



RQF LEVEL 4



FOPCF403

FOOD PROCESSING

Processing Cereal Grains into Flour

TRAINER'S MANUAL

October 2024



PROCESSING CEREAL GRAINS INTO FLOUR

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Original published version: October, 2024

ACKNOWLEDGEMENTS

The publisher would like to thank the following for their assistance in the elaboration of this training manual:

Rwanda TVET Board (RTB) extends its appreciation to all parties who contributed to the development of the trainer's and trainee's manuals for the TVET Certificate IV in Food Processing, specifically for the module **"FOPCF403: Processing Cereal Grains into Flour."**

We extend our gratitude to KOICA Rwanda for its contribution to the development of these training manuals and for its ongoing support of the TVET system in Rwanda

We extend our gratitude to the TQUM Project for its financial and technical support in the development of these training manuals.

We would also like to acknowledge the valuable contributions of all TVET trainers and industry practitioners in the development of this training manual.

The management of Rwanda TVET Board extends its appreciation to both its staff and the staff of the TQUM Project for their efforts in coordinating these activities.

This training manual was developed:

Under Rwanda TVET Board (RTB) guiding policies and directives



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ACRONYMS

°C: Degree Celcius

°F: Degree Fahrenheit

AGR: Agriculture

CBC: Competence Based Curriculum

CBT/A: Competence Based Training/Assessment

CCP: Critical Control Point

CIP: Cleaning in Place

COP: Cleaning Out of Place

FIFO: First in First Out

FOP: Food Processing

KOICA: Korean International Cooperation Agency

LIFO: Last in Last Out

PPE: Personal Protective Equipment

RQF: Rwanda Qualification Framework

RTB: Rwanda TVET Board

SOP: Standard Operating Procedure

TQUM: 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 "**Processing cereal grains into flour.**" 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 Trainees 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 Trainees review the key reading and the points to remember section.

MODULE CODE AND TITLE: FOPCF403 PROCESSING CEREAL GRAINS INTO FLOUR

Learning Outcome 1: Receive cereal grains

Learning Outcome 2: Prepare cereal grains

Learning Outcome 3: Make cereal flour

Learning Outcome 4: Store cereal flour

Learning Outcome 1: Receive Cereal Grains



Indicative contents

1.1 Preparation of workplace for cereal grain processing into flour

1.2 Checking the quality of cereal grains

1.3 Storing the raw material (cereal grain)

Key Competencies for Learning Outcome 1: Receive Cereal Grains

Knowledge	Skills	Attitudes
• Description of tools, equipment and materials for cereal grains processing into flour • Description of pest effects on cereal grains • Description of quality parameters of cereal grains • Description of storage method of cereal grains	• Selecting and adjusting of tools and equipment • Preparing workplace • Checking quality parameters of cereals grains • Storing cereal grains	• Being attentive when selecting tools and equipment • Being carefully while preparing workplace • Having attentiveness in checking quality • Being carefully when adjusting tools and equipment • Having accountability in storage



Duration: 10hrs



Learning outcome 1 objectives:

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

1. Describe properly tools, equipment and materials used for processing cereal grain into flour according to the intended use
2. Adjust properly tools and equipment used for processing cereal grains into flour according to their functionality
3. Prepare correctly the workplace according to the safety requirements
4. Describe properly the quality parameters of cereal grains according to the product specifications
5. Check correctly the quality parameters of cereal grains according to the product specification
6. Describe appropriately the pest effects on cereal grains according to the product specification
7. Describe properly the storage method of cereal grains according to the storage conditions
8. Store correctly cereal grains according to the storage conditions



Resources

Equipment	Tools	Materials
• Air ventilator • Balance • Silo • Milling machine • Separator • Huller • Elevator • Combination Cleaner • Crusher • Round Sieve • Platform Scale & portable sewing machine.	• Moisture meter • Pallets • Insect Killer • Traps • Sieves • Aflatoxin test Kit • Hygrometer • Thermometer • Metallic Brush and Non-Metallic Brush • Brooms	• Liquid soap • Cereal grain (maize, wheat, sorghum, rice, millet etc.) • Sacs • Air Lock • Water

**Advance Preparation:**

Before delivering this learning outcome, you are recommended to:

- Avail organized workshop and classroom.
- Avail cereal grains
- Avail tools and equipment and make sure that they are in good working condition
- Avail cleaning materials and make sure that they are labelled and not expired
- Prepare and collect teaching aids such as manuals, task sheets, protocols, tools and equipment photos.



Indicative content 1.1: Preparation of Workplace for Cereal Grain Processing into Flour



Duration: 5hrs



Theoretical Activity 1.1.1: Description of tools and equipment used in processing cereal grains into flour



Notes to the trainer:

- While delivering this content, small groups may be used to describe tools and equipment used in processing cereal grains into flour.
- A trainer may avail some pictures or videos showing tools and equipment as didactic materials.



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to answer the following questions:
- What could be the tools and equipment used in processing cereal grains into flour?
 - What could be the use of each tool and equipment given on question (i)?
- Step 2:** Facilitate trainee to write their answers on papers, flip chart.
- Step 3:** Ask trainees to present their findings to the whole class.
- Step 4:** Provide the expert view and clarify ideas.
- 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

- Common tools used in processing cereal grains into flour are moisture meter, aflatoxin test kit, hygrometer and insect killer.
- Common equipment used in cereal grains processing into flour are air ventilator, separator, milling machine and silo.



Practical Activity 1.1.2: Selection and adjustment of tools and equipment



Notes to the trainer

This activity should be individual-based. Trainees have to go in a workshop for processing cereal grains into flour to perform selection and adjustment of tools and equipment used in processing cereal grains into flour.



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go to the workshop for processing cereal grains into flour to select and adjust tools and equipment to be used in processing cereal grains into flour.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how you can select and adjust tools and equipment. While demonstrating, explain clearly the procedures for selecting and adjusting tools and equipment used in processing cereal grains into flour and monitor activity.
- Step 4:** Ask trainees to select and adjust tools and equipment and monitor activity.
- Step 5:** Verify whether tools and equipment used in processing cereal grains into flour are properly selected and adjusted then provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 1.1.2 in trainee manual.



