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## Incidence of foetal wastage in cattle slaughtered and its economic implications at the Bamenda city slaughter house, Cameroon

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### Abstract

The aim of this study was to determine the rate of foetal losses at the Bamenda city slaughter house, Cameroon. Data was collected for a period of 3 months (July to September 2017) for cattle slaughtered at slaughter house. The results showed that more males (1340) were slaughtered than (460) female cattle representing 73.3% and 26.4% for males and females respectively. A total of 157 cows were pregnant giving a foetal incidence rate of 34.3%. The percentages of foetuses wasted for the three trimesters (3 months or 3 trimester) were 24.83%, 50.83% and 24.37% for first, second and third trimester respectively. The mean age of the pregnant females slaughtered was 7 years and the percentages of slaughtered pregnant cows were 30.8%, 45.5% and 23.7% for cows aged 3-5 years, 6-8 years and  $\geq 9$  years respectively. Results also showed that, more male foetuses were wasted compared to the female foetuses representing 51.6% and 48.4% for males and females respectively accounting for economic losses of \$86,600 (43 300 000 francs CFA) for the period of the study. The high incidence of calf wastage and slaughter of under aged animals at Bamenda city Abattoir within the study period inflicted high economic losses. This is due to the fact that, laws prohibiting the slaughter of pregnant and under age cows are not existing. Livestock farmers, traders and butchers should be enlightened on the consequences of slaughtering pregnant and under age animals.

**Keywords:** Foetal wastage, cattle, economic losses, slaughter house, Bamenda, Cameroon

### 1. Introduction

Animal production is very paramount to food security and an essential component to the economic development of any nation <sup>[1]</sup>. In Cameroon, cattle herd is about 6 million head of animals <sup>[2]</sup>. Cattle supply about 35% of the overall annual tons of meat production <sup>[3]</sup>. The major cattle breeds are characterized by low productivity, delayed age at first calving of average 54 month compared to exotic breeds (24 to 28 month for Jersey, 48 month for Holstein) and long calving interval of 536 days compared to 240 days for Holstein <sup>[4]</sup>.

Livestock plays a recognised role in the lives of Cameroonians especially as a source of protein which is recommended in a specific amount for physical and mental development of every individual <sup>[3]</sup>. It also serves as a source of raw materials, employment, income and foreign exchange earnings. According to FAO/WHO <sup>[5]</sup>, the average protein intake of Cameroonians per caput per day has been estimated at 13.2g with meat alone of 6.8g; meanwhile FAO <sup>[6]</sup> recommended a minimum protein intake of 56g per person per day with about 28g (50 %), coming from animal sources.

Engagement in farm animal production activities especially cattle provides employment and livelihood to large number of Cameroonians as herdsman, livestock specialist, feed and drug manufacturers and other inputs <sup>[7]</sup>. Therefore, in order to increase beef production, it is expedient to measure factors militating against beef production.

These factors may be naturally or artificially caused by factors involved in livestock production and processing contributing to low productivity of livestock especially cattle. One of these factors is the common and unhealthy practice of slaughtering pregnant cows in the

slaughter houses resulting in severe economic losses [8]. The indiscriminate slaughter of pregnant cows and heifers is a common practice in many developing countries particularly sub Saharan Africa [1].

According to MINEPIA [9], the addition of herd consists of 23% from birth and 4% from purchase while deletion from herd is estimated at 13.3 % from mortality 11.3 % from off take. Mortality and off take exceed herd replacement from birth indicating the future demand for meat may not be sustainable. According to Ndi *et al.*, [8], the empirical relationship between off take and birth rate is not well established. This is particularly evident from the incident of calve wastage during the herd removal. Poor herd management, absence of diagnoses of pregnancy before slaughter and attractive price on pregnant cows are some major reasons for the slaughter of pregnant animals [8, 10, 11]. The negative trend of slaughtering pregnant and under age cows have long term effects on the productivity of cattle in Cameroon. Thus, the need to evaluate the foetus wastage at the Bamenda city slaughter house and the economic consequences more than 20 years after the last study.

## 2. Materials and Methods

### 2.1 Study Area

The Bamenda city slaughter house is found in the North West region of the Western Highland of Cameroon between latitudes 5°20' and 7° North and longitude 9°40' and 11°10' East of the Equator. The surface area of the North West region is 17,910 km<sup>2</sup>. Altitudes range from 300 to 3000 m above sea level. The climate is marked by a dry season from November to mid-March and a rainy season from mid-March to October. Rainfall ranges between 1300-3000 mm with a mean of 2000 mm. Minimum and maximum temperatures have means of 15.50 °C and 24.5 °C, respectively although temperatures can go above 30 °C [7].

