EVALUATION OF MEAT INSPECTION PROCEDURES FROM 2012-2017 IN AZARE TOWN A CASE STUDY OF AZARE ABBATTOIR

BY

MOHAMMED ABUBAKAR MOHAMMED

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RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF AGRICULTURAL EDUCATION SCHOOL OF UNDERGRADUATE STUDIES,

FEDERAL COLLEGE OF EDUCATION (TECHNICAL) GOMBE

IN AFFILIATION WITH ABUBAKAR TAFAWA BALEWA UNIVERSITY (ATBU) BAUCHI

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF B. TECH. AGRIC EDUCATION

JANUARY, 2018

DECELERATION

This project titled the evaluation of meat inspection procedures from 2012 – 2017 in Azare was carried out by me.

Mohammed Abubakar Mohammed **Sign/Date** 09/02/2018

APPROVAL PAGE

This is to certify that the project titled evaluation of meat inspection procedures from 2012 – 2017 in azare town was carried out by me to meet the requirement for the award of B. tech Agricultural Science Education, School of Vocational, Federal College of Education (Technical) Gombe, in Affiliation with Abubakar Tafawa Balewa University, Bauchi (ATBU).

This project/research work is approved for its contribution to knowledge and literacry presentation.

Malam Maigari M. Mangadu	.....	09/02/2018
Project Supervisor	Sign	Date
Malam Yusuf Sule Godi	.....	9/2/18
H. O. D.	Sign	Date
Dr. E. B Arfo	.....	9/2/18
Dean School of Undergraduate Studies	Sign	Date
.....	.....	.....
External Supervisor	Sign	Date

DEDICATION

I wish to express my gratitude thanks to Almighty Allah (SWT) who provided me the ability, strength and opportunity to read, understand and pass my exams, also special thanks goes to my loved parents who have been helpful to me throughout to date. This project is dedicated to my parents.

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ABSTRACT

The study is to evaluate meat inspection procedures in Azare Katagum Local Government, Bauchi State Nigeria from 2012 - 2017. The data were collected with the aid of a well structured questionnaire and analyzed using descriptive statistics such as frequency distribution percentage and Mean. The study shows that majority (90%) of the respondents were male and 62% were married. The findings also revealed that 52% of the respondents were within the age bracket of 21-40 years and literacy level of the respondents was moderate, where as those with primary, secondary and tertiary education constituted 22%, 37% and 25% respectively. A total of 12,2359 different animals species were slaughtered in Azare abattoir from 2012 – 2017, 27 animals were totally condemned and by the inspectors due to effects of black quarter diseases and snake bite while 37 animals were partially condemned as a result of tuberculosis, snake bite and fasciola. The study recommends that standard and modern abattoir should be established in Azare. Facilities for meat inspection should be made available in the abattoir and butchers should be enlightened on the conditions and diseases that lead to total condemnation of meat.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Meat is animal flesh that is eaten as food. Also is the flesh of an animal typically a mammals or birds as food (Andrew 2013). The overall purpose of meat inspection is to ensure that meat products are safe and wholesome for consumption by humans being and animals. The science of meat hygiene in itself consist of scientific concepts and procedures. The meat hygiene clinic have been designed with the overall purpose to promote human and animal health and welfare. Meat can be seen as any part of animals fit for human consumption. Evaluation of meat inspection procedures involve examination of animals before and after being slaughtered.

The purpose of meat inspection is to protect human health against harm and control of adulterated meat trade to prevent and ensure that meat and meat products are safe and wholesome for consumption by human being. In October 1999 initiated the volunteer slaughter establishments to determine whether new government slaughter inspection procedure along with new plant responsibilities could improve meat safety and increase consumer protection. Under haardard inspection monitoring principles (HIMP) employees of line before they reach Fsis on-line inspectors, making an initial determination

whether they are unacceptable allowing the online inspector to focus on any remaining meat safety issues.

This approach is consistent with hazard analysis critical control point (HACCP) where industry rather than federal inspectors are responsible for identifying steps in meat production where meat safety hazard are likely to occur and for establishing controls that prevent or reduce them. Currently there are ruminants and non ruminants animal. Example of ruminants are sheep, goats, cattle's and so on. While example of non ruminants are chicken, turkey and aquatic like fish etc market hogslaugther establishments participating in hazard inspection monitoring principles (HIMP). The report focuses on the evaluation of meat inspection is to ensure that any carcasses or part that are unwholesome or adulterated and thereby unfit for human food do not enter commerce.

The slaughter line inspection system and provide a measure for comprising performance of operating under traditional inspection system in 2012 march to hold a public meeting to present the result and receive comment on proposed performance (FSIS 2012). In november the final hazard inspection monitoring principles (HIMP) performance standard for meat safety and other consumer protection (OCP) concerns. Hazard inspection, monitoring principles (HIMP) the system to achieve meat and food safety standards and to develop processes control plants to achieve other consumers protection standard.

