

Incidence of foetal wastage in goats in Umuahia, Abia state Nigeria

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ABSTRACT

This study investigated the indiscriminate slaughter of pregnant goats and the incidence of foetal wastage at Ahiaeke goat slaughter slab in Umuahia, Abia State for a period of 7 months (March – September 2018). A total of 518 goats were slaughtered during the period of study comprising 311 (60.03 %) males and 207 (39.96 %) females. The study revealed that majority (76%) of the goats slaughtered within the study period were not inspected ante mortem while only 24% of the total goats were inspected prior to slaughter. In the course of the investigation, it was observed that out of the 207 does slaughtered, 130 (62.80%) does were pregnant while 77 (37.19%) were not. A total of 182 fetuses (109 males and 73 females) were recovered from the 130 pregnant does slaughtered. The highest number of slaughtered pregnant does was recorded during the traditional festive season, in August, resulting in high percentage (21.41%) of foetal wastage during the study. Averagely, a monthly slaughter of 30 (14.31 %) gravid does was obtained. The slightly high rate of foetal wastage recorded in this study may be due to the very low coverage of ante-mortem inspection. Given the findings from this study, it can be inferred that poor ante-mortem inspection, ignorance on the part of farmers, butchers, and policy makers on proper management of pregnant animals in markets/slaughter slabs may have contributed to the foetal wastage and the slaughter of pregnant does.

Keywords: Foetal wastage, goats, slaughter slab, Umuahia.

INTRODUCTION

Indiscriminate slaughtering of pregnant animals in developing countries like Nigeria is a very pertinent issue that must be addressed if livestock productivity must be sustained. Foetal wastage has been identified as one of the major constraints to livestock production resulting in livestock shortage and protein malnutrition in developing countries. Factors contributing to foetal wastage include inadequate meat inspection practices resulting in slaughtering of pregnant animals (Abdulkadir *et al.*, 2008; Muhammed *et al.*, 2009; Cadmus & Adesokan, 2010; Ardo *et al.*, 2013), ignorance of the pregnancy status of animals by the livestock farmers and traders at the time of sale, increasing financial demands and infectious diseases predisposing the dam to abortion (Sanusi *et al.*, 2006; Muhammed *et al.*, 2009; Alhaji, 2011; Fayemi & Muchenje, 2013).

The slaughter of pregnant animals in abattoirs and slaughter slabs calls for efficient ante-mortem inspections as well as

provision of well-equipped Veterinary diagnostic tools that would facilitate improved herd health management in the country. Foetal wastage frustrates the efforts of livestock husbandry system in increasing animal production to meet the growing demand for animal protein by a growing human population. (Chaudhari & Bokko, 2000; Addass *et al.*, 2010; Ngbede *et al.*, 2012).

There have been reports of foetal wastage in livestock in abattoirs globally with its attendant substantial economic losses (Maurer *et al.*, 2016). Higher prevalence reports have been observed in African countries ranging from 1.3% to 45% (Nonga, 2015). Foetal wastage has predisposed some African countries to protein malnutrition and is a possible constraint to future livestock populations in the continent (Nwakpu & Osakwe 2007; Ademola 2010; Cadmus & Adesokan 2010). Poor financial condition of the farmers who are usually rural livestock farmers as well as the ignorance of the pregnant state of the animals have been

advanced as reasons for culling and slaughtering of pregnant livestock (Sanusi *et al.* 2006; Muhammad *et al.* 2009).

In Nigeria, foetal wastage has been reported in cattle and small ruminants slaughtered at abattoirs and slaughter slabs (Nwakpu & Osakwe, 2007; Addass *et al.*, 2010; Cadmus & Adesokan, 2010; Alhaji, 2011; Alhaji *et al.*, 2015;; Ngbede *et al.*, 2017; Ogunbodede & Oladele, 2016; Raimi *et al.*, 2017).

The high number of pregnant ewes and does slaughtered results in massive foetal wastages and pose great danger to the enhancement of small ruminant production (Ayodele *et al.*, 2003).

Small ruminants (goats and sheep) are known to play significant roles in providing food and financial security in developing countries like Nigeria with particular allusion to rural dwellers (Alhaji & Adetokun, 2013) and the vulnerable population (such as women). This implies that foetal wastage in small ruminants will predispose the rural and vulnerable population to financial losses and reduced income from livestock farming, decreased livestock productivity and works against the sustainable development goal (SDG) 2 focused on eradicating hunger.

