

الجمهورية الجزائرية الديمقراطية الشعبية
People's Democratic Republic of Algeria

وزارة التعليم العالي والبحث العلمي
Ministry of Higher Education and Scientific Research



جامعة ابن خلدون تيارت
Ibn Khaldoun Tiaret University
معهد علوم البيطرة
Institute of Veterinary Sciences
قسم الصحة الحيوانية
Department of Animal Health



End of studies thesis
With a view to obtaining the complementary Master's degree

Field: Sciences of Nature and Life
Sector: Veterinary Sciences

Presented by
Miss. BOUZID SOUHILA

***Investigation into the situation of Red meat
sector at the El-Bayad slaughterhouse***

Supported publicly the : 12/10/2020

Jury :

Chairman: Pr. ZIDANE Khaled

Framer : Dr.. BENIA Ahmed Redha

Examiner: Dr. HEMIDA Houari

Grade :

Pr

MCA

MCA

Academic year 2019/2020



Acknowledgments:

it is often said that the journey is as important as the destination the five years of mastery have allowed me to understand the meaning of this very simple phase. I would like at the end of this work to thank Allah the Almighty for having me given faith and allowed me to come to this.

I thank my supervisor very much Dr Benia Ahmmed Redah whose availability, know-how and support have never failed me.

my thanks also go to

Dr Zidane Khaled for the honor of being president of the juries

To Dr Hemida Houari for agreeing to examine this work

To Dr Mohammed benaissa and

Dr Mokhtari kadda the vets at the Bougtob slaughterhouse for his help and advice

To the director Mr Mokedem Djamel

A big thank you to all the teachers, and all the administrative and library staff of the Veterinary Institute of Tiart.



DEDICATIONS

I dedicate this modest work:

In the light of my days, the flame of my heart, the source of my efforts, my life and happiness: my mother "Dalila" who always gives me the hope of living and who has never ceased to pray for me

To my dear father "Mohammed" for his encouragement and support

To my very dear brother "ABd Allah"

And dear sisters: Khadidja, Khaoula, Khansa, Maria, and Haifa

To all my "Bouزيد" family especially "Zakaria"

To all my aunts and my uncles

To my best friends: fernane Nooredine, Sarra ouldekhadda,

Saada bayadh

At the end I dedicate this memoir to my supervisor "Mr benia Ahmmed Redah

ABSTRACT:

Red meats and their offal intended for human consumption are subject to compulsory health inspection at slaughterhouse level by veterinary inspectors

My studies aims to determine the main reasons for seizure in the abattoir of BOUGTOB for 06 months at a rate of 1 visit per week on a number of (5352) animals inspected (cattle, sheep, goats)

My results show that congested and cadaveric meats are the main reasons for seizure of the carcass with a respective percentage of 11% and 05% and that abscesses represent the main reason for seizure of offal with a percentage of 30%

My results also show that offal is the most affected than carcasses where the organ most affected is the lungs with a number of 11% cases of lesion

A good inspection led by the responsible veterinarians can give better results in terms of safety in the meat industry for it to be of good quality

Keywords: Slaughter, grounds for seizure, carcass, red meat.

SUMMARY

REMARKS
DEDICATIONS
ABSTRACT
LIST OF tables
LIST OF FIGURES
LIST OF PERSONAL PHOTOS
LIST OF GRAPHS
LIST OF ABBREVIATIONS

INTRODUCTION..... 1

Bibliographic section

CHAPTER 1: LABATORY HEALTH INSPECTION TECHNIQUES

Slaughterhouses	3
1. Definition of slaughterhouse:	3
2. Definition Slaughter	3
3. The water diet	3
1.2. Stages of slaughter	4
1.2.1 Unloading:	4
1.2.2.Receipt / control	4
1.2.3 Animal care and ante-mortem inspection	4
1.2.5 Restraint / stunning	5
1.2.6.Falling / lifting.....	5
1.2.7. Bleeding	5
1.2.8. Animals prohibited for slaughter.....	6
1.2.9. Counting.....	6
1.2.10. Head removal:	7
1.2.11. Slot :	7
1.2.12. Dulling / trimming	7
1.2.13. Post-mortem inspection:	7
1.2.14. Weighing / classification / marking	8
1.2.15. Refrigeration of carcasses	8
4. Types of slaughter	9
5. Sanitary inspection of red meat.....	9

Definition and generalities	9
1.5.1. Definition of inspection	9
1.5.2. Goal	10
1.5.3. Inspection phase	11
1.5.3.1. Ante-mortem inspection	11
1.5.3.1.1. Definition.....	11
1.5.3.1.2. Purpose of ante-mortem inspection.....	11
1.5.3.1.3. Conditions and fulfillment.....	11
1.5.3.1.4 Techniques and practices.....	11
1.5.3.2. Post-mortem inspection	14
1.5.3.2.1. Definition.....	14
1.5.3.2.2.Purpose of post-mortem inspection	14
1.5.3.2.3. The conditions for carrying out the post-mortem inspection:.....	14
1.5.3.2.4 Technique for performing post-mortem inspection	14
1.5.3.2.5. Sanction	15
at. Acceptance (stamping).....	15
b.Lockout (put on hold).....	15
CHAPTER 2: THE MAIN REASONS FOR SEIZING MEAT, OFFAL AND ESSUES	
1.Definition of seizure	16
2. Justification of the entries	16
3. Classification of seizures	16
4.DIFFERENT GROUNDS FOR SEIZURE	16
4.1 SEIZURE FOR UNSALUBRITE	16
4.1.1 Cadaveric meat	16
4.1.2 MEAT FROM SPECIFIC AND ZONOTIC INFECTIOUS DISEASE ANIMALS.....	17
4.1.2.1 Tuberculosis.....	17
4.1.2.1.1 Definition.....	17
4.1.2.1.2 Recommended pipe:.....	17
4.1.2.2 RABIES.....	18
4.1.2.3 BOVINE PLAGUE	18
4.1.2.4 Contagious bovine pleuropneumonia	19
4.1.2.5.BCTERIDIAN COAL.....	19

4.1.2.6 SYMPTOMATIC COAL	19
4.1.2.7 FOOT AND MOUTH DISEASE.....	19
4.1.2.7.1 Definition.....	19
4.1.2.7.2 Lesions.....	19
4.1.2.7.3 Recommended pipe	20
4.1.2.8 SALMONELLOSIS	20
4.1.3 MEAT FROM ANIMALS WITH SPECIFIC INFLAMMATORY DISEASES	20
4.1.3.1 Septicemia:.....	21
4.1.3.2.MAMMITES.....	21
4.1.3.3 HEPATITIS.....	22
4.1.4 MEAT SUFFERING FROM ANIMALS SUFFERING FROM SPECIFIC PARASITIC AND ZONOTIC DISEASES.....	22
4.1.4.1. HYDATIDIOSIS.....	22
4.1.4.1.1. Definition.....	22
4.1.4.1.2. Lesions.....	22
4.1.4.1.3. Sanction	22
4.1.4.2. Fascioliasis	22
4.1.4.2.1. Definition.....	22
4.1.4.2.2. Lesions.....	23
4.1.4.2.3. SANCTION.....	23
4.1.4.3. Cysticercosis.....	23
4.1.4.3.1. Definition.....	23
4.1.4.3.2. Lesions.....	23
4.1.4.4.3. Sanction	24
4.1.4.4. Respiratory strongylosis	24
4.1.4.4.1. Definition.....	24
4.1.4.4.2. Lesions.....	24
4.1.4.4.3. Sanction	24
4.1.5. TOXIC MEAT.....	24
4.1.6. HEAVY MEATS.....	24
4.1.7 PUTREFIED MEAT.....	25
4.2. SEIZURE FOR REPUGNANCE.....	25

4.2.1.ALTERED MEATS.....	25
4.2.1.1.MEAT MONTHS.....	25
4.2.1.2.MEATS BROKED BY INSECTS.....	25
4.2.2. ABNORMAL APPEARANCE.....	25
4.2.2.1. MEAT WITH ABNORMAL COLORING.....	25
4.2.2.1.1. Meats with black coloring or melanosis.....	25
4.2.2.1.2. Meats with yellow coloring.....	25
4.2.2.2. MEAT WITH AN ABNORMAL ODOR.....	26
4.3 SEIZURE FOR INSUFFICIENCY.....	26
4.3.1.OVERMED MEATS.....	26
4.3.2. CACHECTIC MEAT.....	26
BIBLIOGRAPHICAL REFERENCES.....	27
CHAPTER 2: THE MAIN REASONS FOR SEIZING MEAT, OFFAL AND ESSUES	
1.Definition of seizure.....	16
2. Justification of the entries.....	16
3. Classification of seizures.....	16
4.DIFFERENT GROUNDS FOR SEIZURE.....	16
4.1 SEIZURE FOR UNSALUBRITE.....	16
4.1.1 Cadaveric meat.....	16
4.1.2 MEAT FROM SPECIFIC AND ZONOTIC INFECTIOUS DISEASE ANIMALS.....	17
4.1.2.1 Tuberculosis.....	17
4.1.2.1.1 Definition.....	17
4.1.2.1.2 Recommended pipe:.....	17
4.1.2.2 RABIES.....	18
4.1.2.3 BOVINE PLAGUE.....	18
4.1.2.4 Contagious bovine pleuropneumonia.....	19
4.1.2.5.BCTERIDIAN COAL.....	19
4.1.2.6 SYMPTOMATIC COAL.....	19
4.1.2.7 FOOT AND MOUTH DISEASE.....	19
4.1.2.7.1 Definition.....	19
4.1.2.7.2 Lesions.....	19
4.1.2.7.3 Recommended pipe.....	20

