

## ASSESSMENT OF FOETAL WASTAGES OF SHEEP AND GOATS SLAUGHTERED IN MINNA MUNICIPAL ABATTOIR

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### ABSTRACT

A study was conducted to evaluate the incidence of foetal wastages of sheep and goats slaughtered in Minna municipal, Niger state, Nigeria. Data used in the study were obtained from daily records on sheep and goats of animals slaughtered at the Minna municipal abattoir. The results showed a total of 3,813 goat and 618 sheep were slaughtered. From which 126 gravid goats and 42 gravid sheep were obtained. The cumulative percentages of foetal losses recovered from the two species of study were 82 (47.40%) males and 91 (52.60%) females for goats and 21 (40.38%) males and 31 (59.62%) females for sheep, respectively. Similarly, increased incidence rate of foetal wastages occurred during the third trimester in both species of animals. The mean crown rump lengths of the fetuses significantly correlate with the gestational age and the mean weights of the foetuses. The outcome of this study shows a great danger to livestock population growth in the study area. Therefore, adequate enlightenment should be stepped up to sensitize the livestock farmers and butchers on the need to have basic knowledge of pregnancy detection.

**Key words:** Abattoir, foetus, gravid, slaughter

### INTRODUCTION

Sheep and goats belong to the family Ovine and Caprine with their meat commonly called mutton and chevon, respectively. In some places however, mutton is used to describe both sheep and goat meat and the taste of goat kid meat was reported to be similar to that of spring lamb meat (Idahor, 2009a). They play significant roles in the daily nutrition and lives of humans. They are increasingly becoming a major source of animal protein in Nigeria, contributing over 30 percent to total meat consumption in the country (Oni, 2002). They are multipurpose animals whose products include milk, meat, skin, hair and bones. They serve as source of income, provide raw materials for industries and often used for religious sacrifices, games and researches (Idahor, 2009b). They seem to survive, grow and reproduce comfortably well in conditions that are difficult for other animals to survive. People cherish the meat obtained from sheep and goat due to their special attributes such as succulence. They are one of the earliest stable protein sources available to man during civilization transition from hunting to animal agriculture (Apple, 2006). Nigeria is among the top six countries of the world in goat meat production (Innocent, 2010). However, globally, Nigeria fall among countries with very low per person production and consumption of animal protein Nwakpu and Osakwe(2007). Economic livestock management demands that animals sold for slaughter should be mainly males or reproductively inactive females (Opara *et al.*, 2006; Abdulkadir *et al.*, 2008; Cudworth *et al.*, 200; Peter and Muchenj (2013). Contrary to this, pregnancy status of animals being slaughtered for meat still remains a hideous issue in many countries (Abele *et al.*, 2001; Warriss, 2008). Studies have shown that not only the conventional non breeding livestock are slaughtered for meat but also the productive pregnant and lactating

ones (Gregory and Grandin, 2007; and Adama *et al.*, 2011).

Foetal wastage has been reported to account for about 20-25% of the fall in livestock production in Sub-sahara Africa (Chaudhari *et al.*, 2000). However, the actual foetal waste in Niger state have not been documented, therefore, an in-depth study of foetal wastages in Minna abattoir is needed. This study was aimed at assessing the magnitude of foetal losses due to slaughtering of pregnant ewes and does and to determine the age and weight of the foetuses collected from the slaughtered gravid ewes and does in Minna abattoir.

### METHODOLOGY

**Study area and description:** The study was carried out at Minna Municipal abattoir located within Minna metropolis, North Central Nigeria. Minna is situated between latitude 9° 31' and 9° 45' North and longitude 7° 31' and 6° 45' East. Its mean annual rainfall is 1200-1300mm, mean annual temperature 28 – 39 °C and it is located in the Southern Guinea Savannah vegetation belt of Nigeria. Minna is characterized by two seasons, the wet season (May - October) and the dry season (November-April). The abattoir is owned by Niger State Government and managed by the Ministry of Livestock and Fisheries Development (Adama *et al.*, 2011).

**Data Collection:** Daily visit was made to the Minna municipal abattoir by 6:30a.m. This was done for a period of 12 weeks (July- September, 2014). Prior to slaughtering of the animals, data related to the sex of the animals were collected by observation, counting and separating just before the animals were led to the slaughter slab.

Data were collected on the total number of slaughtered animals and their sex, pregnancy status; weight and



the age of the fetuses respectively.

