RQF LEVEL 3

FOPMP303

FOOD PROCESSING

Fresh Meat Production

TRAINER'S MANUAL

October, 2024

FRESH MEAT PRODUCTION

KOICA Korea International Cooperation Agency

TQUM TVET Quality Management Project

2024

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TABLE OF CONTENT

ACRONYMS

%: Percent

^{O}C: Degree Celsius

^{O}F: Degree Fahrenheit

B1: Beef grade 1

CGS: Carbon dioxide gas stunning

CH1: Chicken grade 1

CO_2: Carbon Dioxide

EG: Exempli Gratia (For Example)

FIG: Figure

FOPMP: Food Processing and Meat Production

HRS: Hours

IC: Indicative Content

MDM: Mechanically deboned chicken meat

P1: Pork grade 1

RQF: Rwanda Qualifications Framework

RTB: Rwanda TVET Board

SN: Serial Number

TQUM Project: TVET Quality Management Project

TVET: Technical and Vocational Education and Training

INTRODUCTION

This trainer's manual includes all the methodologies required to effectively deliver the module titled **"Fresh Meat Production."** Trainees enrolled in this module will engage in practical activities designed to develop and enhance their competencies.

The development of this training manual followed the Competency-Based Training and Assessment (CBT/A) approach, offering ample practical opportunities that mirror real-life situations.

The trainer's manual is organized into Learning Outcomes, which is broken down into indicative content that includes both theoretical and practical activities. It provides detailed information on the key competencies required for each learning outcome, along with the objectives to be achieved.

As a trainer, you will begin by asking questions related to the activities to encourage critical thinking and guide trainees toward real-world applications in the labor market. The manual also outlines essential information such as learning hours, didactic materials, and suggested methodologies.

This manual outlines the procedures and methodologies for guiding trainees through various activities as detailed in their respective trainee manuals. The activities included in this training manual are designed to offer students opportunities for both individual and group work. Upon completing all activities, you will assist trainees in conducting a formative assessment known as the end learning outcome assessment. Ensure that students review the key reading and the points to remember section.

MODULE CODE AND TITLE: FOPPM303 FRESH MEAT PRODUCTION

Learning Outcome 1: Prepare workplace
Learning Outcome 2: Slaughter the animal
Learning Outcome 3: Butcher the meat
Learning Outcome 4: Store the fresh meat

Indicative contents
1.1 Selection of tools, material and equipment
1.2 Cleaning of the workplace
1.3 Handling the animal

Key Competencies for Learning Outcome 1: Prepare Workplace

Knowledge	Skills	Attitudes
• Description of tools and equipment for workplace of fresh meat production • Identification of criteria to consider in selection of tools and equipment used in fresh meat production workplace • Explanation of the procedure for cleaning tools and equipment used in workplace of fresh meat production • Description of ante-mortem inspection of different animal species	• Selecting materials tools and equipment • Adjusting tools and equipment • Preparing cleaning products used in fresh meat production • Cleaning workplace tools and equipment of fresh meat production • Checking cleanliness of workplace of fresh meat production • Arranging the workplace of fresh meat production • Performing ante-mortem inspection	• Being attentive while selecting tools and equipment • Being careful while adjusting tools and equipment • Being accurate while preparing cleaning products • Being careful while cleaning workplace tools and equipment • Being accurate checking cleanliness of workplace • Being well organized while arranging the workplace • Being careful while performing ante-mortem inspection

Duration: 10 hrs

Learning outcome 1 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Describe correctly tools and equipment according to their intended uses
2. Select correctly tools, materials and equipment according to their intended uses
3. Adjust correctly tools and equipment basing on their functionality
4. Clean appropriately the slaughterhouse basing on cleaning procedure
5. Check effectively cleanliness of workplace in accordance with the methods of cleanliness checking
6. Perform effectively ante-mortem inspection according to lairage conditions

Resources

Equipment	Tools	Materials
• Water sprayer machine • PPE • Skinning cradle • Rails • Square brackets • Beam of suspension • Shackle elevator • Scalding vat	• Mops • Brushes • Squeegees • Sweepers • Towels • Buckets • Dust bin • Knives • Blood bins • Offal bins • S-Hooks • Splitting saw • Tables of inspection • Captive pistol • Electric stunner	• Water • Detergent • Sanitizer • Disinfectant • Gloves

Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail both classroom and workshop.
- Avail materials and verify if they are not expired where applicable
- Avail tools and equipment and make sure that they are in good working condition.
- Prepare teaching aids and didactic materials (manuals/guides, task sheets, photos, audio-visuals, protocols, …)

Indicative content 1.1: Selection of Tools and Equipment

Duration: 3 hrs

Theoretical Activity 1.1.1: Identification of tools and equipment

Notes to the trainer:

- Trainer may use small groups to identify tools and equipment used in slaughterhouse/butchery
- The use of drawings, pictures or videos as didactic materials while identifying tools and equipment used in the slaughterhouse/butchery is required

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following question:

i. What should be the tools and equipment used for cleaning workplace, animal slaughtering, meat butchering and storing carcasses

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.

Step 3: Asks trainees to present the provided answers.

Step 4: Provide the expert view and clarify ideas by using didactic materials.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 1.1.1 in trainee manual

Points to Remember

- The common tools and equipment used at the slaughterhouse and butchery are: mop, brushes, squeegees, buckets, sweepers, high-pressure washers, knives, blood bins, offal bins, s-hooks and splitting saw table, carcass hanging rails, captive pistol de-feathering machine, skinning cradle, boning knives, bone saw, shears study table, cutting board, aprons, electrical band saw Hooks, racks, meat thermometers, meat crates refrigeration unit, meat racks and freezer.

Practical Activity 1.1.2: Selecting tools and equipment used in slaughterhouse and butchery

Notes to the trainer

- The trainer may avail tools and equipment used in slaughterhouse and butchery
- Use pictures, photos or videos as didactic materials

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go to the slaughterhouse and/or the butchery and select tools and equipment to be used in fresh meat production.
Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)
Step 3: Demonstrate how to select tools and equipment for production of fresh meat. While demonstrating, explain the selection criteria of tools and equipment used to produce fresh meat.
Step 4: Ask trainees to select tools and equipment for production of fresh meat and monitor the procedures.
Step 5: Verify whether tools and equipment are well selected and provide feedback where necessary.
Step 6: Ask trainees to read key reading 1.1.2 in trainee manual
Step 7: Ask trainees to perform the task provided in application of learning 1.1

Points to Remember

- Follow these crucial steps when selecting tools and equipment used for fresh meat production: Consider the specific needs of the workplace and review the selection criteria for tools and equipment.

Practical Activity 1.1.3: Adjusting and checking functionality of tools and equipment

Notes to the trainer

- The trainer may avail tools and equipment used in the slaughterhouse and or butchery
- Use pictures, photos or videos as didactic materials

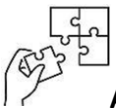
Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the slaughterhouse and butchery, and adjust tools and equipment used in fresh meat production.
Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)
Step 3: Demonstrate how to adjust tools and equipment for production of fresh meat. While demonstrating, explain the procedure of adjusting tools and equipment for fresh meat production.
Step 4: Ask trainees to adjust tools and equipment for production of fresh meat and monitor the procedures.
Step 5: Verify whether tools and equipment are well adjusted and provide feedback where necessary.
Step 6: Ask trainees to read key reading 1.1.3 in trainee manual
Step 7: Ask trainees to perform the task provided in application of learning 1.1

Points to Remember

- When adjusting tools and equipment used in the slaughterhouse and butchery, consider the review of the manufacturer's instructions.



Application of learning 1.1.

Ask trainees to visit your school's workshop for fresh meat production, and select tools, mat erials and equipment for cleaning workplace and make proper adjustment for tools and equi pment.

Checklist

SN	Criteria	Indicators	Yes	No
1	Tools and equipment are well selected	1.1 Tools and equipment for workplace cleaning are selected		
		1.2 Tools and equipment for animal slaughtering are selected		
		1.3 Tools and equipment for animal butchering are selected		
2	Tools and equipment are well adjusted	2.1 The manufacturer's instructions are reviewed		
		2.2 The tools and equipment are adjusted		
		2.3 The adjustments are recoded		

Indicative content 1.2: Cleaning of the Workplace for Fresh Meat Production

Duration: 4 hrs

Theoretical Activity 1.2.1: Description of workplace cleaning for fresh meat

Notes to the trainer:

- Trainer may use small groups to describe Slaughterhouse and butchery cleaning for fresh meat production
- The use of drawings, pictures or videos as didactic materials is required

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following questions:

i. What are the cleaning products used for cleaning the slaughterhouse and butchery do you know?
ii. Why is it important to clean the workplace of fresh meat production?
iii. What should be the cleaning methods for tools, equipment, and the slaughterhouse or butchery?
iv. How can you check the cleanliness of the workplace of fresh meat production?

Step 2: Ask trainees to write the findings on papers, flip chart, blackboard or white board.
Step 3: Asks trainees to present the provided answers
Step 4: Provide the expert view and clarify ideas by using didactic materials.
Step 5: Address any questions or concerns.
Step 6: Ask trainees to read the key reading 1.2.1 in trainee manual

Points to Remember

- The essential purpose for cleaning the slaughterhouse and butchery is to create a safe and healthy working environment for employees and to comply with food safety regulations.
- Sweeping, brushing, and vacuuming are the methods of dry cleaning.
- The wet cleaning methods involve washing and sanitizing.
- The common methods of checking cleanliness of the workplace are: Visual inspection and SWAB testing.

Practical Activity 1.1.2: Cleaning the workplace for fresh meat production

Notes to the trainer

- The trainer may demonstrate how to clean the slaughterhouse and butchering
- Use Photos and videos as didactic materials
- Avail tools and equipment to be used in cleaning the slaughterhouse and butchery

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the food processing workshop and clean the workplace for fresh meat production.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to clean the workplace for fresh meat production. While demonstrating, explain the criteria of cleaning the workplace for fresh meat production.

Step 4: Ask trainees to clean the workplace for fresh meat production and monitor the procedures.

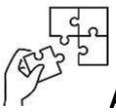
Step 5: Verify whether the workplace for fresh meat production is properly cleaned and provide feedback where necessary.

Step 6: Ask trainees to read key reading 1.2.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 1.2

Points to Remember

- When cleaning tools, equipment, slaughterhouse and butchery, follow these steps: dry cleaning, washing, rinsing, sanitizing, and inspection.



Application of learning 1.2.

Ask trainees to identify and visit the slaughterhouse or butchery nearby your school location, observe and participate in cleaning the workplace, tools, and equipment and provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The slaughterhouse or Butchery is well identified	1.1 The name of the slaughterhouse/butchery is identified		
		1.2 Location of the slaughterhouse/butchery is mentioned		
		1.3 The main activities of the slaughterhouse/butchery are identified		
2	Workplace is well cleaned	2.1 Tools are cleaned		
		2.2 Equipment are cleaned		
		2.3 Workplace is cleaned		
		2.4 Visit report is provided		

Indicative content 1.3: Handling the Animal

Duration: 3hrs

Theoretical Activity 1.3.1: Description of ante-mortem inspection

Notes to the trainer:

- Trainer may use small groups to describe ante-mortem inspection in fresh meat production.
- The use of drawings, pictures or videos as didactic materials is required.

