



Economic implications of small ruminant foetal wastage: A case study of Jalingo abattoir, Taraba State

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Abstract

Small ruminants which are mainly sheep and goats play significant role in providing food and financial security for rural populations. However, the slaughter of breeding stock and pregnant animals serves as threat to the production of these animals because of foetal wastages. This study was conducted to determine the proportion of foetuses destroyed due to slaughter of pregnant sheep and goats in Jalingo abattoir, Taraba State, and the consequent economic implications. The abattoir was visited every day for a period of two months between August and September, 2017. The number of pregnant sheep and goats slaughtered, and foetuses wasted were recorded. Data obtained were analyzed using descriptive statistics. A total of 3,455 goats and 1554 sheep were slaughtered during the study period and 313 (22.1%) out of 1417 does, 341 (27.4%) out of 1,243 ewes were pregnant respectively. 368(23.1%) fetuses from pregnant does and 386(31.1%) foetuses from pregnant ewes were wasted. There was an estimated economic loss of ₦ 3,404,000.00 and ₦ 10,615,000.00 from goats and sheep respectively. These values hold at \$9,455.55 and \$29,486.11. The study revealed that foetal wastage was high in Jalingo abattoir with a consequent high economic loss in the livestock industry. Foetal waste also presents a threat on food security with resultant effects of decreased nutritional values of animal origin to humans. Proper ante mortem inspection especially, pregnancy diagnosis, should always be carried out prior to slaughter to curtail foetal wastages and most importantly, laws prohibiting the slaughter of pregnant sheep and goats be enforced, and policy efforts should concentrate on instituting routine veterinary checks at control posts and abattoirs.

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Introduction

Small ruminants play a significant role in providing food and financial security for rural populations, especially in developing countries (Alhaji & Adetokun, 2013). Sheep and goats are the main small ruminants in the Nigerian livestock industry and provide bulk of protein, essential minerals and vitamins. The population of sheep and goat in

Nigeria was estimated as 38.5 million and 57.4 million, respectively (FAO, 2014), with annual growth rates that are too low to satisfy the requirements of the increasing human population.

Nigeria falls among countries with very low per capital production and consumption of animal protein (Nwapku & Osakwe, 2007). The mean

protein intake (meat, milk, eggs and fish) per capita per day in Nigeria has been estimated at 14.85 g, with meat alone representing 6.8 g. Human population of Nigeria grows with an estimated 3.5% per year and livestock resources grow between 0.8% and 2.9% per year (Alhaji & Adetokun, 2013). With the growth rate of small ruminant production being too slow to cope with the per capital requirements in Nigeria, boosting their production will be necessary. This phenomenon has attracted huge profits, but the undesirable slaughtering of breeding stock and pregnant animals, serves as threat to the production of these animals (Chaudhari & Bokko, 2000; Taiwo *et al.*, 2006; Alhaji *et al.*, 2015).

The causes of foetal wastage may be driven by economic force, limited veterinary and extension services in rural areas, sale of animal without knowing their physiological status and in-efficient ante mortem inspection in our abattoirs (Chuko *et al.*, 2015; Nonga, 2015). This practice frustrates the efforts of geneticists, nutritionists and cattle breeders, and is a drain on breeding animals, thus widening the gap of animal protein between the ever increasing human populations (Dawuda *et al.*, 2013)

There is paucity of data on the economic losses due to small ruminant foetal wastages from Jalingo which may hinder the need for strategic planning and decision making on animal feed and security in Taraba state as a whole. This study is aimed at estimating the magnitude of small ruminant foetal wastage and its economic implication at Jalingo abattoir.

Materials and Methods

The study was carried out at Jalingo abattoir, Taraba State. Jalingo has a total land area of about 1,380km² with a projected population of about 140,661 and a projected rate of about 243,573 inhabitants (NPC, 2006).

The study was conducted over a period of two months, August to September, 2017. Visits were made to the abattoir from 5:00 to 6:00 am on a daily basis for the duration of the study and data on slaughtered pregnant small ruminants that were collected.

