

# Wastage of bovine conceptus through indiscriminate slaughter of pregnant cows at Bodija central abattoir Ibadan

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**Abstract.** The unethical act of slaughtering pregnant animals in a bid to provide meat for human consumption is becoming rampant in many abattoirs, the result of which may be economic loss and unavailability of animal proteins for the populace in the nearest future. In this study, a survey was carried out to determine the proportion of fetuses destroyed due to the act of slaughtering pregnant cows. During the survey, a total of 71,898 heads of cattle were slaughtered between June to December 2014 and 28,067 which represent 39% were cow. A total of 28,067 uteri were examined and 10,078 representing 35.9% were gravid uteri. The result of the study showed that a reasonable number of slaughtered cows were pregnant. This gave an opportunity to analyze the economic implications of the act of slaughtering pregnant cows and also create awareness of lots of good hereditary traits that would have been wasted due to this unwholesome act, and also forecast future animal protein shortage as cattle provide a reasonable amount of protein supply to the populace in this part of Nigeria.

**Keywords:** Bovine, Foetal, wastage, awareness, protein, malnutrition.

## INTRODUCTION

Meat from cattle slaughtered at various abattoirs in Nigeria constitutes the largest source of animal protein for Nigerian populace (Idahor et al., 2009b). A prime advantage of animal protein is the amino acid content. Animal proteins are nutritionally complete as they contain all the essential amino acids which human body cannot manufacture but must be obtained from the diet (Maeve et al., 2007). Most plant sources have incomplete proteins, that is, at least one of the essential amino acids is missing (Wu et al., 2014). While different plant sources of protein can be combined to provide complete protein, care is required to combine them in a way that ensures all essential amino acids are present in the correct amount.

In a bid to provide meat for consumption of the human populace, there is unethical practice of slaughtering pregnant animals (Muhammed et al., 2008; Idahor et al.,

2009a). The importance of animal proteins playing a major role in our diet by ensuring good body defense mechanism cannot be over emphasized, so consumption of animal protein in humans is absolutely necessary (Gillespie, 2003; Francesca et al., 2015). Livestock industry is an important asset in Africa, contributing to improved nutritional status and the economic growth of the people. The average consumption of animal protein in Nigeria is estimated at 4.5 g/head/day as against a minimum requirement of 35 g/head/day recommended by the Food and Agricultural Organization of the United Nations (Atsu, 2002), there is therefore a serious shortage in protein intake of an average Nigerian and this is due to the disparity between the average animal growth rate of 1.6% per annum in the livestock production index and the rapid growth rate in human population of 30% per annum. The central bank of Nigeria annual

report showed that there was a decline in the percentage contribution of livestock sector to gross domestic product. If the situation is compared with the rapid growth in human population of 30% per annum with a fertility rate of 5.732 children per woman which gives a fertility ranking of fifth in the world and the diminishing disposable income, an average growth rate of 1.6% per annum in the livestock production index hold a grim prospect for animal protein supply and the situation is tragic.

The economic recession that has been witnessed in Nigeria since the 1980s has brought deterioration in the quality and quantity of animal protein in the diet of Nigerians. This has forced farmers to sell out and consequently slaughtering of not only prime breeding males but also pregnant females (Halle et al., 1999). The destruction of foetuses due to the slaughter of pregnant animals is forbidden by law in nearly all countries of the world (Economic Commission for Africa, 1988) through the animal legislations which have the main objective of protecting animals from unnecessary suffering and harm, the provision also regulate the killing and abuse of animals. In addition to economic recession, the growth rate of ruminant production according to Food and Agricultural Organization (2005) is too slow to cope with the per capita requirements in Nigeria. In a report, the Nigeria livestock resources that was estimated at 15 million cattle and 49 million sheep and goats, have annual growth rate of 0.8 and 2.9% respectively (Taiwo et al., 2006). It is therefore most uneconomical to continue the practice of slaughtering pregnant animals, control of foetal wastage in abattoirs will go a long way in increasing livestock population in Nigeria. The knowledge of the magnitude of bovine foetal wastage in the abattoirs is therefore of paramount importance and it is on this background that this study was taken to evaluate the magnitude, and the significance of foetal wastage caused by slaughtering pregnant cows. The study also enumerates the possible implications of the persistence of such practice with regards to livestock production and economic loss in Oyo State in Nigeria.