4.1.2.8 SALMONELLOSIS	20
4.1.3 MEAT FROM ANIMALS WITH SPECIFIC INFLAMMATORY DISEASES	20
4.1.3.1 Septicemia:	21
4.1.3.2.MAMMITES	21
4.1.3.3 HEPATITIS.....	22
4.1.4 MEAT SUFFERING FROM ANIMALS SUFFERING FROM SPECIFIC PARASITIC AND ZONOTIC DISEASES.....	22
4.1.4.1. HYDATIDIOSIS	22
4.1.4.1.1. Definition.....	22
4.1.4.1.2. Lesions.....	22
4.1.4.1.3. Sanction	22
4.1.4.2. Fascioliasis	22
4.1.4.2.1. Definition.....	22
4.1.4.2.2. Lesions.....	23
4.1.4.2.3. SANCTION	23
4.1.4.3. Cysticercosis.....	23
4.1.4.3.1. Definition.....	23
4.1.4.3.2. Lesions.....	23
4.1.4.4.3. Sanction	24
4.1.4.4. Respiratory strongylosis	24
4.1.4.4.1. Definition.....	24
4.1.4.4.2. Lesions.....	24
4.1.4.4.3. Sanction	24
4.1.5. TOXIC MEAT	24
4.1.6. HEAVY MEATS	24
4.1.7 PUTREFIED MEAT	25
4.2. SEIZURE FOR REPUGNANCE	25
4.2.1.ALTERED MEATS	25
4.2.1.1.MEAT MONTHS	25
4.2.1.2.MEATS BREAKED BY INSECTS.....	25
4.2.2. ABNORMAL APPEARANCE	26
4.2.2.1. MEAT WITH ABNORMAL COLORING	26

4.2.2.1.1. Meats with black coloring or melanosis	26
4.2.2.1.2. Meats with yellow coloring.....	26
4.2.2.2. MEAT WITH AN ABNORMAL ODOR	27
4.3 SEIZURE FOR INSUFFICIENCY	27
4.3.1.OVERMED MEATS	27
4.3.2. CACHECTIC MEAT.....	27
CHAPTER 3: EXPERIMENTAL PART	
3.1. Goals.....	29
3.2. Materials	29
3.2.1. Animals and sampling.....	29
3.2.2. Bougtob slaughterhouse.....	29
3.2. Method.....	31
3.2.1. Ante mortem examination.....	31
3.2.2. Slaughter.....	31
3.2.3. Post mortem inspection.....	33
4.2.4. Weighing.....	35
4.2.5. Transport	36
4.2.6. Stamping.....	36
CHAPTER 4: RESULTS AND DISCUSSION.....	37
4.1. Evolution of the seizure according to the month	37
4.2. Evolution of seizure according to sex.....	39
4.3. Evolution according to the organ	40
4.4. Evolution according to the entry reason	40
Conclusion.....	45
Recommendation.....	46
BIBLIOGRAPHICAL REFERENCES	47

LIST OF tables

Table: Ante-mortem inspection (AMI) technique and what to do.....	12
Table: Results of ante-mortem inspection	13
Table 4.1: number of cattle, sheep and goats slaughtered during each month	37
Table 4.1: Number of entries according to the month.....	38
Table 4.2: Number of entries according to sex.....	39
Table 4.3: Number of entries according to the organ.	40
Table 4.4: Number of entries according to the entry reason.	41

LIST OF FIGURES

FIGURE 1: Arrival and unloading of animals in slaughterhouses	4
FIGURE 2: Ante-mortem examination of animals	4
FIGURE 3: presence of non-slip floors.....	5
FIGURE 4: The camel slaughter process inside the slaughterhouse	6
FIGURE 5: Skinning process of animals in the slaughterhouse	6
FIGURE 6: Divide beef carcass into two halves	7
FIGURE 7: Post-mortem examination of the head and viscera of a camel	7
FIGURE 8: stamping of bovine carcasses.....	8
FIGURE 9: refrigeration of carcasses	8
FIGURE 10: tuberculosis lesions	17
FIGURE 11: cow infected with rabies	18
FIGURE 12: a cow shows signs of rinderpest (Futura –sciences)	18
FIGURE 13: Clinical sign	20
FIGURE 14: rumen mucosa.....	20
FIGURE 15: Ovine mastitis.....	21
FIGURE16: adult form of fasciola	22
FIGURE 17: Large fluke on liver	22
FIGURE 18: Adipoxanosis in bovine carcass	25
FIGURE 19: Cachexia on carcass in a bovine	27

LIST OF GRAPHS

FIGURE 4.1 number of animals slaughtered during each month.....37

FIGURE 4.2 change of the number of seizures according to month38

FIGURE 4.3 change in the number of seizures according to sex39

FIGURE 4.4 change in the number of seizures according to organ40

FIGURE 4.5 change of the number of entries according to the entry reason41

LIST OF PERSONAL PHOTOS

Photo 01: Bougtob slaughterhouse 30

Photo 02: Rest air 32

Photo 03: Slaughterhouse for small animals 32

photo 04: the counting stages..... 33

Photo 05: evisceration 33

Photo 06: the Slit 33

Photo 07: washing of the viscera..... 34

Photo 08: inspection of carcasses by veterinary medicine..... 34

Photo 09: the heads of the sheep:..... 35

Photo10: visual examination of the lungs..... 35

Photo 11: examination of the heart through an incision 35

Photo 12: liver inspection (personal photo)..... 36

Photo 13: weighing 36

Photo 14: transport (personal photo)..... 37

Photo 15: stamping..... 37

Photo 16: Ink for stamping on meat..... 37

Photo 17: liver abscess 43

Photo 18: the aillottage 43

Photo19: lung abscess..... 44

Photo 20: cysts in the liver 44

LIST OF ABBREVIATIONS

RPA: the animal protection manager of the slaughterhouse

IAM: Ante mortem inspection

INTRODUCTION

Meat refers to the edible parts of certain land animals, including blood according to European regulations. **(EC, 2004)**

And according to the WHO red meat refers to all types of meat from tissue

Muscles of mammals such as beef, calf, pork, lamb, sheep, horse

And the goat. **(OMS, 2015)**

Meat is a food rich in protein (from 20 to 30 depending on the type of meat) it contains

In particular essential amino acids (which the human organism is able to synthesize)

In significant quantities **(Daniel, 2008)**, red meat is also an important source

Iron and B vitamins, especially vitamin **B12** this last is a lot

More present in meat than in plant foods.

Meat also contains significant amounts of lipids (on average **10.7g / 100g**) the

Fatty acids in meat are basically saturated fatty acids, of which it is usually

Recommend reducing intakes.

Nutritional intakes of meat may vary depending on the species, the animal's diet

And the part considered. **(Christelle, 2016)**

Meat has been seen as the vehicle for a significant number of diseases of origin

Food being declared in humans, although the morbidity table for diseases linked to

Meat having an impact on public health, especially with the evolution of

Production and processing, the permanence of the problem has been widely demonstrated these

Recent years by human surveillance studies of agents

Found in meat and poultry, such as Escherichia coli, salmonella spp, campylobacter

Spp and yersinia enterocolitica. In addition to existing biological, chemical and physical hazards

, new dangers appear, such as bovine spongiform encephalopathy

(ESB.CODEX ALIMENTAIRES, 2005)

The main objectives of the checks carried out at the slaughterhouse are to check the health of the animals

And the safety of operations. The meat produced is then marked with the stamp for

Be identifiable in the distribution network. It is the basis for monitoring the network of

Marketing of meat. Animal health control is exercised through inspection

Before slaughter (ante mortem) and the inspection of their different parts after slaughter

(Post Mortem) .if necessary, these inspections are supplemented by samples and

Laboratory analyzes.

Control of the safety and quality of meat at slaughter aims to protect the health and

Well-being of consumers, to guarantee that the meat is of good quality and to prevent

Microbiological or biochemical risks of farm animals. **(SYLVIE et al. 2016)**

The objective of this present work is to:

- Know the main techniques of sanitary inspection of red meats and their offal.
- The most common pathologies and carcass abnormalities at the slaughterhouse level

Bougto in the wilaya of El-Bayadh.

- And finally the count of the various reasons for seizure encountered on the carcasses and

The fifth quarters of cattle and sheep.

CHAPTER 1: LABATORY HEALTH INSPECTION TECHNIQUES

Slaughterhouses

1. Definition of slaughterhouse:

The slaughterhouse is an industrial establishment allowing slaughtering the animal, to prepare and keep the meat under cold conditions; and finally to transform the fifth district under rigorous hygienic conditions allowing the easy application of health legislation and tax regulations **(DR. Abd-el-Kader BENSID. 2018)**

2. Definition Slaughter: represents the killing of an animal; it constitutes the set of highly specialized successive operations; which consists in transforming the living animal into a carcass and fifth quarter **(chapelier.m.2002)**.

The person in charge of the slaughter should be a Muslim of sound mind and familiar with the methods of slaughtering islâm:

- The animal to be beaten must be allowed by Islamic law
- The animal must be alive or deemed alive at the time of slaughter
- The bismillah invocation in the name of Allah must be uttered immediately before the slaughter of any animal
- The instrument used must be sharp and must remain embedded in the animal during slaughter
- Slaughter should consist of cutting the trachea, esophagus and major arteries and veins located in the neck area

3. The water diet

Consists of putting the animals to rest for 24 hours, it is preferable not to give the animal anything to eat on the day of the sacrifice, this hydric diet, in short restorative, makes it possible to correct the effects linked to the stress of the animal but above all to reconstitute glycogenic reserves which will intervene later in the maturation of meat, without forgetting that for mammals (poly-gastric animals) this abstinence allows the emptying of the digestive bags after bleeding and therefore less bacterial contamination during the following operations which require an intense contact with the carcass **(DR. Salim Kebbab, 2015)**.

1.2. Stages of slaughter (LaVIANDE.fr)

1.2.1 Unloading:

At the slaughterhouse, the animals are unloaded from the cattle trailer in peace, with adapted ramps and docks

While ensuring their own safety, slaughterhouse operators must avoid any stress, injury or pain to animals. From this stage, the animal protection manager of the slaughterhouse (RPA) guarantees the animals are treated well.



FIGURE 1: Arrival and unloading of animals in slaughterhouses (photo Atlas in Meat Inspection, 2014)

1.2.2. Receipt / control

When receiving the animals, the herdsman checks the traceability thanks to the identification loops, linked to their individual passport or movement document.