Sheep and goats brought to the abattoir for slaughter were counted before they were slaughtered. Samples of foetuses were collected at the point of slaughter by making incisions on uterus. Their number was recorded daily for the period under study, total number recovered after slaughter

was recorded and analyzed to determine the percentage of slaughtered pregnant ewes and does. Values generated were analyzed using descriptive statistics. Prevalence of pregnant females was expressed as proportion of the total number of female animals slaughtered. Total number of foetuses wasted over a period of time was divided by the total number of female animals slaughtered and multiplied by 100 to get percentage for that period.

$$\text{Prevalence of foetal wastage} = \frac{\text{wasted foetuses}}{\text{Total No. of females slaughtered}} \times \frac{100}{1}$$

$$\text{Prevalence of pregnant female} = \frac{\text{Females pregnant}}{\text{Total No. of females slaughtered}} \times \frac{100}{1}$$

Economic loss was estimated as described by Mshelia *et al.* (2015) and Adeyemi *et al.* (2016). Given that foetuses wasted were allowed to mature into adults and the average price of a mature sheep and goat at the time of the study was ₦ 27,500 and ₦ 9,250, respectively, number of fetuses was multiplied by the average unit price thus; Amount lost = (total number of foetuses wasted) x (the average price of a mature animal).

Results and Discussion

The study revealed that more females (1243) than male sheep (311) were slaughtered during the period of study (table 1) and this is in consonance with a three months study by Swai *et al.* (2015) in Tanzania. The gender difference could be attributed to the fact that more females than males are given birth to. This however, does not apply to goat as more male goat (2038) than females (1417) were slaughtered. Table 1 also reveals that 368 (23.1%) and 386 (31.1%) foetues of goat and sheep, respectively were wasted. The average monthly foetal wastage rate of 11.6% in goats and 24.1% in sheep revealed in this survey is lower than the 57% reported by Mohammad *et al.* (2009) in Gombe, Nigeria. However, it is worthy of note that the sample sizes are different. The rate at which pregnant small ruminants were slaughtered in this study suggests a poor pregnancy diagnosis in the abattoir. This agrees with Muhammad *et al.* (2009) who stated that pregnancy diagnosis is not routinely conducted during ante-mortem inspection in Nigerian abattoirs. It could also be attributed to market value associated with them. Swai *et al.* (2015) agrees with this when they stated that pregnant female ruminants are sold possibly because the phenotypically appear heavier and presentable and consequently sell at higher prices as

Table 1: Number of goats and sheep slaughtered at Jalingo abattoir in August and September 2017

Months	Animal	Total slaughtered	Females (%)	Pregnant females (%)	No* of Foetuses (%)
August	Goat	2,121	905 (42.7)	202 (22.3)	237 (12.4)
	Sheep	905	736 (81.3)	223 (30.3)	259 (35.2)
September	Goat	1334	512 (38.4)	111 (21.6)	131 (10.7)
	Sheep	649	507 (78.1)	507 (78.1)	127 (25.0)
Daily average	Goat	56.6	23.2	5.13	6.1 (0.38)
	Sheep	25.5	20.4	5.6	6.3 (0.51)
Monthly average	Goat	1727.5	708.5	156.5	184 (11.6)
	Sheep	777	621.5	170.5	193 (24.1)
Total	Goat	3455	1417 (41.0)	313 (22.1)	368 (23.1)
	Sheep	1554	1243 (79.9)	341 (27.4)	386 (31.1)

No* = Number

Table 2: Estimated economic losses of foetal wastages from sheep and goats in Jalingo abattoir

Species	Number of animals slaughtered	Number of fetuses	Male	Female	Average unit price (₦)	Economic loss (₦)
Goats	3455	368(23.2%)	173	195	9, 250	3,404,000
Sheep	1554	386(31.1%)	178	208	27, 500	10,615,000
Total	5009	754(15.1)	351	403	36, 750	14,019,000

opposed to the non-pregnant. The financial losses, associated with foetal wastage in this study were ₦3,404,000 for goats and ₦10,615,000 for sheep (Table 2). This sum up to a total of ₦14,019,000 for two months. Given that the price of sheep and goats remain constant, an annual loss will be ₦84,114,000 which is at an alarming rate to the nation.

In conclusion, the percentage of foetal loss was high. The study has indicated that the foetal wastages or losses associated with slaughter of female small stock population is common in Jalingo, Taraba State. Important factors contributing to the increase in slaughter of pregnant stock are lack of pregnancy diagnosis, cash challenges and ignorance amongst livestock keepers and traders, and lack of enforcement of livestock legislations. Producers need to be better informed about the seasonal breeding patterns of food animals in order to avoid disposing them during the season as well as the implication of slaughtering pregnant ewes and does.

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Conflicts of Interest

The authors declare no conflicts of interest.

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