Points to Remember

- Remember always to wear PPE before selecting and adjusting tools and equipment for processing cereal grains into flour.
- By selecting tools and equipment consider on the following selection criteria of tools and equipment used in cereal grains processing into flour includes: production capacity, safety, efficiency.
- It is recommended to follow manufacturer's instructions during adjusting tools and equipment of cereal grain processing into flour.



Practical Activity 1.1.3: Selection of cleaning agents



Notes to the trainer

This activity should be individual-based. Trainees have to go in a workshop for processing cereal grains into flour to perform selecting of cleaning agent used in processing cereal grains into flour.



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the workshop for processing cereal grains into flour to select cleaning agent to be used in processing cereal grains into flour.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how you can select cleaning agents. While demonstrating, explain clearly the procedures for selecting cleaning agents used in processing cereal grains into flour.
- Step 4:** Ask trainees to select cleaning agent and monitor the activity.
- Step 5:** Verify whether cleaning agents used in processing cereal grains into flour are properly selected and provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 1.1.3 in trainee manual.



Points to Remember

- Remember to select cleaning agents according to the selection criteria such as: effectiveness, safety, compatibility and environment impact.
- Do not use cleaning products in areas where there is a spark hazard, such as near open flames or electrical equipment.



Practical Activity 1.1.4: Cleaning and arrangement of the work place



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in a workshop for processing cereal grains into flour to perform the task of cleaning and arrangement of the work place.
- The trainer should avail the cleaning tools, cleaning equipment and cleaning agents.



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the workshop for processing cereal grains into flour to perform cleaning and arrangement of the workplace.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how you can clean and arrange workplace. While demonstrating, explain clearly the procedures for cleaning and arrangement the workplace used in processing cereal grains into flour.
- Step 4:** Ask trainees to clean and arrange the workplace and monitor the activity.
- Step 5:** Verify whether workplace is properly cleaned and arranged then provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 1.1.4 in trainee manual.



Points to Remember

- Make sure that cleaning products are prepared correctly before cleaning workplace.
- Remember that after cleaning workplace, you have to wait for drying because it can cause accident or other problems.
- Arrangement of the workplace depends on the processing flow chart of processing cereal grains into flour.



Practical Activity 1.1.5: Control of pests in cereal grains



Notes to the trainer

- This activity should be individual-based. Trainees have to go in a workshop for processing cereal grains into flour to control pests for cereal grains.
- The trainer should avail the cereal grains, tools and equipment for controlling pests.



Key steps:

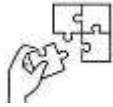
While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the workshop for processing cereal grains to control cereal grains pests.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how you can control pests. While demonstrating, explain clearly the procedures for controlling pests.
- Step 4:** Ask trainees to control pests in cereal grains and monitor the activity.
- Step 5:** Verify whether pests control is properly done and provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 1.1.5 in trainee manual.
- Step 7:** Ask trainee to perform the task provided in application of learning 1.1



Points to Remember

- Control pests regularly because it damages the equipment, materials, and can carry diseases and can trigger allergies.
- Control pests because they can introduce contaminants into products, affecting their quality and safety.



Application of learning 1.1.

Organize a practice in your cereal-processing workshop and ask trainees to prepare the workplace.

Checklist

SN	Criteria	Indicators	Yes	No
1	Tools, equipment and materials are well selected	1.1: Cleaning tools are selected		
		1.2: Cleaning equipment are selected		
		1.3: Cleaning agents are selected		
2	Workplace is properly cleaned	2.1: Cleaning techniques is applied		
		2.2: Cleaning method is applied		
		2.2: Workplace is arranged		



Indicative content 1.2: Checking the Quality of Cereal Grain



Duration: 3hrs



Theoretical Activity 1.2.1: Description of quality parameter of cereal grain



Notes to the trainer:

- While delivering this content, small groups may be used to describe the quality parameters of cereal grains.
- A trainer may avail some pictures showing some quality of cereal grains as didactic materials.



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. Based on your experience, discuss on the types of cereal grains
- ii. Suggest the quality parameters of cereal grains?

Step 2: Ask trainee to write their answers on the papers, flip chart.

Step 3: Facilitate trainees to present their findings

Step 4: Provide the expert view and clarify ideas.

Step 5: Address any questions or concerns

Step 6: Ask trainees to read the key reading 1.2.1



Points to Remember

- Common types of cereal grains in our region are wheat, rice, corn, sorghum and millet.
- Common quality parameters of cereal grains are moisture content, size, protein and mycotoxin.



Practical Activity 1.2.2: Sampling and checking the quality parameter of cereal grain



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in a workshop for processing cereal grains into flour to perform sampling and checking quality parameters of cereal grains.
- The trainer should avail cereal grains and tools for checking quality parameters of cereal grains.



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the cereal processing workshop to perform sampling and checking the quality parameters of cereal grains.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how you can prepare sample and check the quality parameters of cereal grains. While demonstrating, explain clearly the procedures for sampling and checking the quality parameters of cereal grains.
- Step 4:** Ask trainees to perform sampling and check quality parameters of cereal grains and monitor the activity.
- Step 5:** Verify whether sampling and checking the quality parameters of cereal grains is properly done and provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 1.2.2 in trainee manual.
- Step 7:** Ask trainee to perform the task provided in application of learning 1.2



Points to Remember

- Take samples correctly to ensure accurate and reliable results, choose the appropriate sampling method and sample size.
- Ensure that samples handled, stored correctly to prevent contamination or degradation.
- Keep detailed records of the sampling process, including the date, time, location, and any relevant information about the samples.

- Check quality parameters of cereal grains for ensuring the safety, quality of the final products.



Application of learning 1.2.