Goats are major source of income to most people, especially the rural dwellers. The ability of goats to adapt to varying environmental conditions and the different nutritional regimes (Devendra, 1985) is highly recommended. Dunka *et al.* (2017) report that pregnant does are slaughtered on daily basis in slaughter slabs and abattoirs across the country and this facilitates the dwindling goat population in Nigeria. There is dearth of information on foetal wastage in Umuahia, Abia State. Therefore, this study was conducted to investigate the incidence of foetal wastage in goats in Umuahia municipality, a part of South Eastern Nigeria, where goats are bought, slaughtered and consumed with response to religious and cultural practices, taste preferences and demand rate. Findings from the present study will serve to enlighten the livestock producers, the live goat sellers, the butchers, the Veterinary personnel, the public and the government on the need for proper ante mortem inspection and ultimately the need for enhancement of livestock population, especially in goats through possible prevention of foetal wastage.

MATERIALS AND METHODS

DESCRIPTION OF STUDY AREA

The study was carried out at Ahiaeke slaughter slab, the only government approved slaughter slab for small ruminants in Umuahia Municipality, the capital city of Abia State. Abia state is geographically located in South East Nigeria and lies within approximate latitudes 4° 40' and 6° 14' north, and longitudes 7° 10' and 8° east (Apeh *et al.* 2005). The state has a total land mass of 5,243.7 km² with about 2.8 million people according to National Population Commission

(2006). Ahiaeke slaughter slab in the state capital has a thriving major goat market attached to it where live goats and goat meat are sold. The slaughter slab operates from Mondays to Saturdays with slaughtering commencing at 7 a.m. and ending at about 10.30 a.m. daily.

STUDY PERIOD

The study was carried out for seven months (March – September, 2018). Daily visits were made to the abattoir to observe the slaughter of the goats and to collect the reproductive tracts from all the females slaughtered within the study period.

SAMPLE COLLECTION AND IDENTIFICATION

The reproductive tracts from the does slaughtered at slaughterhouse were collected immediately after slaughter to assess for foetal wastage. The collected samples were individually placed into a clean plastic bag, properly identified and taken to the Theriogenology Laboratory of Michael Okpara University of Agriculture, Umudike where the study was carried out.

CALCULATION OF THE INCIDENCE RATES AMONG THE SEX OF GOATS SLAUGHTERED DURING THE STUDY:

The incidence rate among the sex of the goats slaughtered was determined by expressing the total number of males or females slaughtered as a percentage of the total number of goats slaughtered.

CALCULATION OF THE INCIDENCE OF ANTE MORTEM INSPECTION

Data for the calculation of ante mortem inspection was collected following daily visits to the goat slaughter slab throughout the period of the study for an independent on-the-spot investigation. The incidence of ante mortem inspection carried out by State Veterinary officers and animal health workers was calculated by expressing the number of times animals were inspected before slaughter as a percentage of the number of daily visits to the slaughter slab.

ESTIMATION OF FOETAL WASTAGE AND GESTATIONAL LENGTH

Reproductive waste (foetal wastage) was determined by expressing the foetuses recovered as percentage of the total female animals slaughtered (Bello *et al.*, 2008).

The foetuses collected and identified were used for the estimation of gestational length/age as described by Hussein (2008). The crown - rump length of the foetus was obtained by measuring the length (in centimeters) from the forehead to the base of the tail to arrive at the possible foetal age (also estimated to be the gestational length in days).

Fetal age = 2.1 (y + 17)

Where, y = crown-rump length in cm.

The foetal age (gestational length) is recorded in days as described by Noakes *et al.* (2001).

The estimated ages of all the recovered fetuses were used in classifying the stage of pregnancy as follows: i) First trimester - for gestational lengths between one (1) and fifty (50) days, ii) Second trimester - for gestational lengths between fifty one (51) and one hundred (100) days and iii) third trimester - for gestational lengths between one hundred and one (101) and one hundred and fifty (150) days.

Following this, the estimated fetal ages were grouped into three different stages of pregnancy - first trimester, second trimester and third trimester. The presence of placentomes and gestational vesicles also served as indicators for pregnancy.

DATA COLLECTION AND ANALYSIS

Data obtained from the study were expressed as frequencies and percentages. Results were presented in tables and graph charts.

RESULTS

Within the study period, the total number of goats slaughtered was 518 of which 311 (60.03 %) were males and 207 (39.96 %) were females. The highest monthly slaughter was recorded in August (112 goats) while the lowest was in May (46) as shown in Table I.

The study revealed that majority (76%) of the goats slaughtered and sold to consumers within the period of study were not inspected before slaughter while only 24% of the total goats slaughtered in the slaughter slab during this study were inspected ante-mortem as represented in Figure I

Two hundred and seven (207) does were slaughtered within the study period among which 130 does (62.80%) were pregnant and 77 does (37.19%) were not. The month of August recorded the highest number (28) of slaughtered pregnant goats as seen in Table II.