The plants are responsible for identifying and removing any animals that don't meet the set standards. Inspectors are responsible for verifying are continuously achieving the required outcomes the national alliance for food safety determined that food safety performance standard provided a scientifically valid measured by which performance of hazards inspection monitoring principles (HIMP) can be evaluate. The steps of inspection following entry of animals slaughter plants into the hazard inspection monitoring principles programme data was again collected in order to evaluate the achievements of new inspection.

Suggested inspection under was equivalent to traditional inspection. subsequent data collection on over the time period example like Sep. 18. 2013 - April 30, 2014 – July 14, 2015 – Dec. 31. 2016, were meeting or exceeding hazard inspection monitoring principles (HIMP) performance standards (2012 – 2017) organoleptic and microbiological data compared to the performance standard where meat and food safety measures. Septicemia of fexemia rate visible fecal contamination rate other consumer protection measures

a. OCP 1 (annual disease. air sacculities)
b. OCP 2 (Miscellaneous conditions e.g. Buruisesores and other processing defects)
c. OCP 3 (Digestive content e.g. ingesta)
d. OCP 4 (Dressing defects digestive tract tissue e.g. bursa cloaca)

There are four interrelated inspection activities as follows:-

a. Inspection of each carcass by on-line FSIN inspector

b. Verification by off line inspectors

c. Verification of the outcomes of the control plan both organetic and microbiologic

d. Verification of the executing it s

The meat inspection and over related duties including monitoring the operation of slaughtering house and arrangement of meat (Frazler, 2012) only animal carcass which has passed the meat inspection can be marketed with a government inspection stamp and released for sale in market. Therefore, it is important that attempt to be made to ensure that meat before it get to the point of sale is wholesome for human consumption. The process of spoilage of meat can be classified on the basis of whether they occur under aerobic or anaerobic condition and whatever they are caused by bacteria yeast and mould (fugi).

The use of analytical tasted planning meat at five percent (5%) by micro bacteria thermosphactum and lacto bacilli and come up with a report rapid spoilage of meat. (Figureiod 2013) environment quality control usually carried out to detect and assess micro environment which could find their way into meat product through salivate materials equipment design and high standard of hygiene for meat handlers. During abattoir infection carcasses are fully or fairly or fully condemned upon detection of disease that posses a risk to public health

or welfare condition that cause animals suffering (Harley, etal 2012) there is reasonable gap on food safety knowledge by abattoir and butchers shop works (Taddele etal 2013) they also emphasized that the microbial profile was also higher compared to standards set by world health organization (WHO)

Occupational hazards are the major source of morbidity and mortality among the animals workers due to exposure to many hazardous situations in their daily practice. It may be the actions and viruses, bacteria, fungi and parasite. The meat preparation for consumption is designed to promote human and animal health welfare. Man require protein and balanced diet in-take and the way to get that protein is from meat is termed as flesh of animal for human consumption. Most of the animals used for especially that of cattle, sheep, goats etc while other meat can be a poultry or aquatic.

According to the definition above meat is sub-divided into four (4) major categories these are red meat, poultry meat, seafood

a. Red meat:- constitute of all meat goat from animals like castles, sheep, goat, and pigs, they are the largest category inter of volume of consumption. This category is darkly pigmented. However, cow, camel serves as meat in some part of Azare.
b. Poultry meat:- Is that meat obtained from domestic bird and it include chicken, turkey, ducks, geese, guines fowl, they are referred to as white or highly pigmented to as white or highly pigmented meat.

c. The seafood meat:- include fish, lobster, oysters, crabs and other flesh of other aquatic organisms which constitute and important sources of protein supply.

d. Meat of non-domestic animals:- Is a palatable source of meat with enough protein contents, such animals include tortoise turtle, snakes, elephant, reptile, snail etc

1.2. Statement of the problem

Despite the great contribution of the veterinary personnel the problem of unwholesome meat consumption still exists. Government attitude towards meat slaughtered by butchers have created room for sale of contaminated and unhealthy meat to the consumers. Also consumption of treated unwholesome meat by public inspection leads to spread of zoonotic disease.

Meat is a good source of protein for the society but the cost of meat and poor inspection of meat lead to malnutrition morbidity and even mortality in some cases especially in children below five (5) years. Proper meat inspection in the abattoir could play an important role in poverty reduction and improve meat of the health condition of an individual in Azare and the nation at large. It is in this regard of meat inspection over the five (5) years that is 2012 – 2017.

1.3. Objective of the Study

The main objective of the study is to evaluate meat inspection proccdures in Azare from 2012 – 2017 to ensure that good and qualitative meat made available for the masses. While the specific objective are as follows:-

a. Determine the problems of meat inspection procedures in the study area
b. Determine extent to which meat is being inspected in the study area
c. To identify the problems associated with poor meat inspection
d. Determine the condition of condemnation in the study area
e. To analyses the identified problem and suggest possible solution
f. To make recommendation to government and stakeholders that will help in ensuring proper meat inspection.

