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**INTERNATIONAL JOURNAL OF  
 ADVANCED RESEARCH (IJAR)**

Article DOI: 10.21474/IJAR01/4813  
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/4813>



**RESEARCH ARTICLE**

**ECONOMIC LOSSES ASSOCIATED WITH THE SLAUGHTER OF PREGNANT ANIMALS IN JOS  
 ABATTOIR.**

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**Manuscript Info**

**Manuscript History**

Received: 11 May 2017  
 Final Accepted: 13 June 2017  
 Published: July 2017

**Key words:-**

cattle, economic, foetus, foetal wastage, goats, slaughter

**Abstract**

Meat consumption demand is increasing with the growing population; however, livestock foetal wastage in the abattoirs/slaughter slabs in Nigeria is being documented. The trend of slaughtering pregnant animals is against the existing meat edict of 1968 and this accounts for a decrease in livestock production and huge financial losses which invariably affects the livestock economy. Hence, a 5-year retrospective study (2012-2016) was conducted to assess the level of economic implication of foetal wastages in cattle and goats slaughtered in Jos abattoir. The data collected were analyzed using Microsoft Excel, tables, and a graph chart. The total number of cattle and goat slaughtered and their foetuses were reported as documented. A total of 26,242 cattle and 4,612 goats were slaughtered, representing a yearly 5,250 and 922, monthly 437 and 77, and daily 15 and 2.6 averages respectively. Out of these a total of 1,346 (4.5%) and 1,044 (22.6%) fetuses were wasted representing a yearly 269 and 209, monthly 22 and 17 and daily 0.75 and 0.6 for cattle and goats respectively. The economic loss associated with the total foetal wastages for cattle and goats in the present study was estimated at ₦174,980,000 (\$571,830.07) and ₦10,044,000 (\$328,235.29) respectively. The annual averages of cattle and goat fetal wastage are ₦34,970,000 (\$114,281.06) and ₦2,090,000 (\$6,830.07) respectively. It is, therefore, necessary to implement the law prohibiting the slaughter of pregnant animals through thorough antemortem inspection which will consequently improve the nation's livestock economy.

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**Introduction:-**

Meat consumption as a major source of protein, with human beings at the top of the biological chain, is the main reason for livestock husbandry and slaughter activities in every part of the world (Okoli *et al.*, 2006). The demand for livestock product in developing countries is increasing due to urbanization, changes in lifestyles especially in dietary habits and increasing disposable income. Meat consumption per capita has doubled in developing countries between 1980 and 2002 and this is likely to continue in the near future (Delgado *et al.*, 1999). Both male and female animals are slaughtered at the abattoirs/slaughterhouses for meat and meat products. It is now a trend in the abattoirs to slaughter pregnant animals for meat, rituals, religious festivals, ceremonies, drug formulation, disease control or for financial purposes (Fayemi and Muchenje, 2013; Cadmus and Adesokan, 2010). Food and Agricultural Organization (FAO) estimated that global meat and milk consumption must double by 2050 to meet population growth and it was also estimated that global population will be 9 billion by 2040 (Onteru, *et al.*, 2010; Zakia *et al.*, 2016).

The growth rate of ruminant production is too slow to cope with the per capita requirements in Nigeria, the human population of Nigeria grows with an estimated 3.5% per year and the livestock resources grow between 0.8% and 2.9% per year (Chaudhari and Bokko 2000; Taiwo *et al.*, 2006). The increased demand for animal protein in Nigeria has led to the slaughtering of not only prime breeding males but also pregnant animals resulting in marked fetal wastages in most abattoirs across the country (Oyekunle *et al.*, 1992).