The incidence of foetal wastage is presented in Table III. Out of the total of 182 fetuses retrieved, 109 (59.89 %) of the fetuses were males while 73 (40.11 %) were females, giving a male : female ratio of 10.7 : 7.4. The highest recorded number of foetal wastage was 39 in the month of August. The monthly percentage of foetal wastage ranged from 6.04 – 21.42 % with average monthly wastage calculated to be 14.31 %.

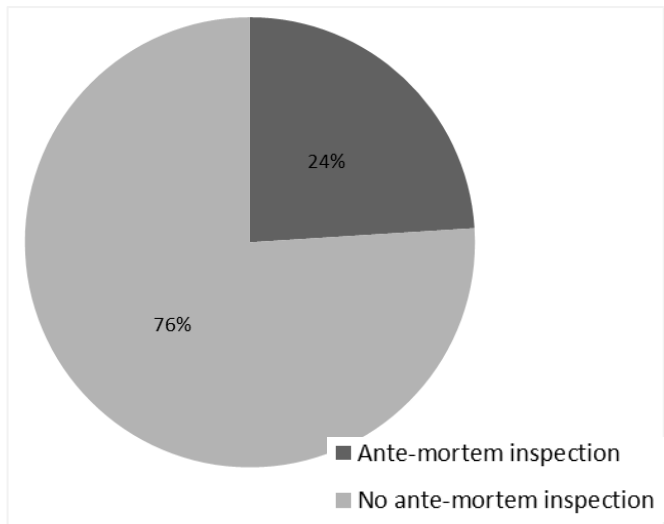


Fig. 1: Fig. 1: Incidence of ante-mortem inspection in Ahiaeke slaughter slab within the study period

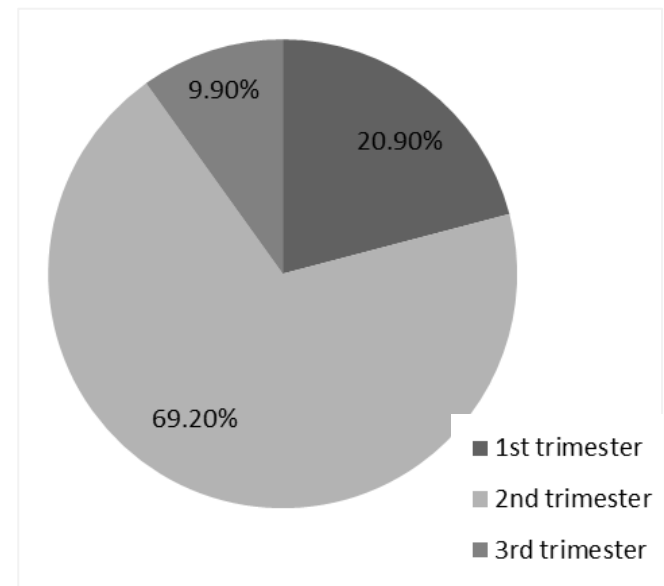


Figure II: Percentage of pregnant does slaughtered at Ahiaeke slaughter slab in Umuahia, Nigeria between March and September, 2018.

Table 1: Total number and sex of goats slaughtered in Ahiaeke slaughter slab, Umuahia, Nigeria between March and September, 2018.

Parameters	Months							Total (%)
	March	April	May	June	July	August	September	
Total number of goats slaughtered	86	53	46	67	81	112	73	518
Total number of bucks slaughtered	50	32	28	39	48	70	44	311 (60.03%)
Total number of does slaughtered	36	21	18	28	33	42	29	207 (39.96%)

Table II: Number of pregnant does slaughtered monthly at Ahiaeke slaughter lab, Umuahia Nigeria between March and September, 2018.

Parameters	Months							Total (%)
	March	April	May	June	July	August	September	
Total number of doe slaughtered	36	21	18	28	33	42	29	207
Total number of non-pregnant does slaughtered	14	8	6	11	13	14	11	77 (37.19%)
Total number of pregnant does slaughtered	22	13	12	17	20	28	18	130 (62.81%)

DISCUSSION

The slaughter of goats for meat is on the increase, and this could lead to continuous depletion of the goat population if pregnant goats are slaughtered (Ataja & Uko, 1994). Indeed the slaughter of pregnant animals is a well-recognized source of wastage especially by abattoir personnel, Animal Scientists and Veterinarians (Ojo *et al.*, 1978; Ataja *et al.*, 1997). Ideally, sound economic livestock management, demands that animals sold for slaughter should be mainly males and reproductively inactive females (Opara *et al.*, 2006; Riehn *et al.*, 2010). This is contrary to the regular practice of slaughtering productive, clinically healthy livestock at different gestational stages for meat.

