaughtered monthly
2. Monthly foetal losses

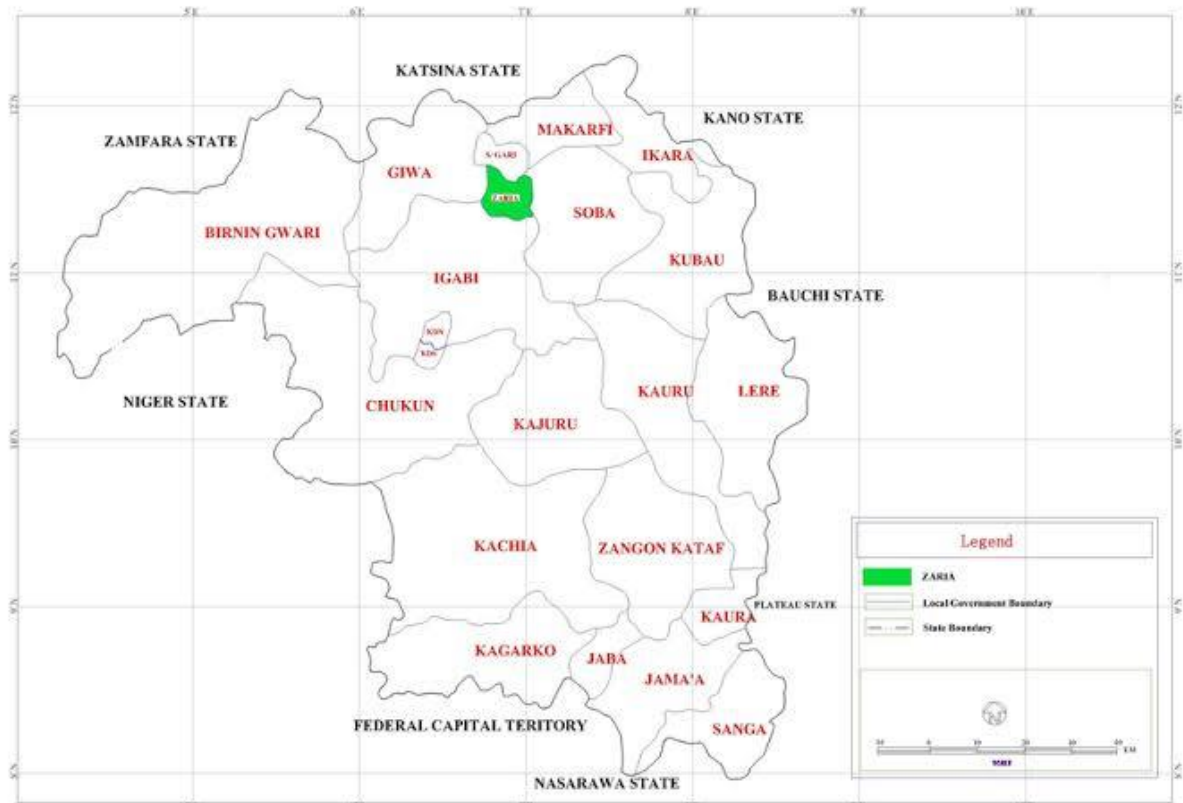


Figure 1: Map of Kaduna State showing location of Zaria Local Government Area

3. Disease incidence and organs infected
4. The most predominant disease found among slaughtered animals

Statistical Analysis

Data collated at the end of the study were analyzed using Statistical Package for Social Science (SPSS) version 13.0 and subjected to Analysis of Variance using GLM of SPSS. Season and species were the fixed factors. The model for the analysis was given as:

$$Y_{ijk} = \mu + A_i + B_j + e_{ijk}$$

Where; Y_{ijk} = Individual observation based on the ijk classification

- μ = Overall mean
- A_i = Effects of species
- B_j = Effect of season
- e_{ijk} = Random error

