

**BOVINE WASTAGES IN ABATTOIR AND SLAUGHTER
SLABS OF OYO STATE, NIGERIA:
PATTERN AND ETHICAL CONCERNS**

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Target Audience: Veterinarians, meat Processors and Butchers.

ABSTRACT

A study was conducted to determine the extent of foetal losses in Ibadan abattoirs and slaughter slabs, since Ibadan constitutes a key cattle trading centre in South-Western Nigeria. Factors that were considered included the year of slaughter and the effects of season. The month of slaughter did not significantly ($P > 0.05$) affect any of the cattle slaughter indices assessed. More pregnant cows were slaughtered in Oyo State abattoirs and slabs in the early wet season (comprising April, May and June) relative to the other three monthly seasons of the year. The highest percentage of pregnant cows slaughtered in Ibadan within the period under study was 6.33% and this was much lower than the figures reported for other livestock species.

The ethical and economic implications of the results are discussed.

Key words: Bovine, foetal wastages, abattoir

DESCRIPTION OF PROBLEM

The economic recession that has been witnessed in Nigeria since the 1980s has brought in its wake a deterioration in the quality and quantity of animal protein in the diet of Nigerians. This has also elicited new trends in ameliorating the situation. This has entailed the slaughtering of not only prime breeding males but also pregnant animals resulting in foetal wastages. A number of workers have reported on this development with respects to camels (1), small ruminants (2) and cattle (3). *Ataja and Uko* (1) found that 24.06% of female camels slaughtered for meat in Sokoto abattoir in 1992 were pregnant. *Oyekunle et al* (3) reported that between 14% and 20% of cows slaughtered in Abeokuta and Ijebu-Igbo abattoirs from 1984 to 1989 were pregnant. The figure for female Red Sokoto goats at different stages of gestation slaughtered at the Bodija abattoir in Ibadan was 16.8% (2).

It therefore becomes necessary to study the pattern of foetal wastages in Oyo State, Nigeria with respect to cattle, having in mind that Ibadan the state

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capital is a major cattle trade centre in south-western Nigeria, receiving its supplies directly from the Northern cattle traders. This report also indicated the concern about the ethics of slaughtering pregnant cows in Nigeria.

MATERIALS AND METHODS

Data for this study covered five years (1990 - 1994) and were obtained from the monthly cattle slaughter records kept by the Veterinary division of Oyo State Ministry of Agriculture and Natural Resources. The data obtained were also distributed across the various months of the year and seasons as follows:

Early dry season	(October - December)
Late dry season	(January - March)
Early wet season	(April - June)
Late wet season	(July - September)

Egbunike and Steinbach (4) had earlier used a similar range to categorize the seasons for a study in Oyo State, Nigeria. Most of the animals slaughtered were of the Bunaji breed which has been reported to constitute about 51% of the cattle population in Nigeria (5).

The data were then sorted out and analysed using statistical tools of analysis of variance, percentages and means. Harvey's (6) least-squares model was used to analyse the variations in the slaughter data and the level of foetal wastage in Oyo State abattoirs. The model is as follows:

$$Y_{ijkl} = u + a_i + r_j + S_k + e_{ijkl}$$

Where Y_{ijkl} is the observed value of the slaughter data in the $ijkl$ th subclass

u	=	population mean
a_i	=	effect of the i th year of slaughter ($a_i = 1990, \dots, 1994$)
r_j	=	effect of the j th month of slaughter ($j = \text{January, February, } \dots, \text{December}$)
S_k	=	effect of the k th season ($k = \text{late dry, early, wet, late wet, and late dry}$)
e_{ijkl}	=	random residual normally and independently distributed with zero mean and variance, σ^2

Because of the dependency matrices in the classes, two-factor interactions were not important and so were not included in the analytical model. Means were separated using Duncan's (7) multiple range test.

RESULTS AND DISCUSSION

The results of the least squares analyses of variance for slaughter data and the bovine foetal wastage are shown in Table 1. The effects of year of slaughter were significant ($P < 0.01$) for the number of cattle slaughtered in Ibadan, the number bulls slaughtered, the number of cows slaughtered and the number of

pregnant cows slaughtered. Records of slaughter in 1991 were more than those of the other years. The years 1992 and 1993 witnessed a sharp drop in the slaughter profile of the different types. The relative proportion of foetal losses due to slaughter of pregnant cows however rose in the year 1994 to an all time high of 6.33% (Table II).

Table I: Mean Squares of Analyses of Variance for Slaughter Data and Foetal wastage

Source	d.f	Cattle slaughtered	Bulls slaughtered	Cows slaughtered	Pregnant cows slaughtered	Percentage of pregnant cows slaughtered
Year	4	12935144.39***	42098116.36***	24597191.64***	54654.76***	22.50***
Month	11	559949.76	175209.44	130536.12	1481.96	2.54
Season	3	554652.45	147710.62	149636.14	3757.17*	3.45
Error	39	482332.26	177080.40	113490.13	1295.81	1.80

* P < 0.05

** P < 0.01

Table II: Influence of Year and Season of Cattle Slaughter on Foetal wastage

Variables	No. of Cattle slaughtered	No. of Bulls slaughtered	No. of Cows slaughtered	No. of Pregnant cows slaughtered	Percentage
	(1)	(2)	(3)	(4)	(4/3)
Overall mean	4718.49	2637.72	2078.94	92.16	4.23
s.e.m	91.67	55.55	44.47	4.75	0.18
Year					
1990	7957.67 ^a	4717.58 ^a	3240.08 ^a	147.50 ^b	4.61 ^b
1991	8416.33 ^a	4482.50 ^a	3933.83 ^a	168.08 ^a	4.29 ^b
1992	1763.50 ^c	915.75 ^c	848.50 ^c	29.75 ^d	3.49 ^c
1993	1622.58 ^c	852.25 ^c	770.33 ^c	18.17 ^d	2.43 ^d
1994	3832.35 ^b	2220.50 ^b	1601.97 ^b	97.301 ^c	6.33 ^a
Season					
Late dry	4949.73	2773.40	2169.67	103.33 ^a	4.48
Early wet	4734.07	2603.27	2121.40	108.47 ^a	4.67
Late wet	471.75	2636.20	2073.31	80.18 ^b	4.19
Early dry	4479.40	2538.00	1941.40	76.67 ^b	3.57

Within variable group, means bearing different letter differ significantly (P < 0.5) s.e.m. Standard error of mean.