1.2.3 Animal care and ante-mortem inspection

The animals are then installed in the bouverie, which is equipped with drinking troughs and fitted out to facilitate their movement and then their rest.

Animal health status is checked by state veterinary inspectors: this is called ante-mortem inspection.



FIGURE 2: Ante-mortem examination of animals (photo Atlas In Meat Inspection, 2014)

1.2.4. Feed:

When bringing groups of animals to the slaughterhouse, everything is done to avoid stress, in particular the presence of non-slip floors or anti-kickback devices to avoid jostling.



FIGURE 3: presence of non-slip floors (photo Atlas In Meat Inspection, 2014)

1.2.5 Restraint / stunning:

The restraint of animals is carried out using suitable equipment to allow their immobilization.

Stunning is performed using a slaughter pistol, or matador, which triggers the animal to immediately lose consciousness.

1.2.6. Falling / lifting:

The stunned and unconscious animal falls: this is called the Slump.

The state of unconsciousness of the animal is verified.

It is then raised by one of the rear legs to enter the slaughter line.

A chain operator again checks the state of unconsciousness of the animal, which may have reflex movements, legs or tail, but these are not signs of consciousness.

1.2.7. Bleeding

Bleeding is the killing of the animal by blood extraversion, it must be done through a single incision which quickly, completely and simultaneously sever the jugular veins and the carotid arteries so as to be able to exsanguinate and numb the animal quickly, the bleeding without stunning or ritual or (halal) bleeding in Muslims consists of slaughtering, the animal is lying on the ground on the left side with the head facing the direction

From the **(Kaaba)** "Mecca", and make a transverse section of the throat using a sharp knife **(MZABI .S.1980)**



FIGURE 4: The camel slaughter process inside the slaughterhouse (Photo Atlas in Meat Inspection, 2014)

1.2.8. Animals prohibited for slaughter :

- All females in gestation.
- Males of all ages use them as parents.
- Female sheep of local breed less than 5 years old.
- Cattle under the age of 6
- Male equines under 15 years old.
- Equine and camel females less than 15 years old.
- Camel males under the age of five. **(J.O, 1991)**

1.2.9. Counting

Once the animal is dead, the leather is separated from the carcass, this is called the body. The leather will be recovered, treated and then marketed. The equipment of the slaughter line is adapted to the size of the animals, and is regularly cleaned.



FIGURE 5: Skinning process of animals in the slaughterhouse (photo Atlas in Meat Inspection, 2014)

1.2.10. Head removal:

Most of the parts removed are processed and valued, such as the head, viscera and offal, whose health compliance is checked.

1.2.11. Slot:

The carcasses are then split in two for commercial constraints and to facilitate sanitary inspection.

Throughout the production chain, traceability and hygiene are ensured continuously.



FIGURE 6: Divide beef carcass into two halves (photo Atlas in Meat Inspection, 2014)

1.2.12. Dulling / trimming:

The surface fat is removed for a better presentation of the carcass: this is the boning step. Fat is also recovered and used as a source of energy.

1.2.13. Post-mortem inspection:

The state veterinary services then check the health compliance of the carcass for its marketing: this is the post mortem inspection.



FIGURE 7: Post-mortem examination of the head and viscera of a camel (personal photo)

1.2.14. Weighing / classification / marking:

Carcasses are prepared to be weighed and classified by photograph. They can thus be evaluated according to their size.

Traceability is again checked.



FIGURE 8: stamping of bovine carcasses (photo Atlas In Meat Inspection, 2014)

1.2.15. Refrigeration of carcasses:

Placed in a refrigerated room, the carcasses then rest for a minimum of 24 hours to cool to the core and mature for a variable period.

Depending on the marketing channels, the meat will be delivered directly in carcass, quarters or prepared and placed in trays.



FIGURE 9: refrigeration of carcasses (Hygiene, dressing and handling of carcasses)

4. Types of slaughter: (A. C .I .A 2002)

- ❖ **Professional slaughter:** it is generally carried out in slaughterhouses under the control of a veterinary inspector.
- ❖ **Family slaughter:** Slaughter carried out on the farm exclusively for family consumption, the only species authorized are sheep, goats and cattle.
- ❖ **Ritual slaughter:** Particular mode of slaughter spreading to the ritual of the Muslim and Jewish religions. Its principle and the bleeding without prior stunning then each rite differs.
- ❖ **Emergency slaughter:** injured or injured animals are sent to the slaughterhouse for immediate sacrifice, accompanied by an information certificate drawn up by a veterinarian.
- ❖ **Stamping out:** it designates the operation carried out under the authorization of the veterinary administration, confirmations of a disease, consisting in sacrificing all the sick and contaminated animals of the herd. This is the case mainly for tuberculosis and brucellosis.

5. Sanitary inspection of red meat

Définition and généralités

1.5.1. Définition of inspection

It is all the operations of surveillance and examination of animals and carcasses, offal and offal, allowing the search and identification on the one hand of any pathological signs or disturbances of the general condition of the animals and of on the other hand, all the lesions, anomalies or pollution of the carcasses and the fifth quarters. **(BOUGU ERCHE 1986)**

1.5.2. Goal

- ❖ Sanitation inspection: the objective is to ensure public health by assessing the cleanliness or unsuitability of meat for human consumption.
- ❖ Sanitary inspection: the aim of this inspection is to ensure the protection of animal health by screening for contagious diseases of livestock, considered not only as possibly transmissible to humans or likely to make the meat unfit for food, but still as dangerous for the breeding and exploitation of domestic animals.
- ❖ Qualitative inspection: its objective is to assess the substantial qualities of the foodstuff, detect fraud and incidentally estimate the commercial value, because meats recognized as healthy are not necessarily all acceptable for public consumption

The inspection must assess the nutritional, taste and organoleptic properties of each meat; it is on this principle that the seizure of inalibile and disgusting meats is based (**LA FENETER, 1936**)

1.5.3. Inspection phase

1.5.3.1. Ante-mortem inspection_:

1.5.3.1.1. Définition :

Ante-mortem inspection (IAM) is the examination of slaughter animals before slaughter

Is an important step in the production of meat intended for human consumption
(GUIDE .2009)

1.5.3.1.2. Purpose of ante-mortem inspection

- Control of compliance with regimental slaughter prohibition measures
- Control of the origin of animals (traceability)
- Heath status control
- Business appreciation
- Prevention of ill-treatment

1.5.3.1.3. Conditions and fulfillment

Animals must be subjected to ante-mortem inspection on the day of their arrival at the slaughterhouse, this examination must be repeated immediately before slaughter if the animal remains in the stall for more than 24 hours. The veterinary inspector must proceed to the Ante-mortem inspection under suitable lighting and space conditions allow observation of moving and resting animals. **(FAO /OMS. 2004)**

1.5.3.1.4. Technique and practices

The ante-mortem inspection takes place in two successive phases:

1. Quick inspection sorting orientation

2. A comprehensive systematic inspection

The ante-mortem inspection should be carried out upon arrival of the animals at the slaughterhouse.

There needs to be sufficient light. Natural or artificial, allowing the observation of animals in motion and at rest. **(GUIDE .2009)**

Slaughter register

The slaughter register is used to record all qualitative and quantitative information on slaughtered animals. The records of these slaughterings are necessary for the organization of the achievements of animals and meat for slaughter. **(GUIDE .2009)**

Table: Ante-mortem inspection (AMI) technique and what to do

Modalités	Observed cases	Become observed cases
1. Quick starting inspection	Normal animals or (Heath)	<ul style="list-style-type: none"> ❖ Stable (rest and hydric diet for 24 hours ❖ AML renewal and slaughter
	Suspicious animals	<ul style="list-style-type: none"> ❖ Stabling in the observation park or lazaretto with complete food for about 24 hours
2. systematic inspection of animals after stalling	Normal animals or (healthy)	Slaughter
	Sick animals	<p>1 / Slaughter either In the sanitary slaughterhouse - in an isolated place -in the slaughterhouse before or after normal animals</p> <p>2 / Denaturation and destruction if the patient is not legally contagious</p> <p>3 / Declaration - Denaturation - Destruction -Disinfection if disease deemed legally contagious</p>

Source : NKOA M. Laurent P.

Table: Results of ante-mortem inspection

OBSERVED CASES	TO BECOME
Normal animal	Joins the stall yard to undergo rest and water diet for normal slaughter
Animal tired or excited	Rest 24 to 48 hours with food and water; Then goes to the stall yard to undergo rest and water diet for normal slaughter
Injured animal	Rest in the lazaretto or emergency slaughter at the sanitary slaughterhouse
Animal suspected of being sick	In case of poorly characterized illness, observation for 24 to 48 hours in the lazaretto. Join the first case (normal animal or the sick animal case)
Sick animal (disease not legally contagious)	Rest and hydric diet in lazaretto, then slaughter at the sanitary slaughterhouse (or immediate slaughter in case of emergency)
Sick animal (disease deemed to be legally contagious)	Case identical to the previous one. But accompanies regulatory measures (Declaration. Dénaturation. Destruction and Désinfection) Ex anthrax

SOURCE : NKOA M. Laurent P.

1.5.3.2. Post-mortem inspection:

1.5.3.2.1. Definition:

Complete anatomo-pathological examination of the carcass and offal in order to detect any lesion or anomaly and determine the nature, extent, importance, age and possibly the origin. **(PAFIB)**

1.5.3.2.2. Purpose of post mortem inspection (PAFIB)

❖ Protective rôle of human Health

- Injuries causing a risk for the consumer
- Hygiène of slaughter

❖ Rôle of animal Health protection

- Surveillance during slaughter elimination
- Screening of animals with characteristic lesions

❖ Animal protection role (animal welfare)

- Injuries caused by ill-treatment

1.5.3.2.3. THE conditions for carrying out the post-mortem inspection:

- It must be performed as soon as the carcass dressing is completed, some lesions may disappear and the other may develop.
- All products from the 5th quarter should be inspected and no part of the animal should be removed until the inspection is completed.
- Apply the techniques of observation, inspection, palpation and olfaction and determine if the lesion is localized or generalized.
- Be carried out under sufficient lighting, natural or artificial that does not modify the colors.
- Submit samples to the laboratory for diagnostic support for pending carcasses **(Cabre O et al, 2005)**

1.5.3.2.4. Technique for performing post-mortem inspection:

Inspection occurs by immediate examination of the carcass and 5th quarter.