Organize practice in your cereal-processing workshop and ask trainee to check the quality of cereal grains.

Checklist

SN	Criteria	Indicators	Yes	No
1	Tools and equipment are used effectively	1.1: Measuring tools are used		
		1.2: Measuring equipment are used		
		1.3: Moisture meter is used		
2	Quality checking is well performed	2.1: Sampling technique is applied		
		2.2: Checking the quality is done		
		2.3: Data recording is done		



Indicative content 1.3: Storing the Raw Material (cereal grain)



Duration: 2hrs



Theoretical Activity 1.3.1: Description of storage method of cereal grains (raw material)



Notes to the trainer:

- While delivering this content, small groups may be used to describe the storage method of cereal grains.
- You may avail some pictures or videos showing how to store cereal grains as didactic materials.



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. Suggest the difference between modern and traditional method for cereal grains storage?
- ii. What do you think about storage conditions of cereal grains?

Step 2: Facilitate trainee to write their answer on papers, flip charts.

Step 3: Ask trainees to present their findings.

Step 4: Provide the expert view and clarify ideas.

Step 5: Address any questions or concerns.

Step 6: Ask trainees to read the key reading 1.3.1



Points to Remember

- The important modern storage method to remember includes silos, grain bins, elevated storage structures, warehouse storage, hermetic storage, refrigerated storage.
- The important traditional storage method to remember includes sack and bags, pit storage, granaries, earthen storage.



Practical Activity 1.3.2: Storage of cereal grain



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in workshop for processing cereal grains into flour to perform the task of storing cereal grains.
- The trainer should avail all requirements for cereal grains storage (materials, tools and equipment)



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the processing cereal grains into flour workshop to store the cereal grains respecting the conditions.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how to store cereal grains. While demonstrating, explain clearly the procedures for cereal grains storage.
- Step 4:** Ask trainees to store cereal grains and monitor the activities.
- Step 5:** Verify whether cereal grains are properly stored and provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 1.3.2. in trainee manual
- Step 7:** Ask trainees to perform the task provided in application of learning 1.3



Points to Remember

- For good storage of cereal grains remember to monitor storage conditions such as temperature, humidity, grain quality, ventilation system, security.
- Make sure that storage rooms are regularly cleaned and arranged in order to prevent the pest infestation in storage room.



Application of learning 1.3.

Organize practice in your cereal-processing workshop and ask trainee to store cereal grains.

Checklist

SN	Criteria	Indicators	Yes	No
1	Tools and equipment are well selected	1.1: Storage tools are used		
		1.2: Storage equipment are used		
		1.3: Insect Traps and Pheromone are used		
2	storage conditions are properly monitored	2.1: Temperature is monitored		
		2.2: Humidity is monitored		
		2.3: Regular Inspections are done		
		2.4: Ventilation System are monitored		
		2.5: Security are monitored		



Learning outcome 1 end assessment

Theoretical assessment

1. Read the following statements and write the letter corresponding to the correct answer:

I. Equipment used in cleaning and conditioning of cereal grains

- a) Roller mill
- b) Silo
- c) Threshing machine
- d) Conveyor belt

Answer: Threshing machine

II. Safety precaution of tools and equipment for processing cereal grains into flour.

- a) Read the label of cleaning product carefully.
- b) Wear properly Personal Protective Equipment (PPE) during processing.
- c) Avoid mixing chemicals.

Answer: avoid mixing chemicals

2. Read carefully the following statement and answer by **True if statement is correct or **False** if statement is wrong.**

- a. Mixing chemicals is very important in workplace preparation. **FALSE**
- b. Wear gloves is a safety precaution and health precaution of cleaning products. **TRUE**
- c. The processing line in cereal grain processing into flour involves a series of steps and machinery designed to transform raw cereal grains into refined flour. **TRUE**
- d. Controlling pests during the storage of cereal grains is essential to prevent quality deterioration and economic losses. **TRUE**

3. The following are selection criteria of cleaning agent except:

- a) Effectiveness
- b) Safety and food grade certification
- c) Compatibility
- d) Easy to use
- e) Cost effectiveness
- f) **Aesthetic**
- g) Environmental impact

4. Fill in the blank space by using the following equipment (Stone separator, Aspirator, Conveyor belt, Silos, Roller mill, Threshing machine)

- a. is a device that separates the grains from the chaff and straw.

Answer: Threshing machine

- b. is a device that removes dust and lightweight impurities from the grains using air currents.

Answer: Aspirator

- c. is a device that crushes and grinds the grains into flour, it consists of pairs of rollers that rotate at different speeds, gradually reducing the grain size.

Answer: Roller mill

- d. is a device that transports flour from one stage of the process to another.

Answer: Conveyor belt

5. The following table contains tools and equipment in column A while the column B consists of corresponding uses. Match the two columns by writing the letter corresponding to the correct answer in the provided space.

ANSWER	Column A	Column B
.....d.....	1.Scales	a. Detects and removes stones and pebbles that can damage milling equipment.
.....c.....	2.Magnetic separator	b. Removes dust and lightweight impurities using air currents.
.....b.....	3.Aspirator	c. Removes metal contaminants from the grains.
.....a.....	4.Stone separator	d. Weighs incoming grains to ensure consistent production.

Practical assessment

BWIZA Company is an industry which process cereal grain into flour located in Rubavu district. Company have been producing maize flour have physical contaminant like dirt because of their workers haven't skills and knowledge of cleaning workplace and store cereal grains. Managing director hire you as a technician who is skilled in workplace preparation and storing cereal grains.