In Nigeria, fetal wastages have been reported by, Abdulkadir *et al.* (2008) in Markurdi abattoir, Benue State, Ngbede *et al.* (2012) in Kaduna State and Bello *et al.* (2008) in Sokoto State, these studies reveal millions of Naira were lost annually due indiscriminate slaughter of pregnant animals. Pregnancy wastage has been reported to account for about 20- 25% of the fall in livestock production in Sub-Saharan Africa (Ngbede *et al.*, 2012)

A law regulating meat inspection in Nigeria has been in existence to conform to World Health Organization (W.H.O.) directives of 1962, that authorize Veterinarians the world over to be in control of meat inspection and that such duty is transferred to the veterinary department. This law (the meat edict, 1968) took effect in 1968. However, despite the provision of this law, which legally outlawed the slaughter of pregnant animals, the practice with its financial and production implications has continued to thrive in this country. However, Lagos State is currently on the verge of implementing this law (Admin, 2016).

Generally, meat inspection in abattoirs provides useful information regarding the quality of meat. However, abattoir surveys have limitations because the data may have been underestimated because of general poor record keeping (Tembo and Nonga, 2015).

The slaughter of pregnant animals has queried the efficiency of antemortem inspections at the abattoir, proved the need for well-equipped Veterinary services for improved herd health management in the state and has frustrated the efforts of livestock husbandry system in increasing animal production to meet the growing demand for animal protein by a growing human population. (Chaudhari and Paul-Bokko, 2000; Addass *et al.*, 2010; Ngbede *et al.*, 2012). This report is intended to evaluate the magnitude of fetal wastages and to assess the economic losses associated with it.

**Materials and Methods:-****Study area and data Collection:-**

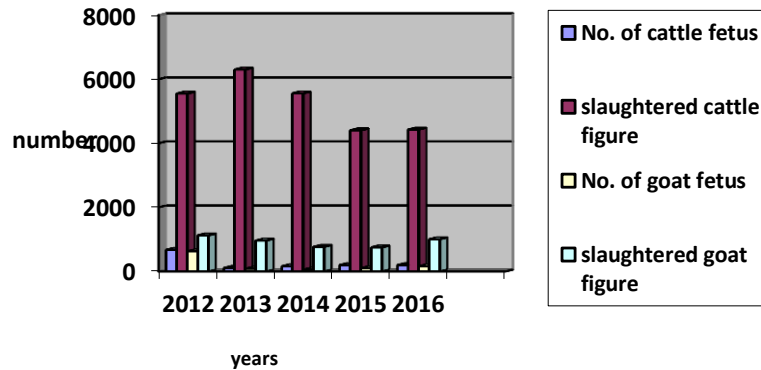
A retrospective study was carried out using Jos abattoir records for cases of foetal losses in cattle and goats over a period of five years (2012 – 2016). Jos is the capital city of Plateau State is located in the North-Central geo-political zone of Nigeria. It is comprised of three local government areas: Jos East, Jos North and Jos South with coordinates between latitude 9°56' North and longitude 8°53' East, having a total land area of 1,821km<sup>2</sup>. Plateau State is the 12<sup>th</sup> largest State in Nigeria with a population of about three million people. The State capital has only one registered abattoir which is the Jos abattoir, and it was established in 1975.

**Data Analysis:-**

The data were analyzed and presented using descriptive statistics such as tables and a graph chart. Economic analysis of losses from fetal wastage was calculated as described by Ngbede *et al.* (2012).

**Results:-**

A total of 1,346 cattle and 1,044 goat fetuses from a total of 26,242 and 4,612 slaughtered animals respectively were documented within the 5-year study period (Table 1). Yearly, total slaughtered figure was highest in 2013 for cattle (6,302) and in 2012 for goats (1,125), while it was lowest in 2015 for both cattle (4,405) and goats (750). A total number of cattle and goats slaughtered at Jos abattoir and the trend of fetal wastages in both species is shown in Figure 1.



**Figure 1:-** An Annual figure of slaughtered animals and fetuses (2012-2016).

**Table 1:-** An Annual Record of slaughtered animal and fetuses with an estimate of financial losses in Jos abattoir (2012-2016).