Examination of carcasses: It is carried out after the evisceration and the splitting of the carcass; it is done in two stages:

Remote review: to assess asymmetry, modification of colors, shape and appearance.

Close examination: It is a careful examination of the internal and external surfaces of each dressed carcass (muscles and joints), lymph nodes (intercostal, prescapular, popliteal, etc.), and the cut surface of the vertebrae. If the kidneys were left in the carcass, they should also be examined **(Thérèse et al, 2016)**

Examination of the viscera: LIMP of the viscera affects all organs and leather. Every organ should be carefully examined **(Raja et al, 2006)**

1.5.3.2.5. Sanction:

At. Acceptance (stamping): It is an affixing on the meat of health mark attesting to compliance with health standards, the stamping of the meat and a safety operation and health guarantee for the consumer. This mark is made by an ink in the color differs according to the 'Age and species, we distinguish according to **(J.O 1996)**

- **Green stamp:** for calves and lambs.
- **Purple stamp:** for sheep and cattle other than the first (adults)
- **Red stamp:** for equines and goats.
- **Black stamp:** for the processing industry

b.Lockout (put on hold) : This Operation only affects suspect products, the meat in this case is put in special refrigerated rooms for a specific time in order to re-examine them for a final decision, either acceptance and stamping or seizure **(Benlatereche et al. 2017)**

CHAPTER 2: THE MAIN REASONS FOR SEIZING MEAT, OFFAL AND ISSUES

1. Definition of seizure:

The seizure is an administrative operation aimed at withdrawing from the consumption of foodstuffs unfit for this use.

Langent who pronounces the seizure must be mandated by the administration, and be sworn in before the local court. He must be in possession of his professional veterinary inspector card

Seizure is an act that restricts the right to property. It should not therefore be pronounced until after a thorough examination. Normally, there must be a codified list of the various reasons that may lead to the seizure, if this list does not exist, the veterinary inspector has complete freedom decision making. **(Debroch, 1979)**

2. Justification of the entries :

The seizure of meat is justified for three reasons:

Insalubrity, repugnance, insufficiency.

Unhealthy meats: are dangerous for human health. The danger may arise from ingestion or contact: for example tuberculous meat, smut meat.

The disgusting meats: are healthy but not marketable due to anomaly, appearance, color for example: meat affected by melanosis.

Insufficient meats: are healthy and not repugnant but of insufficient quality therefore do not cover the nutritional needs of the consumer: for example: cachectic meats. **(SKYROCK)**

3. Classification of seizures:

The trimming: is the removal of part of the viscera or carcass.

Partial seizure: is the entry of one or more viscera or cutting part

Total seizure: is the seizure of the whole carcass without the leather. **(FAO, 2000)**

4. DIFFERENT GROUNDS FOR SEIZURE:

4.1. SEIZURE FOR INSALUBRITE:

4.1.1. Cadaveric meats: these are meats from animals that died before the bleeding they are characterized by:

A clean bleeding wound without retraction of the cervical-ventral muscles, nor of adherent clot.

A very important congestion of the viscera

A rapid onset of putrefaction of the abdominal cavity.

We make the total seizure followed by distortion and destruction but also repressive sanction. **(SKYROCK)**

4.1.2. MEAT FROM SPECIFIC AND ZONOTIC INFECTIOUS DISEASE ANIMALS

These are viral or bacterial diseases. We will only study the most frequently encountered in slaughterhouses.

4.1.2.1. Tuberculosis:

4.1.2.1.1. Definition:

It is an infectious, contagious disease caused by various bacterial species belonging to the genus: Mycobacterium. It is a chronic, insidious disease, of worldwide distribution, common to man and numerous animal species and one of the most important diseases of cattle. (J.JBenet, 2008).

Tuberculosis on carcass
(CCBM)

tuberculosis on lung
(VET, Stream)

tuberculosis on liver
(CCBM)



FIGURE 10: tuberculosis lesions

4.1.2.1.2. Recommended conduct:

It comes in several forms, in general the action to be taken consists of a total seizure in the event of an acute form, primary infection or re-awakening of old tuberculosis, in a partial seizure.

Case of total seizure:

Acute multiple foci miliary tuberculosis, which is an early progressive form, is characterized by numerous tubercles the size of a millet seed surrounded by a reddish halo and by reactive satellite nodes. This shape can reach the whole carcass.

Gaseous tuberculosis with extensive foci of several organs, which may appear as small, soft foci.

Exudative tuberculosis in cattle, which affects the serosa, it is characterized by nodules larger than that of a millet seed.

Case of partial seizure:

It concerns tuberculosis stabilized by sclerosis or calcification, the pus of which is calcified connective tissue. The entire affected area or organ is seized.

4.1.2.2. RABIES:

Meat from a slaughter animal bitten by an enraged or rabid animal is consumable and not dangerous for the consumer if the latter is slaughtered before the 8th day following the bite. On the other hand, one proceeds to the total seizure if the slaughter takes place between the 8th and the 9th day following the bite. **(SKYROCK)**



FIGURE 11: cow infected with rabies (succeed .fr)

4.1.2.3. BOVINE PLAGUE:

The animal is seized on the ground during ante-mortem inspection if it shows clinical signs of the disease, a total seizure is also practiced if, after slaughter, there are lesions characteristic of this disease (gastric and intestinal mucous gingivitis)

The bovine plague virus is harmless to humans, but the meat is feverish.

The seizure is followed by denaturing of destruction, disinfection of the premises and declaration. **(Tassin. and Rosier J. 1992)**

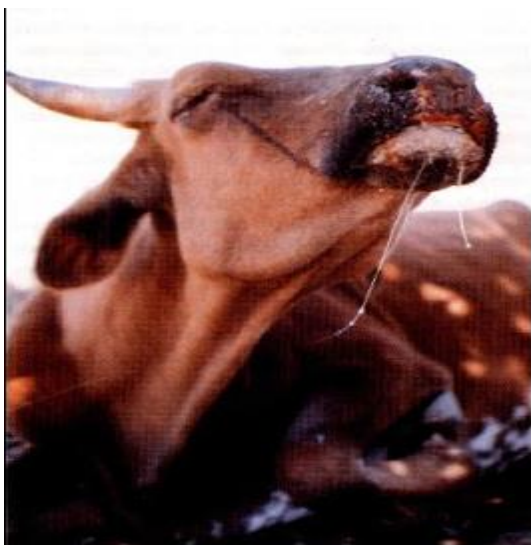


FIGURE 12: a cow shows signs of rinderpest (Futura –sciences)

4.1.2.4. Contagious bovine pleuropneumonia (PPCB)

It is a disease of cattle and water buffalo caused by *Mycoplasma mycoides*. It affects the lungs and membranes that surround the chest cavity (pleura). It manifests with fever and respiratory signs such as difficult breathing or nasal shortness of breath. **(OIE)**

Judgment:

The carcass of an animal with CBPP is seized if the disease is associated with fever, insufficient bleeding from the carcass, serous infiltration of the breast, and emaciation. Recovered animals not showing generalized signs of the disease are accepted and the affected organs are seized. **(Dr. Abd-el-Kader BENSID)**

4.1.2.5. BACTERIDIAN COAL:

In the case of anthrax, the blood is black viscous, thick and sticky. The carcass has a septicemic appearance with generalized congestion of the viscera. The spleen is severely enlarged, mole, and contains a blackish magma on the skin.

Total seizure is done with denaturing and destruction of the carcass, disinfection and declaration.

In the event of handling of the anthrax animal, one must be of extreme caution because it is a dangerous disease for humans. You must wash your hands well, disinfect and sterilize the equipment used. **(DR. Rémy Barberet)**

4.1.2.6. SYMPTOMATIC CHARCOAL:

The carcass gives off an odor of rancid butter. The characteristic lesion is the muscle tumor which looks as follows:

In the center, the muscle looks cooked and there is hemorrhagic edema. The seizure is followed by denaturing and destruction of the carcass, disinfection and declaration.

(SKYROCK)

4.1.2.7. FOOT AND MOUTH DISEASE:

4.1.2.7.1. Definition:

It is an infectious, virulent, contagious disease; it affects all domestic and wild artiodactyla and is caused by an aphthovirus **(Tomas. 2004)**.

4.1.2.7.2. The injuries:

-small vesicles and ulcers on the gum and tongue

-ulceration in the inter digit space and / or on the coronary ridge **(Lefèvre, 2003)**

- Lesions on the pillars of the rumen and on the myocardiums, especially in young animals (tiger heart) **(Finish et al 2001)**.

4.1.2.7.3 Recommended pipe :

- partial seizure includes the seizure of the head, digestive tract, udders, feet, part of meat and stamped offal and orientation towards industrial preparation
- total seizure: in the presence of acute lesions (**Demont et al, 2003**)



FIGURE 13: Clinical sign Foot-and-mouth disease from a cattle with foot-and-mouth disease (CFSPH) (CFSPH)



FIGURE 14: Rumen mucosa

4.1.2.8. SALMONELLOSIS :

It is an intestinal tropic disorder characterized by acute hemorrhagic gastroenteritis, acute hepatitis and peritonitis. The carcass and viscera are completely seized.

You can also do the instructions and do analyzes in the lab; 3 cases of Figures are possible:

- Absence of salmonella in 25g of meat, the viscera are seized and the carcass is released.
- Presence of salmonella in 25g of meat, we do the total seizure
- No salmonella at all, so the gastroenteritis is non-salomononic so in this case the seizure can be pronounced. (**Skyrock**)

4.1.3. MEAT FROM ANIMALS WITH SPECIFIC INFLAMMATORY DISEASES

Inflammations constitute the majority of cases of grounds for seizure. The causes are variable:

More frequent infectious and the germs involved are non-specific

-**Parasitics** by larvae or adults

-**Metabolic**: food (ingestion of toxic food) or physiological (toxic substance from the body)

-**medicinal** : irritants

-**mechanical** : repeated rubbing and shivering

In all cases and regardless of the origin of the inflammation, the answer is the same: congestion, exudation, leukocyte influx, formation of pus and scarring by invasion of connective tissue.