1.4. Research Questions

a. What are the problems associated with meat inspection procedures in the study area?
b. To what extent has meat inspection gone in the study area?
c. What are the condition of meat condemnation in the study area?
d. To what extent is the meat inspection carried out in the abattoir?
e. To what extent are the animals slaughtered in the abattoir?
f. Are the qualified inspectors in the study area?
g. Are the inspectors following the inspections procedures properly?

1.5. Significance of the Study

The research work can be used to provide information concerning current status of the phenomena and such information will help either in decision making or further research on meat inspection procedures in the study area and also assist other researchers that may like to work on similar topic. Also the work will be of great importance to both the researchers, meat consumers, butchers and also veterinary personnel in the study area.

1.6. Scope of the Study

The scope of the study is limited to evaluation of meat inspection procedures in Azare town of Katagum LGA Bauchi State of Nigeria. Information of concern would be five (5) years which is from 2012 – 2017.

1.7. Definition of Terms

a. Carcass:- Refers to the flesh of an animals, also carcass refers to the part of animals flesh when the bye product (skin, head, legs gastro, intestine track and other internal organs) are separated.

b. Butcher:- This is a person who slaughters animals and dress the meat for sale as his business.

c. Wholesome meat:- this is a meat that is free from diseases or any infection after inspection.

d. Un-wholesome meat:- Refers to a contaminated meat or unhealthy meat

e. Abattoir:- This refers to the place where animals are slaughtered, dressed before taken to the market or point of sale.

f. Meat:- is the edible part of an animals after slaughtering

g. Zoonotic diseases:- these refers to those diseases that can be transmitted from animals to man after eating the meat of infected animals e.g anthrax.

h. Meat:- is the flesh of an animals typically a mammals or birds as foods.

i. Slaughtering:- is the killing of animal for the purpose of market. Also is the killing of animals usually referring to killing domestic livestock in general as a food.

j. Ante mortem:- is the screening or examination of animals before slaughtering. Also is to identify animal which are suspected of showing deviation from normal behaviour that render the carcass of human consumption.

k. Ante mortem inspection: is the identify animals not fit for human consumption. Also is animals that down disabled disease or dead are removed from food chained and labeled condemned.

l. Post mortem: is the screening or examination of animals after slaughtering also is the examination of dead body after death.

m. Post mortem inspection: is the inspected immediately after slaughtering evisceration for possible change unsuitability of meat for food. Also post mortem inspection is the examination which requires observation of all parts of carcass dressing procedures equipment and facilities to prevent contamination of edible part.

CHAPTER TWO

2.0 REVIEW OF RELATED LITERATURE

This chapter reviews the related literature under the following headings

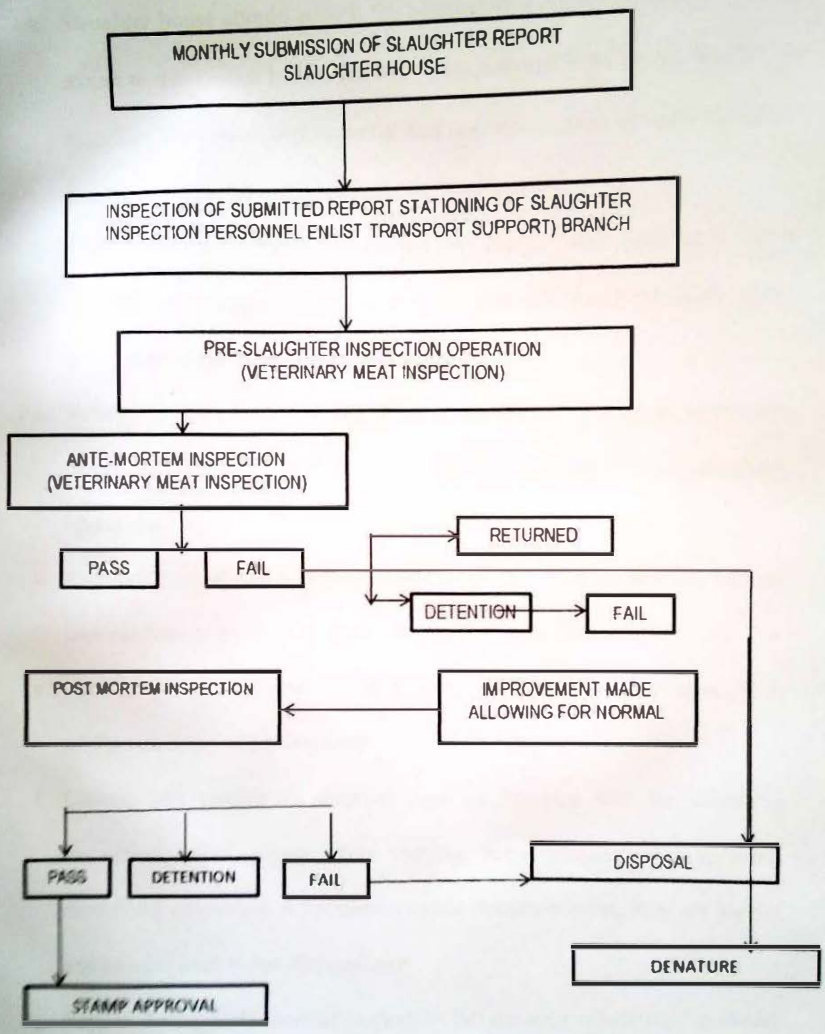
a. Concepts of meat inspection
b. Problems of meat inspection
c. The objectives of meat inspection programme are two fold
d. Ante mortem inspection (belter 2012)
e. Post mortem inspection
f. Carcass judgment (2014)
g. Localized versus general condition
h. Importance of meat inspection