RESULTS AND DISCUSSION

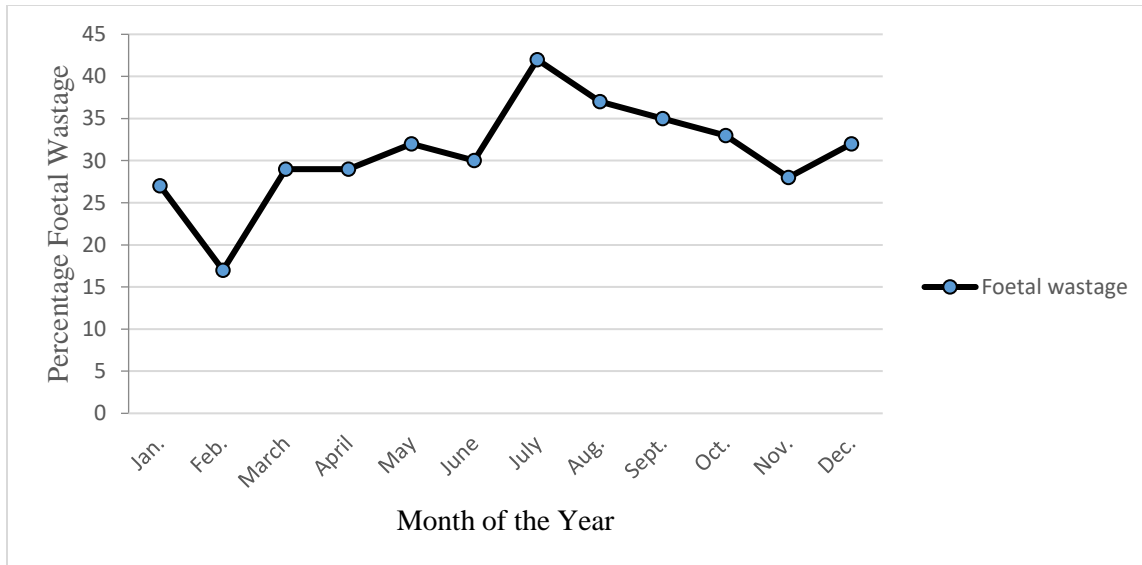
Effect of Season and Species on Foetal Wastage

Figure 2 revealed a monthly trend of foetal wastage at the Zaria Abattoir. The highest number of foetal wastage was observed in the month of July at 42% while February had the lowest foetal wastage at 17%. There was a rise from the month of March to May, after which a decline was observed from July to November. There was a significant rise in the month of December. The rise in foetal wastage in 2012 having the highest peak in July may have been a result of the economic hardship that prevailed around that period (Nimyel and Namadi, 2019).

The rise in foetal wastage in the months of March to May coincides with the advent of the wet season which is characterized by farming activities and increased demand for money for such activities. The majority of those who keep these animals are peasant farmers, therefore they tend to dispose of some of their animals in exchange for money which they used to purchase farm implements and inputs (Ngbede *et al.*, 2011). The loss of more foetuses between the months of March and May (wet season) is also an indication that the reproductive efficiency of cattle in Nigeria follows a seasonal pattern i.e. more conception occurs during the rainy season (Chaudhari *et al.*, 2000). In the month of July, foetal wastages start to decline. December had a significant rise in foetal wastage. These periods are characterized by increased demand for meat and meat products, therefore, more livestock was slaughtered during the period to meet this demand for festivals and ceremonies such as marriages and Christmas (Ahemen and Zaharadden, 2010).

Effect of season and species on disease prevalence among livestock slaughtered

The effects of season and species on disease prevalence among livestock (cattle, camel, sheep and goats) slaughtered at Zaria Abattoir are presented in Table 1. The mean for *fascioliasis*, *nephritis*, *cyst*, *abscesses*, *pericarditis*, *pneumonia*, *emphysema*, *cirrhosis*, *haemonchus* and *mastitis* were 63.13, 2.29, 0.69, 10.96, 41.79, 34.43, 16.90, 15.44, 30.85 and 0.06 respectively.



Percentage foetal wastage in X-axis and month of the year in Y-axis
Figure 1: Monthly trend in foetal wastage at the Zaria Abattoir in the year 2012

Fascioliasis had the highest grand mean value (63.13) and mastitis had the lowest grand mean value (0.06). The high prevalence of *fascioliasis* in the study area may be due to poor meat inspection facilities and uncooperative attitudes/behaviour of butchers because of the lack of compensation for condemned organs (Anosike *et al.*, 2001). The low prevalence of mastitis might probably be a result of low exposure to mammary glands by improving hygiene or providing treatment to infected animals (Opara, 2005). The effect of season significantly ($P < 0.05$) affects the incidence of *fascioliasis* and *cirrhosis*, as the disease is prevalent during the rainy season (July to November). The prevalence of diseases among species slaughtered did not show any significant differences ($P > 0.05$). As in the case in most Abattoirs and slaughterhouses, meat inspection is usually witnessed by owners of the animals as well as butchers who exert some influence on the judgment made by meat inspectors, and consequently, some organs that ordinarily would have been condemned are not.

