

STUDY GUIDE:
POULTRY MEAT EXAMINATION

**In Collaboration with the Directorate Veterinary Services
National Department of Agriculture**

January 2007

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PROJECTS

Part 1 - Project no. 1

Critically discuss the following, explaining the correct method of operation. Describe corrective actions to be taken in cases of non-compliance – give examples.

- Receiving and offloading of animals at the abattoir
- Vehicle inspection
- Procedures for handling dead animals.
- Ante mortem procedures and use of ante mortem findings in post mortem inspections
- Structure of lairages
- Humane handling of animals e.g.: food, water, bedding, cleanliness and behaviour of lairage staff

Part 1 - Project no. 2

Why is it important to separate clean and dirty areas, functions and products? Give examples.

Part 1 - Project no. 3

Discuss general structural requirements to eliminate contamination

Part 2 - Project no. 1

Name the different process steps in the (a) dirty and (b) clean areas respectively and compare with your project abattoir and provide corrective actions.

Part 2 - Project no. 2

Discuss:

- a. Structures
- b. Functions
- c. Procedures
- d. Findings

at the first and second inspection points.

Part 2 - Project no. 3

Conduct a Hygiene Assessment at your abattoir using the standardised HAS.

**PART 1 – ABATTOIR PRACTICE
MODULE 1**

MICROBIOLOGY

OBJECTIVE

To introduce learners to the science of microbiology relating to abattoirs

Study aim

At the end of this theme you must be able to:

1. INTRODUCTION, TYPES OF ORGANISMS, IMPORTANCE OF BACTERIA AND ELEMENTARY BACTERIOLOGY

- Describe the size, shapes and habits of bacteria
- Name the requirements for bacterial growth
- Shortly name the 4 phases of the growth cycle.

2. GROUPS OF BACTERIA, BACTERIAL SPORES, BACTERIA ISOLATED FROM MEAT

- Name some food-borne pathogens
- Briefly discuss spoilage bacteria and give an example
- Name some bacteria isolated from poultry.

3. SPOILAGE BACTERIA

- Name one spoilage bacteria
- Explain the importance of spoilage bacteria in the meat industry
- Explain the importance of chilling of meat in relation to meat spoilage.

4. FOODBORNE DISEASES

- Define food borne diseases
- Name the agents of food borne diseases
- Discuss events necessary for food - borne illness to occur.

5. FOOD POISONING

- Define food poisoning and name symptoms
- Distinguish between the main types of food poisoning
- Discuss preventative measures for food poisoning

6. BACTERIA MOST FREQUENTLY ASSOCIATED WITH FOOD-BORNE DISEASES

- Name 5 of the most common pathogens causing food borne illness.
- Discuss the source, mechanism, foods involved, symptoms and preventative measures for the food poisoning organisms mentioned in the manual

**PART 1 – ABATTOIR PRACTICE
MODULE 2**

GENERAL ABATTOIR LAYOUT AND CONSTRUCTION

OBJECTIVE

To acquaint candidates with the structural requirements, the product flow and the use of water in an abattoir

Study aims

At the end of this theme you must be able to:

1. INTRODUCTION

- What is the definition of an abattoir in the Regulations under the Meat Safety Act.

2. LAYOUT, CLEAN AND DIRTY PRODUCTS AND AREAS

- Distinguish between “dirty” and “clean” areas of an abattoir
- Distinguish between clean and dirty products – give examples

3. BUILDING AN ABATTOIR, REQUIREMENTS FOR PREMISES, FACTORS AFFECTING ABATTOIR WORK AREAS, FACILITIES FOR STAFF

- Explain the factors to be considered when building an abattoir
- Discuss the requirements for premises
- Discuss the factors affecting abattoir work areas
- Discuss the requirements for “facilities for staff”

4. USE OF WATER IN THE ABATTOIR

- Discuss the legal aspects regarding the use of water in abattoirs
- Discuss the guidelines for the testing of water in abattoirs (what tests and how often).