The main inflammations which constitute the reasons for seizure are: septicemia; mastitis and hepatitis. **(A.C.I.B.2013)**

4.1.3.1. Septicemia:

These are general septicemic inflammations that can be distinguished by:

Hemorrhagic septicemia : characterized by the presence on the carcass of numerous hemorrhagic foci of variable size, generally located on connective tissue and muscle tissue, but also by generalized congestion.

In this case the total seizure of the carcass and viscera is necessary because these manifestations are signs of generalized acute infectious diseases.

Ganglionic septicemia: results from the invasion of the organism by anaerobic gas producing germs the affected tissues present a crepitant hemorrhagic edema: the total seizure is made.

Pneumonic septicemia: A pulmonary inflammation can be acute, subacute or chronic. One or both lungs.

Nephritic septicemia: when nothings give off a strong urinary odor, it is a toxic metabolic disorder. On the other hand, the absence of this odor testifies to a local or metabolic septic origin. The entry of nothings is made regardless of the origin of the nephritis. **(SKYROCK)**

4.1.3.2. MAMMITES :

Inspection of the udder is important because mastitis can metastasize to the kidneys, liver, lungs and heart. We seize the organ if the attack is localized if not we do the total seizure.



FIGURE 15: Ovine mastitis (Service Agro breeding - blogger)

4.1.3.3. HEPATITIS:

Whatever the origin, the type, the stage, the liver is seized. If there is extension to the other organs, the total seizure is made. (SKYROCK)

4.1.4. MEAT POSSIBLE IN ANIMALS AFFECTED BY SPECIFIC PARASITIC AND ZONOTIC DISEASES

4.1.4.1. HYDATIDOSIS :

4.1.4.1.1. Definition :

It is a major zoonosis caused by the development in humans and certain herbivorous animals, of the larva of an echinococcus granulosus tapeworm, living as an adult in the small intestine of dogs and some other canines, it has two locations dominant: the liver and the lung (Bendedouche B, 2005), however before varying frequencies depending on the species (Gonthier et al, 2006)

4.1.4.1.2. Lesions

The basic lesions are hydatid cysts. The most common parasitic organs are the lungs and liver, other organs such as the spleen, kidneys, heart, bones and brain are less often infested, the liver enlarged (hepatomegaly) in places resembles a bunch of grapes. The surface of the lungs appears irregular, depressed, or raised. (Lefèvre et al. 2003)

4.1.4.1.3. Sanction

Seizure for insalubrity and repugnance. (Malange sydi, 2011)

4.1.4.2. Fascioliasis

4.1.4.2.1. Definition:

Fascioliasis is a parasitic disease that migrates through the hepatic parenchyma in an immature form and then settles into the bile ducts of the adult forms of a trematode from the family of fasciolides, fasciola hepatica or the great fluke. (Chauvin eTHuang, 2003)



FIGURE16: adult form of fasciola



FIGURE 17: Large fluke on liver (reussir.fr)

4.1.4.2.2. Lesions

A / phase has intra parenchymal migration

- There is a huge dark red blood clot in the parenchyma, which makes tunnels and hemorrhagic pockets (liver rot)
- Presence of irregular spots of yellow-greyish color corresponding to an exudate.
- Scarring of liver tissue accompanies interstitial hepatitis, which causes after liver fibrosis.
- The liver becomes atrophic, rough (tied liver).

B / cholangic phase

- The adult doves pass into the bile ducts causing anemia which is visible on the carcass, the latter becomes pale and sometimes cachectic.
- Irritative phenomena cause chronic cholanitis and hypertrophic fibrosis of the liver
(Euzeby, 1997)

4.1.4.2.3. SANCTION :

Partial seizure of the entire liver depending on the mode of infestation (Euzeby, 1998)

4.1.4.3. Cysticercosis :

4.1.4.3.1. Definition :

Cysticercosis or cysticercosis is a parasitic disease caused by the presence in the muscle of cysticercosis larvae from parasitic cestodes of the human small intestine. (Khadim, 1981)

4.1.4.3.2. Lesions

The lesion called mites is located between the muscle fibers and has a characteristic shape that varies depending on the stage of development:

- **banal sloping** : ellipsoid vesicle in the shape of a barley grain, shiny with a thin wall embedded between the bundles of muscle fibers, the initially rock water content becomes pinkish by impregnation of hemoglobin.
- **dry sloping** : there is degeneration of the cysticercus with vesicular necrosis and dehydration, a yellowish magma surrounded by a fibrous shell which gradually calcifies is observed cysticerci can be found in all muscle masses in the event of massive cysticercosis and in certain locations (elective during discreet infection (Djao, 1983)

4.1.4.4.3. Sanction

- **Massive ladder** : total seizure and destruction of the carcass.
- **Discreet ladrerie**: seizure of the part carrying larvae, sanitation is possible. (Euzeby, 2003)

4.1.4.4. Respiratory strongylosis

4.1.4.4.1. Definition :

Respiratory strongylosis or verminous bronchitis is a frequent parasitic disease caused by viviparous dictyocaulus, characterized by respiratory disorders mainly in older cattle, especially adults, which have not developed prior immunity. **(Gourreau and schelcher, 2012)**

4.1.4.4.2. Lesions

- Irritation of tissue sometimes followed by bacterial complication
- Interlobular edema (marbe lung)
- Interstitial emphysema
- Tracheobronchitis and lobular pneumonia **(Euzeby, 1998)**

4.1.4.4.3. Sanction

Total seizure of the lung **(Dekhlili et al, 1988)**

4.1.5. TOXIC MEAT _:

These are meats containing toxic substances for the consumer and whose various origins

- medicinal** (overload by dermal baths)

- accidental** (ingestion of pesticides or toxic plants)

If the lesions are evident, a total seizure is carried out followed by destruction of the carcass. If it is only a suspicion we proceed to the instruction is taken after the results of the laboratory technician. **(SKYROCK)**

4.1.6. HEAVY MEATS _:

These are meats from animals that did not bleed completely during the bleeding operation.

The bleeding condition is manifested by:

- a dark red carcass
- congested muscles
- highly vascularized connective tissue especially in the perineum (sign of the spider)
- a congestion of all viscera

Total seizure is made if the bleeding condition is generalized; partial seizure if it is limited to the viscera. **(SKYROCK)**

4.1.7 PUTREFIED MEAT _:

These are meats altered on the surface or in depth following an invasion by bacteria.

Rotten meat is characterized by:

- An unpleasant odor, strong ammoniacal
- A dull color (greenish for Pseudomonas)
- Muscles softened on the surface and sticky in appearance.

We proceed to the total seizure for insalubrity because there is development of pathogenic germs and formation of toxin not destroyed by heat. **(SKYROCK)**

4.2. SEIZURE FOR REPUGNANCE

4.2.1. ALTERED MEATS :

4.2.1.1. MEAT MONTHS :

These are meats whose molds have developed on the surface causing superficial deterioration. This development of fungi occurs during storage in places with high humidity. It first appears small spots of variable color (green, pale, blackish) which widen in the same way and sink in depth. They have a dry velvet appearance with a discreet smell.

In the beginner phase, brewing with vinegar water or surface peeling is recommended. In the advanced phase, trimming at least 1 cm deep from the affected areas is recommended. It is then necessary to rectify the defective parameters and especially to disinfect the premises. **(SKYROCK)**

4.2.1.2. MEATS BROKEN BY INSECTS

Flies in particular transport microbes and inoculate meat by landing on them. It is essentially salmonella which are dangerous and frequent and which are responsible for serious enteritis in humans

One proceeds to the seizure if the environment or are exposed the meats and the ill healthy. **(AFSCA-FAVV.2002)**

4.2.2. ABNORMAL APPEARANCE

4.2.2.1. MEAT WITH ABNORMAL COLORING

4.2.2.1.1. Meats with black coloring or melanosis: it is a localized infiltration of muscle tissue by melanin. The attack can be uniform or especially streaked with black. Enter the affected area **(SKYROCK)**

4.2.2.1.2. Meats with yellow coloring : this coloring can have 3 origins:

* **DRUG :** certain drugs injected into a meat animal give the meat a persistent yellow color which motivates the seizure. **(SKYROCK)**

* **Dietary adipoxantosis:** accumulation of xanthophylls and in particular lutein. cattle slowly and gradually fix the carotenoid pigments, the carcass of a calf which shows a yellow color should be considered as jaundiced. **(DR. Abdelkader BENSID. 2018)**

Recommended conduct:

No seizure because the lipoxanthosis is safe.



FIGURE 18: Adipoxantosis in bovine carcass (personal photo)

***pathological:** this is the case with jaundice. The canary yellow more or less orange coloring of all the tissues but especially visible on the connective-adipose tissue. The intensity of yellow increases by oxidation on contact with the Air (Nicolas, 2006) the inspection of the The middle artery (internal iliac and axillary) as well as that of the renal pelvis mucosa differentiates jaundice from adipoxanthosis, in fact, this anatomical element only presents a yellow coloration in the event of jaundice **(Khadime, 1981)**

Recommended conduct:

Total seizure of the carcass.

4.2.2.2. MEAT WITH AN ABNORMAL ODOR

Neighborhood origin : the fat of the carcasses fixes certain odors which can bring neighboring foodstuffs for example fish.

In this case eliminates the internal fat and that of cover by trimming.

Physiological origin : it is for example the smell of old male like the goat. We also recommend the use of these carcasses in the food industry.

Food origin: the products in question are ingested by animals. For example the smell of fish, the smell of cake, we recommend the trimming of the fat if the smell is discreet or seizure if the smell is strong.

