

Trends in Volume and Magnitude of Foetal Waste of Slaughter Animals (2000-2005) in Ebonyi State of Nigeria

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Abstract: An analytical study was conducted on food animals slaughter figures for Ebonyi State from 2000 to 2005 and results of analysis of the trends in volume and magnitude showed that, in terms of number, cattle was the highest slaughtered animal specie followed by goats, pigs and donkeys. The least were sheep and horses. The prevalence of foetal wastage among food animals slaughtered in the State between 2000 to 2005 revealed that a total number of 9,780 cattle (9.15%), 876 sheep (41.32%), 6170 goats (64.12%), 1183 donkeys (64.20%), 499 Horse (44.94%) and 1203 pigs (36.14%) slaughtered in the state were pregnant. This translates to a ratio of 1 in every 11 cows, 1 in every 2.5 ewes, 1 in every 1.5 does and donkeys, 1 in every 2.2. mares and 1 in every 2.7 sows. The slaughtering of pregnant animals was significantly ($p < 0.05$) high during the dry seasons of November through April and festival periods reflecting the high levels of female animals slaughtered during these periods. Though the trend in the number of pregnant animals were not consistent, there was no significant differences observed among the food animals across the years even when the figures ranged widely (51 to 87 for cattle, 13 to 49 for sheep, 250 to 600 for goats, 36 to 72 for donkeys, 8 to 18 for horse and 8 to 16 for pigs), respectively. Percentage foetal wastage among the goats and donkeys was constantly high across seasons and years. In view of the high level of foetal wastage among food animals in the state, policy efforts must concentrate on instituting routine veterinary checks at control posts and abattoirs. Above all, producers and middle men must be better informed about the seasonal breeding patterns of food animals in order to avoid disposing of them during the calving season.

Key words: Abattoirs, foetal waste, slaughter animals, magnitude, trends, Ebonyi State

INTRODUCTION

The average animal protein intake (Meat, Milk, eggs, fish) per caput per day has been estimated at 14.85 g with meat alone representing 6.8 g. The meat protein intake is obviously much lower than the European and North American averages of 27.3 and 38.3 g per caput per day, respectively but it is slightly higher than the African average of 4.5 g (FAO, 1993). From a global point of view, Nigeria and indeed Ebonyi State falls among those countries and states in the country with very low per caput production and consumption of animal and meat protein (Nwakpu and Ugwu, 2004).

Mortality and off take rates together exceed the herd replacement rate from births, indicating that future demands of meat cannot be sustained. Because of the uncertainty regarding the country's ability to compensate for inherent losses incurred during the process of herd removal and replacement; there is increased concern that

lower rates of herd replacement will threaten the ability to meet long-term demands of meat at affordable prices.

While some authors have reported on factors responsible for low herd replacement rates among traditional herds (Tawah and Mba, 1989) the empirical relationship between off take and birth rates is not well established. This is particularly evident from the increasing incidence of foetal wastage during the herd removal process.

Foetal wastage through the slaughter of pregnant animals have received little attention over the years in the South Eastern Nigeria and worst still, the empirical evidence of the effect of this practice on meat production is also limited. Wosu (1988) reported that 26% cattle slaughtered at Enugu State abattoir were pregnant.

The greatest worry about slaughtering pregnant animals lies in the fact that enormous economic and proteinous waste are involved which leads to a colossal reduction in the population of animals, loss of dairy products, as well as supply of poor quality meat products

to the public (Wythes *et al.*, 1990; Oyekunle *et al.*, 1992; Kreikemeie *et al.*, 1993). This is so because in some states of Nigeria, (Ebonyi State inclusive) there is complete lack of legislation relating to abattoir operations, construction and meat inspection.

In many other states, there are no modern abattoirs where proper ante-mortem examination of slaughter animals to eliminate or point-out unfit animals or even make provision for special post-mortem examination to take place. Where such inspection is not religiously carried out or corruptly organized as is commonly observed among butchers and meat inspectors in Ebonyi State, the untoward consequences leads to high incidence of slaughtering pregnant animals. It is worthy of note that, a sound meat inspection system results not on the provision of unwholesome products with good keeping quality, but also can make important contributions towards the control of animal diseases, making available to the middlemen or farmers, the valuable information obtained from such (Ogundipe *et al.*, 1989). For example, abattoir slaughter records have been extensively utilized in disease investigation in Nigeria (Adeoye and Fashuyi, 1996). Very poor meat inspection facilities and uncooperative attitudes of butchers have been reported in Nigerian abattoirs (Joseph, 1999).