## MATERIALS AND METHODS

The study was carried out at Oyo State government owned central abattoir in Ibadan. Ibadan the capital of Oyo State is between latitude 7 and 47 degrees north and longitude 3 degree east, while the central abattoir lies between latitude 7 degrees north and 3 degrees east. The data were collected on Mondays through Saturdays between 06:00 and 11:00 hours for a period of seven months (June to December 2014). The total number of animals; male, female and pregnant ones slaughtered in the abattoir were recorded. The uterus of every slaughtered cow was dissected longitudinally to check whether it is gravid or not, foetus was removed from

gravid uterus and the crown-rum length of the foetus was recorded.

Sexes of the foetuses were determined visually by observing the testicles in males and V-shaped slit in females. However, those that were unidentifiable due to lack of these features were counted and randomized completely as males and females. The weight of the foetuses were estimated in kilogram (kg) using a dial spring table scale (Camry®) and the crown-rump lengths of the foetuses were taken from the forehead to the rump in centimetres (cm), using a measuring tape (Butterfly®) as to determine the age of the foetus. The crown-rump length (CRL) was recorded for each foetus and the approximate age of gestation estimated using the formular:

$$X = 2.5(y + 21)$$

Where X is the age (days) and y is the CRL in centimeter (Arthur et al., 1982).

Foetuses recovered were expressed as the percentage of the total cows slaughtered. The data were subjected to simple descriptive statistics, students t test and ANOVA.

## RESULTS

Within the studied period, the total number of cattle slaughtered was 71,898 of which 28,067 (39.0%) were female and 43,831 (61.0%) were male. The highest monthly slaughter was recorded in December while the lowest was seen in June but the difference was not statistically significant ( $p < 0.05$ ) as shown in Table 1. Among the 28,067 cows slaughtered during this period, 10,078 foetuses were recovered in various trimesters (Table 1).

Foetuses recovered expressed as percentage of the slaughtered cows on monthly basis are shown in Table 1. The monthly percentage foetal wastage ranges from 30 to 40% with the mean monthly percentage of foetal wastage being 35.7%. The highest recorded number of foetuses was in December with 50% of foetuses being female.

Table 2 shows the age of foetuses recovered between June and December 2014. Out of the 10,078 foetuses recovered 7,262 foetuses were recovered in the second and third trimesters. The total number of wasted foetus recovered in the second trimester of pregnancy was highest in the month of December. In the two months of July and December, there is a significant difference ( $p < 0.05$ ) in the foetuses in their first and second trimesters recovered while the months of September and November shows significant difference ( $p < 0.05$ ) in foetuses in their second and third trimesters, and the month of October shows statistical difference between all the three trimesters in the foetuses recovered.

Considering the total foetuses encountered during the

**Table 1.** Monthly slaughtered record of cattle at Bodija central abattoir between June and December 2014.

Month	NCS	NBS	NCOS	%COS	NFR	%PCS	NCOS:NFR	%FW
June	9658	5891	3767	39	1130	11.7	3.3	30
July	9869	6119	3750	38	1200	12.2	3.1	32
August	10108	6267	3841	38	1344	13.3	2.9	35
September	10306	6596	3710	36	1373	13.3	2.7	37
October	10478	6287	4191	40	1593	15.2	2.6	38
November	10656	6394	4262	40	1620	15.2	2.6	38
December	10823	6277	4546	42	1818	16.8	2.5	40
Total	71898	43831	28067	273	10078	97.7	19.7	250
Mean	10271	6262	4010	39	1440	14.0	2.8	35.7

\*Indicate significant difference ( $p < 0.05$ ) between the months. NCS = Number of cattle slaughtered; NBS = Number of bulls slaughtered; NCOS = Number of cows slaughtered; NFR = Number of foetuses recovered; %COS = Percentage of cows slaughtered; %PCS = Percentage of pregnant cows slaughtered; NCOS: NFR = Ratio of cows slaughtered to number of foetuses recovered; %FW = Percentage of foetal wastage.

