

INCIDENCE OF ORGANS CONDEMNATION AND FINANCIAL LOSSES AMONG SLAUGHTERED RUMINANT ANIMALS IN GOMBE METROPOLITAN ABATTOIR

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ABSTRACT

A five (5) year comparative study (2011 – 2015) of condemned organs of cattle, sheep and Goats slaughtered at the metropolitan abattoir in Gombe, Gombe State was conducted with the aim of determining the prevalent disease or condition among the slaughtered animals. Data on disease incidence and organs affected were obtained from the Veterinary service department of the Ministry of Agriculture Gombe State. The result indicated that Cumulative Specie Slaughter were 86, 317 Cattle, 95, 989 Sheep and 246, 426 Goats, representing an average daily slaughter figures of 71.90 Cattles, 80.00 Sheep and 205.40 Goats respectively. There was significant difference ($P \leq 0.5$) between the mean slaughtered figures. Incidence of diseased Organs condemnation in Cattles was higher 23.5% in Lungs, followed by Foetuses 22.34%. Rate of foetal condemnation was higher in Goats 28.19% followed by Mammary gland infection 25.57%. A financial loss as a result of organ condemnation was estimated at NGN (31,103,112.64). Condemnation of organs and indiscriminate slaughter of this animals represent a significant loss of edible organs, reduction in revenue and growth of future herds which in turn has a negative impact to the livestock industry and the national sustainable economy development.

KEY WORDS: Condemned Organs, Ruminants, Financial Loss, Abattoir

INTRODUCTION

There is increasing contact between humans and animals worldwide due to rising population density and growth especially in developing countries where livestock offers important socio – economic, cultural and religious pathways out of poverty (WHO, 2004). However, food production has become a strategic sub – sector for diversification of income and the fight against malnutrition and unemployment in the urban and rural areas of the world (Tanya et al, 2004). High prevalence of animal diseases affects both health and productivity of livestock population. As a result of devastating outcome of livestock diseases, animal protein output has not been able to keep up with the nation's demand (Tanya et al, 2004). Increasing demand for meat and meat product by human population has made human contact with animals unprecedented, coupled with movement of animal across international frontiers to supplement the local supply and increasing the risk of zoonotic diseases especially from endemic zones (Shwabe, 1984).

The slaughterhouse and its regulations, represents a key control point of livestock production chain (Raji et al, 2010) and any observation and information obtained at slaughterhouses provide an excellent opportunity for detecting diseases of both economic and public health importance (Raji et al, 2010). Therefore, the use of meat inspection records is an easy source of data for evaluation of epidemiological aspects of animal diseases (Edwards et al, 1997, Schweizer et al, 2003). It is in that regard that the study aimed to determine the diseased organs incidence, number of animals slaughtered and the financial losses resulting from the slaughter of ruminant animals in Gombe metropolitan abattoir from the year 2011 – 2015.

MATERIALS AND METHODS

This research was conducted at Gombe metropolitan abattoir in Gombe LGA Gombe State. Ante mortem was carryout and was followed by postmortem meat inspection involving visual examination, palpation and systemic incision of carcasses and visceral organs particularly lungs, liver, kidney, heart and spleen according to procedures described by Gracey et al (2019).

Records of total number of cattle, sheep and goats brought for slaughter were retrieved from Gombe metropolitan abattoir record books. The number of cattle, sheep and goats slaughtered as well as the number of condemned organs during the period of the study (2011 – 2015), were recorded. The data was statistically analyzed using the Microsoft Excel and (Levesque, 2007) Special Package for Social Science (SPSS) to determine the mean and frequency of slaughtered animals. Monthly, Daily slaughter figures and Percentage incidences of condemned organs and the financial losses were calculated.

RESULTS AND DISCUSSION

Table 1: Slaughtered Figures of Cattle, Sheep and Goats from Year 2011 – 2015 at Gombe Metropolitan Abattoir, Gombe State

Year	Cattle	Sheep	Goat	Total
2011	14148.0	9266.0	42576.0	65990.0
2012	14360.0	7082.0	56929.0	78371.0
2013	21194.0	33017.0	64690.0	118901.0
2014	19044.0	27493.0	43011.0	89548.0
2015	17571.0	19131.0	39220.0	75922.0
Grand Total	86317.0	95989.0	246426.0	428732.0
Yearly Average	17263.4	19197.8	49285.2	85746.4
Monthly Slaughter	1438.6	1599.8	4107.1	7145.5
Specie Daily Slaughter(h/day)	71.9 ^a	80.0 ^b	205.4 ^c	357.3

h =head per day, a, b, c...g means on the same row with different superscript differ ($P \leq 0.05$).

Annual slaughtered figure of cattle, sheep and goats was shown in table 1. A total of 428, 732 animals comprising of 86, 317 cattle, 95, 989 sheep and 246, 426 goats were slaughtered and inspected between January 2011 to December 2015 respectively. The result showed that goats have the highest number of slaughter figures of 246, 426 with a mean daily slaughter of 205.4 head per day. The highest number of annual slaughter figures in this study was recorded in 2013 (118, 901) whereas the least figures was recorded in 2011 (65, 990) respectively. There was significant difference between the number of species slaughtered ($P \leq 0.05$) where goats were predominantly higher in all the years may be due to their affordability. Table 2 below showed the five year mean and percentage incidence of infected organs in slaughtered cattle, sheep and goats respectively. The result indicated that goats recorded the highest incidence of lungs infection with 24.47%. However, cattle and sheep recorded a mean of 23.50 and 20.81% respectively. Total number of infection was higher in the year 2012 for Cattle's and Goats with 21969 and 71193 head, while 2011 was the highest in sheep with 23044 head per year. Goats species showed a high incidence of disease condition in the year 2013 (71192), while the lowest was in 2015 (70897) and highest for Sheep (22898) respectively. The general analysis indicated that cumulative incidence of organ condemnation was higher in Goats 355368 Sheep 114848 and Cattle 109249 heads respectively.