2.1 Concept of Meat Inspection

The meat inspection is the examination of animals before and after being slaughtered. The purpose of meat inspection is the protection of human health against harm and destruction, tiouss disease. The main purpose of meat infection is to detect and prevent public health hazards such as food borne pathogens. (john 2013) homeostatic regulation given an organism the ability to survive under many difference and sometimes adverse environmental condition include external variable in temperature, oxygen deficiencies and physical discomfort.

The nervous system and endocrime gland and is involved in this regulation of internal environment which surprisingly continuous at moment of death of many of the reactions of change that occurs during the conversion of muscles to lairage until they have left abattoir as dressed carcass. The food and environment hygiene department is responsible for the monitoring of slaughter house to ensure that their operation meat the required hygiene and environmental standard and that only meat fit human consumption is released for sale in market. Qualified meat inspectors are stationed at abattoir house

STANDARD PROCEDURE FOR MEAT INSPECTION



.2.1.1 Procedural Instructions

a. Slaughter house should submit the scheduled monthly report for coming month to this branch before the 10th of each month base on the number of slaughter lines, slaughter capacity and operation times of each slaughter house and apply for approval from the headquarter.

b. Command and assign veterinarian in charge and veterinary meat inspector according to the principles for systematic allocation of slaughter house inspection to conduct inspection.

c. Veterinary meat inspector should conduct daily pre slaughter inspection of operations according to clause 11 of the requirements for slaughter operations.

d. Post mortem inspection of live stock include the head, viscera and carcass post mortem inspection of poultry includes viscera and carcass.

e. The "inspected and passed" stamp must be only used under supervision of the veterinary meat inspector.

f. Carcass and viscera for disposal must be stamped with the slaughter inspection failed stamp while making deep incisions and spraying modifying chemicals. After photographic documentation, they are signed and handed over to the disposal site.

g. Returns failing ante-mortem inspection but meeting regulations in clause 8 of the rules of meat inspection.

2.2 Problems of meat inspection includes

a) Lack of awareness of meat addict by the meat inspectors to consumers. Meat consumers need to be educated about disease that can be transmitted from animals to human being (zoonotic disease).

b) Insufficient equipment, government should provide adequate equipment for proper inspection because veterinary personnel complain about equipment, in order to carry out proper inspection.

c) Lack of compensations by the government too the butchers. This is another problem to meat inspection. Government do not allocate money in order to compensate butchers when the meat animal come to total condemnation that has lead to sales of unwholesome meat to meat consumers or the public. Government should allocate money for compensation of butchers when their meat are totally condemned.

d) Harassment by the butchers to meat inspectors. when it comes to the total condemnation of their meat. Butchers find it difficult to keep quite when their meat are totally condemned because that there was nothing like compensation by the government, so the butchers harass the veterinary personnel on their work sometimes the inspections allows it because of fear of the butchers.

2.3 The objectives of meat inspection programme are two fold:

a. To ensure that only apparently healthy, physiologically normal animals are slaughtered for human consumption and that abnormal animals are separated and dealt with accordingly.

b. To ensure that meat from animals are free from disease, wholesome and of no risk to human health. The objectives are achieved by atemoterm and postmortem inspection procedures and by hygienic dressing with minimum contamination whenever the appropriate hazard analysis critical control point (HACC) principles should be used. Section procedure should appropriate to the spectrum and prevalence of disease and defects present in the particular class of livestock being inspected using the principles of risk assessment.

2.4 Ante Mortem inspection (Belter, 2014)

Some of the objectives of antemoterm inspection are as follows:

a. To screen animals destined to slaughter.

b. To ensure that animals are properly rested and that clinical information which will assist in the disease diagnosis is obtained to reduce contamination on the killing floor separating the dirty animals and condemnation the disease animals required by regulation.

c. To ensure injured animals or those with pain and suffering receive emergency slaughter and that animals are treated humanly.

d. To identify sick animals and those treated with antibiotics chemotherapeutic agent, insecticide and pesticides.

e. To identify portable animals disease to prevent killing floor contamination.

f. To require and ensure the cleaning and disinfection of trucks used to transport livestock, both side animals should be examined at rest an in motion. Antermoterm examination should be done within 24 hours of slaughter and repeated of slaughter is delayed over a day. Spread hangs animals affected with extensive fractures require emergency slaughter. Animals showing clinical signs of a disease should be held for veterinary examination and judgment. They are indicated as suspects and should be segregated from healthy animals. The disease and management history should be recorded and reported on an ante mortem inspection card, other information should include:

i. Owners name
ii. The number of animals in the last arrivals
iii. The species and the sex of animals
iv. Clinical signs and body temperature
v. Seasons why animal washed
vi. Signature of inspector