Drug origin : certain drugs such as camphor give a certain odor to the meat, the decision depends on the intensity of the odor: the seizure is made if the odor is intense.

Pathological origin : stercoral odor: it is the fecal odor that can be noted on meat, animals suffering from digestive disorders such as bloat, composting, colic, we proceed to the total seizure.

Urine odor from kidney (nephritis) or bladder (stones) problems. Complete seizure is carried out if the smell is intense. **(SKYROCK)**

4.3 SEIZURE FOR INSUFFICIENCY

4.3.1.OVERMED MEATS

It comes from animals exhausted by a long walk or difficult transport conditions. The lungs are congested and badly bleeding, the carcass has a dark brown appearance but when cut the muscles are pink. Cadaveric rigidity is early and intense. The muscles smell of lactic acid, the PH is high.

We do the seizure because these are dangerous meats which rot very quickly. **(SKYROCK)**

4.3.2. CACHECTIC MEAT

These are meats characterized by muscle deficiency; absence but the connective tissue is normal. if it is pathological we pronounce the total seizure **(Q.S.A.2003)**

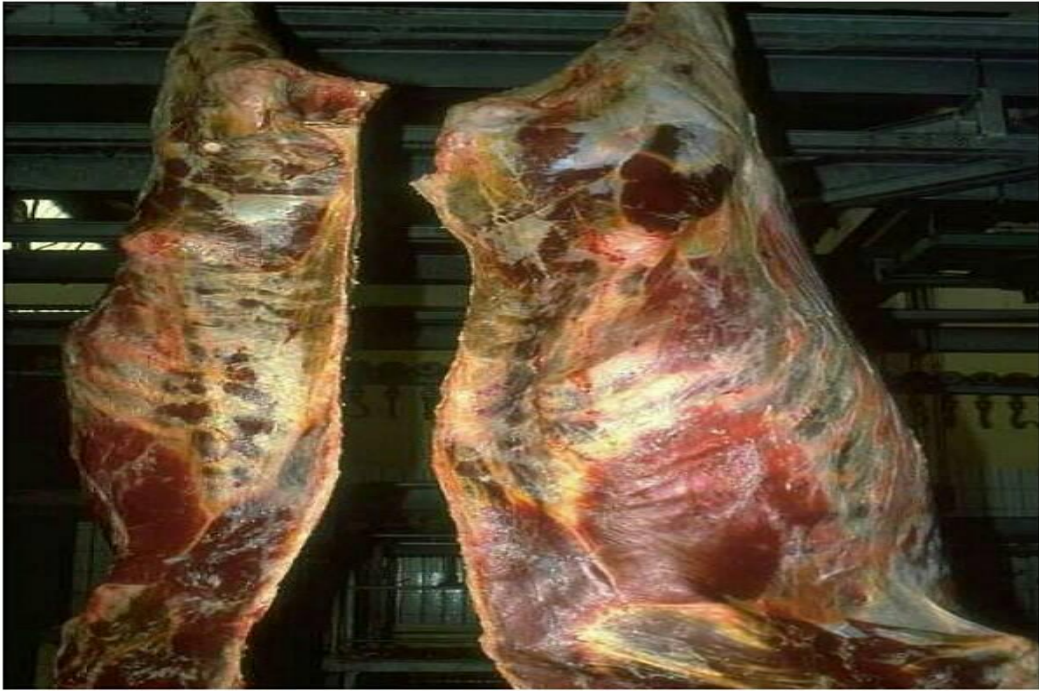


FIGURE 19: Cachexia on carcass in a bovine. (A.S.A)

EXPERIMENTAL PART



CHAPTER 3: EXPERIMENTAL PART

3.1. Goals

The objective of my work was to highlight some of the most frequent reasons for seizure in slaughter animals in the region of Bougtob in the wilaya of El-Bayad, to do so I monitored the slaughter chain at level of the slaughterhouse in my state during a period of 06 months from March 2020 until August 2020.

3.2. Materials

3.2.1. Animals and sampling

I conducted my studies on all animal species slaughtered at the bougtob slaughterhouse, it concerned cattle, sheep and goats with a total of (5352) carcasses including (24) bovine heads and (4936) Sheep heads and (392) goat heads, this sample was obtained after one visit per week (Saturday) it is the most interesting day in terms of slaughter.

I was provided with the following:

- a blouse
- a pair of boots
- disposable latex gloves
- a knife for incisions
- a photographic camera

I also consulted the slaughterhouse registers

3.2.2. Bougtob slaughterhouse

It is a public establishment, used for the slaughter and dressing of animals for transformation into carcass and fifth quarter. Built in 2019 by the Spaniards and approved by the veterinary services of the wilaya under the number 32101, it has a slaughter capacity of approximately:

Cattle: 2,400 Tonne / YEAR

Sheep: 9,600 Tonne / YEAR

Equine: absence



Photos 01: the Bougtob slaughterhouse

The Bougtob slaughterhouse equipped with:

- Sheds to receive large live animals (cattle and camels) and others intended for small animals (sheep, goats).
- A barn to isolate suspicious animals
- A 2.5m high concrete wall with two doors, one for entering wagons loaded with live animals and the other for removing meat
- The slaughterhouse includes halls with suitable areas for slaughter, extraction of limbs, head and viscera
- The slaughterhouse has two slaughter lines, one for large animals and one for small animals
- Places with plain water and machinery for disinfecting used knives and tools
- Rooms for cooling meat after slaughter, equipped with a thermometer
- meat analysis laboratory
- The slaughterhouse has high lighting and good ventilation, and its floor and walls are made of easy-to-clean and corrosion-resistant materials that ensure the safety of workers.
- The machines and tools used in the slaughterhouse are made of materials that do not rust.
- The slaughterhouse includes sanitary units, changing rooms and places for disinfecting the feet and hands.
- The slaughterhouse contains a large capacity tank in addition to a water treatment unit
- The slaughterhouse includes animal waste treatment units from slaughter operations (animal blood recycling sites)
- A small slaughterhouse for urgent cases
- Refrigerated transport allows meat to be transported from the slaughterhouse to distribution points
- The slaughterhouse contains rooms for workers' rest, a prayer room, a cafe and dormitories for workers who live far from the slaughterhouse.

3.2. Method:

3.2.1. Ante mortem examination: It is a compulsory examination on foot, takes place at the waiting air level from 7 a.m. to 8 a.m., often consists of eliminating animals prohibited for slaughter.



Photo 02: Rest air

3.2.2. Slaughter: It is a set of successive highly specialized operations, which consists of transforming slaughter animals into consumable product (meat and offal) slaughter begins at 8:00 am and ends at noon. This applies to days when the slaughter frequency is high (Saturday). On days when the slaughter frequency is lower such as Monday and Wednesday, the work starts at 8:30 a.m. and ends at 10:30 a.m. Slaughter takes place in several stages which are as follows:

- **Bleeding:** a single quick and complete incision.



Photo 03: Slaughterhouse for small animals

- **Counting:** Workers only remove the skin from the joints, then attach it to the machine to remove it completely in a quick way.



PHOTO 04: the counting stages



- **Evisceration** : the internal organs are removed from the abdomen and thoracic then placed in a mechanical passage to reach a room where they are cleaned.



Photos 05: evisceration (personal photo)

- **Slot** : only the carcass of large animals is cut into two parts over its entire vertebral languor, this stage that does not exist in sheep and goats.



Photo 06: the Slit (personal photo)

- **Shower:** it is the elimination with water of all the dirt collected during the various times of slaughter.



Photos 07: washing of the viscera (personal photo)

3.2.3. Post mortem inspection: Carcasses and offal of bovines, sheep and goats must be subjected to the following post-mortem inspection procedures:

-Inspection of carcasses.



Photos 08: inspection of carcasses by veterinary medicine (personal photo)

- Visual examination of the head, incision and examination of the lymph nodes if requested for example during Tuberculosis.
- Inspection of the trachea and esophagus.



**Photo 08
: The heads of sheep (personal photo)**

- Lungs :
 - ➔ visual examination and pronounced palpation of the lungs.
 - ➔ incision and thorough examination of the lungs, bronchial and mediastinal lymph nodes.



Photo 10: visual examination of the lungs (personal photo)

- Visual examination of the pericardium: a visual examination of all its faces to check for muscular myocarditis or cysticercosis, and a longitudinal incision to examine the chambers of the heart, endocardium and valves.



Photo 11: examination of the heart through an incision (personal photo)

-Liver

Visual examination to see the shape, color and volume, and palpation to detect hydatid cysts, abscesses and finally a single longitudinal incision between the two lobes for the detection of distomatosis in small ruminants and two incisions in cattle for research fluke and examination of the hepatic and hepato-pancreatic lymph nodes for tuberculosis.



Photo12: liver inspection (personal photo)

4.2.4. Weighing: the whole carcass is weighed within one hour of slaughtering the animal.

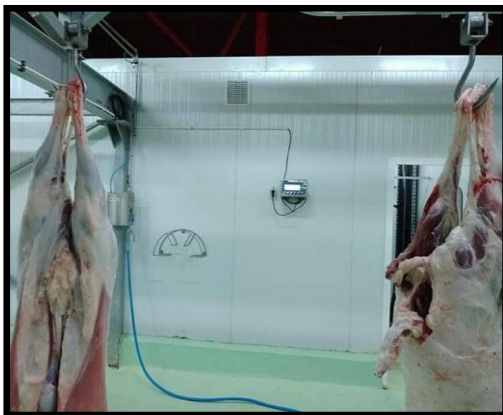


Photo13: weighing (personal photo)

4.2.5. Transport :



Photo 14: transport (personal photo)

4.2.6. Stamping: all meat which is safe and suitable for human consumption must be stamped with the anchor based on food colors that may be



Photo 15: stamping (personal photo)

Green : for lambs and calves.

Purple : for adult cattle and sheep.

Red : for equines, camels and goats.

Black : for industry and meat processing.