In spite of the fact that slaughter figures returned from different abattoirs in the country have been questioned by some studies (Okoli *et al.*, 2006) the magnitude of errors in such data and their possible effects are however not known. In Ebonyi State nevertheless, thousands of food animals are slaughtered each year, but there are no records of proper evaluation or assessment of the level of foetal waste among slaughter animals that have been carried out for the state. The present study is therefore designed to evaluate the level of foetal waste, among slaughter animals in the state.

MATERIALS AND METHODS

Location of the study: Ebonyi State of Nigeria consists of three Senatori Zones namely Abakaliki, Onueke and Afikpo. The area is approximately 5,935 km² and lies approximately on Latitudes 7°30' E and 8° 3' E and Longitudes 5°40'N and 6°45'N. Physically, it is bounded to the East by Cross River State, to the North by Benue State, to the West by Enugu State And to the South by Abia State. The state is made up of 13 Local Government Areas with a total population of about 1.676 Million people.

Ebonyi State is located within the desired savanna with mean annual rainfall of 1117 mm and maximum daily temperature of 34°C and a relative humidity of about 85% (Ofomata, 1975).

Data collection and analysis: Some popular market centres in the 3 zones (Abaakaliki, Afikpo and Onueke) were randomly selected for the study and slaughter records of 6 years (2000-2005) were collected from their veterinary units. The livestock extension workers and meat inspectors working in the sampled Local Government Areas were also used in collecting the data. Also, direct visit to the abattoirs were carried out by the researchers. Six years records on the number of Cattle, Sheep, Goats, Donkeys, Horses and Pigs were obtained from the meat inspectorate division of the State Veterinary services, Abakaliki.

Four seasons were identified for the purpose of the study. These include January to March (Late dry Season) April to June (Early rainy Season), July to September (Late rainy Season) and October to December (Early dry Season). These data were analyzed to show the total number of animals handled within these years; the seasonal influences on their demand and the rate of slaughter in relation to the type of sex of the slaughter animals.

Also, the number of pregnant animals slaughtered were analyzed to ascertain the level of foetal waste in these 3 centres. Also, structured questionnaires were administered to butchers in some randomly selected and popular rural markets as well as in some popular non-veterinary approved slaughter points such as meat centres and some piggery farms.

Statistical analysis: Data generated were subjected to simple statistical procedures such as simple averages, ratios and the trends were noted. Similarly, data were subjected to the analysis of Variance technique in the Completely Randomized Design (CRD) Steel and Torrie (1980). Means were separated using Duncan's Multiple range test (Duncan, 1955).

RESULTS

The total number of animals and types slaughtered in Ebonyi State between 2000-2005 are presented in Table 1. A total number of 19,711 animals were recorded as slaughtered at the main abattoir and unapproved slaughter points during the period under study. Out of these number, 9,780 were cattle, 6,170 were goats, 1,203 were pigs, 1,183 were donkeys, 876 were sheep and 499 were horses. A cursory look at the trend of slaughter will reflect a gradual and sustained increase in the number of slaughtered animals in all the species of animals monitored.

Table 1: Total number of animals and species slaughtered between 2000-2005 in Ebonyi State

Year	Cattle	Sheep	Goats	Donkeys	Horses	Pigs	Total	Mean (X)
2000	1200	83	840	156	70	140	2489	414.83
2001	1480	90	950	181	68	163	2932	488.67
2002	1560	115	980	193	75	180	3103	517.17
2003	1680	163	1050	205	90	200	3388	564.67
2004	1880	205	1100	208	95	240	3728	621.33
2005	1980	220	1250	240	101	280	4071	678.50
Total	9780	876	6170	1183	499	1203	19,711	
Mean (X)	1630	146	1028.33	197.17	83.17	200.50		