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following questions:

i. What do you know about animal ante-mortem inspection?
ii. What should be the objectives of the animal ante-mortem inspection?
iii. What should be considered when doing the animal ante-mortem inspection?
iv. Can you guess some animal abnormalities checked during ante-mortem inspections?

Step 2: Ask trainees to write the findings on papers, flip chart, blackboard or white board.
Step 3: Asks trainees to present the provided answers
Step 4: Provide the expert view and clarify ideas by using didactic materials.
Step 5: Address any questions or concerns.
Step 6: Ask trainees to read the key reading 1.3.1 in trainee manual

Points to Remember

- The most key Purposes of ante-mortem inspection are: To detect animals exhibiting symptoms of scheduled infectious diseases that can be transmitted to humans, to ensure that injured animals or those in pain receive emergency slaughter and to enhance the efficiency, accuracy, and ease of post-mortem examination
- The crucial abnormalities to be checked during ante-mortem inspection are: coughin g, unusual movements, detect lameness, abnormal stance, muscle symmetry, unusu al discharges, cyanosis and unusual odour from the animal.

Theoretical Activity 1.3.2: Description of animal lairaging

Notes to the trainer:

- The trainer may use small groups to describe animal lairaging in fresh meat production.
- The use of drawings, pictures or video as didactic materials is required.

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following questions:

i. What should be the meaning of the term" animal lairage"?
ii. What should be the purposes of lairaging the animal?
iii. Can you tell the things to be considered during lairage of the animals?

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.
Step 3: Asks trainees to present the provided answers.
Step 4: Provide the expert view and clarify ideas by using didactic materials.
Step 5: Address any questions or concerns.
Step 6: Ask trainees to read the key reading 1.3.2 in trainee manual

Points to Remember

- The holding area or facility where animals are kept before being slaughtered or trans ported is known as **Animal lairage**
- The purpose of lairaging the animal is to monitor and maintain the general animal health status before slaughtering.

Practical Activity 1.3.3: Performing animal ante-mortem inspection

Notes to the trainer

- The trainer may demonstrate how to perform animal ante-mortem inspection in fresh meat production.
- The use of photos and videos as didactic materials is required.
- Avail tools and equipment to be used for ante-mortem inspection in fresh meat production.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go to the slaughterhouse and perform animal ante-mortem inspection in fresh meat production.
Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)
Step 3: Demonstrate how to perform animal ante mortem inspection in fresh meat production. While demonstrating, explain the criteria of performing animal ante-mortem inspection in fresh meat production.
Step 4: Ask trainees to perform animal ante-mortem inspection in fresh meat production and monitor the procedures.
Step 5: Verify whether animal ante-mortem inspection is well performed and provide feedback where necessary.
Step 6: Ask trainees to read key reading 1.3.3 in trainee manual
Step 7: Ask trainees to perform the task provided in application of learning 1.3

Points to Remember

- When conducting ante-mortem inspection go through the following steps: gather necessary information, restrain the animal, observe the animal at rest and in motion, perform a physical examination, take temperature, review medical records, make a decision on slaughtering and Record findings.

Practical Activity 1.3.4: Performing animal lairaging

Notes to the trainer

- The trainer may demonstrate how to perform animal lairage in fresh meat production
- Use photos and videos as didactic materials.
- Avail tools and equipment to be used in performing animal lairage in fresh meat production.

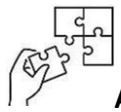
Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the food processing workshop and perform animal lairage for fresh meat production.
Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)
Step 3: Demonstrate how to perform animal lairage in fresh meat production. While demonstrating, explain the criteria of performing animal lairage in fresh meat production.
Step 4: Ask trainees to perform animal lairage in fresh meat production, and monitor the procedures.
Step 5: Verify whether animal lairage is well performed and provide feedback where necessary.
Step 6: Ask trainees to read key reading 1.3.4 in trainee manual
Step 7: Ask trainees to perform the task provided in application of learning 1.3

Points to Remember

- Follow these procedures for preparing lairage facility: Ensure that the lairage facility is clean, dry, and well-ventilated, provide adequate space and bedding for the animals to rest and lie down, ensure that there is access to clean water and feed, and check that the temperature in the lairage facility is within the recommended range.



Application of learning 1.3.

Ask trainees to identify and visit the slaughterhouse and/or butchery nearby your school location, observe and participate in conducting an ante-mortem inspection of ruminant animals, pigs, and poultry for fresh meat production and provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The slaughterhouse or Butchery is well identified	1.1 The name of the slaughterhouse/butchery is identified		
		1.2 Location of the slaughterhouse/butchery is mentioned		
		1.3 The main activities of the slaughterhouse/butchery are identified		
2	The learners participate in the activities of the slaughterhouse	2.1 The ante-mortem inspection is conducted		
		2.2 The lairage facility is prepared		
		2.3 Receiving and resting the animals is performed		
		2.4 Visit report is provided		

Learning outcome 1 end assessment

Written assessment

1.The following items are tools and equipment of workplace preparation EXCEPT:

a. Floor scrubbers

b. Squeegees

c. Sweepers

d. Splitting saw

2. Among the following tools and equipment which one is NOT included in tools and equipment for animal slaughtering

a. S-hooks

b. Blood bins

c. Trolley

d. Captive pistol

3. The following tools and equipment are for meat butchering EXCEPT:

a. Honing rods

b. Meat racks

c. Bone saw

d. Scale

4. Among the following criteria which one is NOT a Criteria for selecting tools or equipment used for animal slaughtering.

a. Functionality

b. Efficiency

c. Durability

d. Compliance

5. The following items are methods of dry cleaning EXCEPT:

a. Sweeping

b. Washing

c. Brushing

d. Vacuuming

6. Answer by (T) if the statement is TRUE and (F) if the statement is FALSE.

a. A captive pistol is an electric device used to stun animals before they are slaughtered.

b. The singeing machine is used to remove any remaining feathers or hairs by burning them on the skin.

c. Hooks and racks are used to hang the carcass in the refrigeration unit.

7. The cleaning products used at workplace of fresh meat production, are classified into acids, Alkaline and neutral types. The following table contains cleaning product types and their functions.

Match the column A with column B by filling the column A&B

A&B	**A**	**B**
1…….	1. Acids	A. Are used for breakdown the emulsifying organic material such as grease, oil and protein
2…….	2. Alkaline	B. Are used for dissolving inorganic material such as rust and mineral deposits.
		C. Are used to clean all-purpose surfaces in meat processing facilities, such as floors, walls, and countertops

8. The terms such as Ante-mortem inspection, Animal lairaging, watering, resting and monitoring are commonly used in animal handling for slaughtering. Fill in the gap the appropriate term.

a. ……is a holding area or facility where animals are kept before being slaughtered or transported.

b. …… refers to examination of live animals before slaughter to identify any signs of illness, injury, or disease that could render the meat unfit for human consumption.

c. The activity carried out during lairage by giving the animals time to rest and recover from the journey to the slaughterhouse is …….

Answers

1.The following items are tools and equipment of workplace preparation EXCEPT:

a. Floor scrubbers

b. Squeegees

c. Sweepers

d. Splitting saw

2. Among the following tools and equipment which one is NOT included in tools and equipment for animal slaughtering

a. S-hooks

b. Blood bins

c. Trolley

d. Captive pistol

3. The following tools and equipment are for meat butchering EXCEPT:

a. Honing rods

b. Meat racks

c. Bone saw

d. Scale

4. Among the following criteria which one is NOT a criterion for selecting tools or equipment used for animal slaughtering.

a. Functionality

b. Efficiency

c. Durability

d. Compliance

5. The following items are methods of dry cleaning EXCEPT:

a. Sweeping

b. Washing

c. Brushing

d. Vacuuming

6. Answer by (T) if the statement is TRUE and (F) if the statement is FALSE.

a. A captive pistol is an electric device used to stun animals before they are slaughtered. **T**

b. The singeing machine is used to remove any remaining feathers or hairs by burning them on the skin. **T**

c. Hooks and racks are used to hang the carcass in the refrigeration unit. **T**

7. The cleaning products used at workplace of fresh meat production, are classified into Acids, Alkaline and Neutral types. The following table contains cleaning product types and their functions.

Match the column A with column B by filling the column A&B

A&B	Column A	Column B
1…**B**…….	1. Acids	A. Are used for breakdown the emulsifying organic material such as grease, oil and protein
2……**A**…….	2. Alkaline	B. Are used for dissolving inorganic material such as rust and mineral deposits.
		C. Are used to clean all-purpose surfaces in meat processing facilities, such as floors, walls, and countertops

8. The terms such as Ante-mortem inspection, Animal lairage, watering, resting and monitoring are commonly used in animal handling for slaughtering. Fill in the gap the appropriate term.

a. Animal lairage is a holding area or facility where animals are kept before being slaughtered or transported.

b. Ante-mortem inspection refers to examination of live animals before slaughter to identify any signs of illness, injury, or disease that could render the meat unfit for human consumption.

c. The activity carried out during lairage by giving the animals time to rest and recover from the journey to the slaughterhouse is resting.

Practical assessment

Mobili Farmers is a company located in Gatsibo District. It practices agricultural activities such as livestock farming of ruminants, pigs, and poultry. It also produces fresh meat for Moon Land Hotel. After the internal evaluation, the company realises that they have issues regarding workplace preparation such as low cleanliness, inefficient use of tools and equipment and inadequate animal inspection which lead to the low-quality meat production. The company hires your learner as slaughter and butcher specialist to resolve the above problem.