Photo 16: Ink for stamping on meat

CHAPTER 4: RESULTS AND DISCUSSION

Table 4.1: number of cattle, sheep and goats slaughtered during each month

	Cattle	Sheep	Goat	total
March	03	474	29	506
April	12	1070	118	1200
May	6	1578	145	1729
June	1	664	82	747
July	1	497	13	511
August	1	653	5	659
Total	24	4936	392	5352

During my studies, I obtained a score of 506 for the total animals slaughtered in March, while I obtained a score of 1200 in April and 1729 in the month of May, then 747a in the month of Young, and finally 511 for the month of July and 659 for the month of August

Figure 4.1 number of animals slaughtered during each month



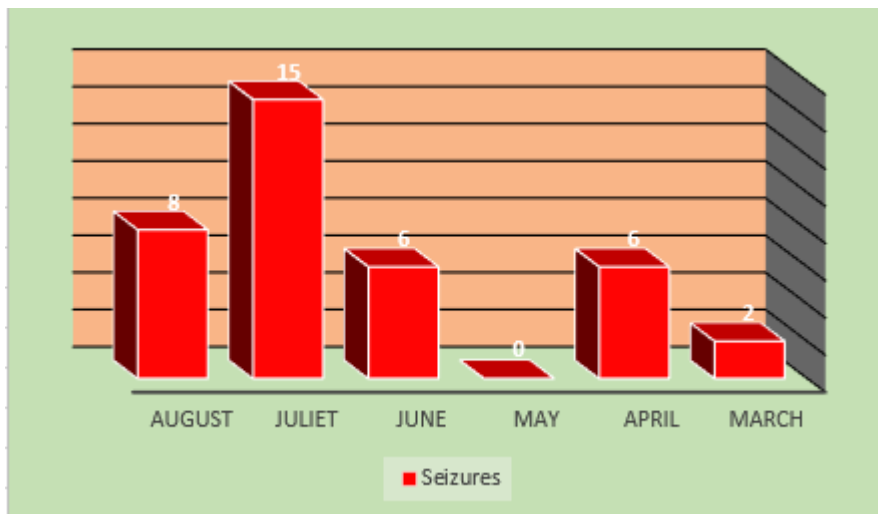
4.1. Evolution of the seizure according to the month

During the study period, Among the 37 cases of seizures, 02 seizures were made in the month of March, 06 in April, and no case was recorded in the month of May, Young 06, July 15, and finally 08 in the month of August.

Table 4.2: Number of entries according to the month.

The months	March	April	May	June	Juliet	August	Total
Seizures	02	06	00	06	15	08	37
Proportions	05%	16%	00%	16%	40%	21%	100%

Figure 4.2 change of the number of entries according to the month



The highest proportion of foreclosures is recorded in July 40% (15/37), followed by 21% (08/37) in August, then 16% (08/37) in June and April, in month of May no case was recorded and finally 05% (02/37) in the month of March.

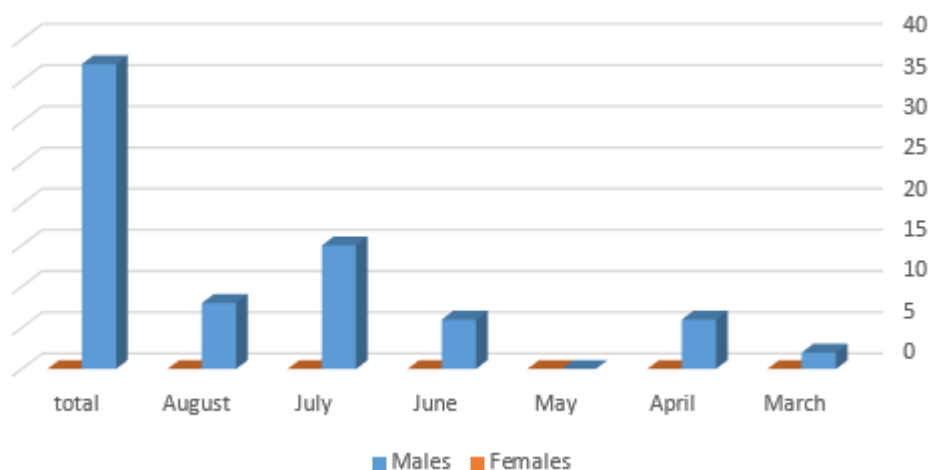
4.3. Evolution of seizure according to sex

Of the 37 seizures observed, 37% came from males, while 00% came from females, so males were more affected by the seizures.

Table 4.3: Number of entries according to gender.

The month	March	April	May	June	July	August	total	Proportion
Males	02	06	00	06	15	08	37%	100%
Females	00	00	00	00	00	00	00%	0%
Total	0	06	00	06	15	08	37%	100%

Figure 4.3 change of the number of seizures according to sex



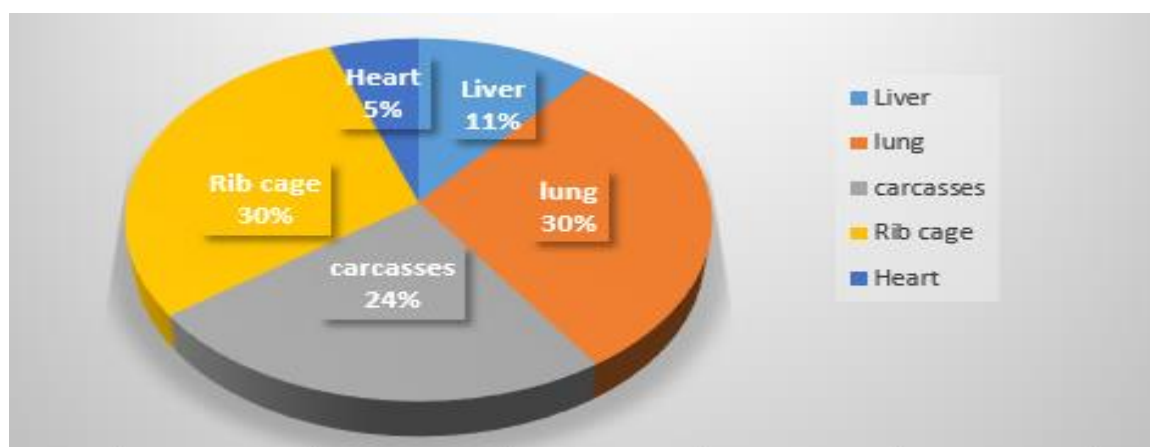
4.4. Evolution according to the organ

The highest proportion of seizures is seen in the lungs and chest cages 29% (11/37), followed by carcasses 24% (09/37), liver 10% (4/37), and finally in heart level 05% (02/37).

Table 4.4: Number of seizures according to the organ.

	Number of seizures	Proportion
Liver	04	10%
lung	11	29%
carcasses	09	24%
Rib cage	11	29%
Heart	02	05%
Total	37	100%

Figure 4.4 change in the number of seizures depending on the organ



The highest number of seizures is made in the lungs (11 seizures) and thoracic cages (11 seizures) then in the carcasses (09 seizures).

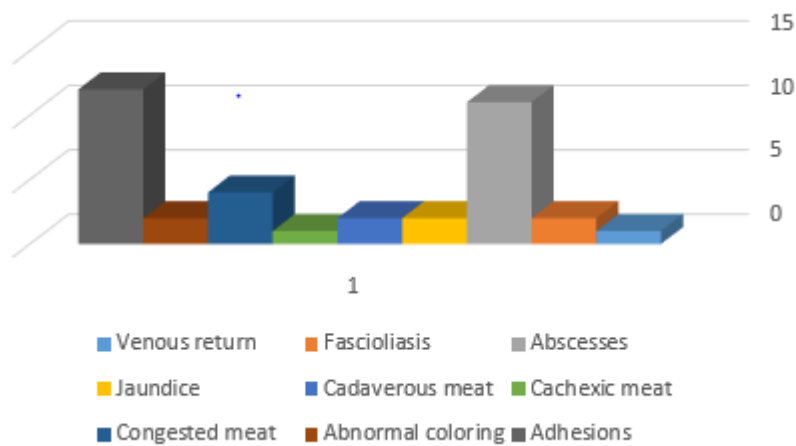
4.5. Evolution according to the entry reason

Many seizures had as reasons the adhesion of the rib cage with the pleura (32%), and abscesses (30%), congested meats (11%), while few seizures had as reasons the fasciolosis (05%) , jaundice (05), cadaveric meats (05%), abnormal colorings (05%), and venous return (03%) and cachexia meats (03%).

Table 4.5: Number of entries according to the entry reason.

	Entry numbers	proportion
Venous return	01	3%
Fascioliasis	02	5%
Abscesses	11	30%
Jaundice	02	5%
Cadaverous meat	02	5%
Cachexic meat	01	3%
Congested meat	04	11%
Abnormal coloring	02	5%
Adhesions	12	32%
Total	37	100%

Figure 4.5 change of the number of entries according to the entry reason



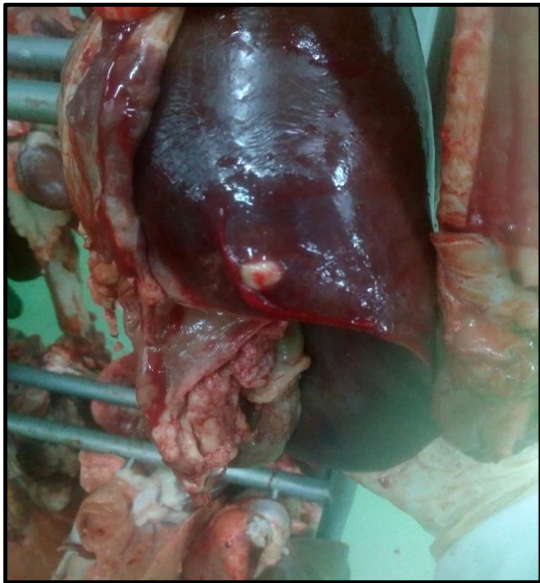


Photo 17: liver abscess (personal photo)



Photo 18: the aillottage (personal photo)



Photo 19: lung abscess (personal photo)



Photo 20: cysts in the liver (personal photo)

Discussion:

According to the results of our study which was carried out during the 06 months of practice on a number of (5352) animals inspected at the Bougtob slaughterhouse

We have observed that there are different lesions which vary depending on the etiologies which are either of infectious or parasitic origin which affect carcasses, offal and their outcomes.