Table 2: Foetal Waste among female animals slaughtered between 2000-2005 in Ebonyi State

Year	Cattle		Sheep		Goats		Donkeys		Horses		Pigs	
	Cows	Pregnant	Ewes	Pregnant	Does	Pregnant	Female	Pregnant	Mare	Pregnant	Sows	Pregnant
2000	550	51 (9.27)	33	13 (39.39)	640	40 (53.13)	56	36 (64.29)	20	8 (40.00)	20	8 (40.00)
2001	580	86 (14.83)	40	21 (52.50)	550	250 (45.45)	70	40 (57.14)	28	12 (42.86)	23	0 (43.48)
2002	760	63 (8.29)	55	25 (45.45)	680	480 (70.59)	83	53 (63.86)	25	11 (44.00)	30	11 (36.67)
2003	850	72 (8.47)	69	29 (42.03)	750	550 (73.33)	92	2 (56.52)	30	14 (46.67)	42	14 (33.33)
2004	970	70 (7.20)	102	32 (31.37)	800	600 (75.00)	98	68 (69.39)	35	17 (48.57)	43	6 (37.20)
2005	980	87 (8.88)	110	49 (44.55)	900	550 (61.11)	101	72 (71.29)	40	18(45.00)	44	4 (31.82)
Total	4690	429(9.15)	409	169 (41.32)	4320	2770 (64.12)	500	321 (64.20)	178	80(44.94)	202	73 (36.14)
	11	: 1	205	: 1	1.5	: 1	1.5	: 1	2.2	: 1	2.7	: 1

Table 3: Foetal wastage across seasons among female animals slaughtered between 2000-2005 Ebonyi State

Season	Cattle		Sheep		Goats		Goats		Goats	
	No. Handled	No. Females	No. Preg.	No. Handled	No. Females	No. Preg.	No. Handled	No. Females	No. Preg.	
Late dry	2400	980	119	190	92	40	1420	980	650	
Early rain	(40.83)	(4.96)		(48.42)	(21.05)		(69.01)	(45.77)		
	2200	1200	95	186	98	38	1380	1020	685	
		(54.55)	(4.33)		(52.69)	(20.43)	(73.91)	(49.63)		
Late rain	2380	1380	110	260	109	46	1830	1240	735	
		(53.78)	(4.62)		(41.92)	(17.69)		(67.78)	(40.16)	
Early Dry	2800	1230	105	240	110	45	1540	1080	700	
		(43.93)	(3.75)		(45.83)	(18.75)		(70.13)	(45.45)	
Total	9780	4690	429	876	409	169	6170	4320	2770	

Table 3: Continued

Season	Donkeys		Horse		Pigs		Pigs		Pigs	
	No. Handled	No. Females	No. Preg.	No. Handled	No. Females	No. Preg.	No. Handled	No. Females	No. Preg.	
Late dry	285	120	70	120	45	20	285	45	13	
Early rain	(42.11)	(24.56)		(37.50)	(1667)		(15.79)	(4.56)		
	295	115	76	114	36	15	283	42	15	
		(38.98)	(25.76)		(31.58)	(13.15)		(14.84)	(5.30)	
Late rain	305	35	90	135	51	20	335	60	25	
		(44.26)	(29.51)		(37.78)	(14.81)		(17.91)	(7.46)	
Early rain	298	130	85	130	46	25	300	55	20	
		(43.62)	(28.52)		(35.38)	(19.23)		(18.33)	(6.67)	
Total	1183	500	321	499	178	80	1203	202	73	

(Numbers in parenthesis represent percentages) Late dry: January-March; Early rain: April-June; Late rain: July-September; Early dry: October-December

Table 2 shows the level of foetal wastage among female animals slaughtered between 2000 -2005 in Ebonyi State. Results of analysis revealed lack of significant ($p>0.05$) differences between the levels of foetal wastage witnessed during the years among the different species slaughtered. Nevertheless, figures obtained from the different years showed gradual increment from 2000 to 2005 in the number of female animals slaughtered.