5. DISPOSAL OF ABATTOIR EFFLUENT AND SEPTIC TANK SYSTEMS

- Briefly discuss the regulatory requirements for the disposal of abattoir effluent
- Discuss the functions of the components of septic tank systems

**PART 1 – ABATTOIR PRACTICE
MODULE 3**

PERSONAL HYGIENE

OBJECTIVE

To inform the candidate about the importance of personal hygiene

Study aims

At the end of this theme you must be able to:

1. INTRODUCTION

- Explain why food handlers must be healthy
- Explain why food handlers must wear clean protective clothes

2. HEALTH REQUIREMENTS FOR WORKERS

- Discuss the legal requirements regarding the health and hygiene of workers
- Distinguish between pre-employment medical examination and daily fitness checks

3. SOME PRACTICAL WAYS TO IMPROVE PERSONAL HYGIENE AND NEATNESS

- Name some practical ways to improve personal hygiene and neatness in the abattoir

4. PROTECTIVE CLOTHING

- Explain the importance of protective clothing and the responsibility of the workers towards it
- Name the different components of protective clothing.

5. PERSONAL EQUIPMENT

- Discuss the personal equipment used in an abattoir
- Name 4 uses for knives.

6. CLEANING OF HAND EQUIPMENT

- Explain how hand equipment must be cleaned
- Explain the meaning of employment medical examination
- Explain the difference between pre-employment medical examination and daily fitness checks
- Explain when additional medical examination is required
- Explain the importance of personal hygiene and hygiene of personal equipment
- Give at least 5 examples of when workers must wash their hands in an abattoir
- Discuss what must be done in case of an injury
- Discuss the requirements for the washing of hands
- Name a few undesirable hygienic practices workers tend to do in an abattoir
- Pre-slaughter inspections regarding the personal hygiene of workers are carried out daily. What things should be noted?

**PART 1 – ABATTOIR PRACTICE
MODULE 4**

HANDLING OF WASTE & CONDEMNED MATERIAL

OBJECTIVE

To give the candidate an understanding of the handling of waste & condemned/ inedible material and the disposal thereof

Study aims

At the end of this theme you must be able to:

1. LEGAL ASPECTS REGARDING CONDEMNED MATERIAL

- Draw a diagram to indicate which types of waste and by products can derive from an abattoir
- Describe handling condemned material in the abattoir
- Describe the different methods of disposal of condemned material
- Discuss the requirements for sterilising plants including the unclean and clean areas
- Describe the requirements for vehicles transporting condemned material
- List the 4 points that must be indicated in writing when removing specimens from an abattoir
- Discuss requirements for the personnel working in the dirty area of a sterilisation plant
- Discuss the requirements that the facilities for condemned/ detained material should comply with
- Discuss the marking of condemned material and containers
- Discuss the requirements that the “unclean” and “clean” areas of a sterilizing plant should comply with

2. METHOD OF PREPARING ANIMAL FEED AND CONDEMNED MEAT FOR APPROVAL FOR ANIMAL FEED

- Describe which materials can be used to recover for the manufacture of animal feed

3. RENDERING AND THE COLLECTION OF RENDERING BLOOD.

- Describe the principles of collection of rendering blood
- Describe the principles of rendering and the different methods of rendering

4. FLOW DIAGRAM OF STERILISATION PLANT

- Draw a flow diagram to indicate the different process steps at a sterilisation plant

5. DISPOSAL OF ABATTOIR EFFLUENT AND SEPTIC TANK SYSTEMS

- Briefly discuss the regulatory requirements for the disposal of abattoir effluent
- Discuss the functions of the components of septic tank systems

**PART 1 – ABATTOIR PRACTICE
MODULE 5**

PEST CONTROL

OBJECTIVE

To acquaint candidates with the practice of pest control in an abattoir

Study aims:

At the end of this theme you must be able to:

