Foetal wastage in goats slaughtered in Zaria abattoir, Northern Guinea Savanna zone of Nigeria

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Abstract

The study was carried out with the aim of determining the age and percent wastage of foetus due to the slaughter of pregnant does in Zango Abattoir, Samaru, Zaria. Out of a total of 680 female goats slaughtered during three months (January to March, 1998), 275 (40.44%) of them were pregnant. From the pregnant uteri, 460 foetuses were recovered and used for the study. Out of the recovered foetuses 41.09, 21.82 and 37.09% were twins, triplets and single respectively. The weight as well as the crown-rump length of the foetuses were measured and the results obtained were used to determine their estimated ages. It was found that the highest percentage (46.2%) of the foetuses fell within the first trimester of pregnancy, while the second and third trimesters had 30% and 23.8%, respectively. The correlation between the weight and length of the foetuses was positive and significant ($r=0.928$, $P<0.001$), while the relationship between the weight and age as well as that between the length and age were also positive and significant ($r = 0.909$ and 0.990 , $P<0.001$) respectively. The regression equations and the results of the correlation analysis showed that the gestational age of the local breeds of goats can be accurately estimated by crown-rump length measurement. It was concluded that complete lack of pregnancy diagnostic test on does before slaughtering in the abattoirs resulted in heavy losses of foetuses, which call to question the role of the veterinary personnel at the abattoir with the consequence reduction in the availability of animal protein in the country. The study also gave an insight into the use of two easily measured variables: foetal weight (FW) and Crown rump length (CRL) as a means for age estimate in goats.

Key words:- Foetal wastage, pregnant does, Slaughter

Introduction

The survival of goats under harsh tropical environment, together with their fertility and reproductive rates, efficiency in food

conversion, the variety of feeds on which they can subsist and their relative resistance to diseases are some of their potentials that make their keeping by the rural populace profitable

(Ademosun, 1988). The ownership of small ruminants in Nigeria is regarded as an investment. They are sold to meet compelling family financial obligations or slaughtered for consumption at home, especially during festivals. It has been observed that with all the aforementioned potentials of the goat, shortage of animal protein supply still remains a major problem confronting the ever-increasing human population in the country (Ademosun, 1992). One of the major factors contributing to this insufficiency in animal protein is foetal wastage (Ojo *et al.*, 1977). A source of wastage well recognized by abattoir personnel but perhaps overlooked by government, veterinarians and stockowners is the slaughter of pregnant animals (Ladds *et al.*, 1975; Ojo *et al.*, 1977). Regrettably, studies on wastage as a result of foetal losses have received little or no attention, hence the reason for this study. The aims of the present study were to determine the degree of foetal losses from slaughter of female pregnant goats, and to estimate gestational ages of the foetuses.

Materials and Methods

At least five visits were made to the Zango abattoir, Samaru-Zaria (Northern Nigeria) in a week during the study period of three months. Observations and recordings of the number of foetuses recovered from uterus of each slaughtered pregnant goat were made. A total of 680 uteri were opened with scapel blade and examined for foetus(es). Foetuses were recovered from pregnant uteri and their weights as well as crown-rump lengths were measured

and recorded, using weighing balance and thread, respectively. For the crown-rump length measurement, each foetus was stretched out on a flat tray such that the nasal bones were at right angle to the long axis of the body. A thread was then used from the medial canthus on the skull to the sacrococcygeal joint; that is, between the last sacral and the first coccygeal vertebral bone following the contour of the back. The length of tread was then taken with a meter rule. The value obtained was recorded to the nearest millimeter (mm). For the measurement of the weight, the foetuses were cleaned and dried of blood and fluid using a clean towel or blotting paper. Thereafter, each foetus was placed on a weighing balance and the weight was taken to the nearest milligram (mg). Data obtained were subjected to statistical analysis using Student's t-test and correlation analysis. The weight and crown-rump length values were used to estimate the gestational ages of the recovered foetuses using regression equations.

Results

Out of a total of 680 female goats slaughtered during the period of study, 40.44% (275) were pregnant. From the number of pregnant uteri, 508 fetuses were recovered. Pregnant uteri containing twins and triplets constituted 41.09% and 21.82% respectively of the uteri examined (Table 1). Table 2 shows the mean values and ranges of the weight and crown-rump length as well as the estimated gestational ages of the recovered fetuses. It was observed that 46.2% of the recovered foetuses fell within the first trimester, while 30% and 23.8% were within the

Table 1: Birth type and number of fetuses recovered from uteri of pregnant does.