Surprisingly, in 2001, the highest percentages of foetal wastages of 14.83, 52.50 and 43.48% were recorded for Cattle, Sheep and Pigs while 75.0% and 48.57% were highest in 2004 from goats and horses. 2005 witnessed the greatest foetal waste of 71.29% for

Donkeys. The ratio of female and pregnant animals were highest among cattle (11:1) followed by Pigs (2.7:1) (Sheep 92.5:1) and least were from donkeys and goats of (1.5:1), respectively.

An analysis of the foetal wastage across the four seasons in Cattle, Sheep, Goat, Donkey, Horse and Pigs (Table 3) showed that although the slaughtering of female cattle was highest during the late rainy season 1380 (53.78%) and early dry season 1230 (43.93%), the highest percentage wastage (4.96%) occurred in the late dry season.

This was followed by the (4.62%) observed in the late rainy season while the lowest rate of (3.75%) was

recorded during the early dry season. Foetal wastage among the Ewes was generally high across the seasons. The highest percentage wastages of (21.05%) was recorded during the late dry season, followed by (20.43%) during the early season while the least (17.69) was during the late rainy season. On the other hand, the highest slaughter figures of Ewes were obtained during the early rainy season (52.69%) while the least was during the late rainy season (41.92%).

Among the female goats, the highest incidence of foetal wastages were observed during the early rainy season (49.63%) while the least was during the late rainy season (40.16%). The slaughter trend for female goats across seasons indicated that the highest proportion (73.91%) and (70.13%) occurred during the early rainy and early dry seasons while the least were during the late rainy season (67.76%).

The highest percentage of (29.51%) was observed among the donkeys during the late rainy season while the least was during the late dry season (24.56%) The level of female slaughter was highest during the late rainy season (44.26%) while the lowest was during the early rainy season (38.98%). Early dry season witnessed the highest level of foetal wastage (19.23%) among horses while the least was during the early rainy season (13.15%). The percentage of female slaughter was highest during the late rainy season (37.78%) and late dry season (37.50%) while the lowest percentage was obtained during the early rainy season (31.58%).

For the pigs, foetal wastage were highest during the late rainy season (7.46%) and lowest (4.56%) during the late dry season. The highest number of females were slaughtered during the early dry season (18.33%) while the least were during the early rainy (14.84%) season. The analysis of variance revealed significant ($p < 0.05$) differences between the seasons in the total number of foetal wastages among the 6 animal species for the years under study. In all these cases, the early dry season was considerably higher ($p < 0.05$) than the other three seasons which were also not different ($p > 0.05$) statistically from each other.

DISCUSSION

The results of analysis of the trends in volume and magnitude of slaughtered animals between 2000 to 2005 in Ebonyi State of Nigeria, showed that in terms of number, cattle was the highest slaughtered animal specie followed by Goats, pigs and donkeys. The least were sheep and horses. This tends to agree with the earlier reports of Oyekunle *et al.* (1992) that cattle are the most important animals slaughtered in the South Eastern States of

Nigeria. Also, FAO (1982) showed that the Nigerian meat supply comes from 5 major animal sources which are beef (36%), poultry (34%), sheep and goats (24%) and pigs (6%). The results of this study is reflective of this trend apart from sheep in this state.

In the earlier reports of Nwakpu and Ugwu (2004) on the contributions in percentage of the various livestock species slaughtered in Ebonyi State from 1996 to 2003, Bovine had 47.16 ± 2.50 ; Caprine/Ovine 18.94 ± 1.27 ; Procine 12.85 ± 2.40 and donkey 10.25 ± 2.52 as over all mean carcass. The results of this study also shows that, 9.15% of cows, 41.32% of sheep, 64.12% of goats, 64.20% of donkey, 44.94% of horse and 36.14% of pigs slaughtered in Ebonyi State from 2000 to 2005 were pregnant. These results though slightly lower for cattle and goats agrees with the results of similar studies by Okolo (1985) and Oyekunle *et al.* (1992) who respectively worked at Enugu and Ogun States on goats and cattle.

Information on the other species studies are limited because, research attention probably have not focused on the prevalence of foetal wastage among them in Nigeria. The present study however shows that slaughtering of pregnant animals is very prevalent in Ebonyi State. The results of this study may not completely reflect the magnitude of the problem since a sizeable proportion of food animals slaughtered in the State are done at unofficial points (Okoli *et al.*, 2001). The result of this study also agrees with the situation at Cameroon where 22.1% of the female cattle slaughtered in Bamenda were pregnant ranging from 31.9% in April to 17.3% in October (Ndi *et al.*, 1991).