- Describe preventing of pests through design
- Describe preventing pest entry to the food facility
- Describe preventing pests through good sanitation
- Describe preventing pests through good housekeeping
- Describe storage practice
- Describe thresholds
- Describe self assessment or auditing programs
- Describe bird management procedures
- Describe recognizing rat and mouse signs
- Describe rodent management procedures
- Recognize cockroach infestations
- Recognize stored product pests
- Describe domestic fly control programs
- Understand occasional pests

**PART 1 – ABATTOIR PRACTICE
MODULE 6**

SANITATION

OBJECTIVE

To acquaint candidates with the practice of cleaning and sanitizing an abattoir

Study aims

At the end of this theme you must be able to:

1. DEFINITIONS

1.1 Define/ explain the following:

- Sanitation
- Disinfection
- Detergents
- Disinfectants/ Sanitizers

2. REQUIREMENTS FOR CLEANING AND DISINFECTING THE ABATTOIR AND EQUIPMENT

- Discuss the requirements for cleaning and disinfecting the abattoir and equipment

3. SOURCES OF CONTAMINATION

Name and discuss sources of contamination

4. THE PRACTICE OF CLEANING AND DISINFECTION

- Discuss the 7 basic steps of cleaning and disinfecting
- Explain the importance of slaughtering “clean” animals/birds
- Distinguish between detergents and disinfectants/ sanitizers
- Explain the importance of the pre-slaughter sanitation inspection and bacteriological monitoring

**PART 1 – ABATTOIR PRACTICE
MODULE 7**

MEAT QUALITY AND SAFETY

OBJECTIVE

To make students aware of the need for quality control, record keeping as well as the importance of HACCP, HAS and HMS

Study aim

At the end of this theme you must be able to:

1. DEFINITIONS

- Define:
 - Quality
 - Quality assurance (QA)
 - Good manufacturing practice (GMP)
 - HACCP
 - CCP

2. THE NEED FOR QUALITY SYSTEMS, HACCP AS A FOOD SAFETY MANAGEMENT SYSTEM, QUALITY SYSTEMS AS PRE-REQUISITES FOR HACCP

- Explain the need for quality systems
- Discuss HACCP as a food safety management system
- Name the quality systems needed as pre-requisites for HACCP
- Name the 7 principles of HACCP
- Name the 12 stages of HACCP.

3. HYGIENE MANAGEMENT SYSTEMS (HMS)

- Discuss the management responsibilities in terms of Hygiene Management Systems
- Name and discuss the Hygiene Control Programs that must form part of the Hygiene Management System

4. KEEPING OF RECORDS

- Briefly discuss the keeping of records.

5. HAS

- Explain what HAS is
- Name the 10 areas covered by the HAS
- Do a Hygiene assessment at your abattoir using the HAS forms provided
- Discuss water monitoring as a prerequisite for HACCP
- Explain which steps correspond to the different principles
- Explain how a CCP is determined
- Distinguish between QA and GMP
- Draw examples of check registers.

**PART 2 – MEAT EXAMINATION
MODULE I**

ABATTOIR LAYOUT AND CONSTRUCTION: POULTRY MEAT ABATTOIRS

OBJECTIVE

To acquaint candidates with the structural requirements, the product flow and the use of water in a poultry meat abattoir

Study aims

At the end of this theme you must be able to:

- 1. SPECIFIC AND ADDITIONAL REQUIREMENTS FOR POULTRY MEAT ABATTOIRS AND CUTTING AND PROCESSING PLANTS**
 - Discuss the general requirements for premises, structures and equipment
 - Discuss the specific requirements that poultry meat abattoirs must comply to.

- 2. DESIGN DRAWINGS**
 - Evaluate a design drawing of a low throughput poultry meat abattoir and give comments on the layout.