Data collection was done through daily visit to the slaughter house during which the total number of slaughtered cows was recorded while age determination was done using dentition and number of rings on the horns. Foetus detection was done through visual inspection and palpation of the uterus.

### 2.2 Determination of age and sex of foetuses

Sex differentiation of foetuses was done through observation while those that could not be identified by means were counted and randomised as males and females. The age of the foetuses was determined by measuring the distance occipital articulation to the base of the tail of the foetus.

The duration of the gestation and ages of the foetuses were determined using a formula described by Richardson *et al.*, [12], for calculating the age of the foetus from its crown – anus length.

$$X (\text{day of gestation}) = 2.5 (Y (\text{crown} - \text{anus length}) + 21).$$

The ages of all the foetuses recovered were classified according to stage of pregnancy as follows

1. First trimester  $\leq$  3 months
2. Second trimester 3 – 6 months
3. Third trimester  $\geq$  6 months.

### 2.3 Data analysis

The data obtained was subjected to simple statistical Analysis using simple descriptive and quantitative analysis comprising of percentages and tables to determine the incidence of foetal losses. The Software SPSS 16.0 was used for descriptive data analysis and Microsoft Excel was used to plot graphs and chart.

## 3. Results

Table 1 and table 2 revealed that a total of 1800 were slaughtered at the Bamenda city abattoir within the period of the study. On the 1800 cattle slaughtered, 1340 were bulls and 460 were cows representing respectively 73.7% of males 26.4 % and of females with a prevalence rate of foetal wastage of 34.3% which is equivalent to the percentage of pregnant cows slaughtered. The percentage of wasted foetuses for July, August and September is 10.6%, 8.5%, and 8.2% respectively, with an average percentage lost in cattle population of 9.1%. This means that of every ten (10) cows slaughtered three (3) are likely to be pregnant.

**Table 1:** Incidence of Foetal wastage in cattle at the Bamenda city Abattoir from July to September 2017

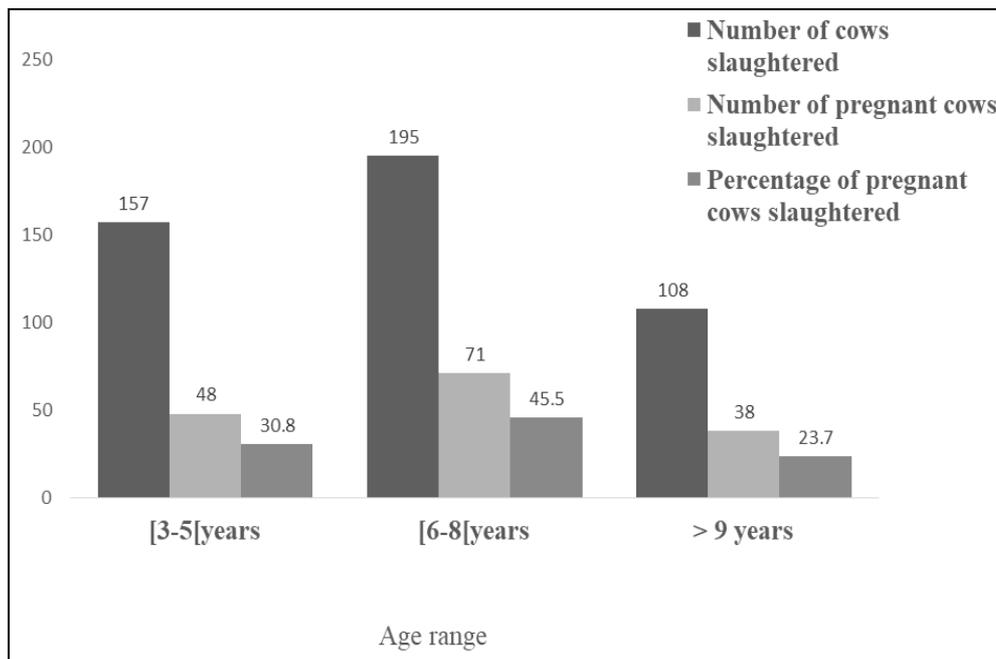
Months	Total cattle slaughtered	Total bulls slaughtered	Total cows slaughtered	% of cows slaughtered	Total pregnant cows slaughtered	% of fetuses wasted
July	593	429	164	27.7	60	10.6
August	598	440	158	26.4	48	8.5
September	609	471	138	22.6	49	8.2
Total	1800	1340	460	26.4	157	Average=9.1