Result of this study revealed lack of significant differences in the slaughter of pregnant animals among the various species. This could be due to inconsistency in the meat inspection figures for various zones (Okoli *et al.*, 2001) Nevertheless, the pattern of foetal wastage observed in this study is in line with the findings of Wosu (1988) who reported that 26.67 and 7% of cows were slaughtered during the first, second and third trimesters of pregnancy, respectively at the Enugu abattoir.

One possible factor contributing to the high rate of slaughter of pregnant cows is the season or period of the year. More pregnant animals were slaughtered during the peak of the dry season (December to February). In analyzing the effect of drought on livestock in sub-saharan Africa, Toulmin (1986) reported that, during extreme dry periods, herders increased the sales of aged cows and less productive females in order to meet household cash needs.

As the dry season progressed and the stress on animals increased, herders were compelled to liquidate

pregnant females before they died naturally. In a survey of slaughtered cattle, at the Niamey abattoir in Niger, Boeckm *et al.* (1974) reported that 70% of the cattle slaughtered during the extreme dry periods were females, compared with 30 % during the normal periods of the year. Elsewhere in Southeast Ethiopia, Germen (1975) observed a similar phenomenon, where most of the cattle sold for slaughter during the dry season were females. Oyekunle *et al.* (1992) had already noted that pregnant animals common and higher prices because of their robustness. It is therefore possible that during these periods of higher demand, dubious marketers exploit the situation to their advantage.

Looking at the relatively high slaughter rate of pregnant animal in Ebonyi State, two important questions come to mind. First, what are the effects of this on the supply of food animals in a state where meat production lags behind consumption?. Secondly, what are the economic implications of this for both total and per caput meat production and consumption and the policy implications for adequate planning of the livestock sector in Nigeria?.

Generally, majority of the animals slaughtered in the state were male animals. This also is in line with the reports of Wilson (1986) and Abiola (1996) that male to female ratios were usually in favour of males. It is possible that greater number of males are culled for sales and slaughter whereas, most of the females are retained for breeding. Most of the female animals are sold only after their reproductive lives have passed (Aladi, 1999).

CONCLUSION

It is possible from the results of this work that up to 2 to 5% of the future productive herds are wasted as foetus because of indiscriminate slaughtering of pregnant animals. Producers, middle men, butchers and veterinary staff are not ignorant of the pregnancy status of these animals. For producers, however, pregnant animals are more valuable and command higher market prices from middle men and butchers who find them physically attractive. In Ebonyi State, wholesale and farmgate prices for food animals are unregulated. Livestock Traders and butchers negotiate for slaughter based on physical inspection of the animals. The result is that, most traders end up purchasing food animals for slaughter that appear physically attractive and, depending on the season or period of the year, most of the animals are pregnant.

One other important factor contributing to the increased slaughter of pregnant animals in the state is the poor enforcement of existing livestock legislation. Although government regulations discourage the

slaughter of pregnant animals, the structure of the market and slaughter system in the state has flaws limiting their application.

Policy efforts must concentrate on instituting routine veterinary checks at control posts and abattoirs. In addition, producers need to be better informed about the seasonal breeding patterns of food animals in order to avoid disposing of them during the calving season. If meat supplies are to be maintained or increased to meet future domestic demand, the incidence of slaughtering pregnant animals must be reduced or halted completely.