**Table 2.** Age distribution of foetuses recovered from the slaughtered pregnant cows.

Month	1 <sup>st</sup> trimester	2 <sup>nd</sup> trimester	3 <sup>rd</sup> trimester	Total
June	320	400	410	1130
July	306 <sup>a</sup>	500 <sup>a</sup>	394	1200
August	380	450	514	1344
September	400	608 <sup>b</sup>	365 <sup>b</sup>	1373
October	450 <sup>c</sup>	720 <sup>c</sup>	423 <sup>c</sup>	1593
November	500	680 <sup>d</sup>	440 <sup>d</sup>	1620
December	460 <sup>e</sup>	758 <sup>e</sup>	600	1818
Total	2816	4116	3146	10078

Superscripted items indicates significant difference in the trimesters when compared within the same month. 1<sup>st</sup> trimester = 1-3 months; 2<sup>nd</sup> trimester = 4-6 months; 3<sup>rd</sup> trimester = 7-9 months.

**Table 3.** Male to female foetal ratio from June to December 2014.

Month	Male foetus	Female foetus	% sex ratio
June	520*	610*	46:54
July	580*	620*	43:57
August	682	662	51:49
September	673	700	49:51
October	793	800*	50:50
November	820*	800*	51:49
December	908*	910*	50:50
Total	4976	5102	49:52

\*Indicate significant difference ( $p < 0.05$ ) between the months.

study, 4976 (49.37%) were male and 5102 (50.63%) were female. The average monthly sex ratio for the recovered foetuses was 48.48:51.52. There is a significant difference ( $p < 0.05$ ) in the male and female foetuses in the months of June, July, November and December with the month of December having the highest number of male and female foetuses recovered (Table 3).

Table 4 shows the weight differentials between the male and female foetuses within the period of June to

December of 2014. The total weight of the male foetuses was 7874.24 kg with average weight of 1.51 kg while that of female foetuses was 7416.04 kg with average weight of 1.39 kg. The study shows that the male foetuses have weight advantage over the female foetuses.

## DISCUSSION

The total number of cattle slaughtered during the studied

**Table 4.** Weight differentials between the males and females fetuses from June to December 2014.

Month	Male			Female		
	MF	Wt (kg)	Ave wt (kg)	FF	Wt (kg)	Ave wt (kg)
June	520*	624.0	1.20	610*	518.50	0.85
July	580*	870.0	1.50	620*	886.60	1.43
August	682	647.9	0.95	662	575.94	0.87
September	673	578.8	0.86	700	574.00	0.82
October	793	951.60	1.20	800	912.00	1.14
November	820*	2050.00	2.50	800*	1856	2.32
December	908*	2151.96	2.37	910*	2093	2.30
Total	4,976	7874.24	1.51	5,102	7416.04	1.39

\*Indicate significant difference ( $p < 0.05$ ) between the months. MF = Male foetus; Wt = Weight in Kilogram; Ave wt = Average weight in Kilogram; FF = Female foetus.

period at the abattoir was 71,898 with a monthly average of 10,271 and daily average of 393. This is higher than a monthly average of 195 (7 per day) recorded at Gboko abattoir in 2006 between July and October by Odoh et al. (2008). Muhammed et al. (2008) recorded 1,122 in Gombe abattoir between April and June while 3,778 (143.9 per day) was recorded at Lafenwa abattoir in Abeokuta between September and December 2008 by Oduguwa et al. (2013). A monthly average of 724 slaughtered (24 per day) between April 1989 and March 1990 was recorded at Bemanda Municipal abattoir Cameroon. The disparity may be due to the differences in the population of the consumers in the city or town where the abattoir is located. Ojo et al. (1977) reported 1043 fetuses in one year at the slaughter houses of Yaounde, Republic of Cameroon but Hamman et al. (1997) opined that a more accurate picture of foetal wastage would be observed if retrograde flushing of embryo was performed immediately from the uteri to recover pre-implanted and implanted embryos.

The percentage of pregnant cows slaughtered in this study is 13.95% which is higher than 10.7% reported by Oduguwa et al. (2013), higher than 7.88% reported by Fayemi et al. (2008) and 7.73% reported by Ndi et al. (1993). The high figure recorded in this study could be due to lack of enforcement of legislation against slaughtering of pregnant cows. The percentage of foetal wastage which is defined as the total number of fetuses recovered divided by the total number of cattle slaughtered was 35.7% in this study. This figure is higher than 10.7% obtained by Oduguwa et al. (2013), the 3.0% obtained by Mohammed et al. (2008), 8.2% obtained by Fayemi et al. (2008), 9.15% by Nwakpu et al. (2007), 7.88% of Oyekunle et al. (1992) and 7.73% of Ndi et al. (1993).