The significant effects of year of slaughter on the various slaughter indices and foetal loss may be due to economic reasons which saw the populace suffering unprecedented erosion of their pay packets due to the economic recession. The positive association involving the slaughter indices suggest that the greater the number of cattle slaughtered the greater the other indices of slaughter.

Month of slaughter effects were not significant for any of the slaughter indices (Table 1). Table III shows the distribution of the indices of slaughter and foetal

losses for the different months of the year. The mean values for the different months did not differ significantly from the overall means of the different indices shown in Table II.

Table III: Cattle slaughter and foetal wastage in the different months of the year

Month	No. of Cattle slaughtered	No. of Bulls Slaughtered	No. of Cows slaughtered	No. of Pregnant cows slaughtered	Percentage
	(1)	(2)	(3)	(4)	(4/3)
January	2511.20	2936.00	2275.20	118.60	4.98
February	5137.80	2849.40	2268.40	91.20	3.76
March	4500.20	2534.80	1965.40	100.20	4.70
April	4920.40	2809.20	2113.00	112.40	5.23
May	4712.80	2514.00	2198.80	93.80	4.21
June	4569.00	2486.60	2082.40	119.20	4.57
July	4305.60	2415.00	1890.60	85.80	4.87
August	5149.25	2840.00	2309.25	76.00	3.25
September	5221.75	2917.50	2304.25	74.75	3.24
October	4569.00	2553.60	2015.80	73.40	3.34
November	4499.00	2550.20	1948.80	70.40	3.38
December	4369.80	2510.20	1859.60	86.20	4.00

The non-significant effect of month on the slaughter indices indicates that Christian festivals of Easter and Christmas usually celebrated in April and December respectively did not significantly contribute to the profile of slaughter of cattle in Oyo state slaughter points. This is perhaps not surprising judging from the well-known fact that poultry species like chicken and turkeys are traditional table birds for Christian festivals. One may not be able to say so about Muslim festivals judging from the fact that such festivals can be celebrated in different months each year. Furthermore, in one such Muslim festival mutton is preferred to beef; and so, the profile of beef sales may not be significantly affected by the Muslim festival.

Seasonal differences were significant ($P < 0.05$) for the number of the pregnant cows slaughtered (Table 1). More pregnant cows were slaughtered in the early wet season (comprising April, May, June) relative to those that were slaughtered in the late wet and early dry seasons. Average values were 108.47, for the early wet season, 80.18 for late wet season, 76.67 for early dry season and 103.33 for late dry season (Table II). In other words, more bovine foetuses were lost as a result of the slaughter of their gravid dams in the early wet season relative to the other seasons of the year. These differences were reflected in the relative proportion values: 4.6% for the early wet seasons, 4.19% for the late wet season, 3.57% for the early dry and 4.48% for the late dry season. With respect to the other indices, more animals were slaughtered in the late dry seasons, followed by the early wet seasons, the late wet season, and the early dry season in that order.

Significant seasonal differences affecting only the number of pregnant females slaughtered could not be immediately explained since the months involved in the early wet season with the highest value were April, May and June.

It is important that urgent ethical concerns be expressed about the pervasive slaughter of pregnant cows which is yet to abate in spite of the remarkably high number of cattle in Nigeria. RIM (8) has reported the figure of 13.947 million. Apart from being ethically unacceptable, the slaughter of pregnant animals represents a tremendous loss, as a potential offspring is also lost without being given a chance to contribute to cattle population and beef meat supply profile of the country. It is therefore recommended that urgent steps be taken to curb the situation. This may involve buying off the pregnant animals before slaughter which would then be taken to a government station for the subsequent rearing of both dam and offspring. Secondly, the fattened bull calf from such government stations can be used to exchange for pregnant cows in cattle markets on weight-to weight basis in future. In addition, effective ante-mortem inspection is necessary in all slaughter points in the state in order to prevent indiscriminate slaughtering of pregnant animals.

Correlation analysis indicated that there were positive and significant association between pairs of slaughtered indices, ranging from very low to very high associations (Table IV).

Table IV: Correlation between foetal wastage and cattle slaughtered profiles

	1	2	3	4	5
1. No. of cattle slaughtered	1.00				
2. No. of bulls slaughtered	0.99	1.00			
3. No. of cows slaughtered	0.99	0.96	1.00		
4. No. of pregnant cows slaughtered	0.84	0.83	0.84	1.00	
5. Percentage of foetal wastage	0.27	0.30	0.22	0.64	1.00

CONCLUSION AND APPLICATIONS

1. Thorough ante-mortem inspection of female animals in the lairage will prevent slaughtering of pregnant ones in the abattoir and slaughter slabs.
2. Meat Inspection regulation forbidding slaughtering of pregnant animals must be enforced in the state.
3. The slaughter men should be educated on the need to prevent reproductive wastages in the state.

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