Task:

- Clean and arrange the workplace
- Store cereal grains

Checklist

SN	Criteria	Indicators	Yes	No
1	Work place is effectively cleaned and arranged	1.1 Cleaning tools are selected		
		1.2 Cleaning equipment are selected		
		1.3 Cleaning products are used		
		1.4 Cleaning technique is applied		
		1.5: Processing line is respected		
2		2.1 Temperature is monitored		

	Storage conditions are properly monitored	2.2 Humidity is monitored		
		2.3 Regular Inspections are done		
		2.4 Ventilation System are monitored		
		2.5 Security are monitored		



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23 | Processing Cereal Grains into Flour – Trainer Manual



Indicative contents

2.1 Cleaning of cereal grain

2.2 Grading of cereal grain

2.3 Conditioning of grain

Key Competencies for Learning Outcome 2: Prepare Cereal Grains

Knowledge	Skills	Attitudes
• Identification of cereal grains cleaning purpose • Description of conditioning cereal grains	• Cleaning cereal grains. • Grading cereal grains. • Perform conditioning cereal grains	• Having attentiveness in cleaning cereal grains. • Being carefully when grading cereal grains. • Being attentive when conditioning cereal grains.



Duration: 10hrs

Learning outcome 2 objectives:



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

1. Identify properly the cleaning purpose of cereal grains according to the cleaning guideline
2. Clean properly the cereals grains according to the cleaning guideline
3. Grade appropriately cereal grains according to the product specifications
4. Describe properly the conditioning of cereal grains according to the conditioning measurements
5. Prepare appropriately cereal grains according to the conditioning measurements



Resources

Equipment	Tools	Materials
• Air ventilator • Balance • Silo • Milling machine • Separator • Elevator • Crusher • Majestic Drum • Dust Catcher • Platform Scale & portable sewing machine.	• Moisture meter • Pallets • Insect Killer • Traps • Hygrometer	• Cereal grain • Sacs • Water • Air lock • Aflatoxin test Kit



Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail organized workshop and classroom.
- Avail cereal grains
- Avail tools and equipment and make sure that they are in good working condition
- Avail cleaning materials and make sure that they are labelled and not expired
- Prepare and collect teaching aids such as manuals, task sheets, protocols, tools and equipment photos.



Indicative content 2.1: Cleaning of Cereal Grain



Duration: 3hrs



Practical Activity 2.1.1: Apply cleaning of the cereal grain



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in a workshop for processing cereal grains into flour to perform the task of cleaning cereal grains.
- The trainer should avail all requirements for cleaning cereal grains (materials, tools and equipment)



Key steps:

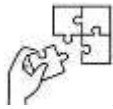
While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in a workshop for processing cereal grains into flour to clean cereal grains respecting the conditions.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how to clean cereal grains. While demonstrating, explain clearly the procedures for cleaning cereal grains.
- Step 4:** Ask trainees to clean cereal grains and monitor the activity.
- Step 5:** Verify whether cereal grains are properly cleaned and provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 2.1.1. in trainee manual
- Step 7:** Ask trainee to perform the task provided in application of learning 2.1



Points to Remember

- For improving safety, quality and economic value of the cereal flour, always clean cereal grains through the following methods: pre-cleaning, primary cleaning and secondary cleaning.



Application of learning 2.1.

Organize a practice in your cereal-processing workshop and ask trainees to clean cereal grains.

Checklist

SN	Criteria	Indicators	Yes	No
1	Cereal grains cleaning Tools and equipment are properly selected	1.1: Tools are selected		
		1.2: Equipment are selected		
		1.3: Materials are available		
2	Cereal grains is well cleaned	2.1: Cleaning methods are applied		
		2.2: Cleaning steps are respected		
		2.3: Quality desired is gotten		



Indicative content 2.2: Grading of Cereal Grain



Duration: 3hrs



Practical Activity 2.2.1: Checking quality parameters and grading of cereal grains



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in a workshop for processing cereal grains into flour to perform the task of checking the quality parameters and grading of cereal grains.
- The trainer should avail all requirements for checking the quality parameters and grading of cereal grains (materials, tools and equipment)



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in workshop for processing cereal grains into flour to check the quality parameters and grading of cereal grains respecting the conditions.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how to check the quality parameters and grade cereal grains. While demonstrating, explain clearly the procedures for checking the quality parameters and grading cereal grains.
- Step 4:** Ask trainees to check quality parameters and grading cereal grains and monitor the activity.
- Step 5:** Verify whether checking the quality parameters of cereal grains and grading are properly done and provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 2.2.1 in trainee manual
- Step 7:** Ask trainee to perform the task provided in application of learning 2.2



Points to Remember

- Collect representative samples of the cereal grains for avoiding bias, compliance regulation and getting accurate quality.
- Remember the specific grading criteria and standards may vary depending on the country, region, grain type (maize, rice, oats, millet, wheat) and intended use of cereal grains.



Application of learning 2.2.

Organize a practice in your cereal-processing workshop and ask trainee to check the quality and grade cereal grains.

Checklist

SN	Criteria	Indicators	Yes	No
1	Grading tools and equipment are well selected	1.1: Tools are selected		
		1.2: Equipment are selected		
		1.3: cereal grains are available		
2	Quality of cereal grains are effectively checked and graded	2.1: physical parameters are checked		
		2.2: chemical parameters are checked		
		2.3: Grading method is applied		



Indicative content 2.3 : Conditioning of Grain



Duration: 4hrs



Theoretical Activity 2.3.1: Description of conditioning grain



Notes to the trainer:

- While delivering this content, small groups may be used to give the purpose of conditioning cereal grains and factors affecting conditioning of cereal grains.



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 know about term “conditioning grains”?
 - ii. Suggest the factors that can affect conditioning cereal grains?
- Step 2:** Ask trainees to write their answers of asked questions on papers, flip charts
- Step 3:** Facilitate trainees to present their findings to the whole class
- Step 4:** Provide the expert view and clarify ideas
- Step 5:** Address any questions or concerns
- Step 6:** Ask trainees to read the key reading 2.3.1



Points to Remember

- During cereal grains conditioning, consider on characteristics such as grain type, kernel size, shape and temperature.