Ante moterm inspection should be carried out in adequate lighting where the animals can be observed both collect and individually at rest and motion, the general behaviour of animals should be observed as well as their maturational status, healthiness, sign of disease and abnormalities. Some of the abnormalities which are tacked on anter motem examination include:

a. abnormalities in respiration
b. abnormalities in behaviour
c. abnormalities in gait
d. abnormalities in posture
e. abnormalities in structure and confrontation
f. abnormalities in discharges of protrusions from openings
g. abnormalities coloration
h. abnormalities body odur

Since many abattoirs in developed countries have no accommodation or yards for animal inspectors. Antermertem judgment must be performed at the admission of slaughter animals.

2.5 Postmortem Inspection

Routine postmortem examination of a carcass should be carried out as soon as possible after the completion of dressing in order to detect any abnormalities so that product only conditionally fit for human consumption is

not passed as food. All organs and carcass portion should be kept together and correlated for inspection should necessary information and correlated for inspection should provide necessary information for scientific revolution of pathological lesion patient to the wholesomeness of meat, professional and technical knowledge must be fully utilized by:-

Viewing, incision, palpation and olfaction techniques classifying the lesion into one or two major categories acute or chronic establishing whether the condition is localized or generalized and organs or tissue.

Determining the significance and systematic pathological lesion and their relevance to major organs and system particularly the liver, heart, kidney, spleen and lymphatic system.

Coordinating all the compensation of ante mortem and postmortem findings to make a final diagnosis.

Submitting the sample to the laboratory for diagnosis support, if the abattoir has holding refrigeration for carcass under determination.

2.6 Carcass Judgment

Trimming or condemnation may include:

a. Any portion of a carcass or carcass affected with disease or condition that may present a hazard to human health

b. Any portion of a carcass or carcass that may be repulsive to the meat consumers

2.7 Localized Versus General Condition

It is important to differentiate a lesion is restricted by animals defense mechanism to a certain area or animal defense mechanism to a certain area or organ. Systematic change associated with a localized condition may also occur for e.g. jaundice caused by live infection flowing payomentry the animals defense mechanism are unable to stop the spread of the disease process by wap of the circulatory or lymphatic system. Limpness of the carcass should be examined if pathological lesion are generalized (belter, 2012).

2.8 Importance of Meat Inspection

it is important to inspect meat before it get the point of consumption one of the most importance of meat inspection is the protection of human health against harm destruction from disease and also control of adulterated meat trade and prevention of zoonotic disease to human beings or society or country at large.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

This research work employs a survey design which involves gathering data through the use of structured questionnaires. This questionnaires is aimed to obtain data from butchers and veterinarians/meat inspectors in order to evaluate meat inspection procedure in Azare town of Katagum local government area, Bauchi state.

3.2 The Study Area

The study area was conducted in Azare town of Katagum local government area Bauchi state of Nigeria. It is located on latitude $10^{0}11N$ and longitude 11^{0} E. it is located in the northern geographical zone of Nigeria. It has two distinct seasons dry and wet, the dry season begins in October and end in April (7 months). The wet season lasted for five months (from May – September). The mean annual rainfall varies from 600 – 1200mm, the temperature ranges between $18^{0}33^{0}C - 32^{0}C$.

The vegetation of the area is open savannah grassland with concentration of wood land. Agriculture forms the dominant occupation with crops such as, cowpea, maize, millet, and sorghum and livestock such as sheeps, goats, cattle

and so on. Consequently, there are well established regional market for livestock and grains that attract the attention of potential buyers from many states like Niger, Chad and Cameroon.

3.3 Population of the Study

The population of this study comprises all the butchers, vertirinary personnel or meat inspectors in Azare metropolis of katagum local government area, Bauchi state.

3.4 Sample and Sampling Techniques

It is not possible to use the entire population when conducting a research. Therefore, a total of fourty (40) respondents were selected using simple random sampling techniques to select twenty (20) each from the butchers and meat inspectors/veterinary personnel.

3.5 Instrument of Data Collection

The instrument for data collection is structured questionnaire with (four point Liket scale) administered to fourty (40) respondents. Relevant information revealed to this study such as age, sex, marital status, educational background which are their socio-economic characteristics were collected. Other secondary data were collected from textbooks, journals, magazines, internet and also data from clinics and butchers

3.6 Validity of the Instrument

The instrument is subjected to face validation. Face validation tested the appropriateness of the questionnaire. The questionnaire were submitted to the project supervisor Malam Maigari Mangadu after making corrections, the corrected copy is now used as questionnaire for the study.

3.7 Method of Data Analysis

The data generated were analyzed using simple descriptive statistics such as percentage frequency distribution and MEAN to make decision on Likert scale. The scale is as follows strongly agree (SA) Agree (A) Disagree (D) and Strongly Disagree (SD). In determining the cut off point decision any item that received a MEAN score rating at 3.0 and above is regarded as Agree while any score less than 3.0 regarded as disagree.

