



Research Article

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Causes of Carcass Condemnation and its Associated Financial Losses in Slaughtered Pigs at the Kumasi Abattoir Company Limited

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Abstract

The study was conducted from August 2017 to December 2017 at the Kumasi Abattoir Company Limited to investigate the causes of carcass condemnation in slaughtered pigs and their associated financial losses. Out of the 1221 pigs examined, 212 (17.4%) were affected with pathological conditions. The five most frequent pathological conditions were: Lung congestion (7.9%), Ascariasis (2.7%), Cysticercosis (2.4%), Liver congestion (1.1%) and Liver abscess (0.9%). Pathological conditions were more prevalent (57%) in female pigs than in males (43%). Cross bred pigs were more (81%) affected by pathological conditions than the local Ashanti black pig (19%). The overall carcass condemnation rate was 1.7% with Cysticercosis being the major cause. The average condemnation rate of visceral organs was 1.8%. Annually, a total of One hundred thousand, six hundred and twenty-eight cedis, seventy-two Pesewas (GHc100, 628.72) was lost due to condemnation of carcasses and organs at the Kumasi Abattoir. Butchers, pig owners and other stakeholders should be educated on pre-slaughter management and handling of animals.

Keywords: Pigs; Cysticercosis; Lung congestion; Ascariasis

Abbreviations: MOFA: Ministry of Food and Agriculture; GHc: Ghana cedis; GDP: Gross Domestic Product

Introduction

Agriculture employs about 60% of the working population and contributes to 21.5% of Ghana's Gross Domestic Product (GDP) [1]. The livestock population in Ghana is estimated to be 682,000 pigs, 1,657,000 cattle, 4,335,000 sheep and 6,044,000 goats [2]. Swine production is an important economic activity in Ghana due to the high prolificacy and high feed conversion rates of pigs. Pigs are reared under intensive conditions on many farms in the Greater Accra, Ashanti, Brong Ahafo and Volta regions of Ghana [3]. Unfortunately, there is poor documentation on swine diseases in the country. The availability of this information will be invaluable for designing disease control mechanisms. The abattoir has been recognized as a reliable source of information on livestock diseases. This study therefore seeks to investigate the causes of carcass condemnation in pigs slaughtered at the Kumasi abattoir and assess the associated financial losses.

Materials and Methods

The study was conducted from August to December 2017 at the hog unit of the Kumasi Abattoir Company Limited (KACL). The study population were pigs brought for daily slaughter

at the hog line during the peak hours of 6 am and 10 am. The abattoir was visited thrice in a week during the study period. Ante mortem inspection was conducted on pigs at the lairage. The pigs passed for slaughter were led to the hog line for stunning and slaughtering. Postmortem inspection was conducted on them by trained veterinary personnel [4]. After inspection, the number of carcasses passed for human consumption and number of partial or totally condemned carcasses were recorded. The reason/s for carcass condemnation was noted for each case and the financial losses associated with carcass condemnations were estimated as described by [5] and modified as follows: Annual Financial loss due to total carcass condemnation = average slaughter rate* condemnation rate of carcass* prevailing market price of average carcass.

Annual Financial loss due to viscera's condemnation = average slaughter rate *condemnation rate of viscera * prevailing market price of viscera. The total financial losses due to condemnation was obtained from the sum of the losses due to whole carcass and viscera condemnation respectively. Data obtained were analyzed using descriptive statistics.

Results and Discussion

Table 1: Causes and condemnation rate of carcasses.

Cause	Number condemned	% Condemnation
Whole carcass condemnation:	21	1.72
Generalised cysticercosis	21	1.72
Partial carcass condemnation:	191	15.64
Lung congestion	97	7.94
Ascariosis	33	2.70
Localised cysticercosis	8	0.65
Liver congestion	13	1.06
Liver abscess	11	0.90
Bruises	5	0.41
Enteritis	5	0.41
Mastitis	6	0.49
Pre-scapular abscess	4	0.33
Lung abscess	3	0.25
Liver cirrhosis	4	0.33
Splenomegaly	2	0.16
Total	212	100

The proportion and causes of carcass condemnation are presented in Table 1. Out of the 1221 pigs examined, 21 (1.72%) carcasses were totally condemned, while 191(15.64%) were partially condemned. Partial condemnation included the rejection of diseased offal's as well as trimmings on the carcass itself. In this study, total condemnation of carcasses was due solely to generalized cysticercosis. The low rate of total carcass condemnation was similar to reports by [6] at a commercial slaughterhouse in Brazil. The prevalence of porcine cysticercosis at this abattoir had previously been reported by [7]. Cysticercosis is an emerging agricultural and public health problem in Africa [8,9]. The risk factors for cysticercosis in developing countries have been identified as general poverty, free ranging of pigs, poor sanitary conditions and home slaughter of pigs without inspection [9,10].

The rate of partial carcass condemnation of 15.64% in this study was lower than (25.44%) recorded at the Addis Ababa Municipal Abattoir [10]. This could be due to difference in location, environmental conditions and slaughtering methods used. The top five causes of partial carcass condemnation in descending order were as follows: lung congestion (7.94%), Ascariosis (2.70%), liver congestion (1.06%), liver abscess (0.90%) and localized cysticercosis (0.65%). These findings are similar to reports by [11] that the major causes of partial carcass condemnation in pigs slaughtered at a municipal abattoir in Addis Ababa, Ethiopia, were hydatidosis, cysticercosis, fasciolosis, liver cirrhosis, pneumonia and abscesses. On the other hand, these findings contradict a report in Northern Portugal by [12]. They concluded that Osteomyelitis (38.5%), Granulomatous lymphadenitis (22.7%), pleurisy/ pneumonia (21.2%), abscesses (8.4 %) and peritonitis (2.6%) were the main causes of carcass and organ condemnation.

Table 2: Financial losses due to carcass condemnation.

Type	Condemnation rate %	Average annual slaughter	Average market unit price (Ghc)	COST (Ghc)
Total carcass	1.72	9805	600	$600 \times 9805 \times 0.0172 = 101,189.6$
Partial carcass	15.64	9805	3.50	$3.50 \times 9805 \times 0.1564 = 5,367.23$
TOTAL				106,554.86

The financial losses associated with carcass condemnation were calculated as: described by [5] For this study, partial carcass condemnation included carcass trimming and rejected offal's. At this abattoir, the offal's were considered as a lot and as priced as such. The annual slaughter of pigs as taken from the abattoir records was 9805. Annually, a total of One hundred and six thousand, five hundred and fifty-four cedis, eighty-six pesewas

(Ghc 106,554.86) was lost due to carcass condemnation at this abattoir (Table 2). At an exchange rate of Ghc4.90= 1 US dollar, this was equivalent to 21, 745.89 United States dollars.

Conclusion and Recommendations

Porcine cysticercosis was the main cause of total carcass condemnation. The annual financial loss associated with carcass

condemnation amounted to One hundred and six thousand, five hundred and fifty-four cedis, eighty-six pesewas (GHc 106,554.86) or 21, 745.89 United States Dollars. It is recommended that Farmers should be educated on intensive pig rearing. The butchers, pre-slaughter animal handlers should be educated on pre-slaughter management and handling of animals.

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Declaration of Interest

The authors declare no conflict of interest.

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