**PART 2 – MEAT EXAMINATION
MODULE 2**

SLAUGHTER AND DRESSING

OBJECTIVE

To acquaint candidates with the slaughter process steps and the animal welfare aspects at abattoirs

Study aims

At the end of this theme you must be able to:

1. EQUIPMENT, FLOW DIAGRAM

- Draw a basic flow diagram of a poultry abattoir, showing the main process steps (in sequence) and differentiate between the dirty and clean areas
- Name the process steps in the “dirty” area respectively and in sequence
- Name the process steps in the “clean” area respectively and in sequence

2. DIRTY AREA OPERATIONS (PRE-EVISCERATION PROCESSES)

- Discuss the factors/ requirements to consider during the following dirty area operations:
 - The catching and loading process
 - Transporting birds
 - Crating of birds
 - Ante-mortem inspection
 - Handling of DOA's
 - Hanging and Stunning: time between stunning to throat slitting / difference between mechanical and hand stunning / reasons for stunning / characteristics of proper and poor stunning
 - Neck slitting and bleeding
 - Effects of poor neck slitting and insufficient bleeding
 - Scalding
 - Defeathering
 - First inspection point
 - Removal of heads and feet
 - Post de-feathering wash

3. CLEAN AREA OPERATIONS

- Discuss the factors/ requirements to consider during the following clean area operations:
 - Evisceration and caution to be exercised when opening the abdominal cavity
 - Second inspection point
 - Carcass and organ separation
 - Cropping
 - Neck cracking and pulling
 - Finishing
 - Final carcass wash
 - Offal handling
 - Spin and air chilling
- Complete the diagram of different temperatures to be monitored in the abattoir

PART 2 – MEAT EXAMINATION

MODULE 3

ANATOMY OF POULTRY

OBJECTIVE

To acquaint the candidate with the anatomy of poultry meat animals in order to assist with meat examination

Study aim

At the end of this theme you must be able to:

1. SYSTEMS OF THE BODY

- Name and discuss the components of the following systems and explain their functions:
 - Skeleton
 - Digestive system
 - Respiratory system
 - Skin

- Complete the following sketches and label the different components:
 - Digestive system
 - Respiratory system
 - Layout of the internal organs

PART 2 – MEAT EXAMINATION

MODULE 4
PATHOLOGY

OBJECTIVES

- To acquaint the candidate with the pathological conditions that may be harmful to the consumer
- Enabling the candidate to identify the above and to deal with it in the correct manner

Study aim

At the end of this theme you must be able to:

1. DEFINITIONS

- Give short definitions for the most common/ important pathological concepts as indicated in your manual.

2. PATHOLOGICAL CONDITIONS

- Define/ explain the most common/ important pathological conditions as indicated in your manual under the following headings:
 - Cause
 - Judgement.

PART 2 – MEAT EXAMINATION

MODULE 5
DISEASES AND CONDITIONS

OBJECTIVES

- To acquaint the candidate with the pathology, conditions, diseases and parasitology that may be harmful to the consumer.
- Enabling the candidate to identify the above and to deal with it in the correct manner

Study aim

At the end of this theme you must be able to:

1. POULTRY MEAT DISEASES

- Discuss the most important diseases caused by viruses, bacteria, protozoa, fungi, parasites and metabolic conditions (as indicated in your manual) with regards to the following:
 - Cause
 - Post mortem findings
 - Judgement

PART 2 – MEAT EXAMINATION

MODULE 6
MEAT EXAMINATION

OBJECTIVE

To acquaint candidates with primary meat examination procedures and other functions.

Study aim

At the end of this theme you must be able to:

1. POULTRY MEAT EXAMINATION

- Discuss general regulatory requirements for poultry meat examination
- Discuss characteristics of the normal poultry carcass
- Discuss the purpose and function of the first inspection point
- Name the conditions/ diseases that can be encountered at the first carcass inspection point
- Discuss the inspection procedures at the first inspection point
- Discuss the purpose and function of the second inspection point
- Name the diseases/ conditions that can be encountered at the second inspection point
- Discuss the inspection procedures at the second inspection point
- Discuss the purpose and function of the final inspection point
- Name the diseases/ conditions that can be encountered at the final inspection point
- Discuss the inspection procedures at the final inspection point