World Journal of Agricultural Economics and Rural Development
Vol. 1, No. 2, May 2015, pp. 1 - 9
Available online at http://www.wjaerd.com

Research article

THE ECONOMICS OF ANTE-MORTEM EXAMINATION IN REDUCING CALF WASTAGE FROM SLAUGHTERING OF PREGNANT COWS.

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ABSTRACT

The economic importance of ante-mortem examination in reducing calf wastage from slaughtering of pregnant cows was carried out evaluate the effect of higher rates of slaughtered pregnant cows at Ogidigben abattoir in Warn South-West Local Government Area of Delta State, Nigeria. Slaughtered cattle were inspected by a trained veterinary assistant, who was supervised by a veterinarian from Local Government Council Department of livestock. The pregnancy status of the cows was first determined by visual assessment and palpation of exposed uterus after slaughtering and then confirmed by dissecting the uterus of the slaughtered cows, the percentage and the ratio of cows to bulls slaughtered. The results revealed that Warri South-West Local Government Area loses 1 - 3.62 % of its future productive herd as a result of the indiscriminate slaughtering of pregnant cows. An important factor contributing to the poor ante-mortem examination of pregnant cows from the meat inspector was poor enforcement of existing livestock legislation. If meat supplies are to be maintained or increased to meet future domestic demand, the incidence of slaughtering pregnant cows must be reduced or totally discouraged. .

Key Words: Ante-Mortem Examination, calf, Slaughtering, Palpation, Veterinarian and Uterus.

INTRODUCTION

Ante-mortem examination of calf wastage entails those activities carried out in the abattoirs (slaughter houses) mainly for pregnancy detection to overcome the slaughtering of pregnant animals. This is of great economic importance as it helps in pregnancy determination and prevention of the incident of calf wastage during the slaughtering of female animals. In order to prevent the slaughtering of pregnancy animal, it is essential that pregnancy diagnosis be performed at the public abattoir in Warri South-West prior to the slaughtering of female ruminant animals. Henrrick and Kindleberger (1988) note that lack of training on simple methods of pregnancy detection to cattle stock has been the major reason why pregnant cows are sold and slaughtered. They further stated that the issue of training is one of national or regional policy adequacy and governments' determination to make such a policy work.

The high rates of loss and high incidence of serious managerial problem in a production system are highly correlated, indicating that losses are merely an aggregate response to inadequacies in such a system. Issues of calf wastage in Warri South-West are not simple, and should not be over-looked. In other words, for Warri South-West to reduce to a tolerable level its cattle reproductive losses, production systems and relates managerial practices in the region must be improved drastically or changed all together. This in itself must be subject to an over all development package involving, among other things, rural infrastructure building, market and marketing development, inter-African trade, education and training of producers, incentive to produce and to sell, provision of adequate extension research and services.

Certainly, what is needed is an active and proper government interventionist role which recognizes that the planning of any successful livestock strategy is not only technology or economical but also and essentially politician, and that "development will occur only when the people most directly affected are enlisted in its support" (Hendricks and Kindleberger 1988) through their full and active participation, Calf wastage through the slaughtering of pregnant cows has received increasing attention over the past few years. However, the empirical evidence of the effect of this practice on beef production is limited. Tawah and Mbah (1989) and Ndikum and Saliki (1989) reported pre-natal losses in cattle ranging from 5 to 25 percent. In Nigeria, at the Enugu abattoir 26

percent of cattle slaughtered were pregnant (Wosu, 1988). While Yaounde in Cameroon the figure was 16.6 percent reported by Tchoumboue (1984).

Although the advantages of these studies lie in their ability to account for the losses incurred through the inadvertent slaughtering of pregnant cows, they fail to quantify the effect of this practice on the national herd size, total beef production and the economic losses borne by society in terms of welfare losses and higher beef prices. The objective of this study was to evaluate the effect of higher rates of slaughtered pregnant cows on herd replacement rates and meat production given and quantifies the financial losses resulting from calf wastage in Warri South-West Local Government Area of Delta State.

MATERIALS AND METHODS

This study was carried out between October 2012 and September 2013 at Ogidigben abattoir Warri South-West Local Government Area of Delta State, Nigeria, Slaughtered cattle were inspected by attained veterinary assistant who was supervised by a veterinarian from the local Government Council Department of livestock. The pregnancy status of the cows was first determined by visual assessment and palpation of the exposed uterus after slaughter and then confirmed by dissecting the uteri of the slaughtered cows. Ages of the calf at slaughter were determined by measuring fetal body length as described by Arthur *et al.*, (1982).

Data on the total number of male and female cattle, pregnant cows slaughtering and the ages of the calf found were collected on a daily basis within the study period. The results were analyzed to determine the prevalence of pregnancy in the slaughtered cows, the percentage of avoidable calf wastage and the ratio of cows to bulls slaughtered.