3.8.1 Different species of animals slaughtered in Azare abattoir from 2012

s/n	Animal species	No. of animal slaughtered	No. of animal infected	Reason for condemnation	Types of condemnation
1	Cattle	741	2	Snake bite	Partial condemnation
2	Sheeps	388	3	Fasciola	Partial/organ condemnation
3	Goats	9,786	2	Black quarter	Total condemnation
4	Camels	120	Nil	Nil	Nil
	TOTAL	**14,527**	7	-	-

Source: Azare Abattoir 2017

Table 3.8.1 shows different species of animals slaughtered in Azare abattoir in the year 2012. A total of 14,527 animals were slaughtered out of which 741 are castles 3,880 are sheeps, 9,786 are goats and remaining 120 are camel. Only two goats were totally condemned due to snakebite which if not condemned the effect part poison will affect the consumers (people). Also there sheeps were partially condemned as a result of fasciola infection that totally affect the liver of such animals. A two case of black quarter diseases were inspected and observed in goat that lead to total condemnation of such meat. Lastly, there is no case of condemnation for the camel.

3.8.2 Different species of animals slaughtered in Azare abattoir from 2013

s/n	Animal species	No. of animal slaughtered	No. of animal infected	Reason for condemnation	Types of condemnation
1	Cattle	1,987	3	T/B	Partial condemnation
2	Sheeps	3,980	2	Snakebite	Total condemnation
3	Goats	9,986	1	Snake bite	Total condemnation
4	Camels	123	1	T/B	Partial condemnation
	TOTAL	**16,076**	7	-	-

Source: Azare Abattoir 2017

Table 3.8.2 shows different species of animals slaughtered in Azare abattoir in 2013. A total of 16,076 were slaughtered which comprises of 1,987 castles, 3,980 sheeps, 9,986 goats and 123 camels. As a result of tuberculosis disease three cattle were partially condemned, one goat were totally condemned due to snake bite, two sheeps were totally condemned as a result of snakebite. Lastly the whole lungs of a camel were condemned as a result of tuberculosis. (T/B).

3.8.3 Different species of animals slaughtered in Azare abattoir from 2014

s/n	Animal species	No. of animal slaughtered	No. of animal infected	Reason for condemnation	Types of condemnation
1	Cattle	3,589	2	T/B	Partial condemnation
2	Sheeps	9,777	3	Fasciola	Partial condemnation
3	Goats	15,681	4	Snakebite	Total condemnation
4	Camels	90	Nil	Nil	Nil
	TOTAL	**29,137**	9	-	-

Source: Azare Abattoir 2017

Table 3.8.3 shows different species of animals slaughtered in Azare abattoir in 2014. A total of 29,137 animals were slaughtered in 2014, 3,589 were castles, 9,777 were sheeps, 15,681 were goats, which recorded the highest number of animals slaughtered and 90 were camels. Two case of tuberculosis resulted in partial condemnation of two cattle, two sheep s were partially condemned as a result of fasciola that lead to damage of their liver, four goats were totally condemned due to snakebite and black quarter diseases. There is no case of camel condemnation in 2014.

3.8.4 Different species of animals slaughtered in Azare abattoir from 2015

s/n	Animal species	No. of animal slaughtered	No. of animal infected	Reason for condemnation	Types of condemnation
1	Cattle	3,997	7	T/B	Partial condemnation
2	Sheeps	8,226	4	Fasciola	Partial condemnation
3	Goats	14,720	5	Snake bite	Total condemnation
4	Camels	43	2	Snake bite	Partial condemnation
	TOTAL	**26,986**	**18**	-	-

Source: Azare Abattoir 2017

Table 3.8.4 shows different species of animals slaughtered in Azare abattoir in 2015. A total of 26,986 animals were slaughtered in 2015, out of which 3,997 are cattle, 8,226 are sheeps, 14,720 are goats and the remaining 43 were camels. 7 cattle were partially condemned as a result of tuberculosis, four sheeps were partially condemned due to snakebite and two camel were also partially condemned as a result of snake bite.

3.8.5 Different species of animals slaughtered in Azare abattoir from 2016

s/n	Animal species	No. of animal slaughtered	No. of animal infected	Reason for condemnation	Types of condemnation
1	Cattle	1,233	3	T/B	Partial condemnation
2	Sheeps	6,784	4	Black quarter	Total condemnation
3	Goats	10,922	2	Snake bite	Total condemnation
4	Camels	20	1	Snakebite	Partial condemnation
	TOTAL	**18,939**	**10**	-	-

Source: Azare Abattoir 2017

Table 3.8.5 shows different species of animals slaughtered in Azare abattoir in 2016. A total of 18,939 animals were slaughtered which include 1,233 cattle, 6,784 sheeps, 10,922 goats and 20 camels. Three cases of tuberculosis were observed in cattle that lead to total condemnation of affected organ (lungs). Four sheeps were affected with black quarter which lead to total condemnation of their meat, three cases of snake bite were recorded in both goat and camel, two goat and 1 camel respectively, this resulted in total condemnation of goats and partial condemnation of camel.