Practical Activity 2.3.2: Performing the conditioning of grain



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in a workshop for processing cereal grains into flour to perform the task of conditioning cereal grains.
- The trainer should avail all requirements for conditioning cereal grains (materials, tools and equipment)



Key steps:

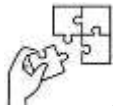
While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the workshop for processing cereal grains into flour to condition cereal grains respecting the conditions.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how you can condition cereal grains. While demonstrating, explain clearly the procedures for conditioning cereal grains.
- Step 4:** Ask trainees to condition cereal grains and monitor the activities.
- Step 5:** Verify whether cereal grains are properly conditioned and provide feedback on each trainee's activity.
- Step 6:** Ask trainees to read key reading 2.3.2. in trainee manual
- Step 7:** Ask trainee to perform the task provided in application of learning 2.3



Points to Remember

- Control carefully conditioning parameters such as temperature and time for maintaining the quality of cereal grain.



Application of learning 2.3.

Organize a practice in your cereal-processing workshop and ask trainee to condition cereal grains.

Checklist

SN	Criteria	Indicators	Yes	No
1	Raw materials, tools and equipment for conditioning are well selected	1.1: Conditioning tools are selected		
		1.2: Conditioning equipment are selected		
		1.3: Grains are available		
2	Cereal grains is well conditioned	2.1: Conditioning method is applied		
		2.2: Conditioning steps are respected		
		2.3: Conditioning conditions are monitored		



Learning outcome 2 end assessment

Written assessment

1. Circle the letter corresponding to the correct answer:

I. The following are purpose of cleaning cereal grains except.

- a) Ensuring Quality
- b) Enhancing Safety
- c) Optimizing Storage and Processing
- d) Protein content

Answer: Protein content

II. The following are physical parameters to be checked for cereal grains except:

- a) Visual inspection
- b) Test weight
- c) Aflatoxin test kit
- d) Thousand kernel weight (TKW)

Answer: Aflatoxin test kit

2. Read the following statement and answer by TRUE if statement is correct or FALSE if statement is wrong.

- a) Pre-cleaning of cereal grains includes screening and aspiration. **TRUE**
- b) For cereal grains cleaning, the appropriate cleaning method depends on: primary cleaning and secondary cleaning. **FALSE**

3. The following are steps followed in cereal grain grading. Rearrange according to the grading procedures.

- Pre-cleaning
- Analysis
- Sampling
- Assigning a grade
- Issuing a certificate(documentation)

Answer:

- 1. Sampling
- 2. Pre-cleaning
- 3. Analysis
- 4. Assigning a grade
- 5. Issuing a certificate

4. Fill in the blank space using the following processing steps (steaming, storing, steaming, Destoning, Screening and Sieving)

- a.is when we remove large debris like sticks, stones, and oversize or undersize grains using screens with varying mesh sizes.

Answer: Screening and Sieving

- b.is when specialized equipment employs gravity, size, and density differences to isolate and remove stones and other heavy contaminants.

Answer: Destoning

- c. also known as tempering, is the process of adjusting the moisture content and temperature of cereal grains to achieve specific goals, depending on the intended use of the grain.

Answer: grain conditioning

- d. is introduced to the grain chamber, allowing the moisture to penetrate the kernel.

Answer: steaming

Practical assessment

MCS milling company is an industry which process cereal grain into flour located in Musanze district. They need to produce 3 grades of maize flour that are different, under the wishes of their customers. MCS milling company needs a technician who is skilled in cereal grains preparation. The manager of company hires you to make those different grades:

Task:

- Clean cereal grains
- Check the quality parameters of cereal grains
- Grade cereal grains

Checklist

SN	Criteria	Indicators	Yes	No
1	Raw materials, tools and equipment for conditioning are well selected	1.1 Cereal grains cleaning tools are selected		
		1.2 Cereal grains cleaning equipment are selected		
		1.3 Grains are available		
2	Cereal grains are correctly cleaned	2.1 Pre-Cleaning is done		
		2.2 Primary Cleaning is done		
		2.3 Secondary Cleaning is done		
3	Quality parameters are well checked	3.1 Moisture content is checked		
		3.2 Protein is checked		
		3.3 Visual inspection is done		
		3.4 Thousand kernel weight is checked		
4	Grading of cereal grains is well done	4.1 Sampling is done		
		4.2 Pre-cleaning is done		
		4.3 Analysis is done		
		4.4 Assigning a grade is done		
		4.5 Issuing a certificate is done		



Further information to the trainer

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Learning Outcome 3: Make Cereal Flour



Indicative contents

3.1 De hulling and de-germing the grain

3.2 Grinding the cereal grain

3.3 Checking quality of cereal flour

Key Competencies for Learning Outcome 3 : Make Cereal Flour

Knowledge	Skills	Attitudes
• Description of de-hulling and de-germing cereal grain • Description of grinding for cereal grain • Description of quality parameter of cereal flour	• De-hulling and de-germing cereal grain • Grinding cereal grain • Checking quality of cereal flour	• Paying attention while grinding • Being careful during testing aflatoxin • Being respectful for instructions of trainer • Having accuracy in checking quality parameters



Duration: 20hrs

Learning outcome 3 objectives:



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

1. Describe appropriately de-hulling and de-germing method according to the quality of product
2. De-hull and de-germ properly grain for cereal grain flour processing
3. Describe appropriately grinding method for cereal grain according to the quality of product
4. Grind properly cereal grain according to product specification
5. Describe properly the quality parameters of cereal flour based on quality of product
6. Check correctly quality parameters for cereal flour processing



Resources

Equipment	Tools	Materials
• Air Ventilator • Silo • Separator • Milling machine • Huller • Combination Cleaner • Crusher • Portable Sewing Machine	• Balance • Moisture meter • Pallets	• Cereal grains (maize, millet, wheat, sorghum, rice) • Aflatoxin test Kit



Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail classroom and workshop
- Avail tools, equipment that are in good working condition.
- Avail cereal grain and make sure that they are cleaned, graded and conditioned.
- Avail aflatoxin test kit and moisture meter as tools for checking quality of cereal flour.
- Prepare teaching aids such as protocols and audio-visuals as didactic materials for processing cereal grains into flour.