RESULTS AND DISCUSSION

A total of 3,444 cattle were slaughtered during the study period from October, 2012 to September, 2013, with a monthly average of 287 cattle (9 per day), varying from 452 in September to 155 in October (Table 1) 32 per cent (1075 cows) of the slaughtered cattle were female, with a monthly average of 90. Although the total number of cattle slaughtered from October 2012 to February and June 2013 was lower than average, the proportion of female cattle slaughtered was highest (37.90 %) in January. On average 20.02 % of the female cattle slaughtered in Ogidigben

abattoir were pregnant, ranging from 26.67 % in November to 14.38 %. In September of the pregnant cows, 24.83 % had foetuses of less than three months and half (50.1 %) had foetuses between 4 to 6 months old, while 9.91 % were more than 6 months pregnant (Table 2). The total number of foetuses in the second and third trimesters of pregnant then was 720 (60 %). This is surprising, given the fact that pregnancies in the second and third trimesters can be more easily detected than those of the first trimester.

Table 1 shows that the proportion of pregnant cows to total cattle slaughtered in Ogidigben is higher than the 16.6 % figure reported by Tchoumboue (1984) from Yaounde, Cameroon and lower than the 22.1 % figure reported by Ndi *et al.,* (1990). At the Ogidigben abattoir, 25 % of the cows were slaughtered during the first trimester of pregnancy, compared with 45 % in Yaounde Municipal abattoir and 36 % in Bamenda. and the number of cows slaughtered during the second trimester of pregnancy was lower in Ogidigben abattoir (50 %) than in Bamenda (52 %) but higher than in Yaounde (37 %). In this study, however, the proportion of cows with foetuses in the first and second trimesters was higher than those in the third trimester. The pattern of calf wastage observed in this study agrees with the findings of Wosu (1988), who reported that 26.67 and 7 % of cows were slaughtered during the first and third trimesters of pregnancy respectively, at the Enugu abattoir.

Apart from the month of November, when 26.67 % of pregnant cows u civ slaughtered, more pregnant cows (24%) were averagely slaughtered during dry season (January to March). In analyzing the effect of drought on livestock in sub-Sahara 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 cattle increased, herders were compelled to liquidate pregnant females before they died naturally. In a survey of slaughtered cattle at the Niamey abattoir in Niger Republic, Boeckm *et al.,* (1974) reported that 70 % of the cattle slaughtered during the extreme dry periods were female, compared with 30 % during the normal periods of the year. Else where in South East Ethiopia, Germen (1975) observed a similar phenomenon, where most of the cattle sold for slaughter during the dry season were females.

It was critically observed that the relatively high slaughter rate of pregnant cows in Ogidigben (Headquarters) of Warri South-West Local Government Area, two vital questions come to mind;

(i) What are the effects of this on the supply of beef in a country where meat production lags behind consumption?

(ii) 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?

Domestic production of beef, representing 61 % of total meat production was based on an annual off take rate of 1.07 % and a herd replacement (birth) rate of 13.54 %. The off take figure obtained was 4.18 % cattle of a total Local Government Council herd of 10,765 cattle. If 20.02 % of all cows slaughtered were pregnant, then this would give a total of 390 cows 3.62 % of the Local Government Council herd (Table 3). Assuming that no pre-natal mortality and no still births are incurred and that calves are born as single births, this would represent a reduction of 390 calves from the future Local Government Council herd. Given an average mortality rate of 7.20 %, an off take rate of 4.18 % and 3.62 % rate of fetal loss, the total future herd removal rate would be 15 % which is greater than the 13.54 % herd replacement (birth) rate.

Thus, the net reduction in herd size resulting from becomes 1.5 % if calves were slaughtered immediately following birth (after receiving colostrums), a total of 3 90 calves would be lost at an estimated cost of ₦3,568,500 or ₦9150 per calf, assuming a birth weight of 24.6 kg and a market price of ₦460 per kilogram of live weight. If calves were raised to a weaning age of one year, however, the loss would only be 341 calves. This figure assumes a 15 % mortality rate for calves from birth to weaning age of one year. The number of calves lost, therefore, is calculated as 85 % of the off take of 390, given that 59 calves are lost natural death.

In carcass terms, this would represent a loss of 2490 tones of beef, equivalent to a gross income of ₦146,250. The quantity of beef lost is obtained by multiplying the number of calves assumed to survive to weaning age (341) by the average weaning weight of 146 kg to give 4979 tones. The carcass equivalent is obtained as 50 % of total live weight. Lost income is calculated at the government regulated market price of ₦450 per kg of carcass weight. In net terms, therefore, the income lost to producer is estimated at ₦65,700. This figure is the difference between the expected gross income of ₦24,650 and the total cost of raising calves from birth to wearing at one year of age. If for some reason all cattle were slaughtered upon maturity at four years and a post-wearing mortality rate of 1 % were assumed, a total of 59 cattle (Table 3) would be lost. Assuring an average mature live weight of 320 kg and a carcass yield of 50 %, the total carcass equivalent lost would be 9440 tones of beef, or a per caput reduction of 1.3 7 kg of beef. In

monetary terms, this would be a gross income of ₦73,125.00 per head. The net loss incurred by cattle producers would be ₦64,682 per head of cattle. The total cost of raising one animal from birth to slaughter at four years of age is estimated to be ₦73,450 for cattle slaughtered beyond four years, it is assumed that annual production costs and benefits are proportional and constant, therefore, the net effect of the continuous slaughter of pregnant cows would mean a reduction on both consumer and producer welfare through meat shortages and reduced farmer incomes.