Tasks: Within 3 hours, request learners to perform the following tasks:

- ✓ Select tools and equipment used for animal slaughtering, meat butchering, carcass and fresh meat storage.
- ✓ Adjust the functionality of tools and equipment
- ✓ Clean workplace, tools and equipment
- ✓ Perform ante-mortem inspection to the lairage of animals

Resources:

Equipment	Tools	Materials
• Water sprayer machine • PPE • Skinning cradle • Rails • Square brackets • Beam of suspension • Shackle elevator • Scalding vat	• Mops • Brushes • Squeegees • Sweepers • Towels • Buckets • Dust bin • Knives • Blood bins • Offal bins • S-Hooks • Splitting saw • Tables of inspection • Captive pistol • Electric stunner	• Water • Detergent • Sanitizer • Disinfectant • Gloves

Checklist for Practical Assessment

SN	Criteria	Indicators	Yes	No
1.	Tools and equipment for workplace preparation are properly selected	1.1. Tools and equipment for cleaning workplace are selected		
		1.2. Tools and equipment for cleaning animal slaughtering are selected		
		1.3. Tools and equipment for meat butchering are selected		
		1.4. Tools and equipment for carcass storage are selected		
		1.5. Tools and equipment for fresh meat storage are selected		
2.	Tools and equipment are correctly adjusted	2.1 Tools are adjusted		
		2.2 Equipment are adjusted		
3.	Cleaning workplace for fresh meat production are properly done	3.1. Cleaning products are used		
		3.2. Methods for cleaning workplace are applied		
		3.3. Methods for cleaning tools and equipment are applied		

4.	Workplace cleanliness is effectively checked	4.1. Visual inspection is done		
		4.2. Swab test is done		
		4.3. Cleanliness of workplace is achieved		
5.	Workplace for fresh meat production is properly set	5.1. Unit of operations for slaughterhouse are set		
		5.2. Unit of operations for butcher house are set		
6.	Handling of the animal is thoroughly conducted	6.1. Ante-mortem inspection is conducted		
		6.2. Conditions for ante-mortem are respected		
		6.3 The time for the task is respected		

END

Further information to the trainer

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Indicative contents
2.1 Restraining the animal
2.2 Stunning the animal
2.3 Bleeding the animal
2.4 Skinning/dehairing/defeathering the animal
2.5 Eviscerating the animal
2.6 Splitting of carcass

Key Competencies for Learning Outcome 2: Slaughter the Animal

Knowledge	Skills	Attitudes
• Description of restraining devices • Explanation of restraining techniques • Explanation of different stunning methods and their usage • Explanation of different bleeding methods and their usage • Explanation of different skinning methods and their usage • Explanation of evisceration procedures used in animal slaughtering • Explanation of splitting technique of carcass	• Performing animal restraining • Performing stunning activity • Performing bleeding activity • Performing skinning activity • Performing evisceration activity • Performing splitting activity (halving and quartering)	• Being careful while restraining the animal • Being accurate while performing stunning • Being careful while performing bleeding • Being attentive while performing skinning • Being careful performing evisceration • Being accurate while performing splitting

Duration: 30 hrs

Learning outcome 2 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Restrain correctly the animal according to the restraining techniques
2. Stun properly the animal according to the stunning techniques
3. Bleed properly the animal according to the bleeding techniques
4. Skin correctly the animal according to the skinning techniques
5. Dehair properly the animal according to the dehairing techniques
6. Defeather appropriately the animal according to the defeathering techniques
7. Eviscerate correctly the animal according to the evisceration procedures
8. Split effectively the carcass according to the splitting techniques

Resources

Equipment	Tools	Materials
● Stunning box ● Hoist ● Hanging platform ● Bleeding shackles ● Skin remover ● Viscera removes platform ● viscera chute ● Washing machine ● Scalding tank ● Dehairing machine ● Hair singeing ● Splitting saw machine	● Electronic scale ● Hooks ● Trimming knives ● Skinning knives ● Deboning knives ● Buckets ● Crates ● Trolley ● Cutting board ● Sharpener ● Mechanical balance ● Thermometer ● pH meter	● Cattle ● Pig ● Sheep ● Goat ● Poultry ● Packaging machine ● Potable water ● Glover ● Picture/ illustrations ● Paper

Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail both classroom and workshop.
- Avail materials, tools and equipment used in slaughtering and make sure that they are in good working condition and verify if materials are not expired
- Avail different animal species such as: Cattle, Sheep, Goat, Poultry and Pig.
- Prepare teaching aids and didactic materials (manuals/guides, task sheets, photos, audio-visuals, protocols, …)

Indicative content 2.1: Restraining the Animal

Duration: 4 hrs

Theoretical Activity 2.1.1: Identification of major groups of restraining

Notes to the trainer:

- Trainer may use small groups to identify major groups of restraining.
- The use of drawings, pictures or videos as didactic materials is required.

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following questions:

i. What do you think should be the purpose of restraining the animal during slaughtering?
ii. What do you understand by psychological restraining technique?
iii. Can you guess the meaning of physical and chemical restraining techniques?

Step 2: Ask trainees to write the findings on papers, flip chart, blackboard or white board.
Step 3: Asks trainees to present the provided answers
Step 4: Provide the expert view and clarify ideas by using didactic materials.
Step 5: Address any questions or concerns.
Step 6: Ask trainees to read the key reading 2.1.1 in trainee manual

Points to Remember

- The most crucial purpose of restraining the animal for slaughtering is to ensure a humane slaughter, protect the workers and produce high-quality meat.
- The three major groups of restraining techniques are psychological, physical and chemical restraining.
- The restraining techniques during slaughtering differ depending to the animal species such as:

✓ Head-holding chute, crush, stanchion, and nose tongs for cattle
✓ Pig catcher, slip noose and headgate for pig

- ✓ Wing-over-wing and chicken cone for poultry

Practical Activity 2.1.2: Performing animal restraining

Notes to the trainer

- The trainer may avail tools and equipment used in the slaughterhouse
- Avail cattle, sheep/goat, pig and poultry species
- Use pictures, photos or videos as didactic materials

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the slaughterhouse and perform restraining of cattle, pig, sheep/goat and poultry head restraint, body restraint and limb restraint for fresh meat production.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform restraining of cattle, pig, sheep/goat and poultry head restraint, body restraint and limb restraint for fresh meat production.

Step 4: Ask trainees to perform restraining of cattle, pig sheep/goat and poultry head restraint, body restraint and limb restraint for fresh meat production and monitor the procedures.

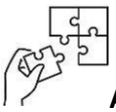
Step 5: Verify whether the animal restraining techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 2.1.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 2.1

Points to Remember

- When restraining the ruminant for slaughtering make sure the animal is lead into the restraining area and secure it in place.
- Poultry restraining for slaughtering involves pick up the neck in the restraining device and secure it bird in place.



Application of learning 2.1.

Ask trainees to identify and visit the slaughterhouse nearby your school location, observe and participate in performing restraining of cattle, pig, sheep/goat and poultry and provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The slaughterhouse or Butchery is well identified	1.1 The name of the slaughterhouse is identified		
		1.2 Location of the slaughterhouse is mentioned		
		1.3 The main activities of the slaughterhouse are identified		
2	Restraining of animal species is well performed	2.1 Cattle, and sheep/goat are restrained		
		2.2 Pigs are restrained		
		2.3 Poultry are restrained		
		2.4 Visit report is provided		

Indicative content 2.2: Stunning the Animal

Duration: 4 hrs

Practical Activity 2.2.1: Performing the stunning of the animal

Notes to the trainer

- The trainer may avail tools and equipment used in the slaughterhouse
- Avail different animal species such as: cattle, sheep/goat, pig and poultry
- Use pictures, photos or videos as didactic materials

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the slaughterhouse and perform stunning of cattle, pig, sheep/goat and poultry by using: captive bolt stunner, electrical stunner and CGS stunner

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform stunning of cattle, pig sheep/goat and poultry for fresh meat production.

Step 4: Ask trainees to perform stunning of cattle, pig sheep/goat and poultry for fresh meat production and monitor the procedures.

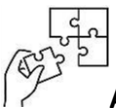
Step 5: Verify whether the animal stunning techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 2.2.1 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 2.2

Points to Remember

- Stunning the animal before slaughtering help to reduce pain and suffering, improve worker safety, and improve the quality of meat.
- Mechanical, electrical and chemical stunning are the three (3) techniques of stunning.
- When performing mechanical stunning, follow these steps: (1) Restrain the animal in a chute or other suitable restraint device, (2) Position the captive bolt pistol (3) Fire the captive bolt pistol, and (4) Check to make sure that the animal is unconscious.
- When performing electrical stunning, follow these steps: (1) Restrain the animal in a chute (2) Place the electrodes on the animal's head, neck, or body in the correct positions, (3) Apply a current of electricity, and (4) Check to make sure that the animal is unconscious.
- When performing CO2 stunning, follow these steps: (1) Place the animal in a chamber that has been filled with a mixture of CO2 gas and air (2) Expose the animal to the CO2 gas, and (3) Check to make sure that the animal is unconscious



Application of learning 2.2.

Ask trainees to identify and visit any slaughterhouse nearby your school, observe, participate in performing stunning of ruminant animals, pigs, and poultry and provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The slaughterhouse is well identified	1.1 The name of the slaughterhouse is identified		
		1.2 Location of the slaughterhouse is mentioned		
		1.3 The main activities of the slaughterhouse are identified		
2	The stunning techniques are well performed	2.1 Mechanical stunning is performed		
		2.2 Electrical stunning is performed restraint device		
		2.3 CO2 stunning is performed		
		2.4 Visit report is provided		

Indicative content 2.3: Bleeding the Animal

Duration: 4 hrs

Practical Activity 2.3.1: Performing animal bleeding

Notes to the trainer

- The trainer may avail tools and equipment used in bleeding techniques
- Avail animal species such as: cattle, sheep/goat, pig and poultry
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the slaughterhouse and perform bleeding for cattle, pig, sheep/goat and poultry by using: Vertical and horizontal bleeding methods.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform bleeding of cattle, pig sheep/goat and poultry for fresh meat production.

Step 4: Ask trainees to perform bleeding of cattle, pig sheep/goat and poultry for fresh meat production and monitor the procedures.

Step 5: Verify whether the animal bleeding methods are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 2.3.1 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 2.3.

Points to Remember

- The common purpose of bleeding is to kill the animal with minimal damage to the carcass and remove the most part of blood from the carcass, for a better presentation and preservation of the carcass.
- Vertical and horizontal bleeding are the bleeding methods.
- Animal bleeding involves restraining the animal, incise it in the neck, severing the jugular vein and carotid artery, and bleeding out for several minutes.
- The techniques of bleeding are transverse incision of neck, and Lateral stab incision of the neck.

Application of learning 2.3.

Ask trainees to identify and visit any slaughterhouse nearby your school, observe, participate in performing bleeding of cattle, sheep/goat, pigs, and poultry and provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The slaughterhouse is well identified	1.1 The name of the slaughterhouse is identified		
		1.2 Location of the slaughterhouse is mentioned		
		1.3 The main activities of the slaughterhouse are identified		
2	Bleeding techniques are well performed	2.1 Cattle Bleeding is performed		
		2.2 Sheep/goat bleeding is performed		
		2.3 Pig bleeding is performed		
		2.4 Poultry bleeding is performed		
		2.5 Visit report is provided		

Indicative content 2.4: Skinning, Dehairing and Defeathering the Animal

Duration: 8hrs

Theoretical Activity 2.4.1: Explanation of skinning, dehairing, defeathering techniques

Notes to the trainer:

- Trainer may use small groups to explain skinning, dehairing and defeathering techniques.
- The use of drawings, pictures or videos as didactic materials is required.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following questions:

i. What should be the purpose of skinning, dehairing and defeathering?

ii. What do you mean by manual and mechanical skinning?

iii. Can you guess the meaning of scalding and singeing as methods of dehairing a pig?

iv. What should be the methods of poultry defeathering?

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.

Step 3: Asks trainees to present the provided answers.