**Table 2:** weekly incidence of foetal wastage at the Bamenda city Abattoir from July to September 2017

weeks	cattle	% of bulls	% of cows	% of pregnant cows	male foetuses	% of male foetuses	female foetuses	% of female foetuses	total foetuses
1	114	65.8	34.2	51.3	10	50	10	50	20
2	158	70.9	29.1	26.1	7	58.3	5	41.7	12
3	159	78.6	21.4	32.4	6	54.5	5	45.5	11
4	162	72.2	27.8	37.8	7	41.2	10	58.8	17
5	159	73.6	26.4	21.4	7	77.8	2	22.2	9
6	117	65	35	41.5	11	64.7	6	35.3	17
7	233	81.8	18.2	34.9	10	62.5	6	35.5	16
8	89	67.9	32.1	20	4	66.7	2	33.3	6
9	160	84.4	15.6	40	3	30	7	70	10
10	170	75.9	24.1	26.8	3	27.3	8	72.7	11
11	145	71.9	28.1	36.6	8	53.3	7	46.7	15
12	134	76.9	23.1	41.9	5	38.5	8	61.5	13
Total	1800	73.7	26.4	34.3	81	51.6	76	48.4	157

Figure 1 revealed the cow's age range and percentage of pregnant cows slaughtered per age range from July to September 2017 which is equivalent to the percentage of foetuses wasted. This figure revealed that 30.8%

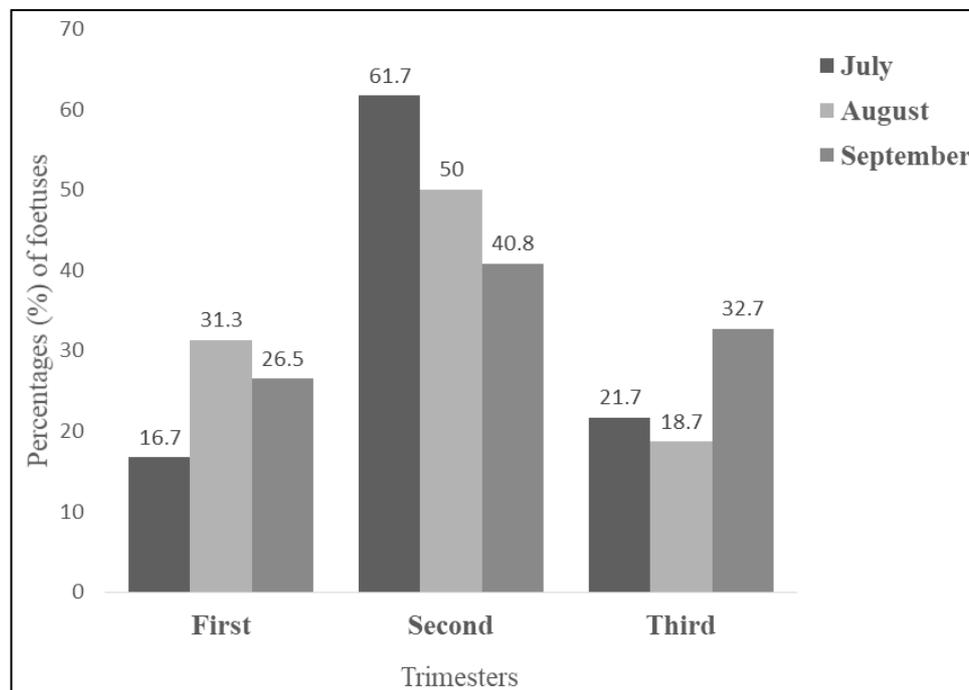
slaughtered were between 3-5 years while 45.5% between 6-8 years and 23.7% were 9 and above with the mean age of about 7 years.



**Fig 1:** Cow age range and percentage of foetal losses per age range from July to September 2017

Figure 2 shown that the highest recorded percentage of wasted foetuses was 61.7% (July). Of the recovered foetuses, 24.83% were recovered in the first, 50.83% in the second and

24.37% in the third trimester with the highest percentage of wasted foetuses recovered at the second trimester of pregnancy.