#### Age Determination of the Foetuses

The pregnancy status of the ewes and does were first determined by visual assessment of the exposed uterus after slaughter. If foetuses were present, the uteri were dissected with a sharp knife to expose the foetus. Ages of the slaughtered foetuses were determined by measuring the crown rump length of the foetus and equating it to the gestation period according to the procedure of Richardson *et al.* (1990).

The age of the foetuses recovered were classified according to stage of pregnancy as follows:

|                           |                    |
|---------------------------|--------------------|
| Crown rump length 0-5cm   | = First trimester  |
| 0-50 days                 |                    |
| Crown rump length 6-21cm  | = Second trimester |
| 51-100 days               |                    |
| Crown rump length 22-50cm | = Third trimester  |
| 101-150 days              |                    |

**Statistical Analysis:** Data from this study was analyzed using simple descriptive statistics such as mean and percentage to determine the incidence of foetal wastages. Chi-square test was employed to analyze for the means and standard error of the foetal weight and crown rump length of the foetuses for all trimesters with graphs plotted using Microsoft excel 2010.

#### RESULTS AND DISCUSSION

The outcome of this study showed that a total number of 2,667 bucks and 1,146 does slaughtered, whereas a total number of 298 rams and 324 ewes were slaughtered (Tables 1 and 2).

The result also revealed that a sum total of 82 male foetuses and 91 female fetuses were recovered from the 126 gravid does slaughtered while a total number

of 21 male foetuses and 31 female fetuses were recovered from the 42 gravid ewes slaughtered (Figures 1 and 2). These kind of losses contribute immensely to the inability of Nigeria to meet the required animal protein of the nation. It is in agreement with Ayodele *et al.* (2003), Salami *et al.* (2011) and Adama *et al.* (2011) who all reported that the wastages could be due to the lack of pregnancy diagnosis on the animals prior to slaughtering, human negligence and desperate financial situation faced by the rural livestock farmers.

This study revealed that, the foetuses of goats and sheep obtained within the months of study differ significantly ( $p < 0.05$ ). For goats, the record in July shows the highest number of foetal wastages to be 78 (45.09%) whereas for sheep the highest number of foetal wastages was recorded in August to be 28 (53.85%). This could be because the period was close to Islamic festivity time and increased financial need for farming activities (buying of inputs for farming) as reported by Gatze (2004) and Adama *et al.* (2011). The authors reported that most of the slaughtered animals at the abattoirs are from the agro-pastoralists who depend on the money realized to fulfill several financial obligations such as school fees irrespective of the productive status of the animals.

Table 3 and 4 showed reports of foetal wastages for both goats and sheep in the three trimesters of pregnancy. Occurrence of foetal wastages were more significant ( $p < 0.05$ ) during the second and third trimesters of pregnancy. Similar results were reported by Salami *et al.* (2010) who attributed this to knowledge gap (ignorance) on the side of the livestock farmers and local butchers as it relates to the detection of pregnancy in animals.

**Table 1. Proportion of goat slaughtered for the month of July, August and September, 2014 in Minna municipal abattoir**

| MONTHS       | TNGS | NBS  | %BS   | NDS  | %DS   | NPDS | %PDS  |
|--------------|------|------|-------|------|-------|------|-------|
| July         | 1204 | 919  | 76.33 | 205  | 23.67 | 63   | 22.11 |
| August       | 1246 | 880  | 70.63 | 366  | 29.37 | 50   | 13.66 |
| September    | 1363 | 868  | 63.68 | 495  | 36.32 | 13   | 2.66  |
| Total        | 3813 | 2667 | 69.94 | 1146 | 30.06 | 126  | 10.99 |
| Monthly mean | 1271 | 889  | 69.94 | 382  | 30.06 | 42   | 10.99 |

TNGS = Total number of goats slaughtered; NBS= Number of bucks slaughtered;

%BS = Percentage of bucks slaughtered; NDS= Number of does slaughtered;

%DS = Percentage of does slaughtered; NPDS=Number of pregnant does slaughtered;

%PDS =Percentage of pregnant does slaughtered;

MM =Monthly mean

**Table 2 Proportion of Sheep Slaughtered for the month of July, August and September, 2014 in Minna municipal abattoir**

| MONTHS       | TNSS | NRS | %RS   | NES | %ES   | NPES | %PES  |
|--------------|------|-----|-------|-----|-------|------|-------|
| July         | 302  | 181 | 59.93 | 121 | 40.07 | 12   | 9.92  |
| August       | 138  | 34  | 24.64 | 104 | 75.36 | 22   | 21.15 |
| September    | 178  | 79  | 44.38 | 99  | 55.62 | 8    | 8.08  |
| Total        | 618  | 294 | 47.57 | 324 | 52.43 | 42   | 12.28 |
| Monthly mean | 206  | 98  | 47.57 | 108 | 52.43 | 14   | 12.28 |