Birth type	No of Pregnant Uteri Examined	Total No of Foetuses examined	Percentage (%) per birth type
Single	102	102	37.09
Twins	113	226	41.09
Triplets	60	180	21.82
Total	275	508	100

Table 2: Estimated age, Weight, Crown-Rump Length of fetuses and number of fetuses within estimated age

Number of fetuses within the estimate	Foetal Weight (gm) (Mean $\pm$ SEM)	Crown-Rump Length (cm) (Mean $\pm$ SEM)	Estimated Age (Days)
146	2.4 $\pm$ 1.3	5.2 $\pm$ 0.7	1 - 30
119	33.3 $\pm$ 27.0	8.5 $\pm$ 1.8	30 - 60
106	166 $\pm$ 87	20.3 $\pm$ 5.0	60 - 90
75	627.3 $\pm$ 168	28.6 $\pm$ 2.0	90 - 120
62	1345.0 $\pm$ 310	37.8 $\pm$ 5.3	120 - 150

n=508

second and third trimesters, respectively (Table 3). The correlation between the weight and length of the foetus was positive and significant ($r = 0.928$, $P < 0.001$). There was a positive and significant correlation between the weight and age ($r = 0.909$, $P < 0.001$) as well as between the length and age ($r = 0.990$, $P < 0.001$) of the fetuses.

The regression equation describing the relationship between the length and age of the foetuses is shown in equation 1 below:

$$Y = .448 + 20.762 X \quad (1)$$

Where x is the length and y is the age of the

recovered fetuses. Equation (2) below describes the relationship between the weight and age of the foetuses

$$Y = 56.317 + 0.0769 X \quad (2)$$

Where y is the age and X is the weight of recovered foetus.

Discussion

The fact that 275 (40.6%) pregnant uteri were found among the 680 does slaughtered in one abattoir in three months showed that wastage through this means contributed considerably to the inability of Nigeria to meet the animal protein

Table 3: Classification of fetuses according to estimated gestational age

Trimester (Weeks)	No. of Foetuses	Percentage (%)
1st (1 – 7)	265	52.16
2nd (8 – 15)	181	35.63
3rd (16 – 22)	62	12.21

requirement as a nation. The magnitude of this foetal wastage can be better appreciated by extrapolating the figure in the present study. On the basis of the figure obtained, the number of pregnant does slaughtered annually will be 3,300 from only one source out of so many sources in the area of study. The figure becomes even more significant when extrapolated to expected results from other slaughter establishments (both recognized and unrecognized ones) around the country. Since goats are kept, especially by the rural populace, principally as a source of domestically generated rural cash, they are sold by farmers regardless of their physiological status in order to overcome periods of cash shortages in the family (Hunter, 1989). The high percentage of slaughtered pregnant female was attributable to the important role played by goats during cropping activities, especially in the rural areas of the country. It has been observed that goats are usually sold at the beginning of the rainy season, and the cash earned is used for the purchase of farm inputs such as fertilizers and herbicides, and clearing of land for planting (Von Kanfmann *et al.*, 1986). They are also sold during the dry season when feeding becomes very difficult as a result of feed scarcity (Ademosun, 1988). This assertion is in line with the results

of the observation which was carried out during this period (January – March). The finding that about 62.91% of the wasted pregnancies are of multiple birth confirmed the prolificacy of goats and emphasized its potential as one of the major sources of animal protein supply as reported by Osuagwu and Aire (1986), Ademosun (1992) and Sivachelva *et al.* (1996). The potentials of prolificacy and attainment of sexual maturity at a very early age may be other reasons that encourage the act of slaughtering female goats, regardless of their reproductive status (Wilson, 1989). The finding that 52.16% of total foetuses were recovered within the first trimester call to question the role of the Veterinarian attached to the abattoir and also suggest to the ineffectiveness or lack of adequate pregnancy diagnostic method at the abattoir. That 47.84% of the pregnant goats slaughtered were within the second and third trimester, when mere normal ante-mortem inspection of the animal and abdominal ballotment will reveal pregnancy, was an evidence of the desperate situation the rural farmers found themselves, and the negligence of government to implement policies of subsidy and loan facility to the rural farmers that will prevent or reduce the practice. Equations 1 and 2 give the estimated age of the foetus

without applying the method described by Osuagwuh and Aire (1986). The equations complement the method of Sivachelvan *et al.* (1996) and propose an alternative to the conventional method of estimating age of foetus. The correlation analysis indicates that for the purpose of estimating age of foetus in the local breeds of goats in the Northern Guinea Savanna zone of Nigeria, length rather than weight gives a more accurate value. The results agree with the findings of other investigators (Dun, 1955; Dhingra and Tyagi, 1974; Richardson *et al.*, 1976). Given the important role and potential of goats in meeting the animal protein demand of our nation, it is suggested that government should give monetary incentive to the rural farmers, especially during dry and planting seasons to prevent the sale and subsequent slaughter of pregnant animals. Alternatively, pregnant goats brought to the abattoir should be bought off the owners by government and kept in lairage till parturition. The sale of pregnant goats can be reduced or eradicated completely, if government provides goat farmers with subsidized farm inputs such as fertilizers and herbicides and also subsidize the cost of farm clearing, to discourage them from selling their pregnant animals at the commencement of the rainy season. Also pregnancy test should be made mandatory at the abattoir.

Conclusion

The results of this study revealed that foetal wastage as a result of the slaughter of pregnant does has a far reaching effect on the income to the producer and revenue generation in the livestock sub-sector. It also revealed lack of

pregnancy diagnosis before slaughtering which eventually led to heavy loss of fetuses with the consequent reduction in the availability of animal protein in the country. The study also gave an insight into the use of two easily measured variables i.e foetal weight (FW) and Crown rump length (CPL) as a means for age estimation of goat fetuses.

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