3.8.6 Different species of animals slaughtered in Azare abattoir from 2017

s/n	Animal species	No. of animal slaughtered	No. of animal infected	Reason for condemnation	Types of condemnation
1	Cattle	1,188	1	T/B	Partial condemnation
2	Sheeps	388	3	Fasciola	Partial condemnation
3	Goats	9,786	7	Black quarter	Total condemnation
4	Camels	26	2	T/B	Partial condemnation
	TOTAL	**16,694**	**13**	-	-

Source: Azare Abattoir 2017

Table 3.8.6 shows different species of animals slaughtered in Azare abattoir in 2017. A total of 16,694 animals were slaughtered, 1,188 are cattle, 5,682 are sheeps, 9,798 are goats and 26 are camels. Throughout the year 2017, only one cattle were partially condemned due to tuberculosis, two sheeps were partially condemned as a result of fasciola, 7 goats were totally condemned as a result of black quarter diseases and two camel were infected with tuberculosis which resulted in the partial condemnation of their meat.

CHAPTER FOUR

4.0 DATA PRESENTATION AND DISCUSSION

4.1 Introduction

Basically this chapter deals with the statistical analysis of data collected for the purpose of this research work. The data collected through the questionnaire is presented and analyzed. The analysis of these data will be interpreted in the length of conditions under which the research is done with the opinion and responses of the respondents.

4.2 TABLE 1 GENDER

S/N	ITEMS	RESPONSE	PERCENTAGE (%)
1	Male	36	90
2	Female	4	10
	TOTAL	**40**	**100**

Table shows that 90% of the respondents are male while only 10% were female therefore; most of the butchers and inspectors were male.

4.3 TABLE 2 AGE

S/N	OPTIONS	RESPONSE	PERCENTAGE (%)
1	0 – 20 years	5	12.5
2	21 – 40 years	21	52.5
3	41 – 60 years	12	30
4	61 – 80 years	2	5
	TOTAL	**40**	**100**

The table shows that 12.5% of the respondents were within the ages of 0 – 20 years 52.5% were within 21 – 40 years 30% were within the ages of 41 – 60 years while 5% were from 61 years and above. Therefore, most of the respondents fell within the ages of 21 – 40 years. 2012 – 2017.

4.4 TABLE 3 MARITAL STATUS

S/N	Options	RESPONSE	PERCENTAGE (%)
1	Married	25	62.5
2	Single	13	32.5
3	Divorced	2	5
	TOTAL	**40**	**100**

The table shows that 62.5% of the respondents were married 32.5% were single while 5% were divorced therefore, most of the respondents were married.

4.5 TABLE 4 EDUCATIONAL BACKGROUND

S/N	Options	RESPONSE	PERCENTAGE (%)
1	Primary	9	22.5
2	Non-formal	6	15
3	Secondary	15	37.5
4	Tertiary	10	25
	TOTAL	**40**	**100**

The table shows that22.5% of the respondents had primary school certificates. 15% had non formal education, 37.5% were secondary schhol certificate holders while 25% had tertiary education.

4.6 TABLE 5 PROBLEMS OF EVALUATION OF MEAT

S/N	ITEMS	RESPONSES						
		SA	A	D	SD	N	X	Remark
1	There is a standard abattoir	1	21	24	21	67	2.0	Disagree
2	No problems with meat inspection	84	27	16	2	129	3.0	Agreed
3	There are enough and qualified inspectors	20	21	44	6	91	2.3	Disagreed
4	There are equipment for antermotem	12	27	52	2	93	2.0	Disagreed
5	Butcher have wrong attitude towards inspectors.	44	45	12	8	109	2.7	Agreed

The table shows that item number 1, 3 and 4 have MEAN values that are less than 2.5 it shows that there was no standard abattoir, no enough and qualified inspectors and there were no equipment for ante mortem also items 2 and 5 MEAN value were greater that 2.5 this also indicating that butchers suggest that they had no problem with meat inspectors while inspectors were suggesting that butchers have wrong attitude towards inspectors.

4.7 TABLE 6 THE EXTENT OF MEAT INSPECTION

S/N	ITEMS	RESPONSES						
		SA	A	D	SD	N	X	Remark
1	Animals are properly inspected before slaughtering	56	45	18	2	121	3.0	Agreed
2	Meat inspection is carried out daily	36	48	14	8	106	2.7	Agreed
3	It takes a day to carry out animal inspection	64	63	6	0	133	3.0	Agreed
4	We carry out proper ante mortem before slaughter.	40	75	6	2	123	3.0	Agreed

The table indicates that butchers accept that animals are properly inspected before slaughter, meat inspection is carried out daily, inspectors also accepted that it takes a day to carry out animal inspection and they carryout proper ante mortem. This was because all items have MEAN score greater than 2.5.