Step 4: Provide the expert view and clarify ideas by using didactic materials.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 2.4.1 in trainee manual

Points to Remember

- The two main methods for skinning cattle: are manual skinning and mechanical skinning.
- The skinning techniques include Hoist position skinning and Horizontal skinning
- The primary purpose of dehairing a pig is: to prepare the carcass for further processing and consumption.
- The two main methods of dehairing pigs are: scalding and singeing.
- The primary purpose of defeathering poultry is: to improve hygiene, enhance appearance, easier Processing, Versatility in Culinary Applications, and keep the consumer Preference.
- The common methods used for defeathering poultry are: manual defeathering, scalding and plucking, and mechanical defeathering.

Practical Activity 2.4.2: Performing skinning, dehairing and defeathering

Notes to the trainer

- The trainer may avail tools and equipment used in skinning, dehairing and defeathering techniques for fresh meat production.
- Avail animal species such as: cattle, sheep, goat, pig and poultry.
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the slaughterhouse and perform skinning/dehairing/defeathering for cattle, sheep/goat pig and poultry.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform skinning/dehairing/defeathering of cattle, sheep/goat, pig and poultry for fresh meat production.

Step 4: Ask trainees to perform skinning/dehairing/defeathering of cattle, sheep/goat, pig and poultry for fresh meat production and monitor the procedures.

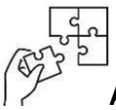
Step 5: Verify whether the animal skinning/dehairing/defeathering techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 2.4.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 2.4

Points to Remember

- When performing Hoist-position skinning, consider these procedures: suspend the animal body on hoist, skin by the back of the unsuspended leg, cut off the foot at the ankle, remove the skin and make a cut around the tail and below the jaw.
- When performing singeing the pig, follow these procedures: rotate the carcass, check for the remaining hairs and extinguish the torc.
- Follow these procedures for manual poultry manual dehairing: Scald the bird in hot water, hold the bird by the legs and dip it in cold water, pluck the feather and singe the bird over a flame.



Application of learning 2.4.

Ask trainees to identify and visit the slaughterhouse nearby your school, observe, participate in performing skinning, dehairing and defeathering of cattle, sheep/goat, pigs, and poultry and provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The slaughterhouse is well identified	1.1 The name of the slaughterhouse is identified		
		1.2 Location of the slaughterhouse is mentioned		
		1.3 The main activities of the slaughterhouse are identified		
2	Skinning, dehairing, and defeathering are well performed	2.1 Cattle, Sheep/goat horizontal skinning is well performed		
		2.2 Pig scalding is well performed		
		2.3 Poultry manual dehairing is well performed		
		2.4 Visit report is written		

Indicative content 2.5: Eviscerating the Animal

Duration: 6 hrs

Practical Activity 2.5.1: Performing animal evisceration

Notes to the trainer

- The trainer may avail tools and equipment used in evisceration techniques for fresh meat production
- Avail the animal species such as: cattle, sheep, goat, pig and poultry
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the slaughterhouse and perform evisceration for cattle, sheep/goat pig and poultry.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform evisceration of cattle, sheep/goat, pig and poultry for fresh meat production.

Step 4: Ask trainees to perform evisceration of cattle, sheep/goat, pig and poultry for fresh meat production and monitor the procedures.

Step 5: Verify whether the animal evisceration techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 2.5.1 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 2.5

Points to Remember

- The most common purpose of animal evisceration is to remove the internal organs of the animal in order to prevent the spread of disease, improve the quality of the meat, and make the carcass easier to transport and store.
- Offal: are any of various non-muscular parts of the carcasses of beef and veal, mutton and lamb, and pork, which are either consumed directly as food or used in the production of other foods.
- When performing evisceration, follow these steps: Kill the animal, usually by stunning or severing the spinal cord, open up the carcass to allow the access to the internal organs, remove and dispose of the internal organs, and clean and wash the carcass.

Application of learning 2.5.

Ask trainees to identify and visit any slaughterhouse nearby your school observe how to perform the evisceration of the cattle, sheep/goat, pigs, and poultry and provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The slaughterhouse is well identified	1.1 The name of the slaughterhouse is identified		
		1.2 Location of the slaughterhouse is mentioned		
		1.3 The main activities of the slaughterhouse are identified		
2	Evisceration of different animal species is well performed	2.1 Cattle, Sheep/goat evisceration is observed		
		2.2 Pig evisceration is observed		
		2.3 Poultry evisceration is observed		
		2.4 Visit report is provided		

Indicative content 2.6: Splitting of Carcass

Duration: 4 hrs

Practical Activity 2.6.1: Performing carcass splitting

Notes to the trainer

- The trainer may avail tools and equipment used in splitting techniques for fresh meat production.
- Avail different animal species such as: cattle, sheep, goat and pig.
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the slaughterhouse and perform carcass splitting on cattle, sheep/goat and pig.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform carcass splitting on cattle and pig

Step 4: Ask trainees to perform carcass splitting on cattle and pig for fresh meat production and monitor the procedures.

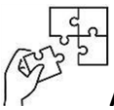
Step 5: Verify whether the carcass splitting techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 2.6.1 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 2.6

Points to Remember

- The common purpose of carcass halving is to allow for different cuts of meat to be processed separately, reduce the risk of spoilage and makes it easier to inspect the meat for defects.
- The importance of quartering of the carcass is to facilitate transport, storage and processing.
- Manual and mechanical splitting are the methods of carcass splitting.
- When performing carcass splitting follow the following steps: Hang the carcass, make a shallow cut, from the base of the neck to the base of the tail, saw the carcass and remove the band saw and rinse the carcass halves.



Application of learning 2.6.

Ask trainees to identify and visit any slaughterhouse nearby your school, observe how to perform cattle, sheep/goat and pig carcass splitting and provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The slaughterhouse is well identified	1.1 The name of the slaughterhouse is identified		
		1.2 Location of the slaughterhouse is mentioned		
		1.3 The main activities of the slaughterhouse are identified		
2	Carcass splitting of different animal species is well performed	2.1 Cattle carcass splitting is observed		
		2.2 Sheep/goat carcass splitting is observed		
		2.3 Pig carcass splitting is observed		
		2.4 Visit report is provided		

Learning outcome 2 end assessment

Written assessment

1. Among the following items which one is NOT a general technique of restraining:
    a. Psychological
    b. Physical
    c. Chemical
    d. Biological
2. The following items are restraining techniques for cattle EXCEPT:
    a. Crush
    b. Headgate
    c. Stanchion
    d. Nose tong
3. Among the following items which one is NOT a stunning technique:
    a. Mechanical
    b. Electrical
    c. Physical
    d. Chemical
4. The following items are the importance of dehairing a pig EXCEPT:
    a. Improved Hygiene
    b. Enhanced appearance
    c. Mechanical skinning
    d. Easier processing
5. Read carefully the following items and choose one which is NOT a procedure for horizontal skinning:
    a. Suspend the animal body on and take the skinning knife in hand
    b. The animal is placed on its back on a flat surface
    c. Cutting and fisting begin at the forelegs
    d. The tendon between the hock and the toes is exposed and loosened
6. Answer by (T) if the statement is TRUE or (F) if the statement is FALSE
    i. Restraining the animal means to ensure stability/immobilization of the animal so that the stunning operation can be carried out accurately and properly.
    ii. A pig catcher is a plastic device that is placed around the animal's neck and tightened to restrain it.
    iii. The action of rendering the animal unconscious before it is slaughtered to eliminate pain, discomfort and stress is called stunning.
    iv. Bleeding is a killing technique which consists in cutting the small blood vessels of animals.

v. Singeing involves using a flame to burn off the hair.

7. The slaughtering process involves several steps such as restraining, stunning, sticking, bleeding, evisceration, dressing, scalding and splitting. The following table contains the steps of slaughtering and their descriptions.

Match the steps of slaughtering from the column A with their respective purposes from the column B, by filling the column A&B with the correct letter.

A&B	Column A	Column B
1…… …….	1. Dressing	A. is done immediately after the animal has been dressed and every effort should be made to saw the carcass into equal sides through the center of the backbone
2……..	2. Scalding	B. it is the ablation of all thoracic and abdominal viscera of an animal (except the kidney).
3……..	3. Evisceration	C. it consists in an immersion or aspersion of the carcasses with water at 62°C.
4……..	4. Splitting	D. it has purpose of removing the skin of the animals
5……..	5. Sticking	E. it is when an animal's neck is cut, using a very sharp knife, to sever the major blood vessels in its neck and chest that supply the brain, ensuring rapid blood loss and therefore death.
		F. It is desirable to render an animal unconscious before it is slaughtered in order to eliminate pain, discomfort and stress from the procedure
		G. is a killing technique which consists in cutting the big blood vessels of animals.

Answer:

1. Among the following items which one is NOT a general technique of restraining:
   a. Psychological
   b. Physical
   c. Chemical
   d. Biological
2. The following items are restraining techniques for cattle EXCEPT**:**
   a. Crush
   b. Headgate

c. Stanchion
d. Nose tong

3. Among the following items which one is NOT a stunning technique:

a. Mechanical
b. Electrical
c. Physical
d. Chemical

4. The following items are the importance of dehairing a pig EXCEPT:

a. Improved Hygiene
b. Enhanced appearance
c. Mechanical skinning
d. Easier processing

5. Read carefully the following items and choose one which is NOT a procedure for horizontal skinning:

a. Suspend the animal body on and take the skinning knife in hand
b. The animal is placed on its back on a flat surface
c. Cutting and fisting begin at the forelegs
d. The tendon between the hock and the toes is exposed and loosened

6. Answer by (T) if the statement is TRUE or (F) if the statement is FALSE

i. Restraining the animal means to ensure stability/immobilization of the animal so that the stunning operation can be carried out accurately and properly. **T**
ii. A pig catcher is a plastic device that is placed around the animal's neck and tightened to restrain it. **F**
iii. The action of rendering the animal unconscious before it is slaughtered to eliminate pain, discomfort and stress is called stunning. **T**
iv. Bleeding is a killing technique which consists in cutting the small blood vessels of animals. **F**
v. Singeing involves using a flame to burn off the hair. T

7. The slaughtering process involves several steps such as restraining, stunning, sticking, bleeding, evisceration, dressing, scalding and splitting. The following table contains the steps of slaughtering and their descriptions.

Match the steps of slaughtering from the column A with their respective purposes from the column B, by filling the column A&B with the correct letter.

A&B	Column A	Column B
1…… **D** …….	1.Dressing	A.is done immediately after the animal has been dressed and every effort should be made to saw the carcass into equal sides through the center of the backbone
2…… **C** ……..	2.Scalding	B.it is the ablation of all thoracic and abdominal viscera of an animal (except the kidney).
3…… **B** ……..	3.Evisceration	C.it consists in an immersion or aspersion of the carcasses with water at 62°C.
4…… **A** ……..	4.Splitting	D.it has purpose of removing the skin of the animals
5…… **E** ……..	5.Sticking	E.it is when an animal's neck is cut, using a very sharp knife, to sever the major blood vessels in its neck and chest that supply the brain, ensuring rapid blood loss and therefore death.
		F.It is desirable to render an animal unconscious before it is slaughtered in order to eliminate pain, discomfort and stress from the procedure
		G.is a killing technique which consists in cutting the big blood vessels of animals.