Effects of season and species on percentage foetal wastage

Table 2 indicate foetal wastage in Zaria Abattoir, Kaduna state, Nigeria. The wet season (31.36%) had the highest occurrence of foetal wastage than the dry season (12.84%). The finding revealed that 6.67% of cows slaughtered were pregnant out of the total number of 4,332, which is higher than the 3.9% reported in Benue state (Abdulkadir *et al.*, 2008), 4.44% reported in Niger state (Alhaji, 2011), 5.01% reported in South Western states (Cadmus *et al.*, 2010). However, it was lower than 70.00% reported in Enugu state (Wosu, 1988), 9.15% in Ebonyi state (Nwapku and Osakwe, 2007), 16.6% reported in Yaounde (Tchoumboue, 1984) and 22.01% in Bamenda (Ndi *et al.*, 1995) all in the Republic of Cameroun. This research also revealed that about 13.91% of camel fetuses were recovered out of the total 194 female camels slaughtered, which is lower than the 24.06% of female camels slaughtered for meat in Sokoto Abattoir in 1992 in northwestern Nigeria, (Ataja and Uko, 1994).

Table 1: Effects of Season and Species on Disease Prevalence among slaughtered livestock at Zaria Abattoir.

Parameters	Fascioliasis (%)	Nephritis (%)	Cyst (%)	Abscesses (%)	Pericarditis (%)	Pneumonia (%)	Emphysema (%)	Cirrhosis (%)	Haemonchus (%)	Mastitis (%)
Mean (%)	63.13	2.69	0.69	10.96	41.79	34.43	16.90	15.44	30.85	0.06
Season	*	ns	ns	ns	ns	ns	ns	*	ns	ns
Dry	56.33	4.88	0.88	8.71	41.96	27.79	14.75	11.25	21.75	0.00
Wet	69.92	0.50	0.50	13.21	41.63	41.04	19.04	19.63	39.96	0.13
Species	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Camel	0.00	0.00	2.17	0.00	0.00	8.42	0.00	0.25	0.00	0.00
Cattle	250.17	10.75	2.50	43.67	167.08	127.75	67.58	61.42	123.42	0.25
Goats	1.17	0.00	0.00	0.00	0.00	1.08	0.00	0.08	0.00	0.00
Sheep	1.12	0.00	0.08	0.17	0.08	0.42	0.00	0.00	0.00	0.00
SEM	7.62	6.13	0.55	6.87	10.11	11.00	8.91	5.27	16.46	0.13

ns = not significant *= Statistical significance

A total of 97 female goats were slaughtered and about 31.53% of fetuses were recovered, also 52 female sheep were slaughtered and about 36.01% of foetuses were recovered, which is lower than that reported by Sanusi *et al.* (2006) which found that 57.85% and 61.39% of does and ewes respectively slaughtered at Bauchi and Jos Abattoirs were pregnant. It was observed that the wet season had the highest occurrence of foetal wastage.

This period is characterized by farming activities and increased demand for money for such activities. The majority of those who keep these animals are peasant farmers, therefore they need to dispose of some of their animals in exchange for money which they used to purchase farm implements and inputs (Ngbede *et al.*, 2011).

Table 2: Effects of season and species on percentage foetal wastage

Parameters	Months	No of female slaughtered	% foetal wastage (mean±SD)
Season			
Dry	24	2,271	12.84±12.84 ^b
Wet	24	2,404	31.36±31.36 ^a
Species			
Camel	12	194	13.91±13.91 ^{ab}
Cattle	12	4,332	6.97±6.97 ^b
Goats	12	97	31.53±31.53 ^a
Sheep	12	52	36.01±36.01 ^b

The superscript show mean separation (P<0.05)

The loss of more foetuses during the wet period (rainy season) is also an indication that the reproductive efficiency of livestock in Nigeria follows a seasonal pattern i.e. more conception occurs during the rainy season (Ahemen and Zaharadden, 2010).

CONCLUSION

The study investigated foetal wastage and disease prevalence among slaughtered livestock (cattle, camels, sheep and goats) as affected by species and season. The findings clearly showed that more pregnant animals were slaughtered during the wet than in the dry season and foetal wastage at the Abattoir was high in the month of July and low in February. It also showed that diseases are more prevalent during the wet than the dry season. Abattoir foetal wastage is a monster eating silently deep into the life of the livestock industry. Unless

this bottleneck is checked and eliminated, the sustainability of the livestock industry will just be an illusion. Regular and consistent data on disease profiles at various Nigerian Abattoirs is limited.

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