TNSS=Total number of sheep slaughtered; NRS= Number of rams slaughtered;  
 %RS= Percentage of rams slaughtered; NES= Number of ewes slaughtered;  
 %ES= Percentage of ewes slaughtered; NPES= Number of pregnant ewes slaughtered;  
 %PES=Percentage of pregnant ewes slaughtered;  
 MM=Monthly mean

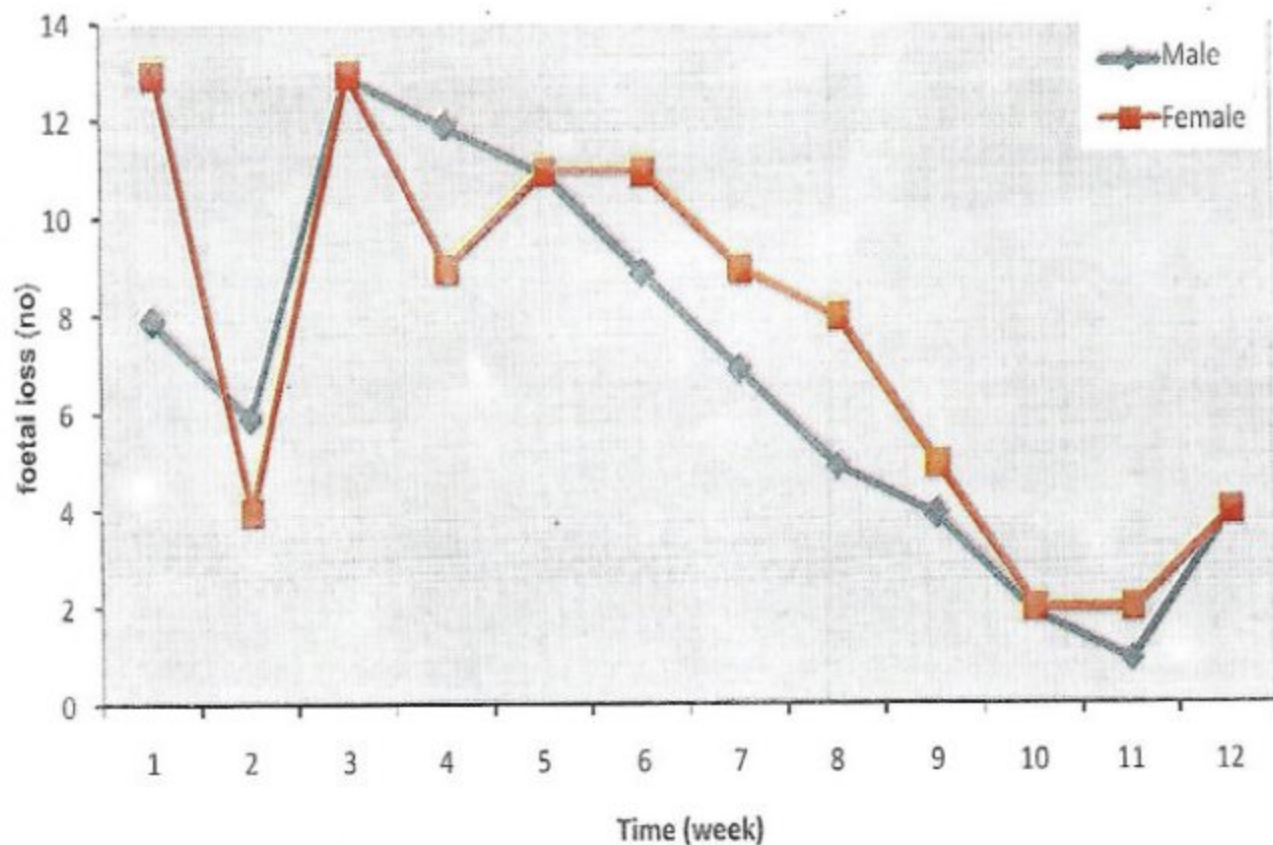




Figure 1: Incidence of foetal wastages of goats slaughtered in Minna municipal abattoir