Indicative content 3.1: De-hulling and De-germing the Grain



Duration: 7hrs



Practical Activity 3.1.1: De-hulling and de-germing of the cereal grain



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in cereal processing workshop and the trainer involves trainees in de-hulling and de-germing of the cereal grain.
- Avail equipment and tools for de-germing and de-hulling of cereal grains.



Key steps:

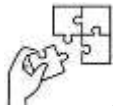
While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the cereal processing workshop to perform de-hulling and de-germing of the cereal grain.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how to de-hull and de-germ cereal grain. While demonstrating this, explain clearly the methods of de-hull and de-germ cereal grain.
- Step 4:** Ask trainees to de-hull and de-germ cereal grains and monitor the activity.
- Step 5:** Verify whether cereal grain is properly de-germed and de-hulled and provide feedback on each trainee's product.
- Step 6:** Ask trainees to read key reading 3.1.1 in trainee manual.
- Step 7:** Ask trainees to perform the provided task in application of learning 3.1.



Points to Remember

- To prevent the damage of grain endosperm, it is recommended to adjust de-hulling and de-germing machine properly.
- Germ shorten the shelf life of the grain products by promoting rancidity, so it's better to remove it for storing product in long term.



Application of learning 3.1.

Organize a practice in your cereal-processing workshop and ask your trainees to perform de-hulling and de-germing of cereal grain.

Checklist

SN	Criteria	Indicators	Yes	No
1	De-hulling and De-germing are properly done	1.1: Hull are removed		
		1.2: Endosperm are not damaged		
		1.3: Germ are removed		



Indicative content 3.2: Grinding the Cereal Grain



Duration: 6hrs



Practical Activity 3.2.1: Grinding cereal grains



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in cereal processing workshop and trainer involves trainee in grinding of cereal grain
- You have to make sure that all needed materials and equipment are available



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the cereal processing workshop to grind the cereal grain
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how to grind the cereal grains. While demonstrating, explain clearly the methods of grinding the cereal grains
- Step 4:** Ask trainees to grind cereal grains and monitor the activity
- Step 5:** Verify whether the grinded flour is well prepared and provide feedback on each trainee's product
- Step 6:** Ask trainees to read key reading 3.2.1 in trainee manual
- Step 7:** Ask trainees to perform the provided task in application of learning 3.2



Points to Remember

- Milling machine should be made from food grade materials and cleaned for ensuring the safety and quality of grinded flour.
- Remember the standard operating procedures of using milling machine for making flour needed by customers or competent on the markets.



Application of learning 3.2.

Organize a practice in your cereal-processing workshop and request trainee to grind the cereal grains into flour.

Checklist

SN	Criteria	Indicators	Yes	No
1	Grinding cereal grain are properly done	1.1: Manual method are applied		
		1.2: Mechanical method are applied		
		1.3: Cereal grain is ground		



Indicative content 3.3: Checking Quality of Cereal Flour



Duration: 7hrs



Practical Activity 3.3.1: Checking quality parameters of cereal flour



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in cereal processing workshop and trainer involves trainees in checking quality parameters of cereal flour.
- You have to make sure that tools and equipment for checking quality are available.



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the cereal processing workshop to check quality parameter of cereal flour.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how to check quality parameter of cereal flour. While demonstrating this, explain clearly the quality parameters for cereal grains.
- Step 4:** Ask trainees to check quality parameters of cereal flour and monitor the activity.
- Step 5:** Verify whether cereal flour is well checked and provide feedback on each trainee's product.
- Step 6:** Ask trainees to read key reading 3.3.1 in trainee manual.
- Step 7:** Ask trainees to perform the provided task in application of learning 3.3.



Points to Remember

- Remember to test aflatoxins in equipped laboratories because it can affect negatively human body.
- Check also sensory attributes such as flavour, taste, smell, and texture because they can indicate the spoilage or contamination of the flour.



Application of learning 3.3.

Organize a practice in your cereal-processing workshop and request your trainee to check the quality parameters of cereal flour.

Checklist

SN	Criteria	Indicators	Yes	No
1	Quality parameters are well checked	1.1: Chemical parameters are checked		
		1.2: Physical parameters are checked		
		1.3: Aflatoxin is checked		



Learning outcome 3 end assessment

Written assessment

1. Read carefully the following statement and circle the letter corresponding to the correct answer.

- I. The physical quality parameters to be checked for cereal flour
- A. Acidity (PH)
 - B. Particle size
 - C. Aflatoxin
 - D. Protein

Answer: Particle size

- II. The right purpose of de-hulling and de-germing cereal grains
- A. Increasing shelf life of cereal flour
 - B. Increasing nutrient's grains such as vitamin, proteins and minerals
 - C. De-germing promotes the rancidity of cereal flour because the germs are removed.

Answer: Increasing shelf life of cereal flour

2. Read carefully the following statements and answer by TRUE if statement is correct or FALSE if statement is wrong.

- a) Grinding makes them easier to cook, chew, and digest for human consumption. **TRUE**
- b) Manual grinding methods require significant effort and are suitable for large-scale grinding. **FALSE**
- c) Whiteness is always indicative of quality of cereal flour. **FALSE**
- d) Flour should be free of harmful bacteria, mold, and other contaminants to ensure safety and quality. **TRUE**
- e) De-germed corn is used to extract corn oil, while the germ itself can be processed to make corn flour. **FALSE**
- f) Germ has a high oil content which can shorten the shelf life of the grain products by promoting rancidity. **TRUE**

3. The following table contains chemical quality parameters of cereal flour in the column A while the column B consists of corresponding equipment or tools used to check those parameters. Match the two columns by writing the letter containing the correct answer in the provided space.