	2012	2013	2014	2015	2016	Total
Total sl. cattle	5,553	6,302	5,558	4,405	4,430	26,248
No. of cattle fetus	675	112	163	197	199	1,346
Pr. of cattle foetal wastage (%)	2.2	1.8	2.0	9.0	4.5	4.5
Ratio of sl. cattle to foetus	8:1	56:1	34:1	22:1	22:1	20:1
Amount of loss (₦)	87,750,000	14,560,000	21,190,000	25,610,000	25,870,000	174,980,000
Total sl. goats	1,125	964	796	750	1,004	4,612
No. of goats fetus	55.9	9.2	7.4	14.4	16.2	22.6
Pr. of goats foetal wastage	2:1	11:1	14:1	7:1	6:1	4:1
Ratio of sl. goats to foetus	6,290,000	890,000	570,000	1,080,000	1,630,000	10,044,000
Amount of loss (₦)						
sl. - slaughter pr. - proportion						

On the average, the number of cattle and goats slaughtered monthly was 437 and 77 respectively (Table 2) and the cattle and goat fetuses obtained were 22 and 17 respectively. The proportion of fetal wastage for the study period was 4.5% in cattle and 22.6% in goats (Table 2). The highest proportion of fetal wastage was observed in 2012 in both cattle (12.2%) and goat (55.9%) while the lowest proportion (1.8%) for cattle fetal wastage was recorded in 2013 and that for goat (7.4%) was in 2014. Financial losses over the 5-year period due to the wastage of 1,346 cattle and 1,044 goat fetuses when the cost of an average adult cow and goat is ₦130,000 and ₦10,000 (Dunka, H. I, personal communication) respectively is ₦174,980,000 and ₦10,044,000 respectively (Table 2). 2012 recorded the highest fetal wastage in cattle and goat with a value of ₦87,750,000 and ₦6,193,000 respectively. ₦14,560,000 was the lowest amount recorded for cattle in 2013 while ₦570,000 was obtained for goats in 2014.

**Table 2:-** Average daily, monthly and yearly slaughtered cattle and goat, their fetuses' figures and the financial implications.

	Daily	Monthly	Yearly
Total sl. cattle	15	437	5,250
Cattle foetal loss	0.75	22	269
Amount (₦)	97,500	2,860,000	34,970,000
Amount (\$)	229.5	6,732	82,314
Total sl. goats	2.6	77	922
Goats foetal loss	0.6	17	209
Amount (₦)	6,000	170,000	2,090,000
Amount (\$)	183.6	5,202	63,954

sl. – slaughtered

**Discussion:-**

The total number of cattle and goats slaughtered at Jos abattoir during the study period was 26,248 and 4,612 respectively. The yearly average of 5,250 and 922, a monthly average of 437 and 77 and a daily average of 15 and 2.6 were observed in cattle and goats respectively. This result agrees with the findings of Sini *et al.* (2012) that reported a daily slaughter of 15 cattle and a higher daily slaughter of 20 goats in the same abattoir. The disparity could be because of the prospective study carried out by the latter in which data were collected by the researchers themselves as compared with this retrospective study. Aniebo *et al.*, (2009) reported the same disparity in Rivers State, Nigeria, where he cited a daily slaughter figure of 18 cattle and 11 goats in contrast to the records at the State Ministry of Agriculture which showed that 6 cattle and no goats were inspected and slaughtered daily at the same slaughterhouse. The monthly averages of slaughtered cattle reported in this study were higher than the 174 (40.6 weekly) in Lafia abattoir (Idahor *et al.*, 2009) but comparatively, lower than 3,778 in Lafenwa abattoir, Abeokuta (Oduguwa *et al.*, 2013). The annual mean of slaughtered goat (922) was lower than 22,099 in Minna Municipal Abattoir (Alhaji and Odetokun, 2013).