Practical assessment

MILANO farmers ltd located in Gatsibo district, used to practice agricultural activities such as livestock of ruminants, pigs and poultry farming. It needs to produce fresh meat to be supplied at SUN SET View Hotel. In that regard, MILANO managing director wants to recruit a worker in charge of animal slaughtering.

Ask learner, as certified level 3 food processing skilled worker, to perform the following tasks:

Tasks:

- Restrain the pig, poultry, and goat before being killed
- Stun the pig, poultry and goat before being bled
- Bleed the pig, poultry and goat
- Dehair the pig, defeather poultry and dress goat
- Eviscerate the pig, poultry and goat
- Split the carcass

Instructions:

- The animal to be slaughtered should be one for each animal species
- This task will be done within 5 hours

List of tools, materials and equipment

Tools	**Equipment**	**Materials**
• Eviscerating knife • Sticking knife • Shackling hooks • Cones • Ropes • Captive bolt stunner • Pistol • Electrical stunner, Bleeding knife • Sticking knife • Shackling hooks • skinning knife • Sticking knife • Shackling hooks • Singeing torch • Eviscerating knife • Sticking knife	• Viscera chute • Viscera remove platform • Stunning box • Shackling conveyor line • Small room, stunning box, hoisting machine, skin removal machine • Plucking machine • Scalding tank, shackling hooks • Viscera chute	• Pig • Poultry • Goat • Pig • Poultry • Goat • Drugs Pig • Poultry • Goat, • Carbon dioxide • Hot water

Checklist

No	Assessment criteria	Indicator	Observation	
			Yes	No
1	The pig is properly restrained	Rope is selected and used		
		Small room is selected and used		
		Drugs are selected and used		
2	Poultry is properly restrained	Cone is selected and used		
		Shackling conveyor line is selected and used		
3	Sheep/goat is properly restrained	Rope is selected and used		
		Stunning box is selected and used		
4	The pig is properly stunned	Captive bolt/pistol is selected and used		
		Electrical stunner is selected and used		
		CO_2 is selected and used		
5	Poultry is properly stunned	Electrical stunner is selected		
		Electrical stunner is used		
6	Sheep/goat is properly stunned	Captive bolt/pistol is selected and used		
		Electrical stunner is selected and used		
7	The pig is properly bled	Bleeding tool is selected and used		
		Bleeding method is chosen		
		Bleeding technique is applied		
8	Poultry is properly bled	Bleeding tool is selected		
		Bleeding tool is used		
9		Bleeding method is chosen		
		Bleeding technique is applied		
10	Sheep/goat is properly bled	Bleeding tool is selected and used		
		Bleeding method is chosen		
		Bleeding technique is applied		
11	The pig is properly dehaired	Scalding is performed		
		Plucking is performed		

		Finishing is performed		
12	Poultry is properly defeathered	Scalding is performed		
		Plucking is performed		
		Finishing is performed		
13	Sheep/goat is properly dressed	Section of legs and tail is performed		
		Ablation of the external genital organ is performed		
		Ablation of the head is performed		
		Skin is removed		
14	The goat is properly eviscerated	Eviscerating tool is used		
		The body cavity is opened		
		The rectum is cut and dropped to the pelvic cavity		
		Breastbone along the midline is cut		
		The stomach is pushed out the midline opening		
		The kidneys are still attached to the carcass		
		The content of chest cavity are removed		
		Offal are prepared		
15	Poultry is properly eviscerated	Eviscerating tool is used		
		The head is removed by cutting the neck behind the heat		
		The neck is cut around its base from the body		
		The esophagus, trachea and crop are separated from the neck skin and pulled from the body		
		The body cavity is opened near the vent		
16		All the viscera including the lungs are removed through the opening		
		The bird carcass is washed inside and outside.		
17	pig is properly eviscerated	Skin and body are cut along the midline		
		The bladder and sexual organs are removed through the cut of pelvic bone		

		The abdomen and thoracic viscera are removed intact		
		The carcass is washed		
18	Pork/cattle is properly split	Splitting tool is selected and used		
		Splitting is done through the center of back bone		
		Two equal sides are obtained		
		Beef carcass is cut into quarters		
		Time for the task is respected		

END

Further information to the trainer

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Indicative contents
3.1 Examining the carcass
3.2 Cutting the carcass
3.3 Deboning the carcass
3.4 Trimming the meat
3.5 Grading the meat

Key Competencies for Learning Outcome 3: Butcher the Meat

Knowledge	Skills	Attitudes
• Identification of meat quality parameters • Identification of physical abnormalities or defects in the meat that could affect its safety or quality. • Identification of primal, sub-primal meat cut for beef, Lamb, Pork and chicken carcass. • Identification of cutting methods • Description of deboning procedure for beef, lamb/goat and chicken meat. • Description of meat trimming procedure • Description of grading scheme of beef, pork and chicken meat	• Inspecting meat defects • Cutting the beef, pork, lamb and chicken carcass • Performing meat deboning • Performing meat trimming • Applying meat grading	• Being thoughtful while inspecting meat defects • Being precise while cutting the beef, pork, lamb and chicken carcass • Being careful while performing meat deboning • Being goal-oriented while performing meat trimming • Being analytical while applying meat grading

Duration: 20 hrs

Learning outcome 3 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Explain correctly the purpose of carcass examination according to quality requirements
2. Identify correctly meat quality parameters according to meat specification requirements
3. Distinguish properly meat defects according to meat specification requirements
4. Inspect accurately meat defects according to quality meat requirements
5. Describe correctly carcass cutting according to different animal species
6. Cut properly the carcass according to the to the cutting methods
7. Debone properly carcass of different animal species according to intended use
8. Trim properly carcass of different animal species according to intended use
9. Describe appropriately meat grading scheme according to different animal species

 **Resources**

Equipment	Tools	Materials
• Electrical band saw • Freezer • Vacuum sealer • Splitting saw machine • Brisket saw machine	• Bins or lugs • Boning hook • Boning knife • Breaking knife • Handsaw/bone saw • Honing rod/knife steel	• Beef carcass • Lamb carcass • Goat carcass • Pork carcass • Chicken carcass • Water

• Pressure cleaner • Chilling room • PPEs • Band saw • Meat tenderizer	• Bone dust scraper • Butcher knife Cleaver • Mallet (rubber or wooden) Paring knife • Table • Cutting board	• Marker pen

Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail both classroom and workshop.
- Avail materials and verify if they are not expired where applicable.
- Avail tools and equipment used in slaughtering and make sure that they are in good working condition.
- Avail carcasses of different animal species such as: cattle, sheep, goat, pig and poultry.
- Prepare teaching aids and didactic materials (manuals/guides, task sheets, photos, audio-visuals, protocols, …)

Indicative content 3.1: Examining the Carcass

Duration: 3 hrs

Theoretical Activity 3.1.1: Identification of meat quality parameters and meat defects.

Notes to the trainer:

- Trainer may use small groups to Identify meat quality parameters and meat defects.
- The use of drawings, pictures or videos as didactic materials is required.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following questions:

i. What do you understand by the meat quality examination?
ii. Why is it important to perform meat examination in the meat industry?
iii. What are the physical attributes used to assess meat quality?
iv. Can you guess the different types of meat defects?

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.

Step 3: Asks trainees to present the provided answers.

Step 4: Provide the expert view and clarify ideas by using didactic materials.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 3.1.1 in trainee manual

Points to Remember

- The main purpose of carcass examination is to identify any signs of disease, contamination, or other defects that may render the meat unsafe for human consumption.
- Colour, smell, firmness, juiciness, tenderness, muscle PH, water holding capacity and marbling are the meat quality parameters.

- The types of meat defects are classified into two (2) classes such as: Physical and biological defects.

Practical Activity 3.1.2: Performing meat defects inspection

Notes to the trainer

- The trainer may avail tools and equipment used in performing meat defects inspection
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the butchery and perform meat defects inspection.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform meat defects inspection

Step 4: Ask trainees to perform meat defects inspection for fresh meat production and monitor the procedures.

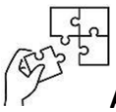
Step 5: Verify whether the meat defects inspection techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 3.1.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 3.1

Points to Remember

- When examining the carcass quality and defects, follow these steps: observe the general appearance of the meat, inspect the surface of the meat, assess the odour of the meat, evaluate the touch of the meat and take decision.



Application of learning 3.1.

Ask trainees to go to their school's workshop for fresh meat production, conduct an inspection of meat quality and defects.

Checklist

SN	Criteria	Indicators	Yes	No
1	Inspection of meat quality and defects is well conducted	1.1 The general appearance of the meat is observed		
		1.2 The surface of the meat for any visible defects is inspected		
		1.3 The internal appearance of the meat is checked		
		1.4 The PH and organoleptic parameters measurements and decision making are performed		

Indicative content 3.2: Cutting the Carcass

Duration: 6 hrs

Theoretical Activity 3.2.1: Identification of carcass cutting types and methods of for different animal species.

Notes to the trainer:

- Trainer may use small groups to Identify carcass cutting types and methods for different animal species.
- The use of drawings, pictures or videos as didactic materials is required.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to answer the following questions:

i. What should be the purpose of carcass cutting?
ii. What do you understand by the primal and sub primal carcass cuts for different animal species?

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.

Step 3: Asks trainees to present the provided answers.

Step 4: Provide the expert view and clarify ideas by using didactic materials.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 3.2.1 in trainee manual

Points to Remember

- Carcass cutting is a key process in meat processing that involves breaking down a whole carcass into smaller, manageable parts for distribution, sale, and consumption.
- The main purpose of carcass cutting is portion control, value optimization, Efficiency,

quality control and customization.

- Primal and sub primal carcass cuts of beef carcass are: (1) primal cuts for fore quarte rs are: chuck, brisket, shank, rib and plate. (2) primal cuts for hind quarters are: loin, flank, and round. (3) Chuck Sub-primal Cuts are: chuck tender, chuck roll, shoulder cl od and square cut chuck. (4) Rib Sub-primal Cuts are: back ribs, short ribs and rib ove n. (5) Loin Sub-primal Cuts are: tenderloin, strip loin and short loin. (6) Round Sub-pri mal Cuts are: eye of round, sirloin tip and top round. (7) Flank Sub-primal Cut are: bri sket flat half, brisket point half, (8) Plate Sub-primal Cut are: hanger steak.
- The three (3) common methods are bone-in meat cutting, muscle boning, and on-the -rail boning.
- The primal carcass cuts of Lamb/goat carcass are: shoulder, rack, loin, breast, shank, and leg.
- The sub primal carcass cuts are: leg cut, loin primal cut, front primal, and flank primal.
- The primal carcass cuts of pork are: shoulder, leg, loin and belly.
- The four main primal cuts of chicken are: breast, thigh, leg, and wing.