The results of the distribution of animals slaughtered according to species (table n01) revealed that the number of sheep slaughtered is highest in the bougtob slaughterhouse with a rate of (4936) followed by goats with a rate of (392) and lastly cattle with a rate of (24). This could be explained by the fact that sheep meat is more in demand in the wilaya of albayadh than beef and goat meat, especially during festivals and religious occasions (Eid El adha and put of Ramadhan).

(Tables n03) we noted 37 cases of seizure including: 11 cases or 29% of pulmonary lesions, 11 cases or 29% of adhesion of the thoracic cages with the pleura, 09 cases or 24% which affects the carcass, and 04 cases or 10 % of hepatic lesions finally 02 cases or 05% which affects the heart.

These results show that the carcasses are less affected, and the offal lesions are much more pulmonary lesions which entail very significant economic losses for breeders and butchers.

The most common reasons for seizure in the Bougtob slaughterhouse are:

- Adhesion of the thoracic cage to the pleura is the pathology identified as dominant by my surveys: 12 cases or 32%.
- Abscesses with 11 cases or 30%.
- Meats congested 04cas or 11%.
- Cadaveric meats 12 cases or 05%.
- Fasciolosis 02 cases or 05%.
- Jaundice with 02 cases or 05%
- Abnormal colorings with 02 cases or 05%
- Meat cachexia and letting (venous return) for each 01cas or 03%.

Conclusion

Beaters play an important and vital role in protecting human health by providing specialist services in this veterinary field and cooling meat under healthy conditions that ensure it is free from diseases and contamination that may occur during or after slaughter, and this process is carried out with a series of procedures and steps that ensure healthy and safe slaughter for animals and provide high quality meat.

The study conducted on **5352** head (cattle, sheep, goats) sheep are the most slaughtered, the most frequent lesions are the adhesion of the rib cage with the pleura and the various abscesses concerning offal with a higher frequency of seizure of the lungs.

The results of our study underline the economic importance of the seizure and the need to put in place preventive measures in the field of animal health and hygiene measures at the slaughterhouse.

Recommendation

During my work in a bougtob slaughterhouse, there are some recommendations specific to it, as follows:

- As the slaughterhouse is very large, direction signs should be placed to facilitate the movement of workers.
- The evacuation of the blood must be faster, because it constitutes an unfavorable environment favorable to the multiplication of germs.
- Increase the number of agents responsible for cleaning in order to have a better hygienic quality.
- Fight against rodents and stray dogs.
- Sensitize breeders to carry out deworming in a contained manner.
- Sensitize private veterinarians to respect the dosage of drugs and the time of intervention.
- Raise awareness among butchers against illegal slaughter.
- Wearing gloves and a disposable nasal mouth mask.
- Hands must be washed and disinfected regularly, especially after each slaughter operation.
- Prohibition of smoking in the workplace
- The ban on spitting and coughing near meat.
- Design a safety perimeter around the slaughterhouse to prevent the entry of dogs, cats, insects and rodents.

BIBLIOGRAPHICAL REFERENCES

- **A.C.I.A.2002** : Agence canadienne d'inspection des aliments et santé des animaux.
- **Bendedouche B, 2005** : cours d'HIDAOA, Cinquième année, ENSV d'EL HARRACH, Alger
- **BOUGU ERCHE 1986** : inspection sanitaire <https://www-etudier.com/dissertations/linspection-sanitaire/477-437-HT.ml>
- **Cabre O et al ,2005** : inspection sanitaire des animaux de boucherie
- **Chapelier.M.2002** : inspection des viandes H, Q, A, motifs des saisie –étude synthétique
- **Chauvin A et Huang W .2003** : principales maladies infectieuses et parasitaire du bétail 2003 p 1411.
- **CHRISTELLE Duchéne, Gilles Gandemer** 2valeurs nutritionnelles des viandes 13 septembre 2016p5-6
- **Codex alimentarius** code d'usages en matière d'hygiène pour la viande CAC/RCP 58 2005 P03.
- **DEBROCH, 1979** : Debroch Graveg ,1979 inspection des denrées alimentaires d'origine animale institut de Médecine vétérinaire tropicale ANTWER PEN, Belgique.
- **Dekhlili H et al .1998** : l'abattoir moderne avantage et inconvénient, ISV Constantine .1998.
- **Demont P et al ,2003** : Motifs de saisie des viandes, abats et issues des animaux de boucherie ENVL
- **DJAO 1983** : les motifs de saisie de viandes les plus fréquemment rencontrés à l'abattoir de YAOUNDE (Cameron) incidence économique et sociale .1983 p106
- **DR. Abdelkader BENSID.2008** ; Hygiène et inspection des viandes rouges
- **DR. Salim KEBBA ,2015** : sacrifice de l'AID .EL Adha .une saignée saine et soigneuse.
- **DR.rémy BARBERET** MEMENTO DE MEDECINE BOVINE (2^eédition). ; Dr Pierre-Yves HUGRON. ; Dr Guillaume DUSSAULX ;

- **EUZEBY J.1998** : les parasites des viandes Edition TEC et DOC .LA VOISIER, 1998.page 89
- **EUZEBY J.2003** : les maladies parasitaires des viandes
- **EUZEBY J ,1997** : les maladies parasitaire des viandes page 132.
- **EUZEBY J ,1998** : les parasite des viandes Edition TEC et DOC LA VOISIER, 1998 page89
- **FAO, 2002** : Food and organisation Alimentairy (alimentation et nutrition annuelle sur le contrôle de la qualité des produits alimentaire /inspection alimentaire ROME.
- **FAO/OMS .2004** : projet de code d’usage en matière d’hygiène pour les viandes
- **FAO/OMS/1991** : commission du codex alimentaire, guide de bonne pratique d’inspection des viandes
- **Finiche R, Ougar M, 2001** : Enquête sur les dominantes pathologique les plus fréquentes à l’abattoir d’EL Harrach page 30-31 thèse en vue de l’obtention du diplôme de docteur vétérinaire ENSV
- **Gonthier et al ,2006** : Motifs de saisie des viandes abats et issues des animaux de boucherie
- **Gourreau et schelcher, 2012** : Guide pratique des maladies des bovins, France Agricole paris .S.N.2011 .
- **GUIDE ,2009** : Guide de bonnes pratiques d’inspection des viandes au Sénégal.
- **J.J.BENET.2008** : école nationale vétérinaire d’alfort.U.S.C.ENVA.Aneses EPIMAL, Maisons-Alfort.
- **J.O.1991** : Journal officiel de la republication Algérienne (1991) Arrête de 26 Janvier 1988 relatif aux espèces, âges et les états physiologiques
- **KHADIM G 1981** : les motifs de la saisie des viandes les plus fréquentes rencontrées au niveau des abattoirs de région du CAP–VER, page 78
- **LA Fenêtre -1936** : inspection sanitaire <https://www-etudier.com/dissertation/l’inspection-sanitaire /477-437-HT.ml>.

- **LA VIANDE .FR** : [https://www.laviande.fr/environnement –éthique/vis-vis-animaux /étapes-abattage-animaux abatto](https://www.laviande.fr/environnement-ethique/vis-vis-animaux/etapes-abattage-animaux-abatto).
- **LE Fever P et al ,2003** : les principales maladies infectieuses et parasitaires du bétail page 1326-1339
- **Le Fevre P et al ,2003** : les principales maladies infectieuses et parasitaires du bétail page 1326-1339
- **Malang Seydi ,2011** : Guide de bonne pratique d'inspection des viandes au Sénégal page 18
- **Mesabi 1980** : l'abattage selon le rythme islamique et les différentes préparations familiales à base de viande en tueries thèse en vue de l'obtention du diplôme de docteur vétérinaire ENSV.
- **MZABI S., 1980** L'abattage selon le rythme islamique et les différentes préparations familiales à base de viande en Tunisie. Thèse : Mé3 d. Vêt. : Alfort
- **MZABI-S-1980-** : L'abattage selon le rythme islamique et des différentes préparations animales à base de viande en Tunisie –thèse : Med –vét-AL fort 9
- **OMS** : Cancérogénicité de la consommation de viande rouge et de viande transformée Octobre 2015.
- **PAFIB 2011** : Ministère de l'élevage et des ressources animales .France vétérinaire internationale
- **Raja et al ,2006** : les motifs de saisie chez les bovins au niveau de l'abattoir d'El Harrach, PFE : science vétérinaire Blida université Saad Dahlab .50p
- **Règlement (CE) n° 853/2004** du parlement européen et du conseil du 29 avril 2004 fixant des règles spécifiques d'hygiène applicables aux denrées alimentaires d'origine animale (JOL 139 du 30.4.2004)
- **SKYROCK** : [https://ndiagamarskyrock.mobi/2875 272420](https://ndiagamarskyrock.mobi/2875272420) saisies –un-titre d'article – ici .ssss.htr .
- **SYLVIE et al .2016** : Sylvie Georges, Mario Couture, Thérèse Loubier : manuel des méthodes d'inspection des abattoirs ,2016 p14
- **Tassin. P et Rosier J. ,1992**-Atlas d'inspection des viandes- les lésions du poumon, cœur et du rein.Rec. Med .Vét.1992, 168(1) pp 3-99

- **Thérèse et al .2016** : Thérèse .L, Marie, C, Sylvie (2016) : Manuel des méthodes d'inspection des abattoirs, Québec : ensemble ou fait avancer le Québec, 257 p
- **Tomas, 2004** : Maladie contagieuse aphteuse

[19]-www.Agence fédérale pour la sécurité de la chaîne alimentaire(CE) n° 999-

2002. FAVV-AFSCA

[24]**A.C.I.A.-** Agence canadienne d'inspection des aliments 10-10-2013

[27]-**QSA. (2003)** Motifs de saisie des viandes, abats et issues des animaux de boucherie ENVL.

-