Result from this study suggests that fetal wastage is a common finding and it is recorded almost daily across abattoirs in Nigerian abattoirs (Bello *et al.*, 2008; Abdulkadir *et al.*, 2008; Oduguwa *et al.*, 2013; Ardo *et al.*, 2013 and Odeh *et al.*, 2015). The proportion of cattle and goat fetal wastage expressed as the total number of fetuses documented divided by the total number of cattle and goats slaughtered was 4.5% and 22.6% respectively. This figure is higher than the value reported by Muhammad *et al.* (2008) in cattle (3.0%) and the report by Mshelia *et al.*, (2015) in goats (13%). However, this was lower than the 10.7% reported by Oduguwa *et al.*, (2013) and 8.1% by Fayemi *et al.* (2008) for cattle. The higher fetal wastage reported in this study could be as a result of cattle rustling in and around the State (France-Presse, 2010 and Idegu, 2014). This showed that on the average, one fetus is lost for every twenty cattle (20:1) and one fetus for every four goats (4:1) slaughtered. These figures agrees with the reports of 20:1 by Oyekunle *et al.* (1992) and 19:1 by Fayemi *et al.* (2008) but was lower than the 9:1 findings of Oduguwa *et al.* (2013) in cattle, while Idahor *et al.* (2009) reported foetal loss in every 25 does slaughtered. The high ratio recorded for goats was possibly due to their twinning and rarely multiple births of does compared to cows. The overall higher fetal wastage may be due to the slaughtering of pregnant animals for the purposes of festivals, ceremonies, disease and poverty (Oduguwa *et al.*, 2013).

The financial implications of fetal wastage in this study indicate economic and production losses. Assessing the economic impact of slaughtering pregnant cows and does at Jos abattoir, where an average cattle and goat costs ₦130,000.00 (\$424,84) and ₦10,000.00 (\$32.68) is ₦174,980,000 (\$571,830.07) and ₦10,044,000 (\$32,823.53) respectively for the 5-year study period. Annually, ₦34,970,000 for cattle and ₦2,090,000 for goats are lost in one State. These economic losses are comparable to an estimated ₦ 8,353,800.00 (\$56,828.57) for calf fetal wastage and ₦104,362,830.00 (\$652,267.69) from 2,862 kid fetal wastages at the Minna slaughterhouse reported in a 10-year survey by Alhaji (2011). Mshelia *et al.*, (2015) reported an estimated annual economic value of \$302,400.00 for cattle and \$257,040.00 for goats wasted in Maiduguri. The indiscriminate slaughters of pregnant animals seen in this and other studies have shown to be occurring nationwide. This clearly undermines the implementation of existing laws and the efficacy of antemortem inspection in Nigerian abattoirs. The result of this study when estimated for cattle and goats in the 36 States of Nigeria and the Federal Capital Territory annually, shows that about ₦1,293,890,000 (\$4,228,398.69) and ₦77,330,000 (\$252,712.42) would be lost respectively. This gross production loss if not curbed is presumably going to affect the security of future animal protein sources when human population increases as predicted by FAO (Onteru, *et al.*, 2010; Zakia *et al.*, 2016). Effective implementation of this law, a high

fine for defaulters and strict antemortem meat inspection in abattoirs and slaughter slabs to isolate pregnant animals will eliminate fetal wastages and boost animal production nationwide.

### Conclusion:-

From the findings of this present study, foetal wastages were observed in both bovine and caprine species and the rate is higher in goats than cattle. Such wastages impair the livestock production industry and account for huge financial losses. In order to forestall such occurrences, it is recommended that Nigerian meat edict is implemented nationwide and abattoirs/slaughter slabs are equipped with facilities, modern equipment and sufficient Veterinarians for competent services. Livestock farmers should be educated on the laws prohibiting the slaughter of pregnant animals with the consequent production losses and the labeling of meats from pregnant animals for consumer discretion.

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