Practical Activity 3.2.2: Performing carcass cutting for the different animals

Notes to the trainer

- The trainer may avail tools and equipment used in performing carcass cutting for the different animal
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go to the butchery and perform carcass cutting for the different animal species.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform carcass cutting for the different animal

Step 4: Ask trainees to perform carcass cutting for the different animal for fresh meat production and monitor the procedures.

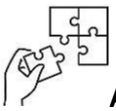
Step 5: Verify whether the carcass cutting techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 3.2.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 3.2

Points to Remember

- Follow when performing the beef, goat/sheep and pig carcass cutting are: split the carcass in half lengthwise, separate the forequarter, subdivide the forequarter and subdivide the hindquarter.
- Follow these procedures to perform Chicken Carcass cutting: remove the oil gland, cut the carcass in half lengthwise along the backbone, remove the backbone, disjoint the wings, legs, and thighs and split the breastplate in half.



Application of learning 3.2.

Ask trainees to visit your school's workshop for fresh meat production and perform carcass cutting of different animal species.

Checklist

SN	Criteria	Indicators	Yes	No
1	Carcass cutting for different animal species is well performed	1.1 The beef carcass is cut into primal and sub-primal cuts		
		1.2 The goat/sheep carcass is cut into primal and sub-primal cuts		
		1.3 The pork carcass is cut into primal and sub-primal cuts		
		1.4 The chicken carcass is cut into primal and sub-primal cuts		

Indicative content 3.3: Deboning the Carcass

Duration: 4 hrs

Practical Activity 3.3.1: Performing meat deboning procedure for different animal species

Notes to the trainer

- The trainer may avail tools and equipment used in performing meat deboning for the different animal species
- Avail meat of different animal species such as: cattle, goat, sheep, pig and poultry.
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go in the butchery and perform meat deboning.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform meat deboning.

Step 4: Ask trainees to perform meat deboning for fresh meat production and monitor the procedures.

Step 5: Verify whether the meat deboning techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 3.3.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 3.3

Points to Remember

- The main purpose of meat deboning is to improve the appearance and presentation of meat, reduce the weight of meat, create specific cuts of meat, such as boneless and improve the safety of meat by reducing the risk of cross-contamination from bones.
- Follow these procedures to perform deboning for beef meat: Remove the head and feet; split the carcass in half lengthwise along the backbone; remove the backbone and ribs; subdivide the forequarter into the chuck and brisket primal cuts; subdivide the hindquarter into the round, flank, loin, and plate primal cuts; debone each primal cut using the appropriate technique.
- Follow these steps to perform deboning for lamb/goat meat: Remove the head and feet; remove the backbone and ribs; subdivide the forequarter into the shoulder and breast primal cuts; subdivide the hindquarter into the leg, loin, and flank primal cuts; debone each primal cut using the appropriate technique.
- Follow these procedures to perform deboning for chicken meat: remove the head, feet, and tail; take a cut down the back of the chicken, remove the backbone and ribs; and cut off the wings and legs at the joints.

Application of learning 3.3.

Ask trainees to identify and visit any butchery nearby your school, observe and participate in performing meat deboning of beef, lamb, goat and chicken meat. provide a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The butchery is well identified	1.1 The name of the slaughterhouse or butchery is identified		
		1.2 Location of the slaughterhouse or butchery is mentioned		
		1.3 The main activities of the slaughterhouse or butchery are identified		
2	The meat deboning of meat from different animal species is performed	2.1 The deboning procedures for beef meat are applied		
		2.2 The deboning procedures for lamb/goat meat are applied		
		2.3 The deboning procedures for chicken meat are applied		
		2.4 Visit report is provided		

Indicative content 3.4: Trimming the Meat

Duration: 4 hrs

Practical Activity 3.4.1: Applying meat trimming procedures

Notes to the trainer

- The trainer may avail tools and equipment used in performing meat trimming
- Avail the meat of beef.
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go to the butchery and apply meat trimming procedures.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform meat trimming.

Step 4: Ask trainees to perform meat trimming for fresh meat production and monitor the procedures.

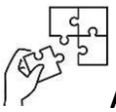
Step5: Verify whether the meat trimming techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 3.4.1 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 3.4

Points to Remember

- Meat trimming: involves removing unwanted parts of the meat, such as fat, gristle, and connective tissue.
- The purpose of meat trimming is: to remove excess fat, eliminate the connective tissue, shaping cuts, improving presentation and prepare further processing.
- Follow these procedures to perform meat trimming: place the meat on the cutting board, Identify the unwanted fat, bone, gristle, or other connective tissue, remove the unwanted tissue, remove any loose pieces of fat or bone, and rinse the meat with cold water and pat it dry with a paper towel.



Application of learning 3.4.

Ask trainees to visit your school's workshop for fresh meat production and conduct meat trimming of beef.

Checklist

SN	Criteria	Indicators	Yes	No
1	The meat trimming is well performed	1.1 The unwanted fat, bone, gristle, or other connective tissue are identified		
		1.2 The unwanted tissue is removed		
		1.3 Any loose pieces of fat or bone are removed		
		1.4 The meat is rinsed with cold water and dried with a paper towel		

Indicative content 3.5: Grading the Meat

Duration: 3 hrs

Theoretical Activity 3.5.1: Identification of meat grading scheme for different animal species

Notes to the trainer:

- Trainer may use small groups to identify meat grading for different animal species.
- The use of drawings, pictures or videos as didactic materials is required.

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following questions:

i. What should be the purpose of meat grading?
ii. Can you guess the factors influencing meat quality?
iii. What do you understand by the meat grading schemes for different animal species?

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.

Step 3: Asks trainees to present the provided answers.

Step 4: Provide the expert view and clarify ideas by using didactic materials.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 3.5.1 in trainee manual.

Points to Remember

- The main purpose of meat grading is to provide consumers with high-quality meat products that meet their expectations in terms of taste, tenderness, and juiciness and ensure that meat is sold at a fair price based on their quality.
- Grading scheme of beef meat: Grade Beef 1(B1), Grade Beef 2(B2) and Grade Beef 3(B3)
- Grading scheme of pork meat: Grade Pork 1 (P1), Grade Pork 2 (P2), and Grade Pork 3 (P3), Grade Pork 4 (P4), Grade Pork 5 (P5), and Grade Pork 6 (P6)
- Grading scheme of chicken meat: Small-scale grading: Grade CH 1, Grade CH2 and Grade CH 3.
- Industrial grading: Grade CH 1, Grade CH2, Grade CH3 and Grade CH4.

Practical Activity 3.5.2: Applying grading of meat for different animal species

Notes to the trainer

- The trainer may avail tools and equipment used in performing meat grading for the different animal species
- Avail the beef meat
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go to the butchery and perform meat grading.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform meat grading.

Step 4: Ask trainees to perform meat grading for fresh meat production and monitor the procedures.

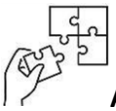
Step5: Verify whether the meat grading techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 3.5.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 3.5

Points to Remember

- Follow these procedures for conducting meat grading: prepare the meat, assess the marbling, evaluate the colour and brightness of the meat, determine the firmness and texture of the meat, consider the overall appearance of the meat and classify the meat into grades.



Application of learning 3.5.

Ask trainees to identify and visit the butchery nearby your school location, observe and participate in performing meat grading of beef. Write a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The butchery is well identified	1.1 The name of the slaughterhouse or butchery is identified		
		1.2 Location of the slaughterhouse or butchery is mentioned		
		1.3 The main activities of the slaughterhouse or butchery are identified		
2	The quality of meat is assessed	2.1 The color and brightness of the meat are evaluated		
		2.2 The firmness and texture of the meat is tested		
		2.3 The overall appearance of the meat is checked		
		2.4 The meat is classified into grades		
		2.5 Visit report is written		

Learning outcome 3 end assessment

Written assessment

1. Answer by True (T) if the given statement is Correct or False (F) if the given statement is incorrect:
   a. Meat quality and defect inspectors must be able to identify and assess common carcass defects, such as bruises, abscesses, and parasites.
   b. Meat quality and defect inspectors must be able to determine the age and maturity of an animal based on its carcass.
   c. Meat quality and defect inspectors must be able to assess the fat cover and marbling of a carcass.
   d. Meat quality and defect inspectors must be able to determine the freshness of meat based on its color, odor, and texture.
   e. Primal cuts are large sections of meat that are separated from the carcass during the initial butchering process.
   f. Sub-primal cuts Involves splitting the carcass into two equal parts along the spine by using a saw or panga.
2. The following items are the purposes of examining animal's carcass EXCEPT:
   a. To ensure that the meat is safe for human consumption.
   b. To assess the quality of the meat.
   c. To determine the freshness of the meat.
   d. To identify the animal species and cut of meat.
3. Choose the CORRECT answer

The following are meat quality parameters
   a. Bright red color
   b. Normal flavor
   c. Juiciness
   d. Tenderness
   e. None of above correct answer
   f. a, b, c and d are correct answer
4. Fill in the gape with the CORRECT answer.
   a. …… comes from the forequarter of a cow.
   b. In the front of the cow, below the chuck, is……
   c. … ……..is the upper part of the cow's legs.
   d. ……..is below the rib cut, in the forequarter of the cow.
   e. On the top of the cow, just behind the rib, is…….
   f. The process of removing bones from meat is ……

g. ……involves removing unwanted parts of the meat, such as fat, gristle, and connective tissue.

5. Among these two (2) sentences below which ones is the meaning of meat grading.

a. Meat grading is a process that involves the assessment of meat quality and characteristics of meat based on various factors such as marbling, texture, color, and fat content.

b. Meat grading is the process of separating raw materials (meat) into categories by basing on size, shape and weight.

6. Table below contains the grading scheme of pork in column A and their respectively description in column B. Match the grading scheme with their corresponding description.

Answer	Column A	Column B
…..	1. GRADE Pork 6 (P6)	A. Lean muscle meat whose all visible fat and connective tissues are removed.
…..	2. GRADE Pork 1(P1)	B. Pig meat whose firm body fat percentage is between 15-25% and visible connective tissues removed.
…..	3. GRADE Pork 5 (P5)	C. Pig meat, 10% of visible and soft fats and some soft connective tissues.
…..	4. GRADE Pork 2 (P2)	D. Pig fat, back fat (firm tissue)
…..	5. GRADE Pork 4(P4)	E. Pig fat, body fats (soft tissue)
…..	6. GRADE Pork 3 (P3)	F. Pig skin, free of hair and fatty tissue.