During the seven – month period of this study, the total number of goats slaughtered was 518 out of which 207 were females and 311 were males. This implies that majority (60.03 %) preferred to slaughter bucks while 39.96 % preferred does. The highest monthly slaughter was recorded in August (112 goats) while the lowest recorded goats slaughter figure was in May (46). The highest monthly slaughter recorded in August (112) could be alluded to the increased demand of goat meat associated with the season of new yam festival, a traditional ceremony in Umuahia. This finding agrees with Wosu (1988) and Akpabi & Babalola (2014) who reported that season or period of the year as a major factor contributing to the high rate of slaughter of pregnant animal. Religious and traditional ceremonial activities are not the same for all the months of the year. Rather, they vary and the period coinciding with these activities definitely record more slaughter of animals such as goats for entertainment of guests and families.

The result of this study revealed very poor ante-mortem inspection (24%) on the goats prior to slaughter at the slaughter slab throughout the period of this study which may have contributed to the high number of pregnant does slaughtered. This agrees with the findings by other studies (Wosu & Dibua, 1992; Bello *et al.*, 2008; Terzungwe & Danjuma, 2010) that thorough ante-mortem examination is lacking at the various goat markets/slaughter slabs, which may have contributed to the high number of foetal wastage

reported in such places. The low rate of ante mortem inspection in slaughter slabs could possibly be due to few numbers of Veterinary Doctors and animal health personnel employed by the State government. Another cause of foetal wastage is ignorance of the livestock farmers and traders as well as abattoir workers on the reproductive status of the does prior to slaughter. In the course of this study, majority of the fetuses recovered from the slaughtered pregnant does were within the first and second trimesters. At the first and second trimester, it is usually difficult to detect pregnancy by simple ballotment especially for the untrained farmers and abattoir workers where the Veterinary personnel is not available.

It was observed that within the period of this study that, 130 out of the 207 does slaughtered were pregnant at various gestation lengths and a total of 182 foetuses were recovered, with 40.11 % of them being females. This result portends great danger to the reproductive efficiency of the goat population in Umuahia, as more females are required in reproductive processes. This agrees with the assertion of Ayodele *et al.*, (2003) who reported that the practice of slaughtering female animals is a deterrent to animal production.

The average monthly percentage of foetal wastage (14.31 %) obtained from this study in Umuahia was higher than the 3.9 % reported in Benue State (Oyekunle *et al.*, 1992), 4.44 % in Niger State (Cadmus & Adesokan, 2010), 8.2 % obtained in Ogun State (Fayemi *et al.*, 2008), and 9.15 % reported in Ebonyi State by Nwakpu *et al.* (2007).

The findings in this study also showed that one foetus was wasted for every two to three goats slaughtered. This ratio is higher than the ratio of 1:14 and 1:4 reported by Fayemi *et al.*, (2008) at four abattoirs in Ogun State and Nwakpu & Osakwe (2007) in Ebonyi State of Nigeria, respectively. Also Ndi *et al.* (1993) reported a ratio of 1:4 from a study conducted in Cameroon goat abattoir. This showed that the foetal wastage in Ahiaeke goat slaughter slab is quite alarming and effort should be geared towards instituting daily ante mortem examination of the goats prior to slaughter with emphasis laid on pregnancy diagnosis. This will help

abate the rising menace of dwindling goat population especially with rapid increase in population of the country, and demand for animal protein especially if we are to meet the Food and Agricultural Organization (FAO) required recommendation of 35g/head/day of animal protein for good health in human population which is a far cry from the average consumption of 4.5g/head/day reported in Nigeria (Atsu, 2002).

Care should be taken to curb the destruction of embryos and foetuses at slaughter slabs to prevent the eventualities of future importation of goat meat into the country to make up for the wastage at various abattoirs (Bokko, 2011).

The results obtained from this study ascertain that foetal wastage occurs in Ahiaeke goat slaughter slab, Umuahia. Foetal wastage is a common finding and it is recorded almost daily across abattoirs/slaughter slabs in Nigeria. This is very similar to the findings reported by Bello *et al.* (2008), Abdulkadir *et al.* (2008), Oduguwa *et al.* (2013), Ardo *et al.* (2013), Odeh *et al.* (2015) and Mshelia *et al.* (2015).

CONCLUSION

Findings from this study point to the fact that some factors like inconsistencies in ante mortem inspection on the goat before slaughter, ignorance on the part of farmers, butchers, and policy makers on proper management of pregnant animals in the market/slaughter slabs may have contributed to the foetal wastage and the slaughter of pregnant does recorded within the period of study. It is necessary for the State to employ more Veterinarians and distribute them to all the registered abattoirs/slaughter slabs to ensure proper and strict ante mortem inspections. Strict policies prohibiting the slaughter of pregnant animals should be created and implemented. Public enlightenment on the adverse effects of foetal wastage on livestock productivity is also very pertinent if foetal wastage will be drastically reduced.

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