4.8 TABLE 7 CONDITION FOR MEAT CONDEMNATION

S/N	ITEMS	RESPONSES						
		SA	A	D	SD	N	X	Remark
1	Partially condemned animals are slaughtered immediately	80	30	14	3	127	3.2	Agreed
2	There are no conditions for meat condemnation	8	27	52	3	90	2.1	Disagreed
3	There are diseases that lead to total condemnation	104	30	6	1	141	3.5	Agreed

The table shows that item 1 and 3 has mean value greater than 2.5 it shows that partially condemned animals were slaughtered immediately and that there were diseases that led to total condemnation. While item 2 has MEAN value less than 2.5 this indicates that there condition that led to meat condemnation in the study area.

4.9 TABLE 8 ZOONOTIC DISEASE AND THINGS CONSIDERED IN EXTERNAL INSPECTION

S/N	ITEMS	RESPONSES						
		SA	A	D	SD	N	X	Remark
1	Zoonotic disease are very common in the area	12	24	50	4	90	2.2	Disagree
2	Ticks, lices are common things to consider in external inspection	48	57	14	2	121	3.0	Agreed
3	The inspectors are following inspection rules properly?	12	18	40	11	81	2.0	Disagreed

The table indicates that item 1 and 3 had MEAN value less than 2.5 therefore Zoonotic diseases were not common in the study area, while item 2 have MEAN value greater than 2.5 this shows that tick and lice were the common things to consider in external inspection.

4.2 Discussion of Findings

a. The table on the problem of evaluation of meat suggest that there are no standard abattoir in the study area, no equipment for meat inspection, no

qualified inspectors and that butchers have wrong attitude towards meat inspectors and the butchers in the study area.

b. While the table on the extent of meat inspection shows that animals are properly inspected before slaughter, meat is also inspected everyday. The inspector also suggested that it takes a day to carry out animal inspection this table suggested that there was no hindrance to animals and meat inspection.

c. The next table is on the conditions for meat condemnation is shows that partially condemned animals are slaughtered immediately and that there are conditions or diseases that lead to total condemnation in the study area.

d. Here the table shows that zoonotic disease were not common in the study area, the inspectors were not following rules properly but it agreed that ticks, lice are common pest to consider in external inspection.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

INTRODUCTION

This chapter highlights the content of the project, which is the result of the findings, it also, it also draws conclusion and makes [illegible] recommendations on how to encourage meat inspection and evaluation in [illegible] local government Bauchi state.

5.1 Summary

The study is on the evaluation of meat inspection [illegible] study was successfully done by conducting interview, issuing questionnaire to butchers and veterinary personnel/meat inspectors. Frequency count and percentage were used to analyze the socio-economic characteristics of the respondents, while mean is used to analyze the research responses

At the end of the research, it was found that major [illegible] meat and animal inspection and butchers have wrong [illegible] meat inspection it also shows that animals are properly [illegible] partially condemned animals are slaughtered immediately and that [illegible] conditions and diseases that lead to total condemnation in the study area [illegible] zoonotic

disease are not common in the study area and that inspectors are not following the inspection rules.

Also base on the data obtained in abattoir a total of 14,527 animals were slaughtered out of which five animals were partially condemned and two animals were totally condemned in the 2012 also a total of 16,016 animals were slaughtered out of which four animals were partially condemned and three animals were totally condemned in 2013, also a total of 29,137 animals were slaughtered out of which five animals were partially condemned and four animals were total condemnation while camel not offered in the year 2014. Also a total of 26,986 animals were slaughtered out of which thirteen were partially condemned and five animals were totally condemned in year 2015.

Also a total of 18,939 animals were slaughtered out of which four were partially condemned and six were totally condemned in 2016. While the lastly a total of 16.694 animals were slaughtered out of which six were partial condemnation and seven were total condemnation in 2017.

5.2 Conclusion

In conclusion, the study shows that no standard abattoir equipment for meat inspection, no qualified inspector. It also shows that there are conditions and diseases that lead to total condemnation and that the inspector are not

following inspection rules properly also study shows that thirteen animals were partially condemned while twenty seven are totally condemned.

5.3 Recommendation

Based on the data collected and findings made as a result of these study, the following recommendation were made standard abattoir should be established in the Azare town. Equipment for meat inspection should be made available in the abattoir.

- Enough and qualified veterinary personnel should be trained and employed in the study area/Azare abattoir.
- Butchers should be enlightened on the conditions and diseases that may lead to total condemnation.
- Inspectors should be encouraged to follow inspections rules properly.
- It was suggested that a veterinary medicine university should be established by the federal government with department of public health available, where qualified veterinary personnel will be trained which in turn will contribute significantly to meat inspection.
- Also government should construct abattoir and mandate slaughtering to avoid road side slaughter which lead to sales of contaminated meat. Also provide equipment in the entire abattoir for effective and efficient work
- Government should provide funds to compensate butchers for their condemned meat.

- Finally if the above suggestion are properly followed and implemented by government without change the regrettable problems of meat inspection and meat condemnation in Azare town.

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