Answer

1. Answer by True(T) if the given statement is Correct or False(F) if the given statement is incorrect:

a. Meat quality and defect inspectors must be able to identify and assess common carcass defects, such as bruises, abscesses, and parasites. **T**

b. Meat quality and defect inspectors must be able to determine the age and maturity of an animal based on its carcass. **F**

c. Meat quality and defect inspectors must be able to assess the fat cover and marbling of a carcass. **T**

d. Meat quality and defect inspectors must be able to determine the freshness of meat based on its color, odor, and texture. T

e. Primal cuts are large sections of meat that are separated from the carcass during the initial butchering process. **T**

f. Sub-primal cuts Involves splitting the carcass into two equal parts along the spine by using a saw or panga. F

2. The following items are the purposes of examining animal's carcass EXCEPT.

a. To ensure that the meat is safe for human consumption.
b. To assess the quality of the meat.
c. To determine the freshness of the meat.
d. To identify the animal species and cut of meat.

3. Choose the CORRECT answer

The following are meat quality parameters

a. Bright red color
b. Normal flavor
c. Juiciness
d. Tenderness
e. None of above correct answer
f. a, b, c and d are correct answer

4. Fill in the gape with the CORRECT answer.

a. ……**Chuck**…… comes from the forequarter of a cow.
b. In the front of the cow, below the chuck, is…… **Brisket**……
c. …… **Shank**……..is the upper part of the cow's legs.
d. ……**Plate**……..is below the rib cut, in the forequarter of the cow.
e. On the top of the cow, just behind the rib, is……**Loin**……
f. The process of removing bones from meat is ……**Deboning**……
g. ……**Trimming**……..involves removing unwanted parts of the meat, such as fat, gristle, and connective tissue.

5. Among these two (2) sentences below which ones is the meaning of meat grading.

a. Meat grading is a process that involves the assessment of meat quality and characteristics of meat based on various factors such as marbling, texture, color, and fat content.
b. Meat grading is the process of separating raw materials (meat) into categories by basing on size, shape and weight.

6. Table below contains the grading scheme of pork in column A and their respectively description in column B. Match the grading scheme with their corresponding description.

Answer	Column A	Column B
…**F**..	1.GRADE Pork 6 (P6)	A. Lean muscle meat whose all visible fat and connective tissues are removed.
…**A**..	2.GRADE Pork 1(P1)	C. Pig meat whose firm body fat percentage is between 15-25% and visible connective tissues removed.
E..	3.GRADE Pork 5 (P5)	D. Pig meat, 10% of visible and soft fats and some soft connective tissues.
…**B**..	4.GRADE Pork 2 (P2)	E. Pig fat, back fat (firm tissue)

…D..	5.GRADE Pork 4(P4)	F. Pig fat, body fats (soft tissue)
…C..	6.GRADE Pork 3 (P3)	G. Pig skin, free of hair and fatty tissue.

Practical assessment

IRIBWE Co Ltd, a fresh meat producer, recently recruited new labours with sufficient hands-on skills for the various activities involved in carcass/meat butchering. This was done to ensure consistent production of high-quality meat and to meet customer preferences.

As trainees in internship who want to gain sufficient hands-on skills in carcass butchering, you are instructed by the company's Managing Director to work with these labours to help them acquire the necessary skills. Ask learner to perform the following tasks:

Tasks:

- Cut the carcass of any type among beef, Lamb/goat and Pig.
- Debone the meat.
- Trim the meat and
- Grade the meat

Instructions:

- This task will be done within 3 hours

List of tools, materials and equipment

Tools	Equipment	Materials
• Electrical band saw • Freezer • Vacuum sealer	• Bins or lugs • Boning hook • Boning knife • Breaking knife • Handsaw/bone saw • Honing rod/knife steel • Bone dust scraper • Butcher knife Cleaver • Mallet (rubber or wooden) Paring knife • Table • Cutting board	• Beef carcass • Lamb carcass • Goat carcass • Pork carcass • Chicken carcass • Water

Checklist

Criteria	Indicator	Score	
		Yes	No
Carcasses are properly examined	**Ind1**. Carcass biological defects are examined		
	Ind2. Carcass physical defects are examined		
	Ind3. Meat quality are achieved		
Carcass is precisely cut	**Ind.1** Carcass primal cut is done		
	Ind.2 Carcass sub-primal cut is done		
Carcass is effectively deboned	**Ind1.** Beef deboning procedures are respected		
	Ind2. Lamb/Goat deboning procedures are respected		
	Ind3. Chicken deboning procedures are respected		
Meat is properly trimmed	**Ind1.** Meat trimming procedures are respected		
	Ind2. Good quality of trimmed meat is achieved		
	Ind3. The time for the task is respected		
Meat is precisely graded	**Ind1.** Beef grading schemes are achieved		
	Ind2. Pork grading schemes are achieved		
	Ind3. Chicken grading schemes are achieved		
	Ind4. The time for the task is respected		

END

Further information to the trainer

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Indicative contents
4.1. Packaging of fresh meat **4.2. Labelling the packaged meat** **4.3. Monitoring of storage conditions of packaged fresh meat**

Key Competencies for Learning Outcome 4: Store Fresh Meat

Knowledge	Skills	Attitudes
• Identification of types of packaging materials • Identification of labelling techniques • Description of fresh meat storage conditions	• Using packaging materials • Applying labelling • Performing storage activity	• Being methodical • Being analytical while applying labelling • Being precise and accurate while performing storage

Duration: 10 hrs

Learning outcome 4 objectives:

By the end of the learning outcome, the trainees will be able to:

1. Package correctly fresh meat according to the product specification

2. Label properly fresh meat according to the product specification

3. Keep appropriately the fresh meat according to the product specification

Resources

Equipment	Tools	Materials

• Chilling room, • Freezer, • Refrigerator, • Vacuum packaging machine • Computer, • Projector, • Black board, • Shelves	• Thermometer	• Packaging materials, • Potable water, • Glover, • Chalks, • Paper, • Flip chart, • Pen, • Marker pen, • Labels

Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail both classroom and workshop.
- Avail materials and verify if they are not expired.
- Tools and equipment used in fresh meat storage and make sure that they are in good working condition.
- Prepare teaching aids and didactic materials (manuals/guides, task sheets, photos, audio-visuals, protocols, …)

Indicative content 4.1: Packaging of Fresh Meat

Duration: 4 hrs

Theoretical Activity 4.1.1: Identification of packaging materials for fresh meat

Notes to the trainer:

- Trainer may use small groups to Identify packaging material for fresh meat storage
- The use of drawings, pictures or videos as didactic materials is required

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following questions:

i. Why is it important to package fresh meat before being stored?
ii. What should be the types of packaging materials for fresh meat packaging?
iii. How should be a good packaging material for fresh meat packaging?

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.

Step 3: Asks trainees to present the provided answers.

Step 4: Provide the expert view and clarify ideas by using didactic materials.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 4.1.1 in trainee manual

Points to Remember

- The types of packaging materials are: Polyethylene (PE), Polypropylene (PP), Polyvinyl chloride (PVDC) and Ethylene-vinyl alcohol (EVOH).
- The purpose of fresh meat packaging is: to preserve the quality and safety of the meat, to extend the shelf life of the meat, to improve the appearance of the meat, to provide information about the meat, to protect the meat from damage during transport and handling and to make the meat more convenient to use.

- The most common fresh meat packaging techniques include: Stretch film tray wrapping, vacuum packaging, modified atmosphere packaging (MAP).

Practical Activity 4.1.2: Performing packaging of fresh meat

Notes to the trainer

- The trainer may avail tools and equipment used in performing packaging of fresh meat
- Avail the fresh meat
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go to the butchery and perform fresh meat packaging.

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform packaging of fresh meat

Step 4: Ask trainees to perform packaging of fresh meat for fresh meat production and monitor the procedures.

Step5: Verify whether the packaging of fresh meat techniques is properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 4.1.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 4.1.

Points to Remember

- Follow these procedures for meat vacuum packing: Select the right vacuum bag, place the meat in the bag and remove any excess air, seal the bag using a vacuum sealer, set the vacuum sealer to the desired vacuum level, start the vacuum sealing process, once the vacuum sealing process is complete, remove the bag from the vacuum sealer and store the vacuum-packed meat in the refrigerator or freezer.
- Follow these procedures to modify the atmosphere (MAP) of fresh meat: select the right packaging material, prepare the meat, flush the package with desired gas mixture, seal the package and store the meat in the refrigerator or freezer.

Application of learning 4.1.

Ask trainees to identify and visit the butchery nearby your school location, observe and participate in performing packaging of fresh meat cuts and write a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The butchery is well identified	1.1 The name of the slaughterhouse or butchery is identified		
		1.2 Location of the slaughterhouse or butchery is mentioned		
		1.3 The main activities of the slaughterhouse or butchery are identified		
2	Packaging techniques of fresh meat are well performed	2.1 The meat vacuum packing procedures are applied		
		2.2 Stretch film tray wrapping is applied		
		2.3 Modify the atmosphere (MAP) of fresh meat procedures are applied		
		2.4 Visit report is written		

Indicative content 4.2: Labelling the Packaged Fresh Meat

Duration: 3 hrs

Theoretical Activity 4.2.1: Explanation on labelling process of packaged fresh

Notes to the trainer:

- The trainer may avail tools and equipment used to explain Labelling process of packaged fresh meat
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following questions:

i. What should be the types of labels used for fresh meat labelling?
ii. What should be the objectives of labelling, for packaged fresh meat?
iii. What is the information should be provided on label of fresh meat products?

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.

Step 3: Asks trainees to present the provided answers.

Step 4: Provide the expert view and clarify ideas by using didactic materials.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 4.2.1 in trainee manual.

Points to Remember

- The main purpose of labelling is to communicate how to use, transport, recycle or dispose of the package or product and helps a viewer to differentiate the product from the rest in the shelves of the market.
- The types of labels are: brand label, grade label, descriptive label and informative label.

Practical Activity 4.2.2: Performing labelling of packaged fresh meat

Notes to the trainer

- The trainer may avail tools and equipment used in Labelling the packaged fresh meat
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go to the butchery and perform Labelling of the packaged fresh meat

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform Labelling of packaged fresh meat

Step 4: Ask trainees to perform labelling of packaged fresh meat and monitor the procedures.

Step 5: Verify whether the Labelling techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 4.2.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 4.2

Points to Remember

- When performing direct printing labelling technique, consider the following: choosing the right printer, using the right labels, calibrating your printer, testing your labels, using a high-quality label material and using a label applicator
- When performing pressure-sensitive labelling technique, follow these steps: prepare the surface, applying the recommended temperature, applying firm and even pressure, aligning the labels carefully before applying them, removing the bubbles and allowing the adhesive to cure properly before handling.

- When performing heat seal label application, consider the following: gathering materials, preparing the material, positioning the label, applying the heat and check the bonding.
- The key labelling information include: the name of the product, the species of animal from which the meat came, the cut of meat, the weight of the product, the self-by date, the country of origin, any allergens, and any added ingredients.

Application of learning 4.2.