CONCLUSION AND RECOMMENDATIONS

The preceding results reveal that Warn South-West Local Government Area loses 1 to 3.62 % of its future productive herd as a result of the indiscriminate slaughtering of pregnant cows. Approximately, one-third of the cows slaughtered are in the first and second trimesters of pregnancy. Producers, middlemen, butchers and veterinary staff are not ignorant of the pregnant status of these cows, particularly when 10% of cows slaughtered are between 7 to 9 months pregnant. For producers, however, pregnant cows are more valuable and attract higher market prices from middle men and butchers who find them physically attractive. Unlike retail meat prices, wholesale and farm gate prices for cattle are unregulated. Cattle traders and butchers negotiate for slaughtering cattle based on physical inspection of animal. The result is that most traders end up purchasing cattle for slaughter that appears physically attractive and depending on the season or period of year, most of these cows are pregnant.

An important factor contributing to the increased slaughter of pregnant cows in Warri South-West is the Poor ante-mortem examination of pregnant cows from the meat inspection and poor enforcement of existing livestock legislation. Attempts to reduce meat deficits in Nigeria must focus on ways of reducing calf wastage during slaughter. Government intervention in cattle marketing remains essential, particularly in the enforcement of policies relating to the sale of pregnant cows for slaughter. Policy efforts must concentrate on instituting routine veterinary ante-mortem examination at cattle control posts and abattoirs. In addition, producers need to be better informed about the seasonal breeding patterns of cows 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 cows must be reduced or totally discouraged.

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TABLE 1: PROPORTION OF PREGNANT COWS SLAUGHTERED AT OGIDIGBEN (HEADQUARTERS) ABATTOIR IN WARRI SOUTH-WEST OF DELTA STATE.

Month	No. of cows slaughtered	No of female cows slaughtered	% of female cows slaughtered	Percentage of pregnant cows slaughtered
October	155	57	36,77	19.36
November	180	61	33.89	26.67
December	279	73	26.17	15.41
January	248	94	37.90	24.60
February	232	78	33.62	26.29
March	3.00	101	33.67	21.00
April	341	95	27.86	16.42
May	349	112	32.09	19.19
June	257	68	26.46	20.62
July	281	90	32.09	18.15
August	370	115	31.08	18.11
September	452	131	28.98	14.38
Total	3444	1075		
Mean monthly	289	89.58	31.72	20.02

TABLE 2; AGE DISTRIBUTION OF FOETUSES OF COWS SLAUGHTERED AT OGIDIGBEN ABATTOIR IN WARRI SOUTH-WEST L.G.A. HEADQUARTERS, DELTA STATE.

Month	No. of females cows slaughtered	No. of pregnant cows slaughtered	1-3 Months	4-6 months	7-9 months
October	57	30	12.4	40.1	8,7
November	61	48	22.4	48.6	102
December	73	43	24.6	54.3	12.6
January	94	61	10.8	30.6	9.3
February	78	61	18.6	62.4	3.9
March	101	63	18.9	56.6	14.5
April	95	96	29.4	36.9	6.7
May	112	67	32.8	66.4	16.4
June	68	53	21.7	37.8	13.5
July	90	51	30.6	53.1	2.7
August	115	67	402	61.5	7.8
September	131	65	35.6	51.2	12.6
Total	1075	665			
Mean Monthly	89.58	55.42	24.83	50.1	9.91

TABLE 3: EFFECT OF FOETAL LOSSES ON HERD REPLACEMENT AT THE LOCAL GOVERNMENT COUNCIL

Variable	Number	Percentage
Total Government		
Council herd	10,765	-
Total Females	6,820	63.35
Herd replacements		
- Births	1,458	13.54
- Purchases	238	2.21
Herd deletions		
- Mortality	775	720
- Offtake	450	4.18
- Foetal losses[1]	390	3.62
Total herd deletions	**1,615**	**15.00**
Lost calves/heifers/steers		
Caused by slaughter of Pregnant cows - At		
birth	390[2]	3.62
- At weaning one year later	341[3]	3.17
- At maturity four years later	59[4]	0.55

[1]20.02 percent of off take

[2]Assumes no pre-natal mortality or still births

[3]Assumes a 15 % mortality rate for pre-weaning

[4]Assumes a 1.00 % post-weaning mortality rate.