Answer	Column A	Column B
.....B.....	I. protein content	A. Deepak muffle furnace
.....C.....	II. Acidity (Ph)	B. Kjeldahl apparatus
.....A.....	III. For ash content	C. pH meter
.....		D. Acidity meter

4. Fill in blank space of the following sentences using these statements (**Hand mills, manual method, de-germing, Mechanical grinding methods, de-hulling, mortar and pestle**)

- a)are small, portable mills utilize hand cranks to turn grinding burrs or plates that crush the grains.

Answer: Hand mills

- b) removes the **outer hull**, also known as the **bran**.

Answer: de-hulling

- c) removes the **germ**, which is the embryo of the seed and contains essential oils, vitamins, and minerals.

Answer: de-germing

Practical assessment

RWEMA milling company ltd process cereal grains into flour located in Rulindo district, they mill coarse maize flour instead of fine flour. Their customers claimed about finest of their maize flour on the market. As cereal flour processing technician in maize flour making, you are hired by plant manager to make the quality flour of 5kgs should be of white color, sifted and flour should have Moisture content ranging between 11 to 13 %, total aflatoxin should not exceed 10 ppb. This activity should be done within four hours and all required tools, materials and equipment are available.

Checklist

SN	Criteria	Indicators	Yes	No
1	De-hulling and de-germing are properly done	1.1: de-hulling is done		
		1.2: de-germing is done		
		1.3: endosperm is not damaged		
2	Grinding cereal grains are properly performed	2.1: Manual method are applied		
		2.2: Mechanical method are applied		
		2.3: Cereal grain is grinded		
3	Quality parameters are properly checked	3.1: Physical parameters are checked		
		3.2: Aflatoxin is checked		

		3.3: Chemical parameters are checked		
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Further information to the trainer

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Learning Outcome 4: Store Cereal Flour



Indicative contents

4.1 Packaging cereal flour

4.2 Labelling the cereal flour

4.3 Storing the cereal flour

Key Competencies for Learning Outcome 4: Store Cereal Flour

Knowledge	Skills	Attitudes
• Description of packaging materials for cereal flour • Description of labelling information • Description of storage condition of cereal flour	• Selecting packaging materials for cereal flour • Packaging cereal flour into packaging materials • Labelling the packaged cereal flour • Storing packaged cereal flour • Monitoring storage conditions	• Having Attentive while using machine • Being respectful for instruction of trainer • Being accurate during packaging • Being wise while monitoring storage condition • Being honest for storing cereal flour



Duration: 10hrs

Learning outcome 4 objectives:



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

1. Describe properly packaging materials used for cereal flour
2. Select properly packaging materials used for cereal flour according to product specifications
3. Pack appropriately cereal flour according to packaging specification
4. Label properly packaged cereal flour according to labelling requirement
5. Store correctly packaged cereal flour according to storage conditions
6. Monitor appropriately storage conditions for cereal flour



Resources

Equipment	Tools	Materials
• Portable sewing machine • Packaging machine • Labelling machine	• Moisture meter • Pallets • Insect Kills • Traps	• Cereal flour • Sacs • Packaging Materials



Advance Preparation:

Before delivering this learning outcome, you are recommended to:

- Avail classroom and workshop or storage room.
- Avail tools and equipment that are in good working condition.
- Avail milled cereal flour and make sure that they are tested.
- Prepare and collect teaching aids such as manuals, task sheets, protocols, photos and audio-visuals as didactic materials.



Indicative content 4.1: Packaging Cereal Flour



Duration: 4hrs



Practical Activity 4.1.1: Selecting the packaging materials and packaging of cereal flour



Notes to the trainer

- While delivering this content, individual practice may be used where trainees go in the cereal processing workshop and trainer involves trainees in selection of packaging materials and packaging of cereal flour.
- Make sure that cereal flour and tools like sewing machine or others tools for sealing are available.



Key steps:

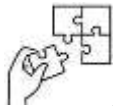
While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the cereal processing workshop to select packaging materials and package cereal flour into the packaging materials.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated)
- Step 3:** Demonstrate how you can select packaging materials and package cereal flour. While demonstrating, explain clearly the procedures for packaging cereal flour into packaging materials.
- Step 4:** Ask trainees to select packaging materials and perform packaging then monitor the activity.
- Step 5:** Verify whether the cereal flour is well packaged and provide feedback on each trainee's product.
- Step 6:** Ask trainees to read key reading 4.1.1 in trainee manual.
- Step 7:** Ask trainees to perform the task provided in application of learning 4.1.



Points to Remember

- While selecting packaging materials consider on such criteria: moisture barrier, oxygen barrier, ease of use and local regulations.
- Fill the desired amount and seal tight the packaging materials for preventing the entrance of air, water into the package.



Application of learning 4.1.

Organize a practice in your cereal-processing workshop and request trainee to select packaging materials and package the cereal flour.

Checklist

SN	Criteria	Indicators	Yes	No
1	Packaging materials are well selected	1.1: Non-toxic package is selected		
		1.2: Light weight packaged is selected		
		1.3: Transparent package is selected		
		1.4: Sealing capable package is selected		
		1.5: Easy to open package is selected		
		1.6: waterproof is selected		
2	Packaging is properly performed	2.1: filling is well done		
		2.2: sealing is well achieved		
		2.3: weights are properly weighed		



Indicative content 4.2: Labelling the Cereal Flour



Duration: 4hrs



Practical Activity 4.2.1: Labelling of the cereal flour



Notes to the trainer

- While delivering this content, individual practice may be used where a trainer and trainees go in cereal processing workshop and a trainer involves trainees in labelling the packaging materials of cereal flour.
- Make sure that packaged cereal flour and label are available.



Key steps:

While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in cereal processing workshop to label the packaging materials of the cereal flour.
- Step 2:** Explain the task and provide clear work instructions (Task, PPE, Time allocated).
- Step 3:** Demonstrate how to label the packaging materials of the cereal flour. While demonstrating this, explain clearly the procedures of labelling.
- Step 4:** Ask trainees to label the cereal flour and monitor the activity.
- Step 5:** Verify whether labelling is well performed and provide feedback on each trainee's product.
- Step 6:** Ask trainees to read key reading 4.2.1 in trainee manual.
- Step 7:** Ask trainees to perform the provided task in application of learning 4.2.