Ask trainees to identify and visit the butchery nearby your school location, observe, participate in performing labelling of fresh meat product and write a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The butchery is well identified	1.1 The name of the slaughterhouse or butchery is identified		
		1.2 Location of the slaughterhouse or butchery is mentioned		
		1.3 The main activities of the slaughterhouse or butchery are identified		
2	The labelling of fresh meat product is well performed	2.1 The surface of the package is prepared		
		2.2 Pressure-sensitive label technique are applied		
		2.3 Direct printing technique is performed		
		2.4 Visit report is written		

Indicative content 4.3: Monitoring of Storage Conditions of Packaged Fresh Meat

Duration: 3 hrs

Theoretical Activity 4.3.1: Identification of storage conditions for fresh meat

Notes to the trainer:

- The trainer may avail tools and equipment used to Identify storage conditions for fresh meat
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step1: Introduce the activity and ask trainees to answer the following questions:

i. What should be the refrigeration conditions for stored fresh meat products?
ii. Can you try to give the freezing conditions for stored fresh meat products?
iii. What do you think should be chilling conditions for stored fresh meat products?

Step 2: Monitor discussions in groups and ask trainees to write the findings on papers, flip chart, blackboard or white board.

Step 3: Asks trainees to present the provided answers.

Step 4: Provide the expert view and clarify ideas by using didactic materials.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 4.3.1 in trainee manual.

Points to Remember

- The ideal refrigeration conditions for stored fresh meat products include: temperature (kept at 40°F or 4°C) or below, humidity, airflow, storage and wrapping.
- The ideal freezing condition for stored fresh meat products is temperature of 0°F (-18°C) or below.
- The specific chilling conditions for different types of fresh meat products include carcass meats should be stored at 1°C to 3°C (34°F to 37°F) in a walk-in refrigerator, individual meat cuts should be stored at 2°C to 4°C (36°F to 39°F) in covered containers or on plastic or stainless-steel trays.

Practical Activity 4.3.2: Performing fresh meat storage

Notes to the trainer

- The trainer may avail tools and equipment used in performing fresh meat storage
- Use pictures, photos or videos as didactic materials.

Key steps:

While delivering this activity, pass through the following steps:

Step 1: Introduce the activity and ask trainees to go to the butchery and perform fresh meat storage by using refrigeration and freezing methods

Step 2: Explain the task and provide clear work instructions (Task, PPE, Time allocated)

Step 3: Demonstrate how to perform fresh meat storage.

Step 4: Ask trainees to perform fresh meat storage and monitor the procedures.

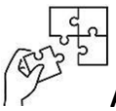
Step 5: Verify whether the fresh meat storage techniques are properly done and provide feedback where necessary.

Step 6: Ask trainees to read key reading 4.3.2 in trainee manual

Step 7: Ask trainees to perform the task provided in application of learning 4.3.

Points to Remember

- When freezing fresh meat products, consider the following: wrapping the meat tightly to prevent freezer burn, freezing meat quickly, Labelling and dating meat packages, storing the meat at the appropriate temperature and thawing the meat safely.
- When refrigerating fresh meat products, consider the following: storing meat at the coldest part of your refrigerator, wrapping meat tightly in plastic wrap or aluminium foil, storing ground meat separately from other cuts of meat, and using meat within 2-3 days of purchase.



Application of learning 4.3.

Ask trainees to identify and visit the butchery nearby your school location, observe and participate in performing storage of fresh meat product and write a visit report.

Checklist

SN	Criteria	Indicators	Yes	No
1	The butchery is well identified	1.1 The name of the slaughterhouse or butchery is identified		
		1.2 Location of the slaughterhouse or butchery is mentioned		
		1.3 The main activities of the slaughterhouse or butchery are identified		
2	The storage of fresh meat product is well performed	2.1 The chilling technique is performed		
		2.2 The freezing technique is performed		
		2.3 The refrigeration technique is performed		
		2.4 Visit report is written		

Learning outcome 4 end assessment

Written assessment

1. Among the following types of fresh meat packaging materials, which one IS stronger and more rigid and heat resistant?

a. Polyethylene
b. Polypropylene
c. Polyvinyl chloride
d. Polyvinylidene chloride

2. Among the following items which one is NOT a characteristic of fresh meat packaging?

a. Flexibility
b. Lightness
c. Hygiene
d. Shelf life

3.The following items are the purposes of packaging the fresh meat EXCEPT:

a. Extend the shelf life of the meat
b. Provide information about the meat
c. Modified atmosphere packaging
d. Make the meat more convenient to use

4. One among the following procedures is NOT for meat vacuum packing?

a. Seal the bag using a vacuum sealer
b. Preserve the quality and safety of the meat
c. Place the meat in the bag and remove any excess air
d. Remove the bag from the vacuum sealer.

5. Among the following gas mixtures MAP (Modify the Atmosphere Packaging) which one is NOT correct?

a. Beef: 60% carbon dioxide, 40% nitrogen
b. Pork: 70% carbon dioxide, 30% nitrogen
c. Lamb: 80% carbon dioxide, 20% nitrogen
d. Chicken: 75% carbon dioxide, 15% nitrogen

6. The following table contains the types of labels used in fresh meat packaging in column A, and their descriptions in column B. Match the column A with the column B by filling the provided spaces in the column A & B.

A & B	Column A	Column B
1……	1.Brand label	A. Gives information about the product. Using method and security of the product, name of the producer, manufactured date, expiry date, name of intermediary, additional instructionss regarding the use of the product etc.
2. ……	2.Descriptive label	B. Helps a viewer to differentiate the product from the rest in the shelves of the market
3. ……..	3.Grade label	C. Give information about the feature, using instructions, handling, security etc. of the products. Descriptive label is used for the products whose grade cannot be differentiated.
4. …….	4.Informative label	D. This type of label shows the grade of the product. It shows the quality of products by words, letters, or figure.
		F. If only brand is used on package of a product.

7. Answer by (T) if the statement is TRUE or (F) if the statement is FALSE.

a. The carcass meats should be stored at 2°C to 5°C (32°F to 39°F) in a walk-in refrigerator.

b. Individual meat cuts should be stored at 2°C to 4°C (36°F to 39°F) in covered containers or on plastic or stainless-steel trays.

c. Fresh poultry should be stored at 10°C (49°F) or below. It can be stored in its original packaging or wrapped in plastic wrap or aluminium foil.

d. Fresh seafood should be stored at -1°C to 2°C (30°F to 34°F) and used as soon as possible.

e. The ideal temperature for storing frozen meat is 0°F (-18°C).

Answer:

1. Among the following types of fresh meat packaging materials, which one IS stronger and more rigid and heat-resistant?

a. Polyethylene
b. Polypropylene
c. Polyvinyl chloride
d. Polyvinylidene chloride

2. Among the following items which one is NOT a characteristic of fresh meat packaging?

a. Flexibility
b. Lightness
c. Hygiene
d. Shelf life

3.The following items are the purposes of packaging the fresh meat EXCEPT:

a. Extend the shelf life of the meat
b. Provide information about the meat
c. Modified atmosphere packaging
d. Make the meat more convenient to use

4. One among the following procedures is NOT for meat vacuum packing

a. Seal the bag using a vacuum sealer
b. Preserve the quality and safety of the meat
c. Place the meat in the bag and remove any excess air
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5. Among the following gas mixtures MAP (Modify the Atmosphere Packaging) which one is NOT correct?

a. Beef: 60% carbon dioxide, 40% nitrogen
b. Pork: 70% carbon dioxide, 30% nitrogen
c. Lamb: 80% carbon dioxide, 20% nitrogen
d. Chicken: 75% carbon dioxide, 15% nitrogen

6. The following table contains the types of labels used in fresh meat packaging in column A, and their corresponding descriptions in column B. Match the column A with the column B by filling the provided spaces in the column A & B.

A & B	Column A	Column B
1……**F**……..	1. Brand label	A. Gives information about the product. Using method and security of the product, name of the producer, manufactured date, expiry date, name of intermediary, additional instructions regarding the use of the product etc.
2. ……**C**……	2. Descriptive label	B. Helps a viewer to differentiate the product from the rest in the shelves of the market
3…..**D**……..	3. Grade label	C. Give information about the feature, using instructions, handling, security etc. of the products. Descriptive label is used for the products whose grade cannot be differentiated.
4. ……**A**…….	4. Informative label	D. This type of label shows the grade of the product. It shows the quality of products by words, letters, or figure.
		G. If only brand is used on package of a product.

7. Answer by (T) if the statement is TRUE or (F) if the statement is FALSE.

a. The carcass meats should be stored at 2°C to 5°C (32°F to 39°F) in a walk-in refrigerator. **F**

b. Individual meat cuts should be stored at 2°C to 4°C (36°F to 39°F) in covered containers or on plastic or stainless-steel trays. **T**

c. Fresh poultry should be stored at 10°C (49°F) or below. It can be stored in its original packaging or wrapped in plastic wrap or aluminium foil. **F**

d. Fresh seafood should be stored at -1°C to 2°C (30°F to 34°F) and used as soon as possible. **T**

e. The ideal temperature for storing frozen meat is 0°F (-18°C). **T**

Practical assessment

MILANO farmers ltd is a company located in Nyagatare District. It uses to practice agricultural activities such as livestock of ruminants, pigs farming, poultry farming and to produce their fresh meat at SUN SET View Hotel and other occasional customers. The company needs highly specialized butcher to help in the preparation of the exhibition of its meat products, where the meat has to be well packaged, labelled, stored and well-presented so that the company should be competitive. For that special preparation, the company hires you as a good food processing skilled worker, in storing different fresh meat products.

Tasks: Ask your trainee to perform the following tasks within 3 hours:

- ✓ Package the fresh meat
- ✓ Label the packaged fresh met
- ✓ Store the packaged fresh meat products

Instructions:

- ✓ Use plastic film to package the meat
- ✓ Apply stretch film tray wrapping technique
- ✓ Use Informative label
- ✓ Apply pressure sensitive labelling technique
- ✓ The packaged fresh meat products should be stored in refrigerator

Resources:

Equipment	Tools	Materials
• Chilling room • Freezer • Refrigerator • Vacuum packaging machine • Computer • Projector • Balance • Shelves	• Thermometer	• Packaging materials • Potable water • Glover • Meat • Marker pen • Labels

Checklist

SN	Criteria	Indicators	Yes	No
1	Meat cuts are well packaged	1.1 Packaging materials are selected		
		1.2 Fresh meat cuts are packaged		
		1.3 Packaging technique is used		
2	Packaged fresh meat are well labelled	2.1 Labels are selected		
		2.2 Type of label is chosen		
		2.3 Type of meat is indicated		
		2.4 The cut type is indicated		
		2.5 The net weight is mentioned		
		2.6 Producer's name is included		
		2.7 Logo company is mentioned (if applicable)		
		2.8 Address of company is shown		
		2.9 Manufacturing Date is available		
		2.10 Expiration Date is available		
		2.11 Storage condition is shown		
3	Packaged fresh meat are well stored	3.1 Storage equipment is selected		
		3.2 Storage conditions are set		
		3.3 Fresh meat products are stored		
		3.4 The time for the task is respected		

END

Further information to the trainer

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