It was shown in this study that one foetus was wasted for every seven cattle and for every three cows slaughtered on average at Bodija abattoir. This figure is higher than one foetus wasted for every nine cattle recorded by Oduguwa et al. (2013) and one foetus wasted for every ten and twenty cattle recorded by

Oyekunle et al. (1992) who carried out similar studies at Lafenwa and Ijebu Igbo abattoirs respectively. The ratio of cattle slaughtered to foetus wasted in this study was also higher than one wasted foetus to nineteen cattle slaughtered as discovered by Fayemi et al. (2008) at Lafenwa abattoir, the reason for this disparity could be ascribed to the level of enforcement of existing legislations against the slaughtering of pregnant cow. It could also be due to the sharp practices by the butchers who smuggled out of the abattoir the undetected fetuses for the fear of being rebuked by Veterinary officers and sell them to dog breeders who use them to supplement their dogs feed, a practice that must be discouraged because apart from its ethical implications, it can spread disease such as brucellosis to both dogs and humans. The findings in this study also showed that one foetus was wasted for every three cows slaughtered. This ratio is higher than the findings of Mohammed et al. (2008) who discovered one wasted foetus for every thirty three cows slaughtered at Gombe abattoir, Fayemi et al. (2008) who discovered one wasted foetus for every four cows slaughtered abattoirs in Ogun State and Nwakpu et al. (2007) who discovered one wasted foetus for every eleven cows slaughtered in Ebonyi State. Analysis of fetuses recovered in each month showed that the least number of fetuses was wasted in June and this could be due to the fact that the least number of cattle slaughtered was in June. Analysis of fetuses recovered in each month showed that the highest number as well as the percentage of foetus lost was in December, and the high foetal wastage in the months of October to December in this study could be as a result of the approaching dry season. Toulmin (1986) reported that during dry season, herders increase the sales of their aged and less productive cows in order to meet household needs due to less availability of grazing for the animals. Most of the fetuses recovered in this study were seen in their second and third trimester, a finding which is consistent with reports by earlier studies of Wosu (1988), Ndi et al. (1993) and Fayemi et al. (2008). This observation is surprising, given the fact that pregnancy in the second

and third trimesters are relatively easy to discover than those of the first trimester, this shows that these pregnant animals were knowingly slaughtered and this is another reason why strict adherence to legislation against the slaughtering of these type of animals must be and enforced.

The economic implication of foetal wastage is indeed enormous as live foetus could have be another source of income to the farmer in the nearest future. Economic Commission for Africa in 1988 reported that the slaughter of pregnant cows in Nigeria averages to 17,000 per year resulting in an estimated financial loss of at least fourteen million US dollars over a period of ten years. The fact remains that in as much as the demand and consumption of beef is on the increase, pregnant cows will continue to be slaughtered and if little or no effort is made towards improving cattle population in the country, then the total population figure for cattle will drastically and definitely decline. This will worsen the already precarious supply of animal protein to the populace as well as threatens the Nigerian livestock industry.

## Conclusion

Driven by economic development and urbanization, animal based protein consumption has surged worldwide over the last 50 years, rising from 61 g per person per day in 1961 to 80 g per person per day in 2011, and has even risen to a higher level in 2015 (Sans and Combris, 2015). The combined effects of population increase and increasing standard of living in developing countries are expected to create a high demand for animal-derived protein by 2050 (Massey, 2003). New initiatives will be required in order to be able to produce the necessary quantities of high quality protein, prominent among which is addressing the challenges of slaughtering of pregnant animals.

Government intervention in cattle marketing remains essential particularly in the enforcement of policies relating to the sales of pregnant cows for slaughter. Government could also buy pregnant female animals from die hard sellers and also educate them about the negative effect of sales of pregnant animals to the human populace. Policy efforts should be concentrated on instituting routine Veterinary checks at cattle control posts and abattoirs to prevent farmers from disposing pregnant cows during calving season. This is necessary in order to meet the future protein needs of ever increasing Nigerian population, and if the production and supply of high-quality animal protein for human consumption is to be maintained and sustained, the challenge of slaughtering of pregnant animals needs to be adequately addressed.

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