Points to Remember

- Remember to label the information needed to the consumer especially for informative, marketing or branding and regulatory compliance.
- Label the packaging materials by sticking label using hand or machine which are directly attach the information onto the packaging materials.



Application of learning 4.2.

Organize a practice in your cereal-processing workshop and request trainee to label the packaging materials of cereal flour.

Checklist

SN	Criteria	Indicators	Yes	No
1	Labelling requirements are properly indicated	1.1: Name of manufacturer is identified		
		1.2: Net quantity/weight is indicated		
		1.3: Manufacturing date is identified		
		1.4: Expiry date is identified		
		1.5: Batch number is indicated		
		1.6: Trade mark is identified		
		1.7: List of ingredients are indicated		
		1.8: Nutritional information are indicated		
		1.9: Storage condition is indicated		
		1.10: Direction of use is indicated		



Indicative content 4.3: Storing the Cereal Flour



Duration: 2hrs



Practical Activity 4.3.1: Storing the cereal flour



Notes to the trainer

- While delivering this content, individual practice may be used where a trainer and trainees go to cereal processing workshop and the trainer involves trainees in storing cereal flour and monitoring storage conditions.
- In this activity make sure that prepared cereal flour which are ready and storage room.



Key steps:

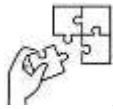
While delivering this activity, pass through the following steps:

- Step 1:** Introduce the activity and ask trainees to go in the cereal processing workshop to store cereal flour then monitoring storage conditions.
- Step 2:** Explain the task and provide clear work instructions (PPE, Time allocated).
- Step 3:** Demonstrate how to store cereal flour and monitor storage condition. While demonstrating this, explain clearly how to monitor storage conditions.
- Step 4:** Ask trainees to store cereal flour and monitor storage condition.
- Step 5:** Verify whether cereal flour is well stored and provide feedback on each trainee's product.
- Step 6:** Ask trainees to read key reading 4.3.1 in trainee manual.
- Step 7:** Ask trainees to perform the provided task in application of learning 4.3.



Points to Remember

- Store and monitor carefully those conditions: temperature, humidity, light, location and packaging.
- Store packaged cereal flour with their label to indicate its expiration date and prevent deterioration of products into the storage room.



Application of learning 4.3.

Organize a practice in your cereal-processing workshop and request trainee to store cereal flour then monitor storage conditions.

Checklist

SN	Criteria	Indicators	Yes	No
1	Storage conditions are effectively monitored	1.1: Temperature is monitored		
		1.2: Humidity is monitored		
		1.3: Light is monitored		



Learning outcome 4 end assessment

Written assessment

1. Read the following statements and circle the letter corresponding to the correct answer:

I. Select storage condition to be monitored in storage room.

- a) Light
- b) Product name
- c) Cost
- d) Protein content

Answer: a) light

II. Select optional labelling information for cereal flour processing.

- a) Product name
- b) Net weight or volume
- c) Brand name
- d) Ingredients

Answer: Brand name.

2. Read carefully the following sentences and answer TRUE if statement is correct or FALSE if statement is wrong.

- a) Polypropylene (PP) bags are plastic bag that are chosen due to their durability, moisture resistance, and affordability. **TRUE**
- b) Flour is also sensitive to oxygen, which can cause oxidation and rancidity. **TRUE**
- c) You should ensure that flour is properly cooled and free of contaminants before packaging. **TRUE**
- d) Store the packaged flour on direct sunlight place to maintain quality and prevent spoilage. **FALSE**

3. Fill in blank space of the following sentences by using these given labelling information (Instructions, Net weight or volume, Lot code/batch number, Brand name and logo, Expiry date, Product name)

- a. Indicates the amount of flour contained in the package, commonly in grams (g), kilograms (kg), or ounces (oz) for weight, and cups (c) or liters (L) for volume.

Answer: Net weight or volume

- b.Clearly identifies the type of flour, such as "All-Purpose Wheat Flour," "Whole Wheat Flour," or "Self-Rising Flour."

Answer: Product name

- c.Indicates the date after which the manufacturer does not guarantee the quality and safety of the product.

Answer: Expiry date

- d.a unique identifier used for traceability and product recall purposes in case of any issues.

Answer: Lot code/batch number

4. The following are steps of packaging cereal flour; arrange them based on packaging procedure.

- a. Preparing the flour
- b. Adding labels and information
- c. Measure the flour
- d. Choosing and prepare the packaging material
- e. Sealing the package
- f. Filling the packaging
- g. Storage and transportation

Answer:

1. Choosing and prepare the packaging material
2. Preparing the flour
3. Measure the flour
4. Filling the packaging
5. Sealing the package
6. Adding labels and information
7. Storage and transportation
- 8.

Practical assessment

DREAM milling company LTD process cereal grains into flour located in Bugesera district, they mill the porridge flour, maize flour. They make always some tests in national laboratories indicates that their flours can be expired for 5 months but if they store their flours in store room spoil in 1 months. As Technician in processing cereal grains into flour, Managing Director hires you to solve that issue and all required tools, materials and equipment are available.

Checklist

SN	Criteria	Indicators	Yes	No
1	Packaging materials are well selected	1.1: Non-toxic package is selected		
		1.2: Light weight packaged is selected		
		1.3: Watertight package is selected		
		1.4: Sealing capable package is selected		
2	Packaging are properly performed	2.1: Filling is done		
		2.2: Sealing is achieved		
		2.3: Cereal flour is weighed		
3	Storage conditions are monitored	3.1: Temperature is monitored		
		3.2: Packaging is monitored		
		3.3: Humidity is monitored		

		3.4: Light is monitored		
		3.5: Visual inspection is mentioned		



Further information to the trainer

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October 2024