Table 2: Cumulative Number of Organs Affected and percentage Incidence of Condemnation in Gombe Metropolitan Abattoir 2011 - 2015

Specie	Year	'Lungs	'Liver	'Kidney	'Intestine	'Spleen	'Mammary Gland	'Foetus	'Hide/S kin	Total
Cattle	2011	4055	2812	2800	2909	2000	2600	3822	817	21815
	2012	4121	2809	2803	2910	2003	2601	3898	824	21969
	2013	4094	2813	2806	2903	2003	2602	3906	816	21942
	2014	4010	2803	2801	2907	2000	2601	3839	815	21776
	2015	4001	2805	2803	2912	2002	2601	3822	803	21747
Total Infected		20281	14042	14013	14541	10008	13004	19285	4075	109249
% Incidence		23.50 ^b	16.27 ^b	16.23 ^c	16.85 ^c	11.59 ^c	15.07 ^b	22.34 ^b	4.72 ^a	15.82 ^b
Sheep	2011	4023	2806	2900	3021	2000	2601	3890	1804	23044
	2012	4012	2812	2900	3017	2002	2603	3854	1800	23000
	2013	4003	2804	2900	3013	2000	2601	3885	1804	23009
	2014	3964	2804	2900	3008	2000	2600	3821	1800	22897
	2015	3970	2805	2900	3015	2000	2600	3807	1800	22898
Total Infected		19972	14031	14500	15074	10002	13004	19257	9008	114848
% Incidence		20.81 ^a	14.62 ^a	15.11 ^b	15.70 ^b	10.42 ^b	13.55 ^a	20.06 ^a	9.38 ^b	14.96 ^a
Goats	2011	12109	12806	2900	3014	2000	12602	13946	11803	71180
	2012	12155	12811	2901	3017	2002	12602	13906	11800	71193
	2013	12091	12804	2900	3009	2000	12602	13986	11800	71192
	2014	11976	12800	2900	3006	2000	12601	13823	11800	70906
	2015	11973	12801	2900	3006	2000	12601	13816	11800	70897
Total Infected		60304	64022	14501	15051	10003	63008	69476	59003	355368
% Incidence		24.47 ^b	25.98 ^c	5.88 ^a	6.11 ^a	4.06 ^a	25.57 ^c	28.19 ^c	23.94 ^c	18.03 ^c

a, b, c means in the same column with different superscript differs significantly ($P \leq 0.05$)

Table 3 shows the financial losses resulting from condemnation of major organs of cattle, sheep and goats from 2011 – 2015 in Gombe metropolitan abattoir. The prices that were used in the estimation of financial losses were those that prevailed in Gombe metropolitan meat market during the study. The average weight of organs, total number of organs, condemned, average unit prices per kg of organs, and the total financial losses attributable to organ condemnation are indicated. Overall total cost of all organs that were condemned during the period of the study was ₦31, 103, 112. 64 of which ₦13, 996,328.89, was from Cattles ₦3,588,189.26 from Sheep and ₦13,518,594.50 from Goats respectively. The direct financial loss was obtained by the formula described by (Ejehet *et al.*, 2014).

$$DEL = nW \times \frac{AvP}{Kg}$$

Where: DEL = Direct economic losses due to condemnations, n = Total number of condemned organs for the period. W = Weight of condemned organs in (kg) Av.P/Kg = Average price of passed organs per kilogram in (NG ₦)

Table 3: Financial Losses Resulting from Condemnation of Major Organs of Cattle, Sheep and Goats from 2011 – 2015 in Gombe Metropolitan Abattoir.

Animal Specie	Types of Organs Condemned	Number of Condemned Organs	Org. Avg. Weight (Kg)	Avg. Unit Cost /Kg (N)	Total Financial Loss in Naira (N)
CATTLE	'Lungs	4766	2.50	400	4,766,035.00
	'Liver	2285	2.00	700	3,198,486.76
	'Kidney	2274	1.50	500	1,705,732.43
	'Intestine	2450	4.00	350	3,430,221.90
	'Spleen	1160	1.00	250	289,981.80
	'Hide/Skin	192	10.50	300	605,871.00
	Total				13,996,328.89
SHEEP	'Lungs	4156	0.50	500	1,039,043.30
	'Liver	2051	0.50	450	461,549.75
	'Kidney	2191	0.25	400	219,095.00
	'Intestine	2367	1.50	400	1,419,970.80
	'Spleen	1042	0.25	100	26,055.21
	'Hide/Skin	845	5.00	100	422,475.20
	Total				3,588,189.26
GOAT	'Lungs	14756	0.50	400	2,951,277.76
	'Liver	16633	0.50	350	2,910,760.23
	'Kidney	853	0.25	150	31,974.71
	'Intestine	920	1.50	400	551,769.66
	'Spleen	406	0.25	100	10,153.05
	'Hide/Skin	14125	5.00	100	7,062,659.10
	Total				13,518,594.50
Grand Total					31,103,112.64

CONCLUSION

Condemnation of organs and indiscriminate slaughter of the animals represent a significant loss of edible organs, reduction in revenue and growth of feature herds which in turn has a negative impact to the livestock industry and the national sustainable economy development. Proper ante mortem and Post mortem inspection is required to avoid indiscriminate slaughter and wastages.

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