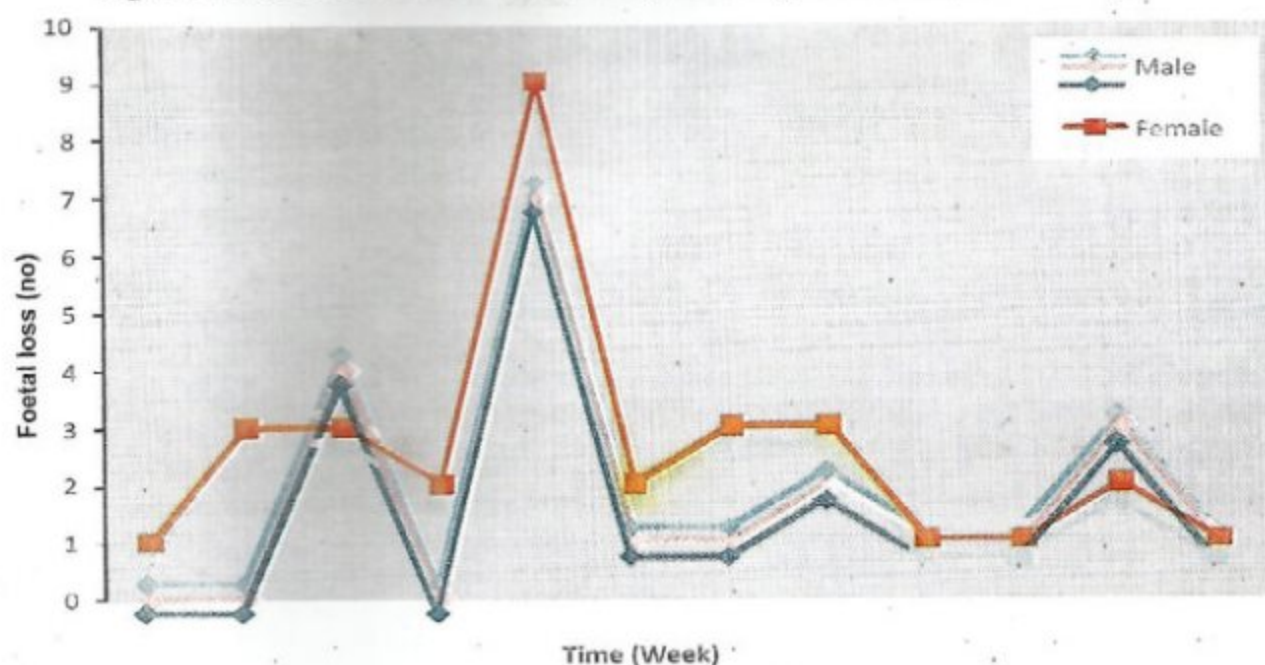


Figure 2.: Incidence of foetal wastages of Sheep slaughtered in Minna municipal abattoir.

Table 3 Mean gestational age and weight of goat fetuses obtained in Minna municipal abattoir

| Trimester            | 1st             | 2nd              | 3 <sup>rd</sup>  |
|----------------------|-----------------|------------------|------------------|
| Crown rump length    | 4.2857 ± 0.0939 | 17.1718 ± 0.4290 | 30.7665 ± 0.6506 |
| Foetal weight        | 0.0319 ± 0.0035 | 0.3268 ± 0.0157  | 1.0704 ± 0.0586  |
| Number of foetus     | 21              | 71               | 81               |
| Level of significant | **              | **               | **               |

\*\*=significant (P&lt;0.01)

Table 4 Mean gestational age and weight of sheep fetuses obtained in Minna municipal abattoir

| Trimester            | 1st             | 2nd              | 3 <sup>rd</sup>   |
|----------------------|-----------------|------------------|-------------------|
| Crown rump length    | 3.8374 ± 0.1497 | 17.6217 ± 0.5939 | 31.8769 ± 1.5733  |
| Foetal weight        | 0.0300 ± 0.0080 | 0.3261 ± 0.0253  | 1.1808 ± 0.147426 |
| Number of foetus     | 8               | 23               | 26                |
| Level of significant | **              | **               | **                |

\*\*= significant at (P&lt;0.01)

**CONCLUSION AND RECOMMENDATION**

The outcome of this study revealed that higher numbers of female foetuses were wasted than male foetuses from the slaughter of gravid goats and sheep in the study area. This indicates the wastage of future reproductive female animals and the overall potential reduction in animal population of the region. The predominant foetal losses were recorded in the third trimester of pregnancy. Based on the findings of this research study, the following recommendations are made:

Peasant pastoralists and local butchers should be

sensitized on how to detect pregnancy on animals especially at their early stage.

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