**Fig 2:** Percentage (%) of foetuses wasted by trimester and month for the period of study

#### 4. Discussion

This study revealed that more males (73.7%) were slaughtered compared to females (26.4%). This is different from the report of Tolumn<sup>[13]</sup> which reveals that in Cameroon most of the cattle slaughtered were females in Bamenda municipal abattoir. The prevalence rate of foetal wastage is 34.3% with the percentage loss in cattle population of 9.1%. This result indicate high incidence rate compared to results

(22.1%) obtained by Ndi *et al.*,<sup>[8]</sup> in Bamenda abattoir and the 16.61% obtained by Tchoumboue<sup>[14]</sup> in Yaoundé. However, the result are closer to those obtained by Swai *et al.*,<sup>[15]</sup> who revealed that 29.1% of cows slaughtered over the period of April to June 2014 were pregnant in Tanga abattoir, Tanzania. This could be explained by the fact that, pasture problems during the dry season, financial difficulties, injury and aged animals and lack of staff and herdsmen competency in

pregnancy diagnosis are possible reasons pushing farmers to sell out their animals including pregnant animals as confirmed by Sanusi *et al.*,<sup>[16]</sup> and Muhammad *et al.*,<sup>[17]</sup>. Also, Tchoumboue<sup>[11]</sup> and Ndi *et al.*,<sup>[8]</sup> reported that, poor herd management, absence of diagnosis of pregnancy before slaughter and attractive prices on pregnant cows were the reasons advanced for culling and slaughtering pregnant cows. Results indicated that 30.8% of the cows slaughtered were between 3-5 years, 45.5% between 6-8 years and 23.7% were 9 and above. This result agrees with those of Ladds *et al.*,<sup>[18]</sup> who examined to define the extent of wastage due to slaughter of pregnant cows. This result indicates that most of the cows slaughtered were at their reproductive age (3 to 8 years). This is age when herd productivity could be measured, which is measured from breeding efficiency through calving ability, age at first calving and calving interval. The result poses great danger to the reproductive efficiency of the cattle population as reported by Ayodele *et al.*,<sup>[19]</sup>. The average age of all the cows slaughtered was 7 years and should be noted that, the slaughter of cows below nine years of age is prohibited at all abattoirs in Cameroon because it is a major cause in the decline of cattle population and therefore, constitutes a real threat to the country's food security. This practice retards livestock industry, is against animal welfare and end up giving poor quality meat to the consumers<sup>[20]</sup>.

The percentages of foetuses wasted for the three trimesters were 24.83%, 50.83% and 24.37 % for first, second and third trimesters respectively. These results are slightly similar to those of Ardo *et al.*,<sup>[21]</sup> at the Yola modern abattoir, Adamawa state, Nigeria that revealed that about 18.7% of pregnant cows have foetuses less than three month old, 56.6% had foetuses between 4 and six month and 24.7% had foetuses more than 6 month. The percentage in the first trimester could be due to the fact that pregnancy may not be detected since farmers mostly depend on visual inspection for pregnancy detection. The high percentage (61.7%) during second trimester is most likely due to the fact that, phenotypically, pregnant cows have a better body condition score than non-pregnant cows, which may be the reason for theft preferences and slaughter of these animals<sup>[15]</sup>. There is a drop in the third trimester possibly because at this stage, the pregnancy is too big closer to calving and most farmers who will want to increase their herds will not sell their animals prior to calving.

Foetuses obtained after slaughter of pregnant cows were either sold to potential foetus buyers for consumption or used to feed animals (fish, dogs and pigs). This practice should be discouraged as it can spread diseases like brucellosis or leptospirosis to both animals and man.

The financial losses at the Bamenda city slaughter house for the period of the study for the 157 wasted foetuses is estimated at \$86,600 (43 300 000francs CFA). The average financial values of healthy mature (about 2 ½ to 3 Years) bull and cow are respectively \$600 and \$500. Out of the 157 foetuses obtained during the study, 81 were bulls with financial value of \$48,600 and 76 were cows with financial value \$38,000 giving a total financial value for all the foetuses to be \$86,600. These financial losses at the Bamenda city slaughter house causing substantial threat to the food security and economy of the Cameroon nation. If all the foetuses were to reach their reproductive age, they could have been used for reproduction to generate offspring which will help to propagate and increase the cattle population and reduce food insecurity.

## 5. Conclusion

The results of this study have shown that, there is high incidence of calve wastage and slaughtered of under aged cows at the Bamenda city slaughter house within the period of the study inflicting high economic losses in the cattle sector of Bamenda. Cattle pregnancy wastage appears mainly attributable to lack of effective early pregnancy screening system. Slaughter of pregnant animal is an unethical practice that leads to loss of precious animal protein. The losses are due to low enforcement of the laws prohibiting the slaughter of pregnant animals and inadequate services to prevent slaughter of pregnant and under age cows. It will therefore be safe to anticipate foetal wastage at the slaughter houses and considerable associated economic losses at the national level. Farmers, traders and butchers should be enlightened on the importance and the different methods for pregnancy diagnoses in cattle as well as the implication of slaughtering pregnant cows. The government should reinforce legislations to prevent the slaughter of pregnant animals by ensuring effective surveillance at the slaughter houses.

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