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REFERENCES

- Aladi, N.O., 1999. Current trends in the production, handling and sales of meat in Nigeria. B. Agric. Tech., Project Report, Federal University of Technology, Owerri.
- Abiola, S. S., 1996. Assessment of abattoir and slaughter slab operations in Oyo State, Nigeria. *Nig. J. Anim. Prod.*, 23: 82-85.
- Adeoye, G.O. and S.A. Fashuyi, 1996. Incidence of Dicrocoeliasis in cattle slaughtered in Lagos Metropolis, Nigeria: *Bull. Anim. Hlth. Prod. Afri.*, 34: 47-49.
- Boeckm, E., O. Bremaud, R. Dumas, J.E. Huhn and R. Compere, 1974. Study of actual situation of livestock breeding in the countries of the Sahel and preventive measures to be considered. Brussels, EEC.
- Duncan, D.B., 1955. Multiple range and multiple F. test. *Biometrics*, 11: 1-42.
- FAO, 1982. Production year book. Food and Agriculture Organization of the United Nations. Rome.
- FAO, 1993. AGROSTAT. Rome.
- Germen, D., 1975. Survey of livestock marketing and prices in Harare Province. Dire Dawa, Ethiopia.
- Joseph, J.K., 1999. Cattle Slaughtering and Post-Mortem Handling Practices in Selected Nigerian Cities; *Nig. J. Prod.*, 26: 106-110.
- Kreikermeie, K.K., C.I. Ferrel and C.E. Walker, 1993. Performance characteristics of beef quality of pregnant and non-pregnant heifers. *J. Anim. Sci.*, 71: 76-78.

- Nwakpu, P.E and L.L.C. Ugwu, 2004. Contribution of Pork to meat supply in Ebonyi State, Nigeria. Paper, Proceeding 9th Annal Conference Animal Science Association. Nigeria Abakaliki, Nigeria.
- Ndi, C.N.E., N.W. Tambi and Agharih, 1991. Reducing calf wastage from the slaughtering of pregnant cows in Cameroon. Institute of Animal Research (IRZ) Bamenda, Cameroon.
- Okoli, I.C., E.C. Agoh, C.G. Okoli, G.C. Idemili and D.O. Umesiobi, 2000b. Bovine and Caprine Fascioliasis in Enugu State, Nigeria: Retrospective Analysis of Abattoir Records (1993-1997) and 6 months Prevalence Study; Bulletin Animal Health and Production Africa, (In Press).
- Ofomata, G.E.K., 1975. Nigeria in Maps; Eastern States. Ethiope Publishing House, Benin City, Nigerian, pp: 52.
- Ogundipe, G.A.T., S.B. Olukun and G.O. Esuruoso, 1989. The Development and Efficiency of the Animal Health Information Systems in Nigeria. Preventive Vet. Med., 7: 121-135.
- Oyekunle, M.A., O.O. Olubanjo and O.E. Fasima, 1992. Foetal wastage in abattoirs and its implication: Solution report for Ogun State. Nig. J. Anim. Prod., 19: 57-63.
- Okolo, M.I.O., 1985. Pathological conditions found in goats killed at slaughter houses in Nsukka, Nigeria. Nig. J. Anim. Prod., 12: 61-66.
- Okoli, I.C., J.R. Nwokocha, N.J. Okeudo and G.A. Anyanwu, 2001. Analysis of meat inspection record for Imo State, Nigeria 1995-1999. 11: An assessment of the volume and value of slaughter figures returned for the State. J. Agric. Rural Dev. (In Press).
- Steel, R.G.D. and J.H. Torrie, 1980. Principles and procedures of statistics. McGraw-Hill book coy. New York. USA.
- Toulmin, C., 1986. Pertes de betail et reconstitution du cheptel après la secheresse en Afrique Subsaaharienne. Document de travail LPU No. 9. Addis Ababa Ethiopia. International Livestock Centre for Africa.
- Tawah, C.L. and D.A. Mba, 1989. Cattle breed evaluation and improvement in Cameroon: A review of the situation. Wakwa, Ngaoundere, Cameroon, Institute of Animal Research.
- Wythes, J.R., W.R. Shorthose, G. Fordyce and D.W. Underwood, 1990. Pregnant effects on the Carcass and meat quality attributes of cows. Anim. Prod., 51: 461-468.
- Wosu, L.O., 1988. Calf wastage through slaughtering of pregnant cows in Enugu abattoir (Nigeria). Rev. Elev. Med. Vet. Pays Trop., 41: 97-98.
- Wilson, R.T., 1986. Livestock Production in Central Mali. Long term studies on cattle and ruminants in the Agro-Pastoral System. Research report 14, ILCA Addis Ababa, Ethiopia.